Film-Tech

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Kinoton GMBH

ST 100/200/270/400/500 E Non-Rewind Systems
MT 600 / MT 2000 Make-Up Tables

Operating Manual

ST 200 E / MT 600 (en)

CINEMA

STUDIO

LARGE FORMAT

SPECIAL VENUE

DIGITAL SYSTEMS

DISPLAY SYSTEMS

Imprint

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Preface

Dear customer,

this operating manual will help you get acquainted with the non-rewind system and to make use of its possible applications in accordance with the requirements.

This operating manual includes important hints for a safe, proper, correct and economic operation.

It will also help you to avoid danger, to reduce failures and to increase life and reliability of the non-rewind system.

This operating manual includes useful hints for proprietor and personnel obligations. It does not substitute, but supports, a thorough training period.

All information in this manual is given by best knowledge and has been checked carefully. However, KINOTON accepts no liability for the accuracy of this information.

Subject to technical changes.

Own Notes

Issue of this manual: February 2009

Contents

1 Safety

1.1 General Safety Notes

- The operating manual is to be kept with the devices at all times.
- Precondition for the safe running and trouble-free operation of the non-rewind system and the make-up table is working knowledge of the basic safety regulations and agreed use.
- This operating manual contains the most important instructions for running the system safely.
- The operating manual must be read and absorbed by all persons working with the system, placing particular emphasis on all aspects regarding safety.
- In addition, all current and valid regulations and measures concerning accident prevention must be observed.

Proprietor Obligations

The proprietor is obliged to allow only those persons to work and / or operate the devices that

- are familiar with safe working and accident prevention along with complete working knowledge of the platter system and all additional machines and pieces of the system
- to read and understand the safety chapter and the warning instructions thereto in this operating manual.

The proprietor has to check the safe working of his personnel regularly.

Personnel Obligations

Those persons who work with the devices are obliged

- to observe the regulations appertaining and prevention of accident
- to have read and understood the safety chapter and the warning instructions thereto in this operating manual.

Danger when working with the Platter System and the Make-Up Table

Platter systems and make-up tables are constructed according to the latest engineering and state-of-the art safety standards. The devices are only to be used for its intended purpose and is only used when functioning absolutely perfectly.

Serious danger may result from improper use of the system causing injury to the user or a third person, or damage may be done to the system or other items in the vicinity.

Faults that could adversely affect safety must be rectified immediately.

The system cannot be used before faults are rectified.

Intended Purpose

Platter systems are only suitable to transport films while the projector is running.
In addition, all platters may be used for make-up and tear-down of films with MT 600 or MT 2000 make-up table. With MT 2000 it is optionally possible to rewind films.

Any other use is not classified as “intended purpose”. KINOTON cannot be held liable for any damage resulting from different or extended operation.

Defined intended purpose also includes:

- the observance of all instructions contained in the manual
- adherence to the inspection
- implementation of maintenance and repair work.

Guarantee and Liability

In principle the “General Terms of Business” of KINOTON apply. They are available to the customer on conclusion of sale at the latest.

Guarantee and liability claims for damage to persons and property are invalid if due to one of the following causes:

- improper use of the non-rewind system and the make-up table
- improper assembly, commissioning, operating and maintenance of theplatter system and the make-up table
- operating the system with defective and / or non-functioning safety and protection devices
- disregarding of the instructions in the manual concerning the transportation, storage, assembly, commissioning, operation and maintenance
- modification of the non-rewind system and the make-up table without authorisation from the manufacturer
- faulty monitoring of the parts subject to wear and tear
- improperly effected repair work
- emergencies due to influence from outside bodies or force mayeur.

1.2 Important Safety Instructions for US Customers

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

- Read and understand all instructions before using.
- Care must be taken as burns can occur from touching hot parts.
- The equipment's switch is provided with the symbols 0 indicating off and I indicating on.
- Do not operate the projector with damaged wiring or if it has has been damaged, until it has been examined by qualified service personnel.
- Position cords so that they will not be tripped over, pulled upon, or have contact with hot surfaces.
- If an extension cord is necessary, a cord with a current rating at least equal to that of the appliance should be used. Cords rated for less amperage than the appliance may overheat.
- Always disconnect the projector from electrical supply before cleaning and servicing.
- To reduce the risk of electrical shock, do not disassemble this equipment, but call in qualified personnel when service or repair work is required. Incorrect reassemble can cause electric shock when the appliance is used subsequently.
- The use of an accessory attachment not recommended by the manufacturer may cause a risk of fire, electrical shock, or injury to persons.
- Connect this appliance to a grounded circuit.
- Disconnect the projector from its source of electrical supply before replacing the projection lamp.
- The projector should have a polarized plug (one blade is wider than the other). To reduce the risk of electric shock, this plug is intended to fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician. Do not modify the plug in any way.

SAVE THESE INSTRUCTIONS

1.3 Explanations of Symbols and Notes

DANGER

This symbol indicates an imminent threat of danger to life and personal health.
Disregard of this warning results in serious injuries.

ATTENTION

This symbol indicates a possibly dangerous situation.
Disregard of this warning can result in injury or damage of the system.

▶ **NOTE**

This symbol indicates where notes, user tips and useful information can be found.
They serve to use the non-rewind system to its optimum.

1.3 Protective Devices

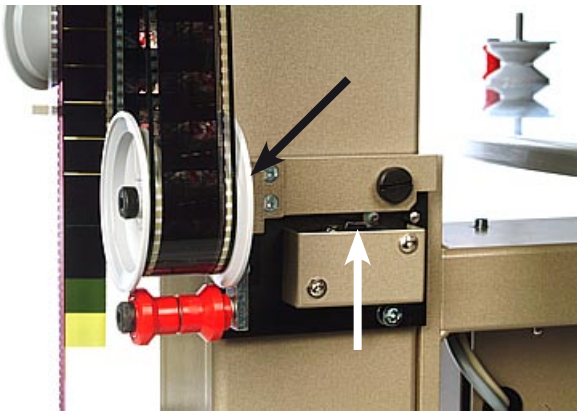
All existing safety devices must be checked regularly.

1.3.1 Main Switch

In case of an emergency, you can switch-off the non-rewind system with the main switch. Push the switch in position “0”. The red lamp in the switch gets off.

1.3.2 Film Tension Switch for ST 100 E and ST 200 E

If an operating trouble happens, which results in improper high film tension on the take-off platter the film tension roller (black arrow) disengages, the switch (white arrow) stops the projector motor, and the film slides over the film tension roller.
Therefore an idle film loop is formed. The projector can run out without any damages on the film material or on the projection system.



▶ **NOTE**

For modification of the D/A- or E-projector, the terminal strip must be reconnected, therefore see chapter 2.4.2.

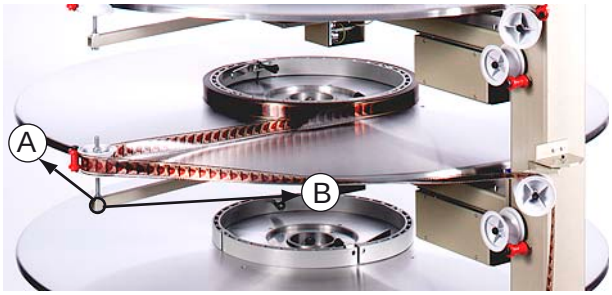
1.3.3 Film Break Switch (option)

Optionally the film break function on the platter unit can be activated by inserting the film break relay (mandatory when operating the platter system with a projector which is not equipped with a film break sensor).
In case of a film break the lever arm moves to the end position => the non-rewind system stops and the relay switches off the projector.

▶ **NOTE**

Due to soldering work on the board, mounting the film break relay and modifying it (Normally Closed or Opened) should only be carried out by trained service personnel, see also service manual for platter systems.

1.3.4 Lever Arm End Position



- If the lever arm moves from the working position (between A and B) to position A (limit stop), the platter speed will be reduced until the platter comes to a standstill.
- In the event of a film break the lever arm moves to the end position A.

1.3.5 Light Barriers on IR-Take-Off Unit

Light barriers (arrows) sense the position of the film during feed-out.

The values are transmitted to the take-off unit's electronic and then to the control unit in the column.
The control unit works out the correct rotary speed values (depend on the reel diameter) and controls the corresponding platter motor.

1.3.6 Braking Rollers

Braking rollers provide a constant film tension between the non-rewind system and the projector.

Braking rollers are found
- on the take-off unit (white arrow, upper figure) and
- on the top of the column (black arrow, right figure).

1.5 Special Hazard Points

Mechanical danger by squashing:
- when changing films
- when inserting the take-off unit
- when closing and opening insert rings
- when putting on the film transport clips
- when putting film reels on the make-up table

Mechanical danger by nudging:
- when threading the film around the insert ring
- when inserting the take-off unit and threading the film

ATTENTION

Do not nudge your head on the platter, while working on a lower one.

Mechanical danger (during wind off and take up):
- when operating system and the make-up table
- when threading the film

DANGER

Do not work with long loose hair, loose scarves or ties, they may get trapped in the drive mechanism.

ATTENTION

Never hinder a platter from run during supposed operation. This may cause a film break and interruption of show.

Mechanical danger by stumbling and falling:
- when stepping up the ladder

DANGER

Only use a stepladder with a fixation and not any other aid to reach the platter on the top.

Danger because of errors and malfunction:
- unexpected unit movements
- malfunction of film tension switch and film break switch
- malfunction of lever arms
- touching the running platters

DANGER

▲ Check the function of the film tension switch and the film break switch regularly.

▲ Never touch the running platters during an operation.

▲ Make sure that nobody starts the unit while somebody is working on it.

▲ Disable the projector automation

1.5.1 Electric Power Hazards

DANGER

- ▲ Work on the electrical supply conductors or circuits must only be done by competent electricians.
- ▲ The platter's electrical parts and connections must be checked regularly. Any loose connections must be tightened immediately.
- ▲ The cover must always be kept closed. Only authorized staff may access the rear area. Hazardous voltage and moving parts are in this area.
- ▲ Switch off the main switch and disconnect power before working on electrical parts.

1.5.2 Modification of System Construction

No alterations, additions or modifications may be made to the platter system and make-up table without consent of KINOTON. This includes also welding of bearing parts.

Only use original spare and wear parts. Parts obtained from third party manufacturers cannot guarantee strain and security standards.

1.5.3 Cleaning and Disposal of Cleaning and Lubricating Solvents

Substances and materials used must be handled and disposed correctly, especially when cleaning with solvents.

1.6 Copyright

The copyright of this manual remains in possession of KINOTON.

This manual is intended for the user company and its staff only.

It contains regulations and operating notes that must not be copied, reproduced or otherwise transmitted, in whole or in part.

Infringement of copyright laws may lead to prosecution.

2 Transport and Installation / Mounting

2.1 Transportation

Package

- The non-rewind system is mounted on a pallet and secured with screws.
  The accessories are packed into the box too.
  Weight (gross):
  - ST 100 E: 150 kg
  - ST 200 E: 170 kg
  - ST 400 E: 200 kg
  - ST 500 E: 250 kg
  - ST 270 E: 200 kg
- The make-up table will be delivered packed in a box.
  The accessories like film spools and reel disks are packed in the box too.

Storage

If devices are stored for a longer time:
- Only store in dry rooms.
- Choose a suitable protective cover or leave devices in the original cover.

▶ **NOTE**

Although most parts are delivered with a protective cover, you have to clean the unit and its components before the first start.

