

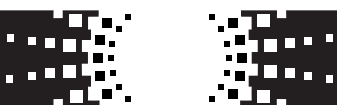


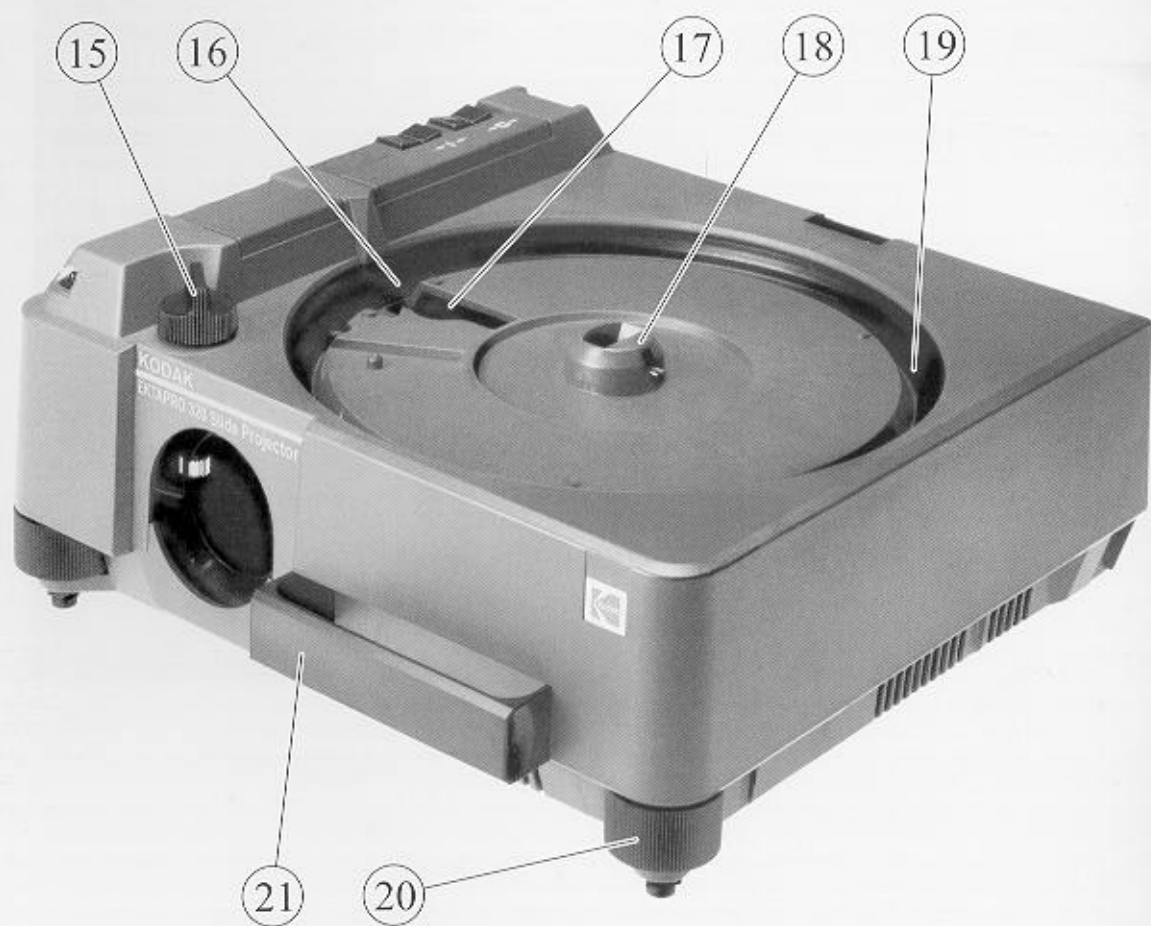
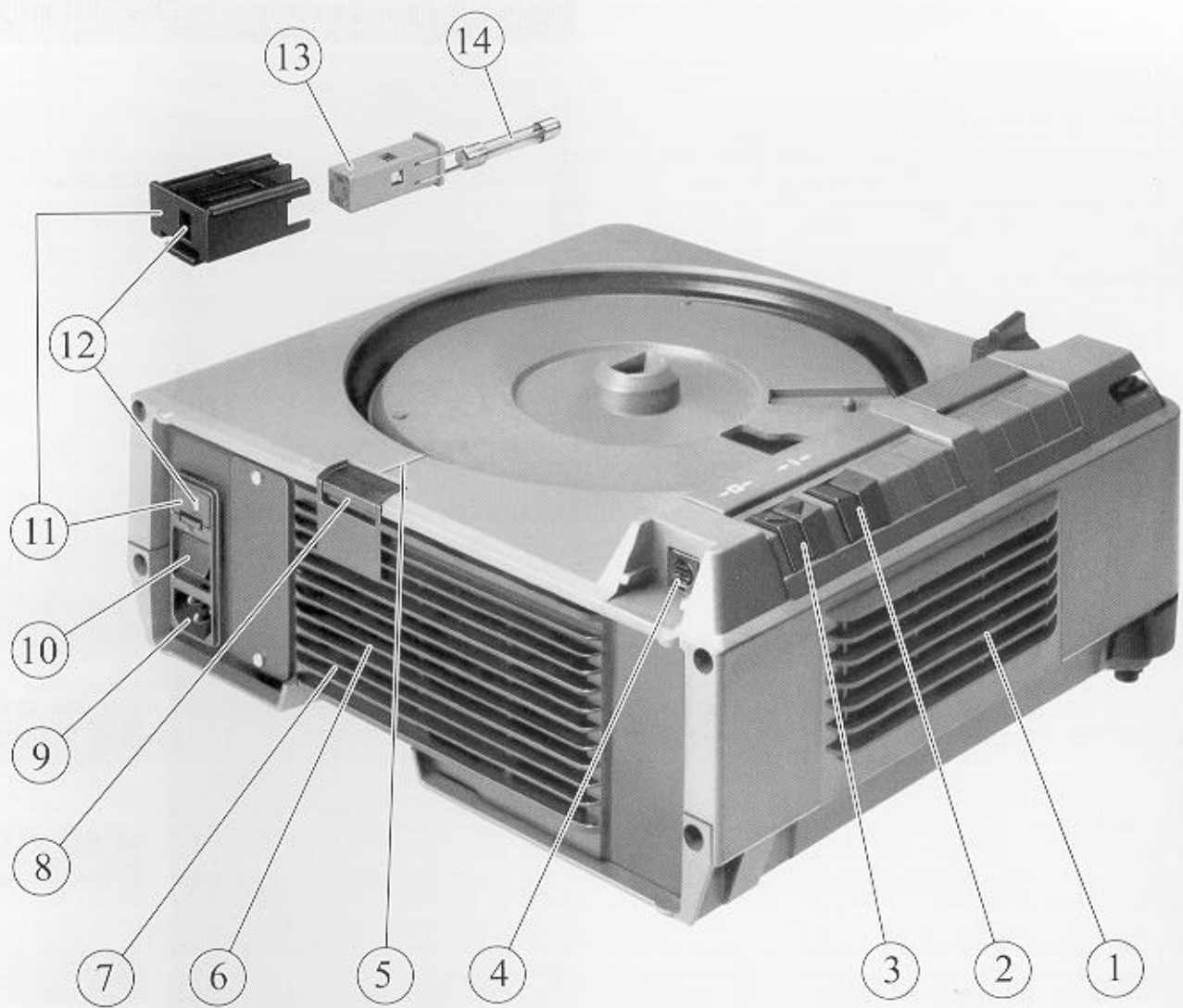
KODAK EKTAPRO 320