2.2 Delivery or Equipment Variations

- **Non-Rewind Systems**
  - ST 100 E, 2 platters (35 mm film)
  - ST 200 E, 3 platters (35 mm film)
  - ST 400 E, 4 platters (35 mm film)
  - ST 500 E, 5 platters (35 mm film)
  - ST 270 E, 3 platters (35 mm film and 70 mm film)
- **Accessories**
  - IR take-off unit (35 mm film)
    - 1 for ST 100/200/270 E
    - 1 for ST 400/500 E for 1 projector operation
    - 2 for ST 400/500 E for 2 projector operation
  - IR take-off unit (70 mm film)
    - 1 for ST 270 E
  - Insert rings (35 mm film)
    - 2 for ST 100/200/270/400 E
    - 3 for ST 500 E
  - Insert rings (70 mm film)
    - 2 for ST 270 E

- **Make-Up Table**
  - MT 2000 (for 2000 m spools, optional with a second mechanical friction)
  - MT 600 (for 600 m spools, optional with a second mechanical friction)
  - UT 600/2000 (with 2 electronic friction drives, see separate operating manual)
  - Accessories
    - 2 or 1 reel platter
    - 2 or 1 film spool
- Operating manual

▶ **NOTE**

For further information about accessories please contact your local dealer or look at our website www.kinoton.com.

2.3 Installation

ATTENTION

△ Make sure that the electric lines are not damaged or squeezed during transportation.

△ Only use suitable hoisting machines (portal crane, fork-lift, truck).

△ Do not use any unit parts as climbing aid.

△ The electrical lines have to be in accordance with local regulations and be laid professionally.

△ Pay attention for an adequate high flexible PE line (10^2 / AWG 8), so that the charging can discharge. The charging is produced from winding and rewinding of the film.

△ The non-rewind system and the make-up table must be connected to the same phase and ground for a reliable operation. Use twin power outlets for both devices.

△ Adapting the control operation of the non-rewind system it is mandatory to connect the run signal to the projector by using the 5-pole connector, see also chapter 2.4.5.1.

△ The film tension switch must be connected corresponding to the connected projector, see chapter 2.4.2.

△ Mounting and modifying the optional film break relay should be carried out by trained service personnel.

2.3.1 Place of Installation, Place of Operation

The place on which unit will be installed must be even and clean.

Place the unit, if possible, near the projectors otherwise you have to use compensation brackets and / or guide rollers.

The make-up unit can be moved close to the non-rewind system e. g. for make-up/tear-down operation.

The figures 1 to 5 show the measurements of the different non-rewind systems.

The figures 6 and 7 show the measurements of the make-up tables.

2.3.2 Unpacking and Installation

- Transport the boxes with a suitable hoisting machine to the place of installation.
- Open the box and take out the platters and the accessories.
- Remove the box around the non-rewind system.
- Release the non-rewind system from the pallet (release screws).
- Lift up the non-rewind system and remove the pallet.
- Horizontally line up the non-rewind system by levelling the jackscrew. Check it with a level.
- Remove (pull off) the transport retainer keys which are cramped between the motors and the support arms.

ATTENTION

Do not jam your fingers, when removing the transport retainer keys, because the motor with the friction wheel will tilt against the flange.