Slide Projector

OPERATING
INSTRUCTIONS

Bedienungsanleitung
Instruction Manual
Mode d'emploi
Manual de Instrucciones
Istruzioni per l'uso
Gebruiksaanwijzing
Bruksanvisning
Käyttöohje





Projector-Features

- 1 Fan (air inlet)
- 2 Focusing buttons
- 3 Slide change buttons (forwards; backwards)
- 4 Remote Socket
- 5 Tray positioning index mark
- 6 Lamp module
- 7 Air exhaust
- 8 Lamp module release
- 9 AC mains socket
- 10 Mains switch (electrical)
- 11 Fuse link compartment (primary circuit)
- 12 Voltage indicator
- 13 Fuse link
- 14 Fuse (primary circuit)
- 15 Focusing knob for gear rack lenses
- 16 Lever for slide tray positioning
- 17 Slide gate
- 18 Slide tray lock
- 19 Slide tray transport ring
- 20 Height adjustment foot
- 21 Retractable handle

Electrical Approvals and Conformity Mark

Electrical Approvals

The KODAK EKTAPRO 320 Slide Projector complies with International Safety requirements and bears the following safety marks:

- UL (Underwriter Laboratories Inc.)
- CSA (Canadian Standards Association)
- VDE (Verband Deutscher Elektrotechniker)

CE Conformity Mark

To show compliance with EMV-Directive 89/336/EEC and product safety requirements, the slide projector bears the CE mark.

Please note

- In case of extreme mains disturbances problems with lamp flashing and/or jamming may occur. In this case please switch the projector off and on again! In case of a jam, please refer also to „Possible problems during operation as written in the manual on page 22. (Please keep the tray position in mind before switching on the projector. With the random access function of the IR remote control or the rapid search via the reverse transport button you will easily come back to this position.)
- In case of an electrostatic discharge, the projector will execute a reset and the tray will be moved to the zero position.

Radio interference:

EEC directive 89/336

Australia standards AS 1044


RFS49 ISSUES July 1989


VCCI Regulations Nov. 1987 Class 2

Part 15 of FCC Rules Subpart J Class B

Using the instruction manual

Open the cover flap. Here you will find illustrations of the projector. The figures have also been incorporated into the operating instructions to enable quick and exact identification of the individual projector features.

Action arrow: 

Reference arrow: 

Important texts are highlighted in grey.

WARNINGS are framed.

Important Safety Precautions

When using your equipment, basic safety precautions should always be followed, including the following:

- 1. Read and understand all instructions before using.*
- 2. Always use the correct voltage, as described on page 16. Incorrect voltage can lead to malfunctions in the projector.*
- 3. Close supervision is necessary when any appliance is used by or near children, or others who may not understand the need for the following precautions. Do not leave the projector unattended while in use.*
- 4. Care must be taken as burns can occur from touching hot parts. For lamp replacement let the module cool down before touching the lamp and the surrounding area. Do not place the lampmodule on heat sensitive surfaces (s. p. 21).*
- 5. Do not operate projector with a damaged cord or if the projector has been dropped or damaged - until it has been examined by a qualified service technician.*
- 6. Position the cord so that it will not be tripped over, pulled, or placed in contact with hot surfaces.*
- 7. If an extension cord is necessary, a cord with a current rating at least equal to that of the projector should be used. Cords rated for less amperage than the projector may overheat.*
- 8. Always unplug the projector from the mains before cleaning and servicing (e.g. lamp replacement) and when not in use. Never pull cord to plug from outlet. Grasp plug and pull to disconnect.*
- 9. Let the projector cool completely before putting away.*
- 10. The element of a hot projector lamp is impact-sensitive! Avoid any impacts to the projector whilst it is running and cooling down!*
- 11. To reduce the risk of electric shock, do not immerse this projector in water or other liquids.*
- 12. To reduce the risk of electric shock, do not disassemble this projector, but take it to a qualified service technician if service or repair work is required. Incorrect reassembly can cause an electric shock when the projector is used subsequently.*
- 13. The use of an accessory attachment not recommended by the manufacturer may cause a risk of fire, electric shock, or injury to persons. Only devices with safety-low voltage (SELV) are allowed to be connected.*
- 14. Connect this projector to a grounded outlet.*
- 15. Keep air inlet (1) and air outlet (7) free from obstruction.*

SAVE THESE INSTRUCTIONS!