2.3.3 Measurements

Figure 1: ST 100/200/270/400/500 E view from the top

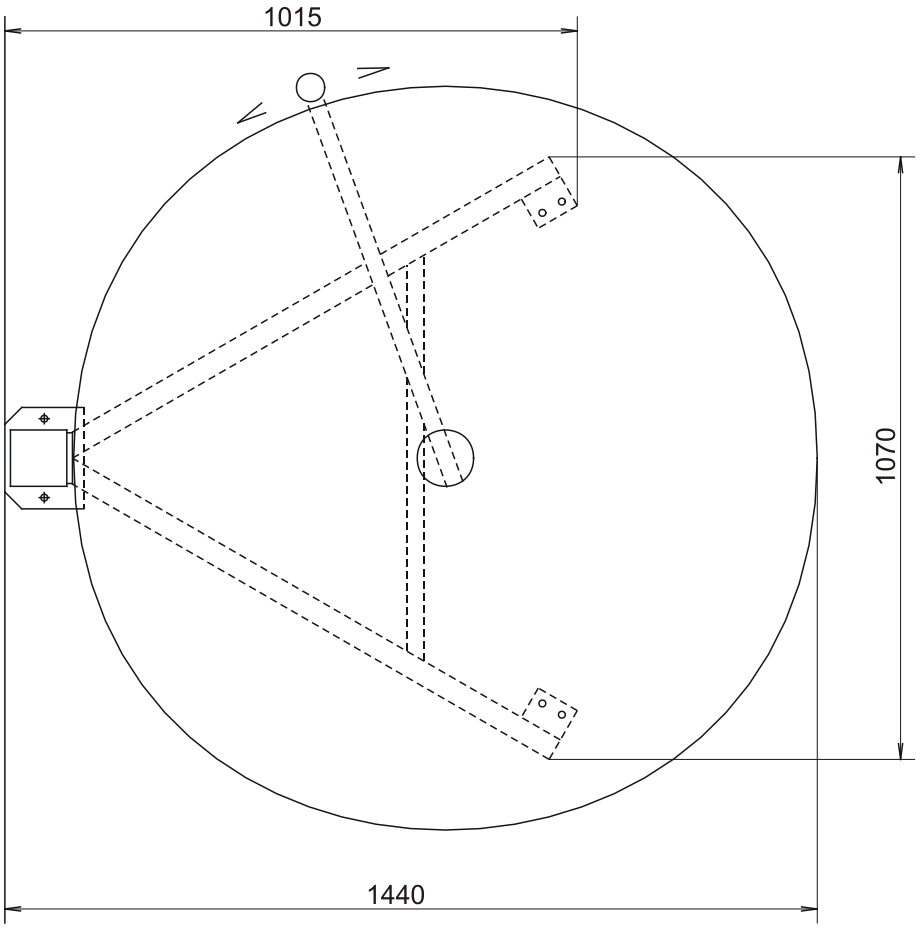


Figure 2: ST 100 E

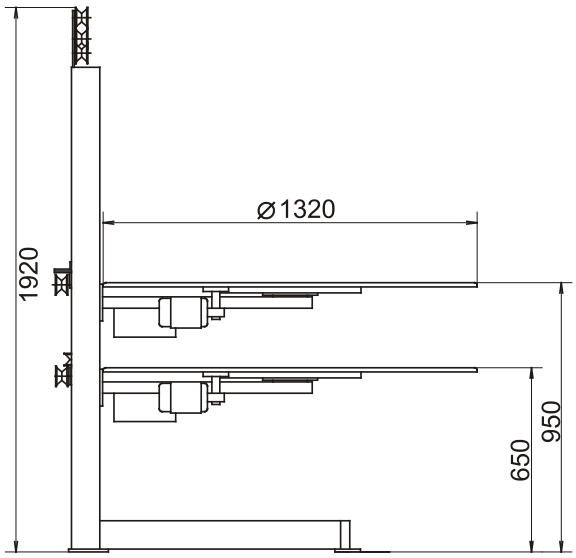


Figure 3: ST 200/270 E

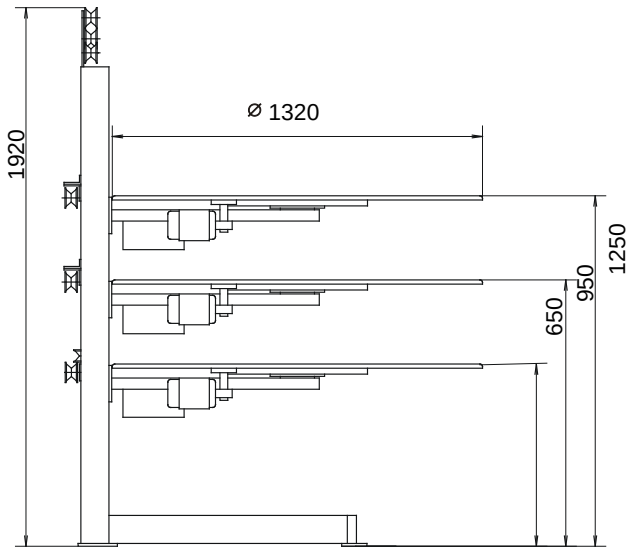


Figure 4: ST 400 E

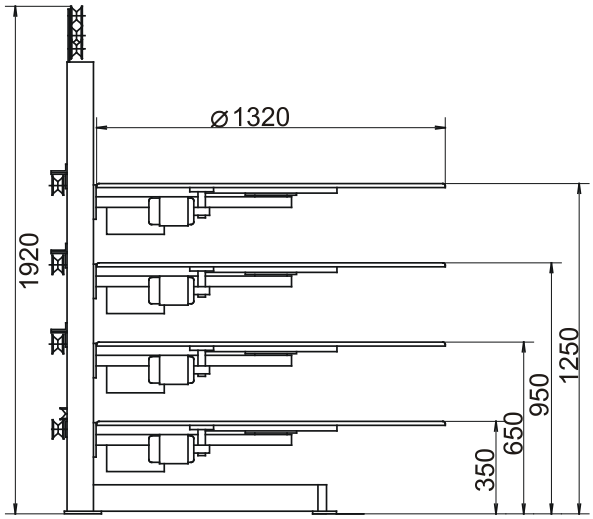


Figure 5: ST 500 E

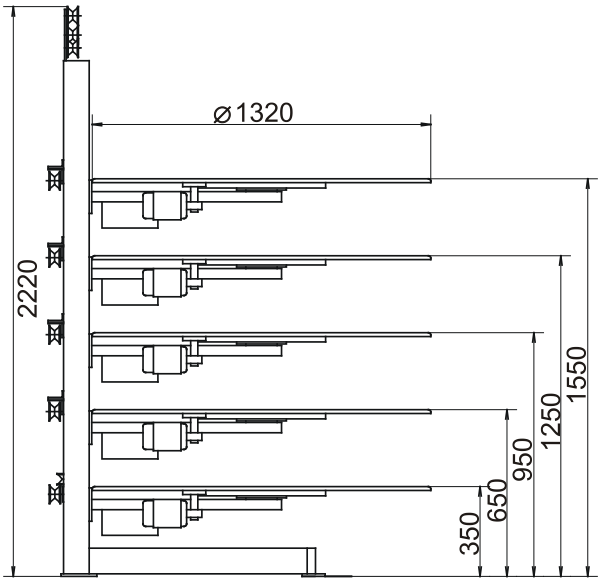


Figure 6: MT 600

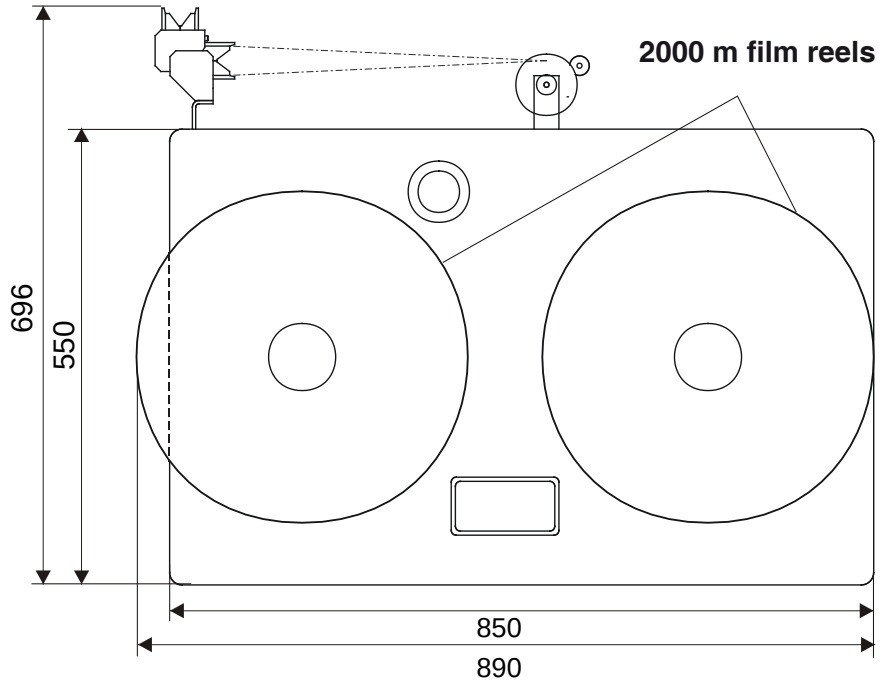
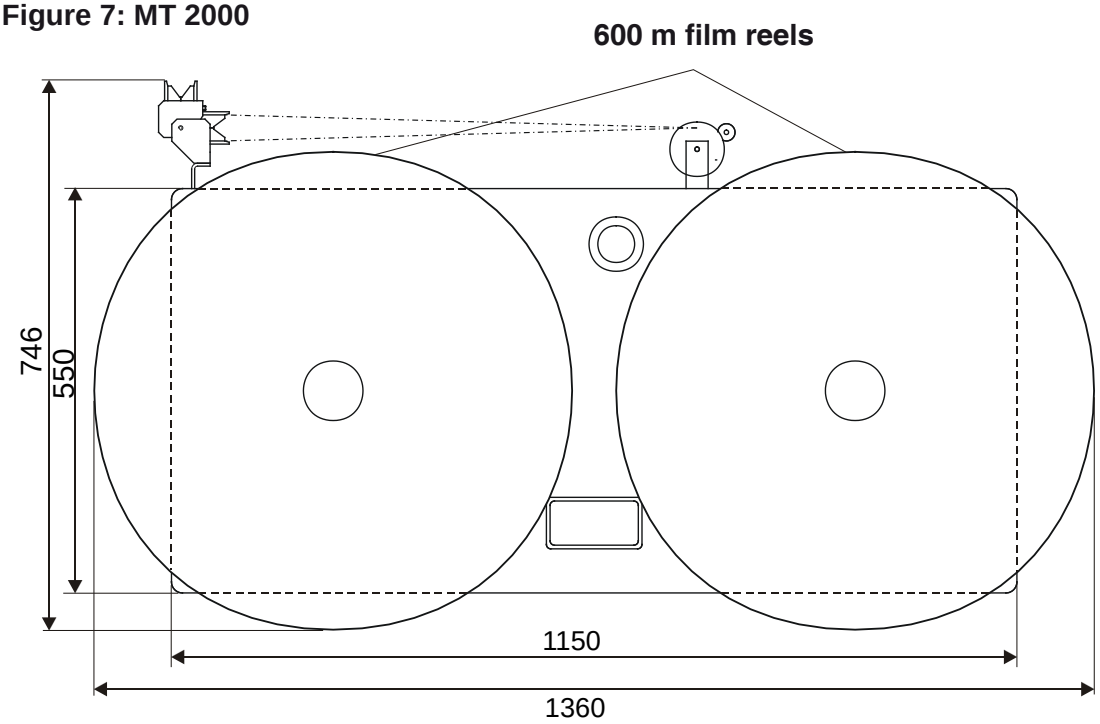


Figure 7: MT 2000



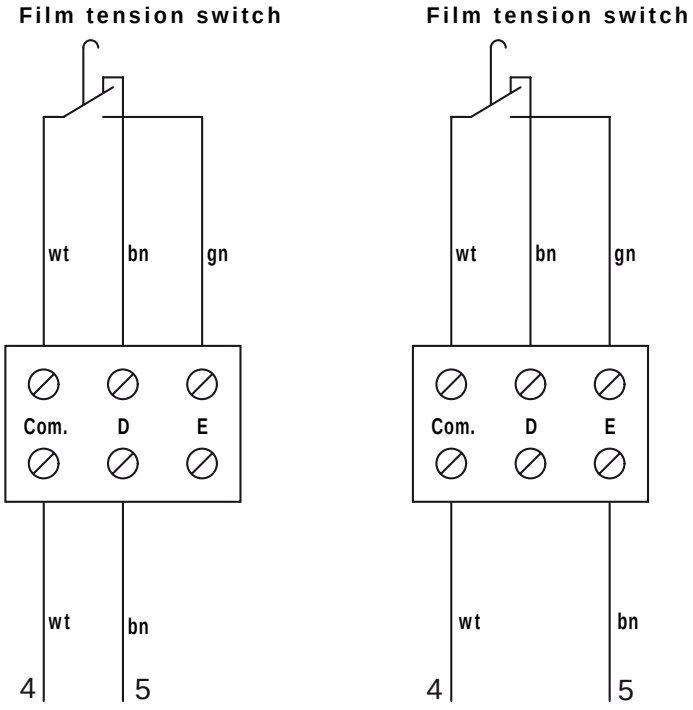
2.4 Mounting

2.4.1 Mounting the Column Head Plate on ST 100 and ST 200 or ST 400/500 E (for 1 projector operation)

- Mount the head plate (the braking and the guide roller) on the column top by fastening with two Allen screws (arrows).

2.4.2 Adapting the Film Tension Switch on ST 100 and ST 200 or ST 400/500 E (for 1 projector operation)

- Locate the small terminal block in the upper column opening.
- Connect the 2 wires corresponding to the connected projector (D-/A- or E-projector), according to the drawing.
- Store the terminal block into the column.



D/A - Projector

E - Projector

▶ **NOTE**

▷ The film tension switch will be connected “Normally Open” to a D- or A-projector and “Normally Closed” to an E-projector, see also drawing.

▷ ST 400 E and ST 500 E for 2 projector operation can be retrofit with film tension switches. We recommend to mount these film tension switches on the film compensation brackets (film runs from platter to projector).

2.4.3 Mounting and Adapting a Film Break Relay (option) (Option)

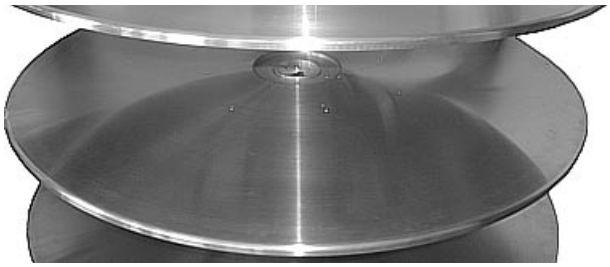
▶ **NOTE**

▷ We recommend to mount a film break relay into the platter unit when operating a projector without film break sensors.
Mounting and adapting the relay corresponding to the projector should only be carried out by trained service personnel.

▷ Connecting variations of film tension and film break switch, see schematic figure in chapter 7.3.

2.4.4 Mounting the Film Platters

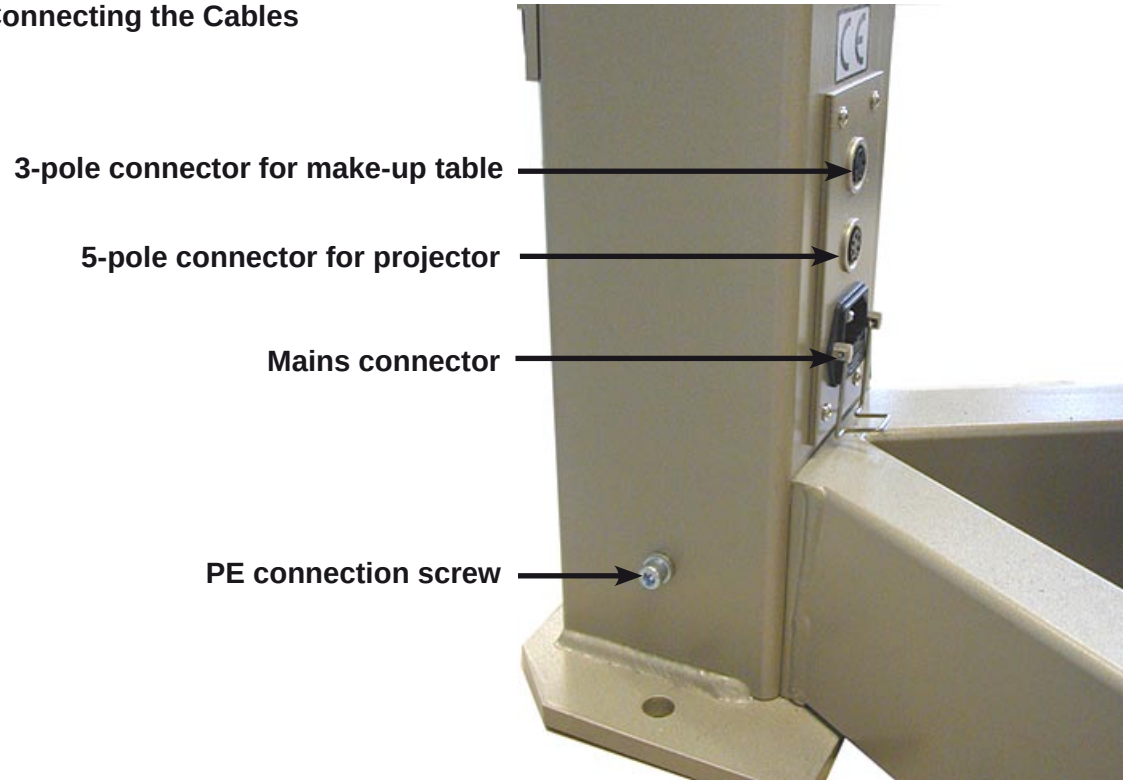
- Put down a platter onto each flange.
- Fit each platter with eight screws by using a screw driver.



▶ **NOTE**

Slightly oil the screws and do not tighten them too strong, because the platter may be removed for inspection and maintenance.

2.4.5 Connecting the Cables



You will find the 5-pole projector connector, the 3-pole make-up table connector and the mains connector on the bottom inside of the column.

▶ **NOTE**

▷ We recommend to connect the projector to the platter system by trained service personnel.

▷ See also wiring diagram in chapter 7. 3.

▷ Projector's plan of terminal connection, see corresponding operating or service manual.

2.4.5.1 Projector Cable (RUN) (film tension switch) for Kinoton Projector

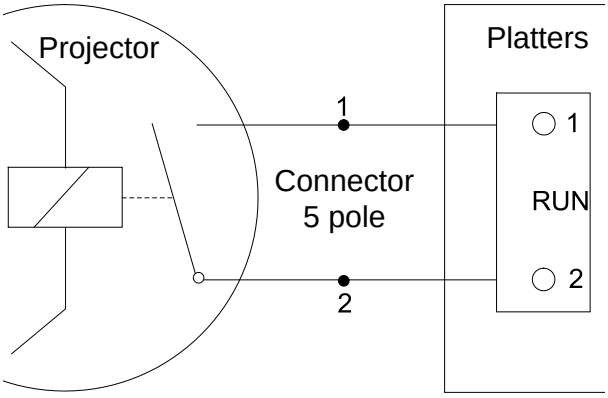
The projector cable connects pin 1 (white) and pin 2 (brown) from the 5-pole socket to the projector RUN (on projector's terminal strip) as well as pin 4 (yellow) and pin 5 (green) to the projector FILM BREAK (on projector's terminal strip).

Both signal lines RUN 1 and 2 are mandatory and start the platter system when the projector has been started.
Kinoton projectors are equipped with a RUN relay, which can switch between the "projection mode" and the "threading/lacing mode" of the platter system.
At projector start the platter system is switched to "projection mode".

The both signal lines FILM BREAK 4 and 5 are not mandatory for the operation of the platter system, but strongly recommended to switch off the projector and therefore the platters at a film tension higher than 5 N.

2.4.5.2 Connection to other Projectors (not KINOTON projectors)

- If other projectors are not equipped with the RUN relay, a suitable relay (electrically insulated) must be mounted into the projector, to be able to connect the both RUN signal cables from the platter system.
- Connect the relay to the RUN input (pin 1 (white) and pin 2 (brown)) in the platter system.



▶ **NOTE**

▷ The connection should only be carried out by trained service personnel. This connection is mandatory that projector and platter system can communicate to each other and function reliable.

▷ See wiring diagram in chapter 7. 3.

2.4.5.3 Connecting the PE Cable

- Fasten the PE cable on the existing screw on the bottom of the column.

ATTENTION

Pay attention for an adequate high flexible PE line (10^2 / AWG 8), so that the charging can discharge. The charging is produced from winding and rewinding of the film.

2.4.5.4 Mains Connection

- Connect the platter system to mains by using the power cable.

2.4.6 Set of Guide Rollers

A set of guide rollers (corresponding to your projector) will be supplied with the non-rewind system. For all KINOTON projectors the set of guide rollers are pilot-drilled fittingly.

For projectors from other producers you have to order the universal set of guide rollers. In this case you have to drill the corresponding holes into the projector's housing for fastening the set of guide rollers.

ATTENTION

Observe the components which are mounted in the projector when drilling holes into the projector housing.

2.4.7 Transporting Films to other Platters

- Fix the film with a film transport clip and close it with the handle star.
- Lift up the film including the insert ring.

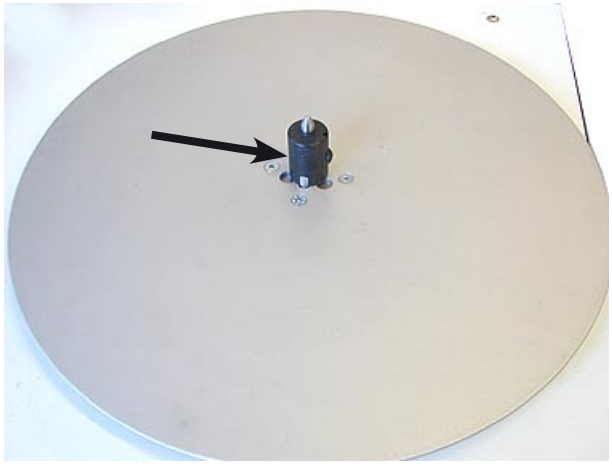
▶ **NOTE**

Because of the heavy weight of 70 mm films you have to tear them down, to remove the film in parts.

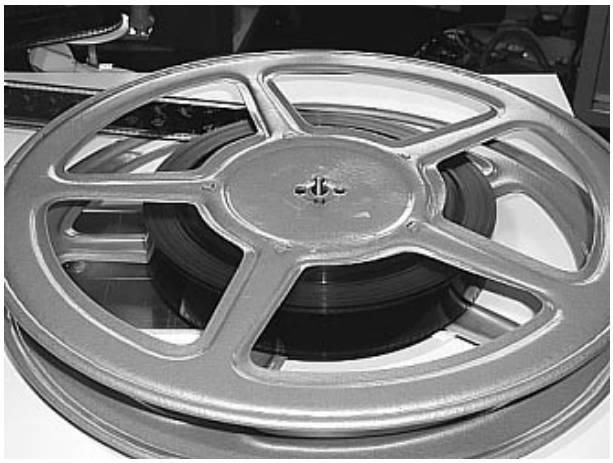
2.5 Mounting the Make-up Table

2.5.1 Reel Disk / Film Spool

- The reel disk is fastened on the corresponding flange.
- The Kodak adapter (arrow) will be secured with a setscrew on the shaft.
- The reel disk can be easily put on or put off by holding the Kodak adapter.



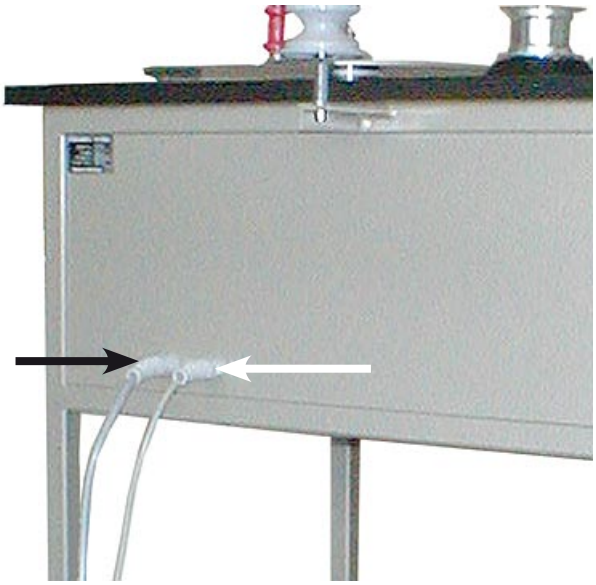
- To put on a film spool plug in the corresponding friction flange and then put on the film spool onto the friction shaft.



2.5.2 Connecting the Cables

Connect the make-up table to mains by using the power cable (black arrow).

Connect the make-up table to the non-rewind system's column to the 3-pole plug by the 3-pole cable (white arrow).



▶ **NOTE**

The non-rewind system and the make-up table must be connected to the same phase and ground for a reliable operation. Use twin power outlets for both devices.

3 Function, Components and Operating Elements

3.1 Function

3.1.1 Non-Rewind Systems

The non-rewind system is suitable to transport films while the projector is running and/or to make-up / tear-down the film programs.

ST 200 E / ST 270 E (3 platters) can operate simultaneously with one projector and a make-up table: Two platters (“giving” and “taking” level) operate with the projector, the free platter can operate with the make-up table.

ST 400 E (4 platters) is especially suitable for the operation with two projectors, e. g. for 3D projection.

ST 500 E (5 platters) is especially suitable for the simultaneous operation with two projectors and the make-up table.

ST 100 E (2 platters) can operate with a projector or with the make-up table.

Operation:

- The made-up film is positioned on a platter (giving level).
- The film is threaded through the take-off unit, which is placed in the middle of the film reel on the platter. The position of the fed film is sensed by the IR sensors on the take-off unit - accordingly the control unit controls the platter speed.
- From the projector the film are threaded via the movable guide roller on the column through the projector and back via the lever arm to the taking platter. The speed of this platter is controlled by the excursion of the lever arm.

3.1.2 Make-Up Table

With the make-up table and a free platter of the non-rewind system you can make-up and tear-down the film programs.

The **MT 2000** make-up table can operate with 2000 m film reels and is normally equipped with one electronically driven friction. The rotation direction can be switched. Optionally the make-up table can be equipped with a second mechanic friction for rewinding films.

The **MT 600** make-up table can operate with 600 m film reels and is normally equipped with one electronically driven friction. The rotation direction can be switched.

3.2 Components of Non-Rewind Systems

3.2.1 ST 200 E (35 mm film)

① head plate with guide roller and braking roller for film running to projector

② control unit and operating panel

③ column with different guide rollers

④ connectors

⑤ film platters

⑥ lever arms

⑦ insert ring

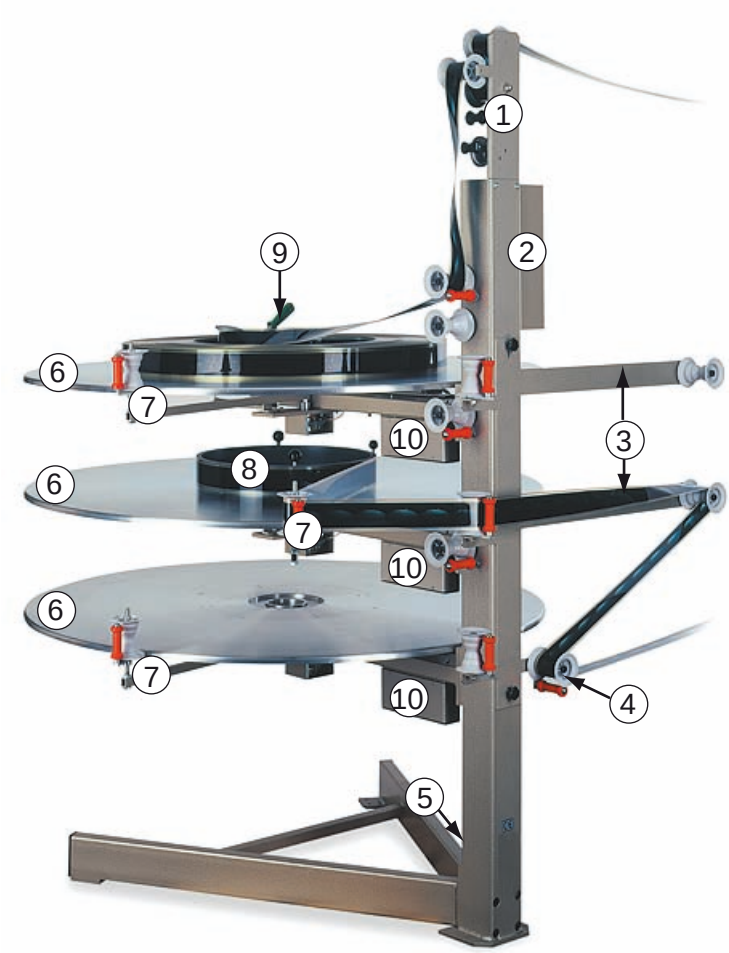
⑧ IR take-off unit

⑨ motor control (one for each platter)

▶ **NOTE**

You will find the same components on ST 100 E, ST 400 E and ST 500 E - different are the number of platters and therefore the number of the lever arms, the motor control units and the guide rollers.

3.2.2 ST 270 E (35 mm film and 70 mm film)



① head plate with combined guide and braking rollers for film running to projector

② control unit and operating panel

③ extension arms on guide roller unit

④ combined guide roller for film running from projector

⑤ connectors

⑥ film platters

⑦ lever arms

⑧ insert ring

⑨ IR take-off unit

⑩ motor control units

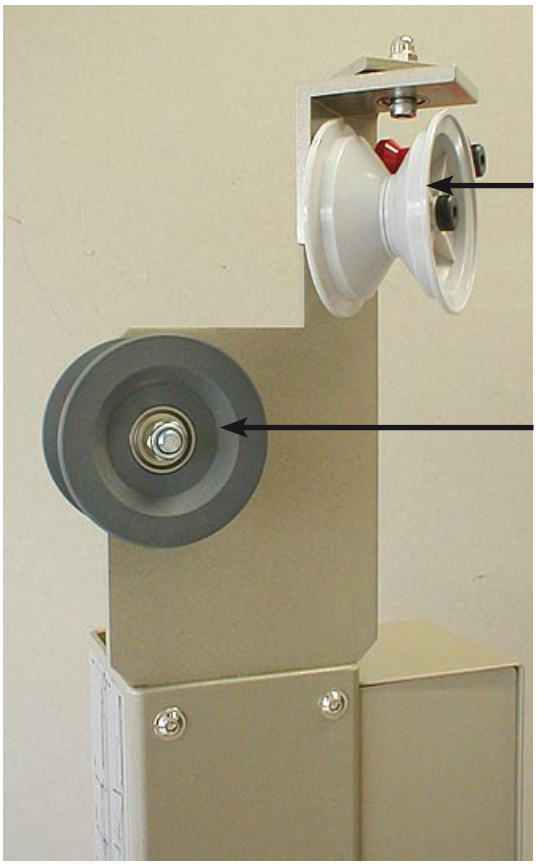
3.2.3 Frame

The chassis is built out of a column and a base.