english



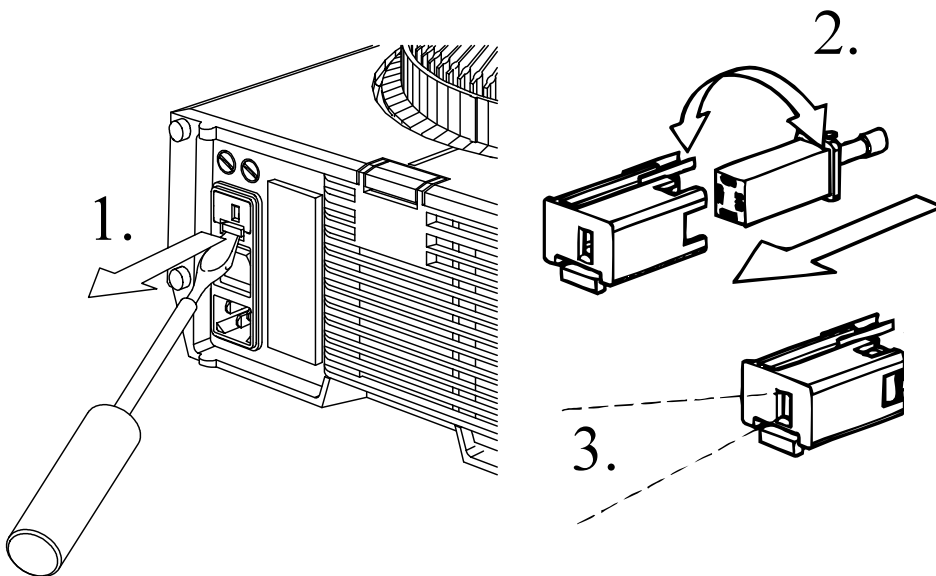
Switching-on the projector

Check voltage setting

EKTAPRO Slide Projectors will be exported throughout the world to countries with differing mains voltages. The projectors are **already** set during manufacture to a **fixed** mains voltage.

Shipments to countries with 220, 230 or 240 V mains will be equipped with a **T 2A L/250 V fuse**. A spare fuse for replacement is also supplied.

Before you switch on your projector ensure that the voltage is correctly adjusted! An incorrectly adjusted mains voltage can damage the projector! The voltage indicator (12) must show your country's actual mains voltage!



Setting of a different operation voltage

WARNING

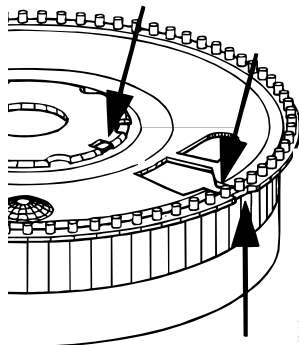
For safety, the mains lead must be unplugged!

1. Unlock the fuse link compartment (11) by using a screwdriver and pull compartment out.
 2. Push the fuse link (13) into the compartment so -
 3. - that the applied voltage can be seen in the window (12) of the compartment.
- Push the loaded compartment (with mounting underneath) firmly into the projector opening provided.

Switching- on the projector

- Connect your EKTAPRO Slide Projector to the mains with the mains lead .
(UK users note: A suitable fused 13A plug must be fitted. See instructions on cable!)
- Turn on the mains switch (10).
The projector is switched on and ready for use. Lamp and fan are switched on.

Loading and installing the slide tray

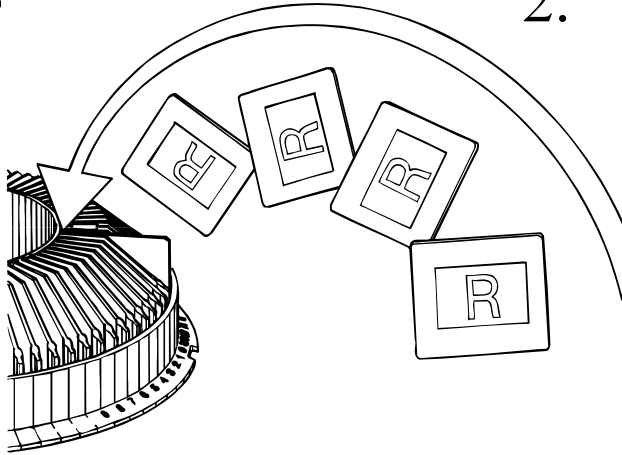


1. Check that the baseplate of the slide tray is locked into zero-position and cannot be rotated.

2.

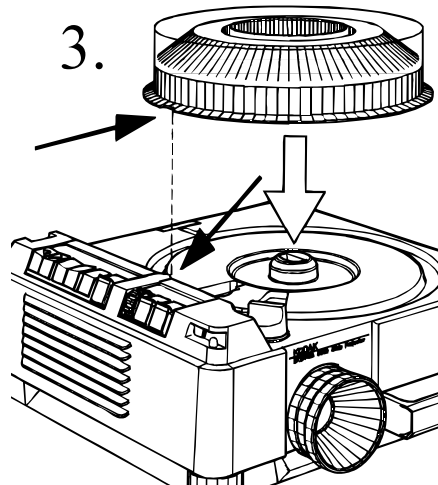
2. Load the slides upside down for normal front projection.

• Replace and lock the cover to prevent damage and splitting in case the tray is dropped or turned over.

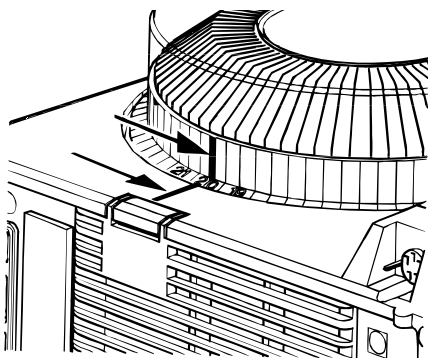


3.

3. Place the loaded tray into its zero position on the projector's transport ring (18). The cleft in the slide tray (zero position) fits on to the notch of the transport ring.



Tray positioning index mark



Projectors are often installed on racks where tray installation may be difficult and only possible from the rear of the projector. In this case the tray positioning index mark (5) on the back of the projector is very helpful: The tray is properly set when the index mark aligns with the mark placed on the tray (at slide no. 20 of the 80 slide tray).