The support arms and the guide rollers (guide roller unit for ST 270 E) are bolted onto the column.

The mains voltage cable and the connecting cables for the projector and the make-up table will be plugged into the corresponding connectors on the bottom of the column.

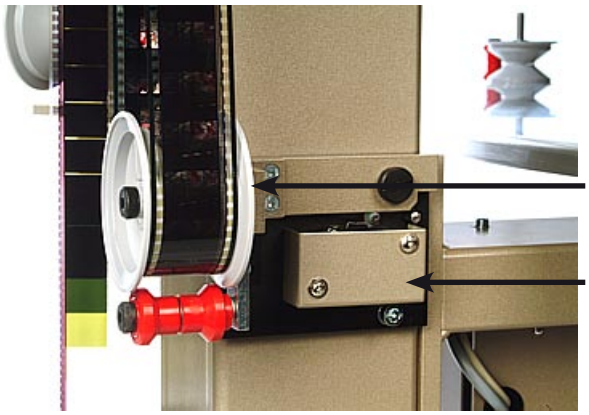
3.2.4 ST 200 E and ST 400/500 E for 1 Projector Operation: Guide and Braking Roller



▶ **NOTE**

Threading scheme, see chapter 4.1.1 .

3.2.5 ST 100/200 E and ST 400/500 E for 1 Projector Operation: Column with Film Tension Switch and Film Tension Roller

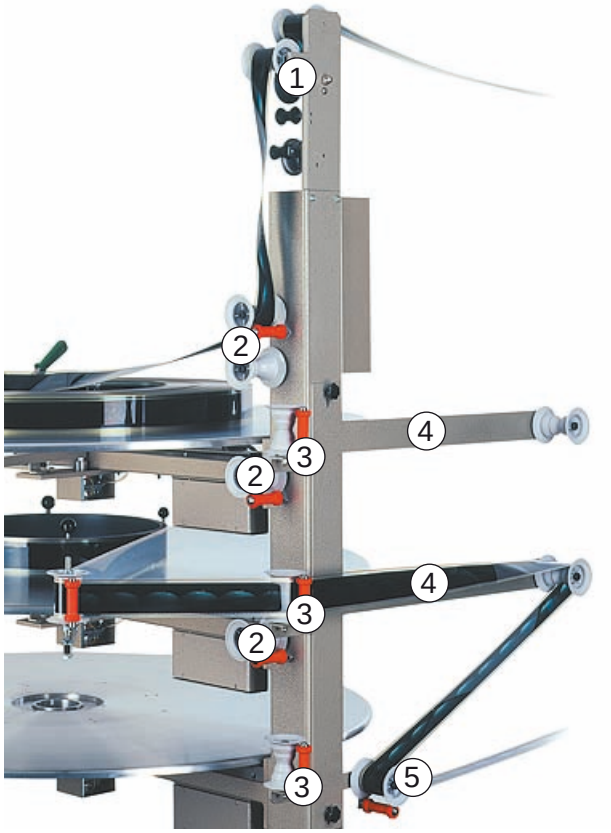


▶ **NOTE**

▷ Threading scheme, see chapter 4.1.1.

▷ ST 400 E and ST 500 E for 2 projector operation can be retrofit with a film tension switch on the film compensation brackets.

3.2.6 Guide Rollers on ST 270 E



① head plate with combined guide roller and braking roller for film running to projector

② combined guide roller for film running to projector

③ combined guide roller for film running from projector

④ guide roller unit for film running from projector

⑤ lower combined guide roller for film running from projector

▶ **NOTE**

Threading scheme, see chapter 4.1.3.

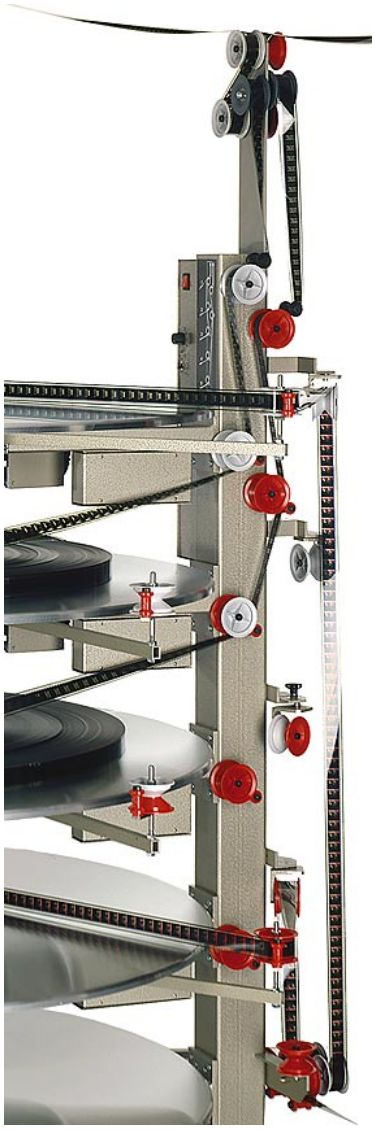
3.2.7 Guide Rollers on ST 400/500 E for 2 Projector Operation

The guide rollers on ST 400/500 E are arranged in pairs, so that two projectors can operate simultaneously with the non-rewind system.

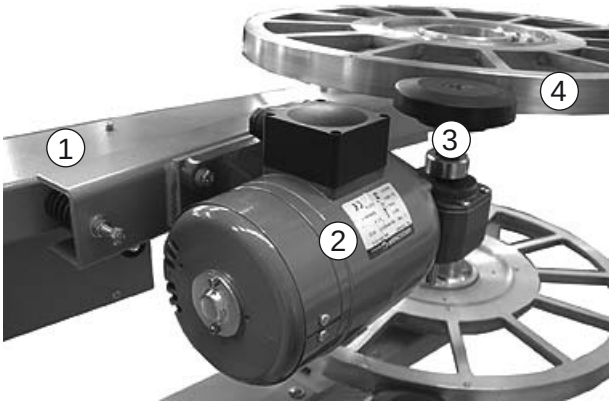
▶ **NOTE**

▷ Threading scheme, see chapter 4.1.2.

▷ ST 400 E and ST 500 E for 1 projector operation have the same order of rollers just like ST 200 E but with five platters.



3.2.8 Support Arm with Drive



① support arm

② motor

③ friction wheel with drive

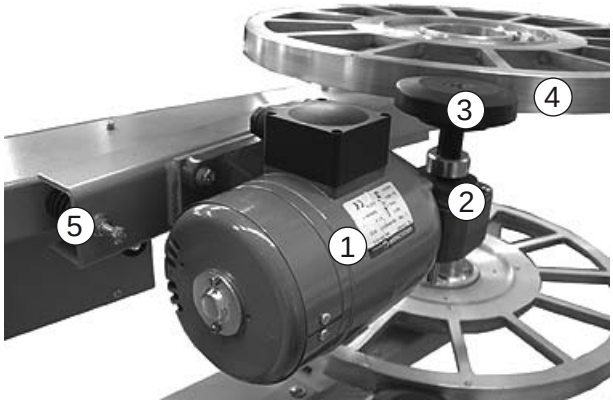
④ film platter driving flange

Each platter is driven from a motor ② via a friction wheel ③.

ATTENTION

Do not touch the friction wheel when the motor is running.

Platter Drive Motor of ST 100/200/400/500 E



① motor

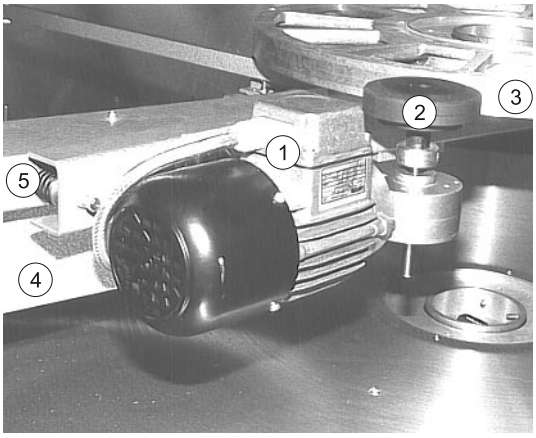
② drive

③ friction wheel

④ film platter driving flange

⑤ friction pressure adjusting unit (screw, spring, counter nut)

Platter Drive Motor of ST 270 E



① motor

② friction wheel

③ film platter driving flange

④ motor control unit box

⑤ friction pressure adjusting unit (screw, spring, counter nut)

3.2.9 Motor Control Unit

The motor control unit for each motor is positioned under the support arm (the figure shows an open motor control unit).

The main control unit registers the excursion of the lever arm (depending on film reel diameter) and transmits the new rotary speed values via the motor control unit to the corresponding motor.

DANGER

▲ Power 220 V: Use a separating transformer when measuring with an oscilloscope.

▲ Allow work on the motor control unit to be only carried out by competent service technician.

3.2.10 Main Control Unit

▶ **NOTE**

▷ ST 400 E and ST 500 E are equipped with two control boards.

▷ Connecting schemes, see chapters 7.4 and 7.5.

ATTENTION

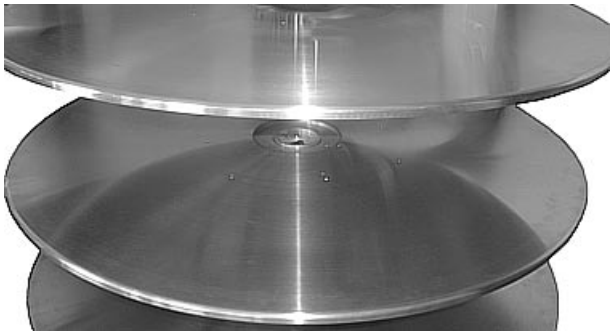
Work on the control unit and the motor amplifier are to be carried out by service technicians.

3.2.11 Film Platters

The platters are suitable to store and transport the films.

The **insert ring** will be pinned on the take-up platter.

The **take-off unit** will be pinned on the take-off platter.



3.2.12 Insert Ring (placed on take-up platter) => film from projector

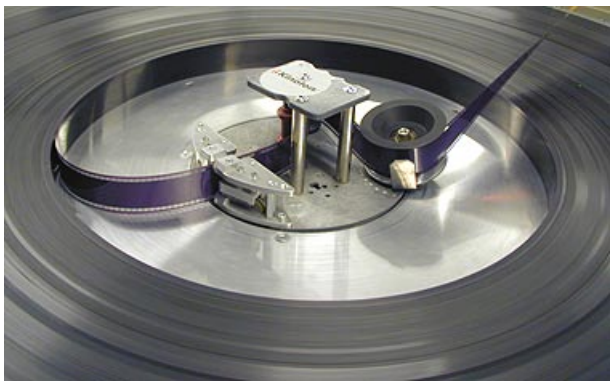
The insert ring - used to reel up a film - will be pinned onto the take-up platter. Spreading the tension jack you can fix the insert ring.

The tension jack has to be spread to remove the insert ring from the reel.

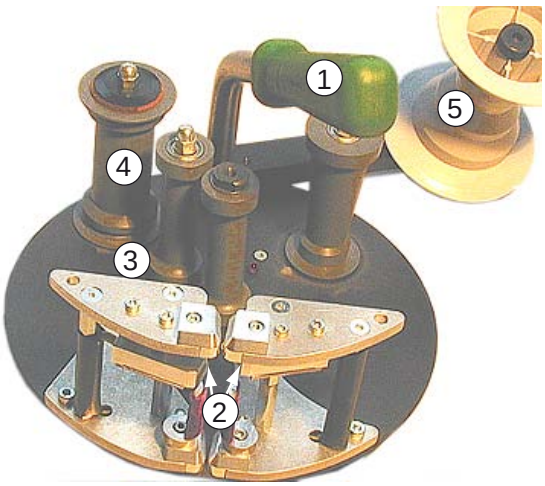
3.2.13 IR Take-Off Unit (placed on take-off platter) => film to projector

The take-off unit is inserted in the middle of “giving platter”.

- The take-off unit registers the film running speed via the current film position scanned by light barriers.
- The film position is recognized via light barriers.
- The main control box transmits the corresponding speed values (depend on film reel diameter) via the motor control unit to the motor of the corresponding platter.



ST 100/200/400/500/270 E (35 mm film) **ST 270 E (70 mm film)**



① handle

② film between light barriers

③ threading way (dotted) on base plate

④ braking roller

⑤ big guide roller

3.2.14 Lever Arm

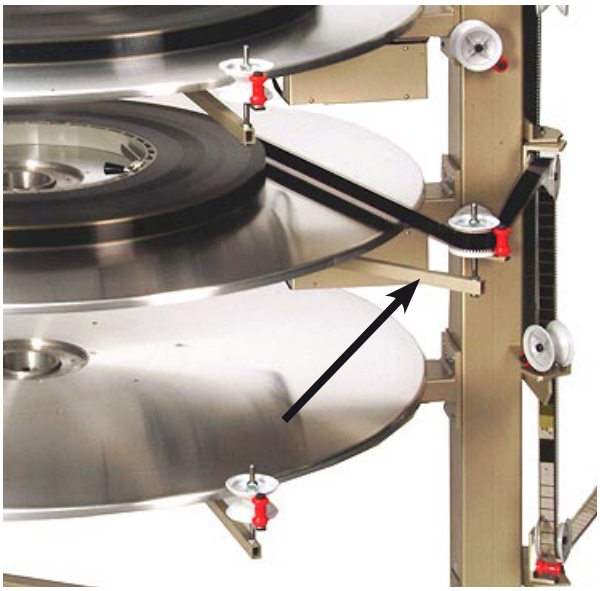
Lever arms are mounted on each platter. The lever arm controls the rotary speed of the platter which winds up the film.

▶ **NOTE**

Adjusting the spring tension on the lever arm, see chapter 5.3.3.

ST 100/200/400/500 E

The film, which runs from projector, is threaded in the movable guide roller on the column and then into the lever arm to the “taking” platter.



While the system is working, the lever arm (arrow) is automatically kept in the working position:

- The reel perimeter increases (when making-up), the lever arm moves out of its working position.
- The lever arm excursion will be sensed and transmitted to the main control unit.
- The main control unit works out the correct rotary speed values (depends on reel perimeter) and controls the motor speed of the corresponding platter.
- The motor will then rotate in a way that the lever arm moves back in its working position again.

Lever arm is completely moved to the stop:

- The film break switch will be activated.
- The platter drive will be retarded until it stands still.
- To activate the platter drive again, you have to turn the platter manually (move it out from the zero-position).

ATTENTION

Do not hinder the lever arm movement during the operation.

ST 270 E

Run the film - coming from the projector - into the lower guide roller on the column, then into the guide roller of the lower or upper extension arm and from there to the lever arm guide roller (arrow) and to the desired film platter.

ATTENTION

Do not hinder the lever arm movement during the operation.

3.3 Operating Elements of the Non-Rewind Unit

All operating elements like the main switch, the rotary switch and the toggle switch are positioned on the control board box on the top of the column.

3.3.1 Main Switch

The main switch is positioned on the top of the control unit box.

Main switch in position I: Current transfer is switched on. The switch lights red.
Main switch in position 0: Current transfer is switched off.

3.3.2 Rotary Switch for Platter Level

▶ **NOTE**

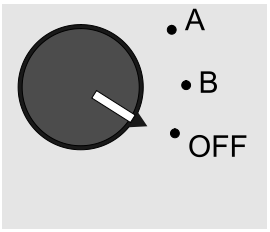
▷ If an optional film break switch is integrated in the control unit you must select that level which is not in use.

▷ The switch should not set to OFF, because the free platter level (end-position of lever arm) will trigger a film break signal.

ST 100 E

Rotary switch on A or B
Operation with the make-up table - the platter level, which operates with the make-up table is selected.

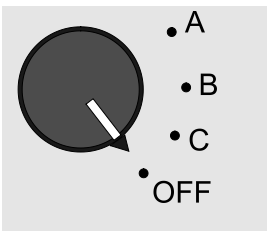
Rotary switch on OFF
Operation with the projector - no platter operates with the make-up table.



ST 200 E and ST 270 E

Rotary switch on A, B or C
- Operation with the make-up table - the platter level, which operates with the make-up table is selected.
- Two platters can simultaneously operate with one projector.

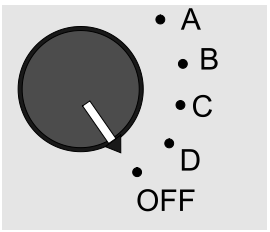
Rotary switch on OFF
Operation with the projector - no platter operates with the make-up table.



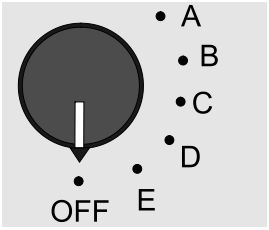
ST 400 E

Rotary switch on A, B, C or D:
- Operation with the make-up table - the platter level, which operates with the make-up table is selected.
- Two platters can simultaneously operate with one projector if the ST 400 E is modified for 2 projector operation.

Rotary switch on OFF
Operation with one or two projectors - no platter operates with the make-up table.



ST 500 E



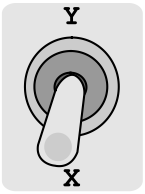
Rotary switch on A, B, C, D or E:
- Operation with the make-up table - the platter level, which operates with the make-up table is selected.
- Two platters can simultaneously operate with one projector if the ST 500 E is modified for 2 projector operation.
- Two other platters can simultaneously operate with a second projector.

Rotary switch on OFF
Operation with one or two projectors - no platter operates with the make-up table.

▶ **NOTE**

The mid platter can work with the two upper or with the two lower platters. Therefore you have to select the associated projectors (see also the following description of toggle switch “projector”).

3.3.3 Toggle Switch for Projector Assignment (only ST 500 E for 2 projector operation)



Toggle switch on **Y**:
The mid platter (C) is assigned to projector Y.

Toggle switch on **X**:
The mid platter (C) is assigned to projector X.

▶ **NOTE**

For projector operation you always have to assign the mid platter to a projector, otherwise the system gets no “Run” signal and if a film break is activated it is not necessary to assign the corresponding projector.

3.4 Components of the Make-Up Table

① roller holder

② control roller with biphase sensors

③ guide and stay roller

④ reel platter

⑤ operating panel

The make-up table is either used to make-up or tear-down the film programs together with the non-rewind system.

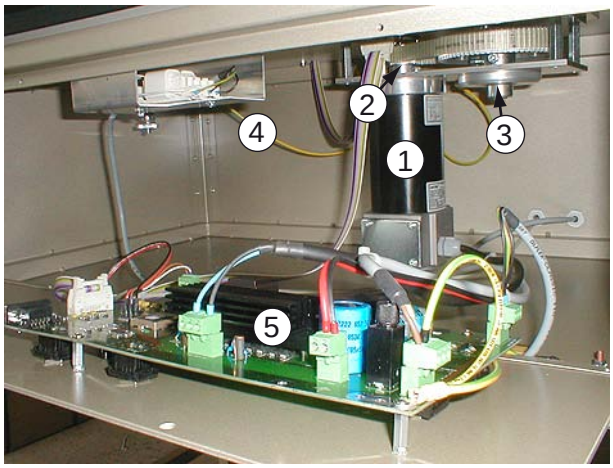
The **MT 600 make-up table** can optionally be equipped with a second mechanical friction. It is possible to operate either with two reels up to 600 m or with one reel up to 2000 m.

The **MT 2000 make-up table** can optionally be equipped with a second mechanical friction. It is possible to operate with two reels up to 2000 m.
Optional is also the table light, the shelves and the spools holder.

Due to frontal wheels (fixable with brakes) the make-up table is movable.
The table level can be adjusted by screwing in or out the wheels.

3.4.1 Frictions

3.4.1.1 Electronic Take-Up Friction (MT 600 / MT 2000)



① friction drive

② motor shaft

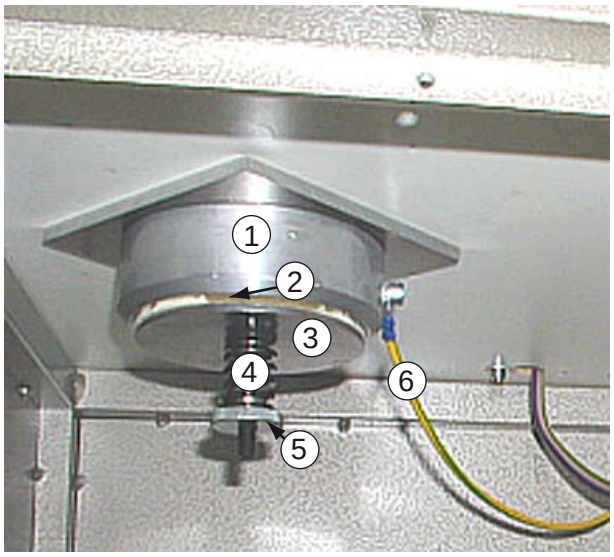
③ friction shaft

④ earthing cable (important!!)

▶ **NOTE**

The electronic friction always drives the right reel or reel disk of the make-up table.

3.4.1.2 Mechanic Take-Off Friction (option for MT 2000 / MT 600)



① friction body

② felt disk

③ disk (moveable on friction shaft)

④ spring

⑤ knurled nut

⑥ earthing wire (very important!!)

Function principle: The spring pushes the moveable disk and the felt disk to the solid friction body effecting a braking moment. This braking effect can be adjusted via a screw and a spring.

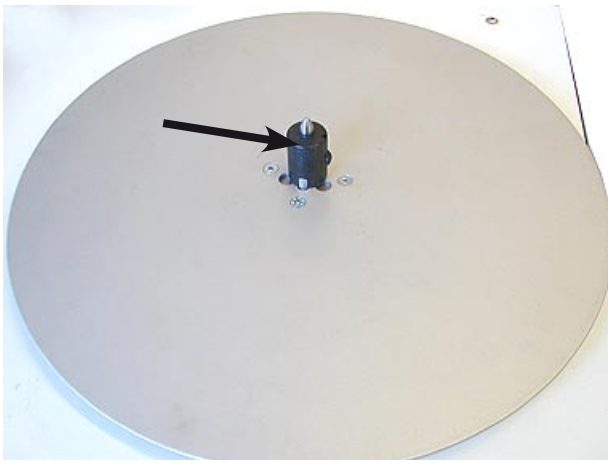
▶ **NOTE**

▷ Depending on the spool size (600 m - 2000 m) the film tension has to be adapted.