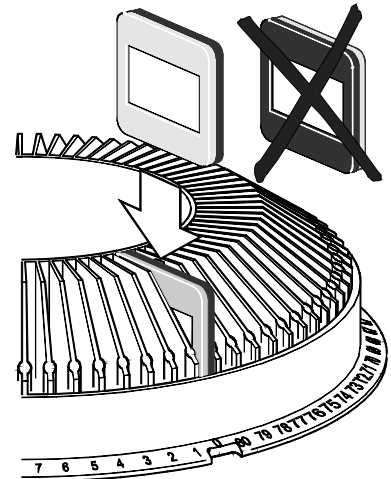
Note:

- To avoid annoying automatic refocusing during presentation, damaged, distorted or warped slides should not be used as they may jam the projector's transport mechanism.
- A slide tray index (80 slides) for copying can be found on page 84. This is ideal for archiving and an index copy can be made for each slide tray.

Extra Bright Lamp Module - Important Hints

With the higher light output of the Extra Bright Lamp Module the temperature in the slide gate rises. To enable a smooth operation following hints should be considered:

1. Use **only light** respectively **light gray** slide mounts (e.g. Wess slide mounts). Slide mounts with only one dark side or black side have to be sorted in respectively, mounted with the side facing the lamp. Please pay special attention when sorting your slide mounts in rear projections:



2. Do not use a lamp type EXW/15 h for the projector (higher temperature - lamp not available from Kodak).

If these hints are not considered, mounts may deform!

3. Glass mounted slides can produce sweat spots due to the high temperature in long term projections. As soon as the slide has warmed up these sweat spots disappear.

To reduce slide temperature (and light output):

- Install a heat-absorbing filter (see Accessories p. 22) or
- install a 200 h lamp (see Accessories p. 22)

Fitting the lens

Gear rack lenses:

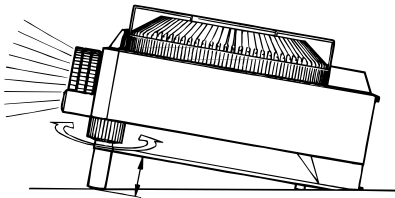
Gear rack lenses (such as KODAK Slide Projection FF Lenses, page 85-87) are **pushed** into the lens mount housing.

Spiral lenses:

Spiral grooved lenses are **screwed clockwise** (from front of the projector) into the lens mount housing.

Leveling the projector

Push the slide-forward button \triangle (3) to project a slide.



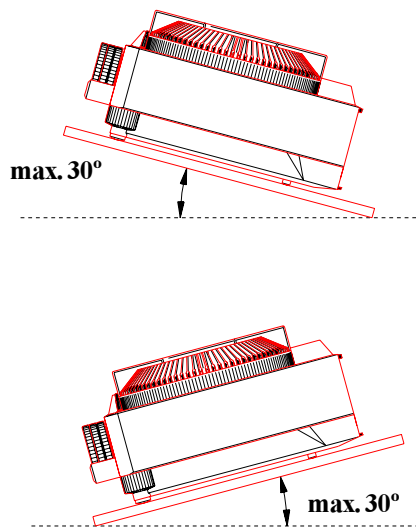
• Turn the projector feet (20) to adjust the height.

Setting up the projector

Place the projector on a firm, vibration free base for stable and smooth operation.

For professional use we recommend the special projection racks available from dealers. The projector may be elevated plus or minus 30° from the horizontal along the projection axis.

Note: Operating the projector at its maximum angle setting may reduce the average lamp life time!



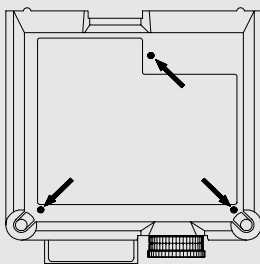
Important! Proper ventilation is required!

Check that the projector can draw-in sufficient cool air and that warm air can be freely expelled.

Keep air inlet (1) and air outlet (7) free from obstruction!

Fastening or mounting the projector

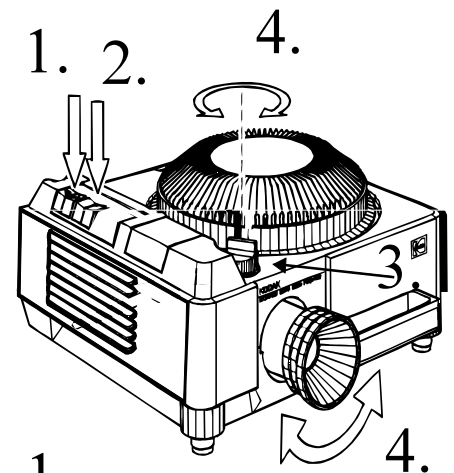
To reduce vibration or for security you will find fixing holes suitable for inserts (M5) in the baseplate of the projector (see figure).



Focusing the image (manually)

The picture focus can be altered at any time during the projection by using the focus buttons (2) on the projector or the corresponding buttons on the remote control.

The first slide, at the beginning of every projection, must be focused by turning the knob for gear rack lenses (15) or by turning the spiral lens:



1. Slide positioning

Press lightly the slide forward button \triangle (3). The first slide will move into the slide gate and will be projected.

2. Move the lens mount to the middle position

Repeatedly press the focus buttons (2) The lens and the focusing knob (15) will move. Press the focus button (2) until ...

3. ... the focusing knob reaches or gets close to the middle position.

4. Focusing

a) with KODAK EKTAPRO Lenses or any other gear rack lens:

- by turning the focusing knob (15)

b) with spiral lenses:



- by turning the lens by hand.

Slide changing


Using the buttons on the projector or remote control

Single Movement:

Press button (1)

-  forwards
-  backwards

Quick search and zero positioning:

To transport the tray quickly in either direction, press and hold down the slide change button-backwards (3) [] until the position wanted is reached. The tray will, however, automatically stop at 0 and will remain in this position. If you want to repeat the search run, press the slide change button-backwards again.

Changing the slide tray (in zero position)

Always lift off the slide tray in the zero position!

Move tray to zero position:

a) Using the slide change button on your projector or remote control units

Hold the slide transport-backwards button down. The slide tray goes into rapid search and stops automatically in the zero position.

b) Using the IR Remote Control

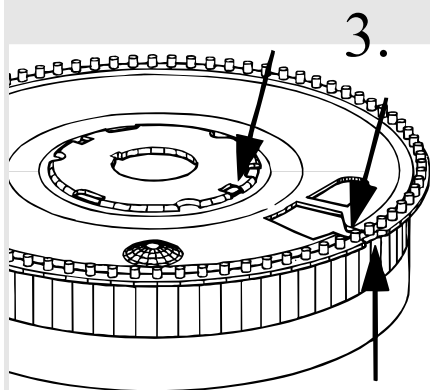
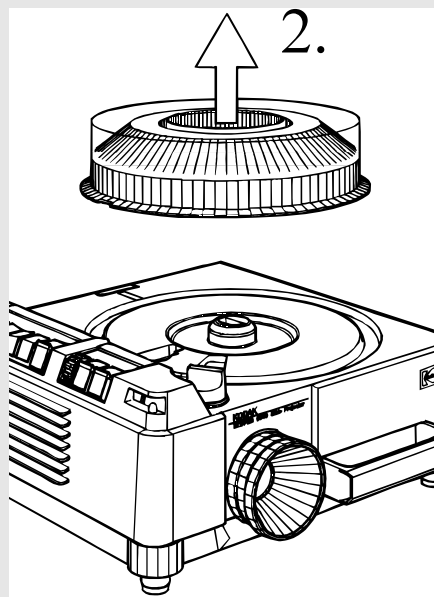
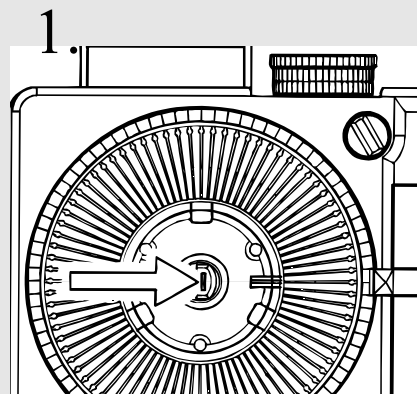
Select "0" on the keypad and confirm with "*". The slide tray moves to the zero position.

c) Using the mains switch

Turn the projector off by the mains switch (10). When the projector is turned on again, it will complete a system check and bring the slide tray back to the zero position!

Removing the slide tray (in any position)

In an emergency, e.g. transport failure, the tray can be removed from the projector in any position:



• First switch off your projector!

1. Push aside and hold the slide tray lock (18) while -
2. - lifting off the slide tray.
3. Having removed the slide tray turn it over and rotate the base plate until it locks into the zero-position, otherwise the slide tray cannot be replaced on the projector in the zero position.

• Turn the projector on again. The slide remaining in the slide gate will be ejected by the slide lift and can be replaced in the slide tray.

Random access operation

Any slide can be selected using the KODAK EKTAPRO IR Remote System (available as accessory, see page 22). Access is fast, within approx. 5 sec: Input the required slide number to your IR remote control and confirm using <*>.

The RA operation is ideal for lectures, interactive learning programmes and computer control. For further details, please see the instructions manual for the IR EKTAPRO Remote System RA and EKTAPRO IR Remote System RA/LP.

Operation via timer
It is not allowed to operate the KODAK EKTAPRO 320 Slide Projector with an external timer!

Simultaneous Projection

1. With the KODAK EKTAPRO Twin Socket Adapter (accessory)

You can connect two projectors in parallel using the Twin Socket Adapter and an EKTAPRO Twin Socket Connecting cable (accessory). The adapter is inserted into the remote control socket (4). The cable connects the Twin Socket Adapter with the remote control socket of the second projector (see illustration).

You control the projectors with the cable remote control as shown in the drawing. The connection of the IR receiver is also possible. However, this can only be connected to the receiver with the 8 m extension cable (accessory).

2. Using the KODAK EKTAPRO IR Remote Systems

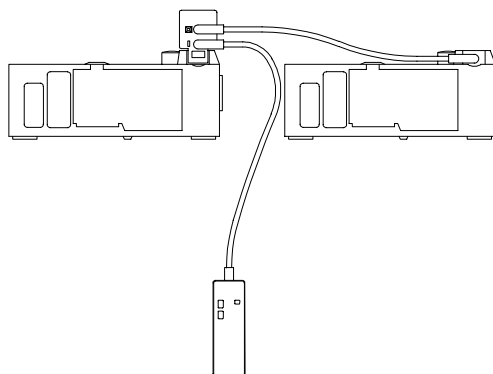
Several EKTAPRO Projectors can be operated simultaneously when each projector is equipped with an EKTAPRO IR Receiver (available as accessory, see page 22).

This mode should only be used for slide change purposes! The focus operation will occur on all projectors in parallel! Ensure that all receivers and the transmitter are set to the same channel!

Note:

Simultaneous Projection with other EKTAPRO models

If transport buttons are held down longer than a second the trays may stop at different positions due to different slide change times



Replacement of fuses

WARNING:

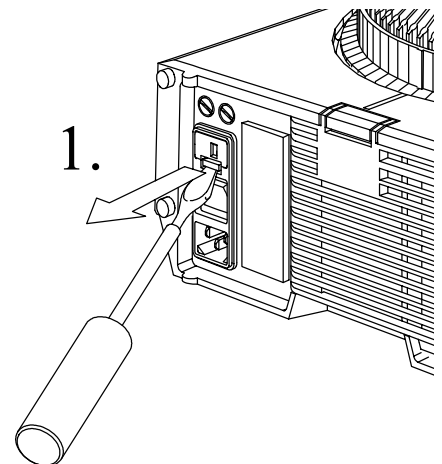
Always switch off the projector and unplug the mains lead before replacing a fuse!
Avoid the risk of fire, replace only with a fuse of same type and rating!

Replacement of primary circuit fuse

1. Pull out the fuse link compartment (11). Do not change the position of the fuse holder when reinserting into the projector (see also page 16).