▷ Adjusting the friction, see chapter 5.3.7.

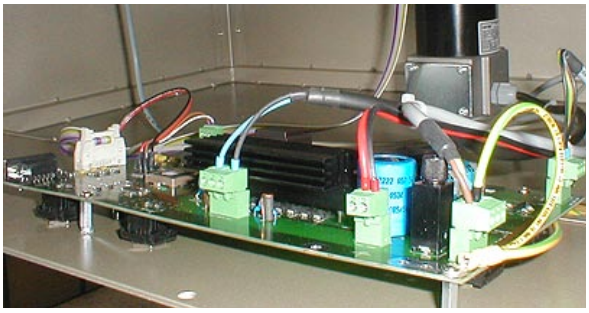
3.4.1.3 Friction Shafts (change flanges)

- The reel disk is fastened on the corresponding flange
- The Kodak adapter (arrow) will be secured with a setscrew on the shaft.
- The reel disk can be easily put on or put off by holding the Kodak adapter.
- To put on a film spool plug in the corresponding friction flange and then put on the film spool onto the friction shaft.



3.4.2 Control Board

The control board is positioned on the inside of the frontal cover.
This cover can be opened by releasing the screws.



ATTENTION

Work on the electrical equipment is only be carried out by service technicians.

▶ **NOTE**

See also wiring scheme in chapter 7.6.

3.4.3 Film Guide Rollers

① control roller

② guide and stay roller for film running to a platter

③ adjustable guide rollers

④ guide rollers

⑤ additional roller for operation with platter level D/E (only ST 400/500 E)

Roller Holder

The roller holder is equipped with adjustable rollers ③ - one on the upper end and one on the lower end. The two mid rollers are fixable mounted.

Via the roller holder the film can be led to all platters of the non-rewind system.

Control Roller

If the control roller turns itself the Hall sensors register the rotation direction and the rotation speed. The signal is used to calculate the film speed.

ATTENTION

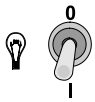
Never put a film with a magnetic sound track on the make-up table, because the control roller is equipped with solenoids and therefore the sound track can be destroyed.

▶ **NOTE**

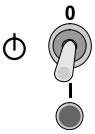
Threading scheme, see chapter 4.1.5.

3.5 Operating Elements of the Make-Up Table

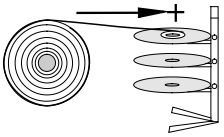
① main switch ON/OFF.



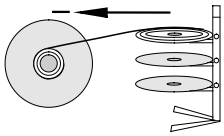
② light switch ON/OFF (option).



③ toggle switch: selects make-up or tear-down operation



make-up operation from make-up table to a platter



tear-down operation from a platter to make-up table

④ rotary switch

- Selects the continuous rewind speed
- Starts the rewind operation

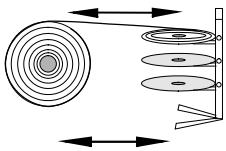
▶ **NOTE**

To stop and reset the make-up table, turn the potentiometer to its left stop.

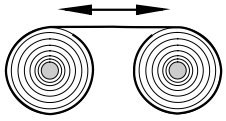
⑤ indicator lamps red and green

- The red lamp illuminates at an error.
- The green lamp illuminates at start.
- The green lamp blinks at operation.

⑥ toggle switch: Selects operation mode.

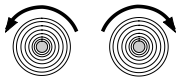


The non-rewind system operates with the make-up table (making up or tearing down).



The make-up table rewinds.
(only possible with 2 friction shafts)

⑦ toggle switch: Selects rotation direction.

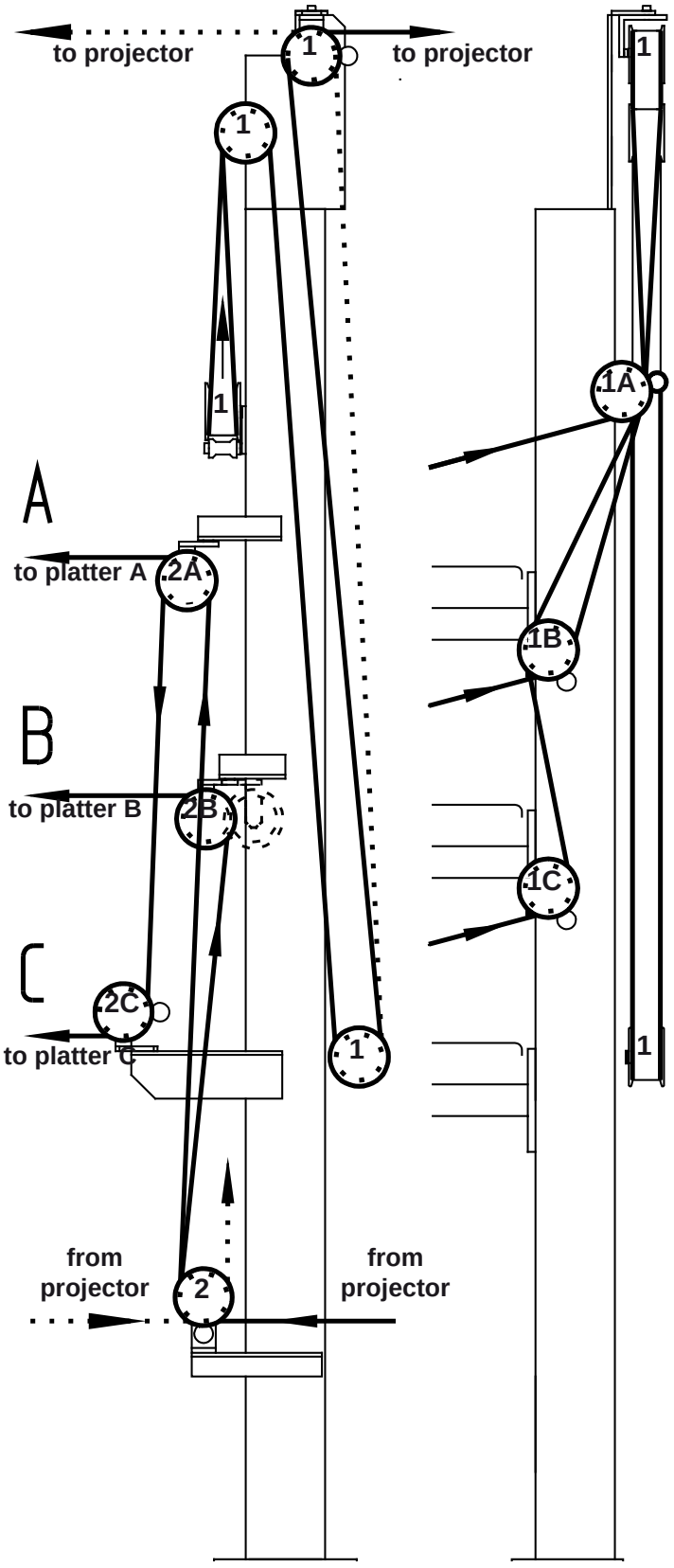


RIGHT or LEFT

4 Operation and Troubleshooting

4.1 Threading Schemes for Platter Systems

4.1.1 ST 100 E / ST 200 E / ST 400/500 E for 1 Projector Operation



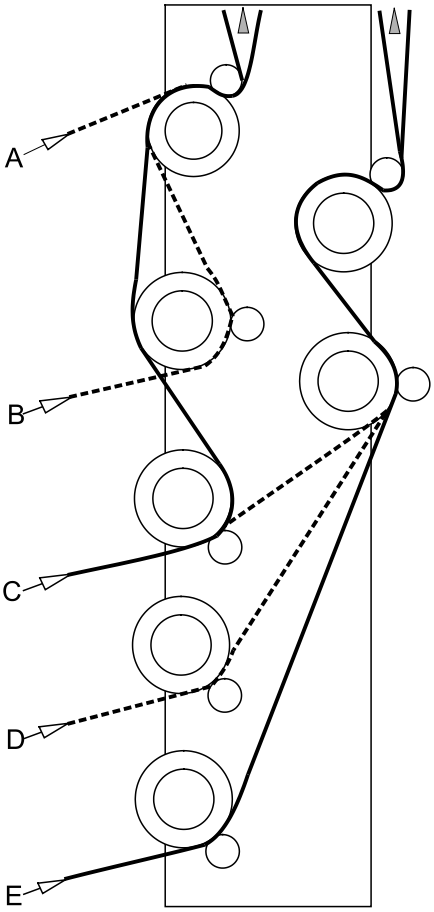
Film to projector
(exemplary for ST 200E)

All rollers marked with "**1**" are used for the film running to the projector (out-coming):
- from the take-off unit
- to the guide roller (1A, 1B or 1C) on the column
- to the braking roller on the column head plate
- to the film tension switch roller on the bottom of the column
- to the adjustable guide roller on the column head plate
- left or right to the projector

Film from projector
(exemplary for ST 200E)

All rollers marked with "**2**" are used for film running from the projector (incoming):
- from the projector left or right
- to the adjustable guide roller on the bottom of the column
- to the guide roller 2B (for mid platter) or 2A (for upper platter A or lower platter C)
- either from the guide roller 2B to the lever arm for the mid platter B, then to the insert ring
- or
- from the guide roller 2A to the lever arm for the upper platter A, then to the insert ring
- or from the guide roller 2A to the lever arm for the lower platter C, then to the insert ring

4.1.2 ST 400 E and ST 500 E for 2 Projector Operation



▶ **NOTE**

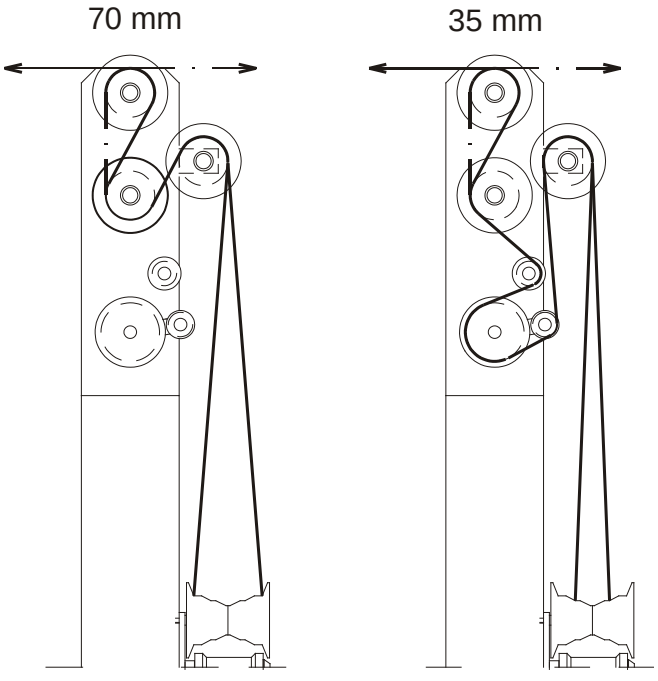
▷ In principle, you always have to thread the film from the take-off unit to the next guide roller on the column and then to the guide rollers on the top of the column.
From the projector you have to thread the film into the adjustable guide roller on the column and then to the lever arm to the “taking” platter.