- Replace the defective fuse (14) (technical data, page 23).

- Push the fuse link compartment back into the projector.



Replacement of a defective lamp

WARNING:

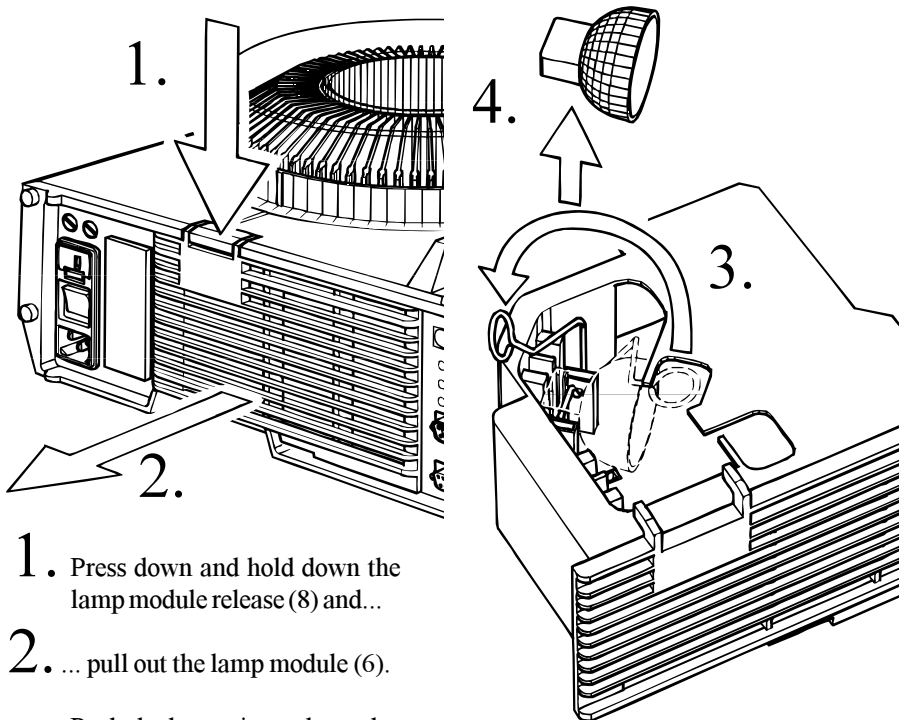
Before pulling out the lamp module, switch off the projector and unplug the mains lead first!

For lamp replacement let the module cool down before touching the lamp and the surrounding area. Do not place the hot lamp module on heat sensitive surfaces.

Glass may shatter. Wear gloves. Keep glass covered.

Do not touch the small bulb or the mirror surface! If you accidentally get finger prints on them, remove marks with a soft cloth moistened with rubbing alcohol.

Replacement of a defective lamp is very easy with your EKTAPRO Slide Projector:



1. Press down and hold down the lamp module release (8) and...

2. ... pull out the lamp module (6).

- Push the lamp ejector lever down so that it clears the retaining clip.

Note:

For your projection requirements you have a choice of 3 lamps with different brightness and lamp life (see Accessories page 22).

3. Push the ejector lever completely to the side. The defective lamp will come free of its holder.

4. Remove the defective lamp and insert the new lamp.

- Push the ejector lever back to the right and press down until it locks into its holding.

- Push the lamp module back into the projector until it locks.

Guarantee

Kodak gives you a **one year guarantee** on the original projector (without accessories and lamp) provided the projectors have been serviced regularly.

Cleaning the projector

WARNING:

For safety, always turn the machine off, unplug the mains lead and allow the projector to cool down before cleaning.

Housing:

Wipe the housing with a soft, cotton cloth and use a cleaner designed for plastic materials. Do not use solvents or spirit based cleaners.

Optics:

Do not touch optical surfaces!

Clean the lens with a soft lintfree cloth or with special lens tissues.

Never wipe over a dry surface!

Use a special lens cleaner (available from photographic dealers) or add moisture by breathing over the parts to be cleaned.

Possible problems during operation

Problem	Possible reasons	Help
After switching on, the projector is not operable.	Fuse blown.	Check fuse and possibly replace it. For UK users: Check 13 A plug fuse also.
Projector drive system failure (tray transportation, slide lift)	<ol style="list-style-type: none"> 1. Jammed slide in the slide gate. 2. Slide tray base plate not in the zero position. 3. Slide tray base plate bent. 4. Partition wall of slide tray compartment bent or damaged. (Turn tray and check via baseplate opening) 	<ol style="list-style-type: none"> 1. Switch off projector; lift off slide tray; remove slide from the slide gate; rotate the base plate until it locks in position; replace the tray and switch on the projector. 2. Switch off projector; lift off slide tray, rotate the base plate until it locks in position; replace tray and switch on the projector. 3. Use a new slide tray. 4. Use a new slide tray.
Image can't be focused by focus buttons.	<ol style="list-style-type: none"> 1. Lens mount was not set to its default position. 2. Slide is distorted 3. Slide mount is defective. 	<ol style="list-style-type: none"> 1. Press focus buttons to move lens mount to its default setting. Focus the image as indicated in the manual. 2. Use glass mounted slides. 3. Replace slide mount.
The tray cannot be fit on the tray transport ring	Tray transport ring not in zero position.	<ul style="list-style-type: none"> - Hold slide change button-backwards depressed till tray stops in zero-position or - switch projector off and then on again.
The tray cannot be moved.	Tray has not been placed correctly on the transport ring.	Lift off the tray; switch projector on and then off again and then replace tray.
Slides are one-sided illuminated.	Condensor out of position.	Switch off the projector; pull out the lamp module and let it cool down; check that the condensor is correctly seated and push back into position if necessary.
Fan runs but lamp is switched off.	<ol style="list-style-type: none"> 1. Lamp failure 2. Lamp module is not properly fixed. 	<ol style="list-style-type: none"> 1. Refer to page 21 2. Refer to page 21

Note: If none of the faults listed above caused the problem, please contact your KODAK audiovisual products dealer.

Accessories

- **KODAK Slide Projection FF Lenses** (lens summary, page 85)
- **KODAK EKTAPRO Lens Support** European CAT No. 715 1335
- **KODAK EKTAPRO 80 Slide Tray** European CAT No. 712 8580
- **KODAK EKTAPRO Cable Remote** (4 m) European CAT No. 712 1080
- **KODAK EKTAPRO Remote Extension Cable / 8 m**
European CAT No. 712 5925
Up to three of these cables can be joined together.
- **KODAK EKTAPRO IR Remote System RA**
European CAT No. 712 1072
- **KODAK EKTAPRO IR Remote System RA/LP**
European CAT No. 712 1064
- **KODAK EKTAPRO IR Remote Receiver RA**
European CAT No. 712 8606
This receiver is necessary for operating another projector in parallel via the EKTAPRO IR Remote Controls.
- **KODAK EKTAPRO Extra Bright Single Lamp Module**
(with EXR 35 h lamp and stray light protection)
European CAT No. 718 4351
- **KODAK EKTAPRO Standard Heatfilter** for Extra Bright Lamp Modules for the reduction of slide temperature and brightness (conforms with the 3000, 3010, 4010, 7000, 9000 and 9010 models).
European CAT No. 717 7140

- **KODAK EKTAPRO Heatfilter +10** for Extra Bright Lamp Modules for the reduction of slide temperature and brightness (conforms with all previous models already equipped with such filters). European CAT No. 717 7157
- **Projection Lamps**
EXR 82V/35h 300W European CAT No. 145 2259
FHS 82V/70h 300W European CAT No. 147 7678
EXY 82V/200h 250W European CAT No. 145 2143
- **KODAK EKTAPRO Carrying Case** European CAT No. 718 1993
Hard case for projector, lens, tray and remote control transportation.
- **KODAK EKTAPRO Twin Socket Adapter**
European CAT No. 712 5909
This adapter allows linkage of an additional projector in parallel and an EKTAPRO Cable Remote. The adapter will fit into the remote control socket.
- **KODAK EKTAPRO Twin Socket Connecting Cable / 2 m**
European CAT No. 712 5917
To connect an additional EKTAPRO Slide Projector to the Twin Socket Adapter for a projection in parallel.
- **KODAK EKTAPRO 4 x 4 Condenser Kit** Europ. Cat. No. 714 4967
For projecting 4 x 4 slides (superslides) for the KODAK 36, 85, 93, 100, 150 and 180 mm Projection FF Lenses!

Projector Measurements (see page 88):

Length: 340 mm
Width: 336 mm
Height: 140 mm
Height with tray: 175 mm
Weight without tray: approx. 9000 g
Weight of tray without slides: 540 g

Slide Formats:

24x36 mm
4 x 4 (superslide) with special condenser

Slide Trays:

KODAK EKTAPRO 80 Slide Tray for holding 80 slides with a maximum slide mount thickness of 3.2 mm.

Slide Gate:

Gravity-feed slide change with register-gate pressure levers in two planes.

Lens Mount:

Universal lens mount for both spiral- and rack-mounted lenses (such as KODAK Projection FF Lenses).

Height Setting:

Height setting to a maximum of 10° via two turnable feet.

Levelling:

The projector may be operated at an angle of plus or minus 30° from the horizontal along the projector axis.

Note: Tilting the projector side ways will adversely affect the lamp lifetime!

Housing:

Sturdy, fibre-glass reinforced housing (LEX-AN).

All parts are marked and therefore fully recyclable.

All important structural elements for the optical equipment such as slide gate, lamp module and base for the lens mount housing are in die-cast zinc assemblies.

Noise Development:

approx. 57 dB (A)

Illumination

Extra Bright Lamp Module with 82V/70h/300W halogen lamp with integrated cold light reflecting mirror.

Projection Lamps

(available as accessories):

EXR 82V/35h/300W

Brightness 100%

FHS 82V/70h 300W

Brightness 80%

EXY 82V/200h 250W

Brightness 60%

Temperature range for safe operation

The operating temperature range of the projector depends on the ambient temperature and the voltage.

Minimum 0° C and maximum +30° C

Should the projector overheat, e.g., due to lack of cooling air, the built-in thermal cut-out automatically switches the lamp off and then switches it on again once it has cooled down.

Power Voltage: A ONLY!

Different power voltages are adjustable via the removable fuse link.

(120, 220, 230, 240 V)

Frequency:

50/60 Hz

Performance:

approximately 380 W

Fuses:

Primary circuit:

1 x T 2AL/250V for 220, 230 and 240V or 1 x 4 A slow blow/250V for 120V

Supply Voltage for External Units:

Provision of 12V/50 mA (DC) direct voltage on the 8-pin remote control socket.

Slide Change Time:

1 sec (independent of mains voltage and frequency).

Slide Access Times :

<5 sec for the longest search run.

8-pin Standard Projector Socket:

(For connecting the KODAK EKTAPRO Remote Systems or KODAK EKTAPRO Twin Socket Adapter).

Pin 1: 12 VDC

Pin 2: Gnd

Pin 3: Signal 1 (LSB)

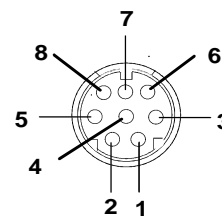
Pin 4: Signal 2

Pin 5: Signal 3

Pin 6: Signal 4

Pin 7: Signal 5 (MSB)

Pin 8: Interrupt



Control via contacts is also possible:

Please note:

Pin 8 must always be connected with pin 2!

Slide transport forwards:

connect pin 7 with pin 2

Slide transport reverse:

connect pin 6 with pin 2

Focus forwards:

connect pin 5 with pin 2

Focus backwards:

connect pin 4 with pin 2

Diamagazin Register-80 • Tray Index Card-80 • Identification magasin 80 • Indice para Bandeja-80 • Sequenza diapositive nel caricatore da 80 • Diamagazijn register-80 • Index för Magasin-80 • Kasetin sisällysluettelo-80

Kodak

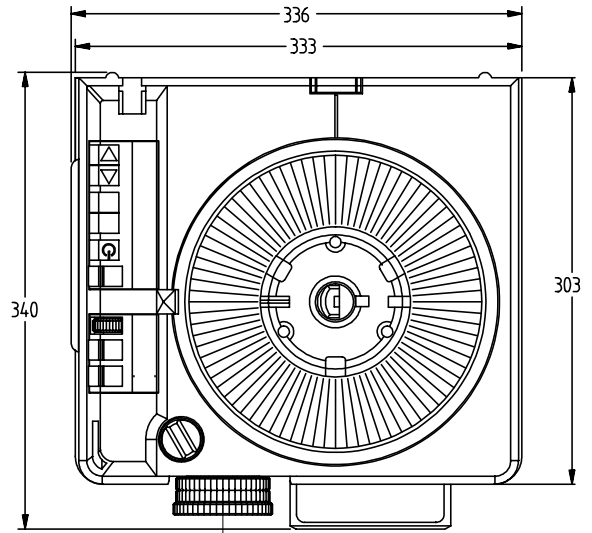
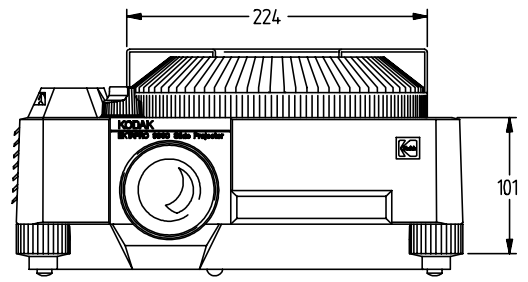
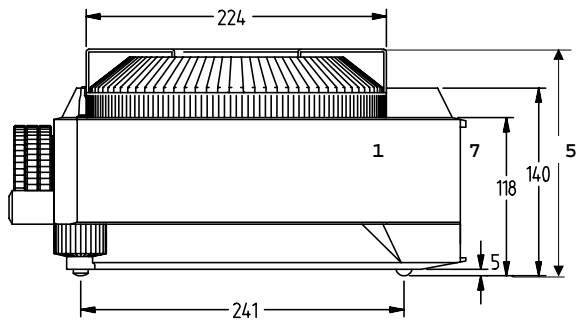
1	21	41	61
2	22	42	62
3	23	43	63
4	24	44	64
5	25	45	65
6	26	46	66
7	27	47	67
8	28	48	68
9	29	49	69
10	30	50	70
11	31	51	71
12	32	52	72
13	33	53	73
14	34	54	74
15	35	55	75
16	36	56	76
17	37	57	77
18	38	58	78
19	39	59	79
20	40	60	80



**KODAK Projektionsobjektive • KODAK Projection Lenses • Objectifs Kodak •
 KODAK Objetivos • Obiettivi Kodak • KODAK EKTAPRO objectieven •
 KODAK EKTAPRO objektiv • KODAK EKTAPRO objektiivit**

KODAK Slide Projection FF Lenses		75 - 120 mm Zoom	100 - 150 mm Zoom	100 - 200 mm Zoom	85 mm*	100 mm*	180 mm*
Vergütung Coating	Couche Revestimiento Rivestimento	C	C	C	C	C	C
Länge Length	Longueur Longitud Lunghezza	117 mm	153 mm	185 mm	125mm	125 mm	190 mm
Front-Ø Front tube-Ø	Tube Ø devant Tubo delantero Ø Frontale	69 mm	65 mm	73 mm	73 mm	73 mm	63 mm
Gewicht Weight	Poids Peso	210 g	310 g	450 g	108 g	108 g	205 g
Lichtstärke Aperture	Aperture Abertura Apertura	f/3.5	f/3.5	f/3.5	f/2.8	f/2.8	f/3.5
Anzahl Linsen Elements	Elements Número de lentes Numero di lenti	7	7	9	3	3	3
Bildwinkel Field angle	Champ Angulo de proyección Campo die proiezione	32° - 20°	24° - 16°	24°-12°	27°	23°	13°
KODAK EKTAPRO SELECT Projection FF Lenses		75 - 120 mm Zoom	87 - 200 mm Zoom	200 - 300 mm Zoom	36 mm* (35,4 ± 0.3)	93 mm* (92.8 ± 0.5)	150 mm* (149.8 ± 0.7)
Vergütung Coating	Couche Revestimiento Rivestimento	MC	MC	MC	MC	MC	MC
Länge Length	Longueur Longitud Lunghezza	150 mm	177 mm	226 mm	125 mm	125 mm	146 mm
Front-Ø Front tube-Ø	Tube Ø devant Tubo delantero Ø Frontale	61mm	70 mm	87.5 mm	78 mm	78 mm	73 mm
Gewicht Weight	Poids Peso	580 g	700 g	910 g	457 g	320 g	605 g
Lichtstärke Aperture	Aperture Abertura Apertura	f/2.8	f/3.5	f/3.0	f/2.8	f/2.5	f/2.8
Anzahl Linsen Elements	Elements Número de lentes Numero di lenti	8	9	9	7	5	5
Bildwinkel Field angle	Champ Angulo de proyección Campo die proiezione	32°-20°	28° - 12°	12°-8°	62°	25°	15°

- * 4 x 4 Projektion möglich (Spezialkondensator nötig, Zubehör)
- * 4 x 4 Projection possible (special condenser necessary, see accessory!)
- * Possibilité de projection de diapositives 4 x 4 (condenseur spécial requis !)
- * Es posible la proyección 4x4 (se necesita un condensador especial).
- * Possibilità di proiettare diapositive 4 x 4 (è necessario un condensatore speciale, vedere accessori).
- * 4 x 4 projectie mogelijk (speciale condensator noodzakelijk, zie toebehoren).
- * 4 x 4 Diabilder kan projiceras (Specialkondensatorlins erfordras).
- * Mahdollisuus heijastaa 4 x4 dioja (tarvitaan erikois-kondensori, kts. lisätarvikkeet).





Germany:
Kodak Aktiengesellschaft
D-70323 Stuttgart

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- in Norway/Norge - 2316-2088
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Presentation_____
_____**Technologies**