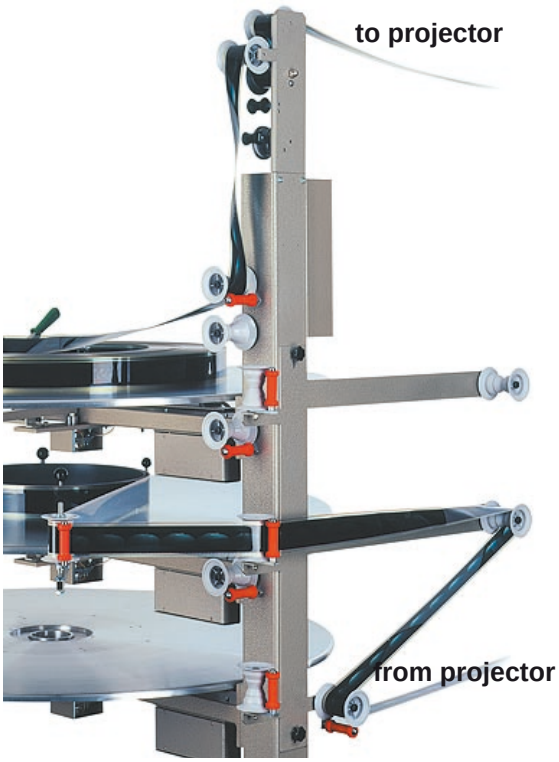
▷ The figure shows the threading instruction (only “giving” platter level) for ST 500 E operating with two projectors.

▷ The mid platter either works with projector X or Y (for simultaneous operation with make-up table). Therefore select the corresponding projector.

▷ For ST 400 E and ST 500 E for 1 projector operation use the same threading scheme as for ST 200 E.

4.1.3 ST 270 E





4.1.4 IR Take-Off Units

for 35 mm Film

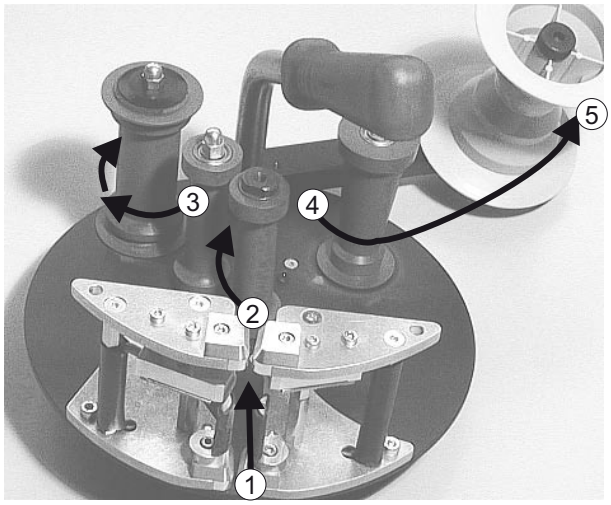
1 between the light barriers

2 around the small guide roller and around the braking roller

3 around the big guide roller

4 to the column

for 70 mm Film



① between the light barriers

② between the guide and the pressure roller

③ between the pressure and the braking roller

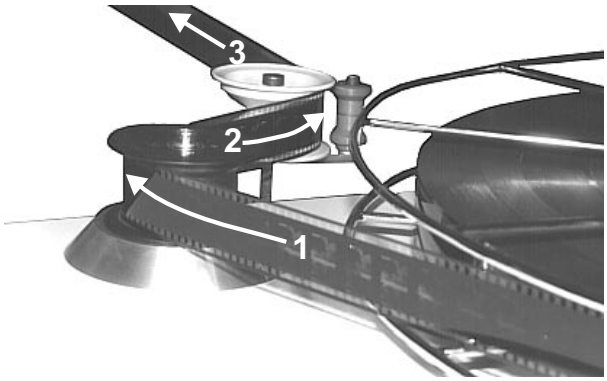
④ around the guide roller

⑤ via the big guide roller to the column

▶ **NOTE**

Observe the dots on the base. They show you how to thread the film.

4.2 Threading Scheme for Make-Up Table



1. from or to the reel disk or the film spool via the control roller
2. from or to the control roller via the guide roller
3. from or to the roller holder and from there to or from the platter system

▶ **NOTE**

The film must always be threaded via the control roller although the rotation direction is free selective.

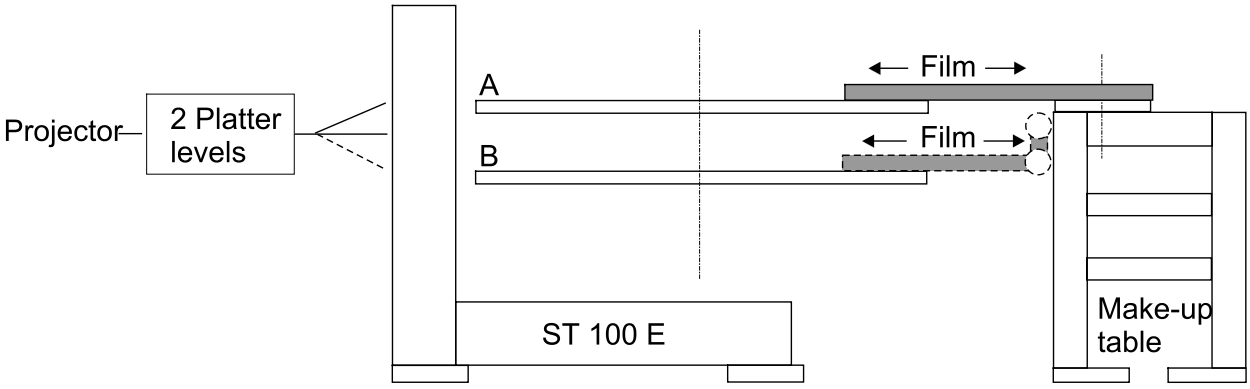
ATTENTION

△ Never spool a film with a magnetic sound track on the make-up table, because the control roller is equipped with four solenoids and therefore the sound track can be destroyed.

△ Special solution (encoder roller) can be delivered if films with magnetic sound tracks will be used.

4.3 Non-Rewind System Operates with Projector and/or Make-Up Table

4.3.1 ST 100 E



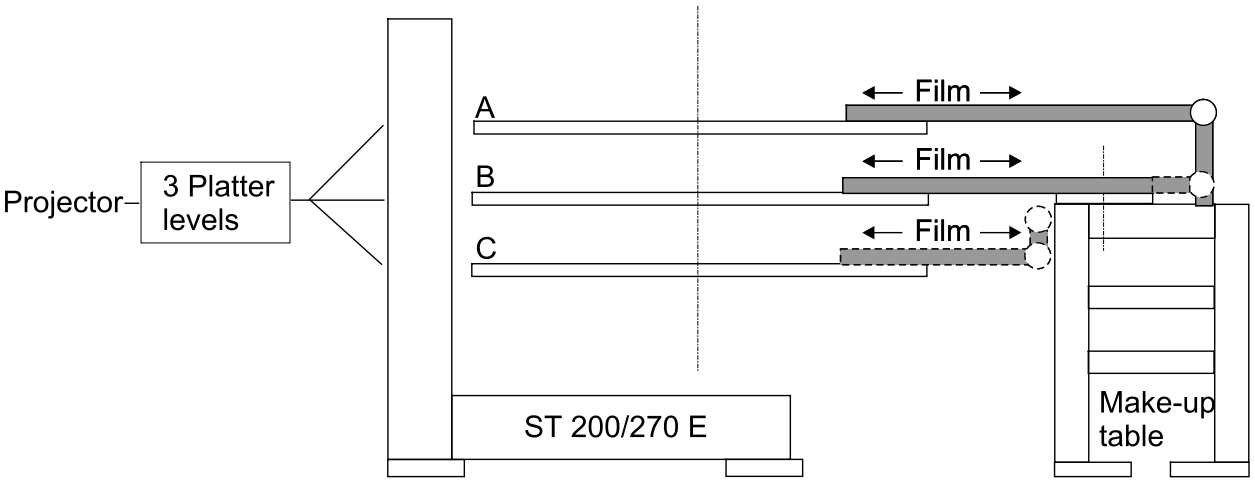
Operation with a projector only:

- The projector runs with platter A and B (“giving film” and “taking film”)

Operation only with the make-up table:

- The make-up table runs with any platter.

4.3.2 ST 200 E / ST 270 E



Operation with projector and make-up table:

- The projector runs with two platters of the three platters.
- The make-up table runs with the free platter (rotary switch must be positioned on this platter).

Operation only with projector:

- The projector runs with two of the three platters.

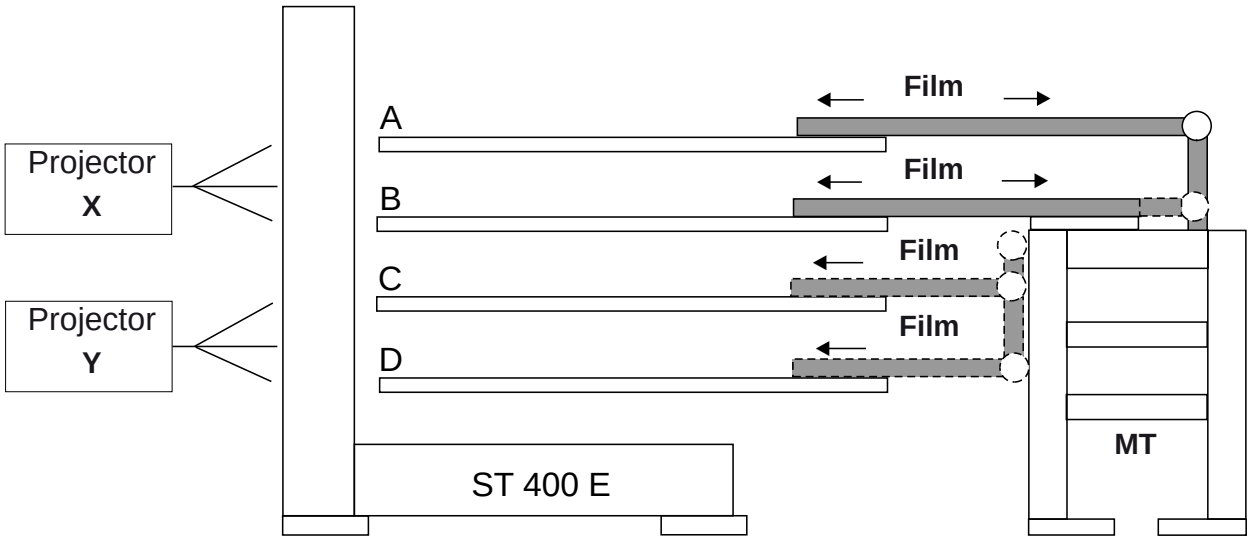
▶ **NOTE**

If an optional film break switch is integrated in the control unit you must select that level, which is not in use.

Operation only with make-up table:

- The make-up table runs with any platter (rotary switch must be positioned on this platter).

4.3.3 ST 400 E



Operation with one projector and make-up table:

- The projector runs with two of the four platters.
- The make-up table runs with a free platter
  (rotary switch must be positioned on this platter).

Operation with two projectors:

- Two projectors (X and Y) run with all four platters (each projector with two platters).

▶ **NOTE**

▷ The platter system can be equipped for running at 1 projector operation or 2 projector operation (numbers and order of the guide rollers and film tension switch).

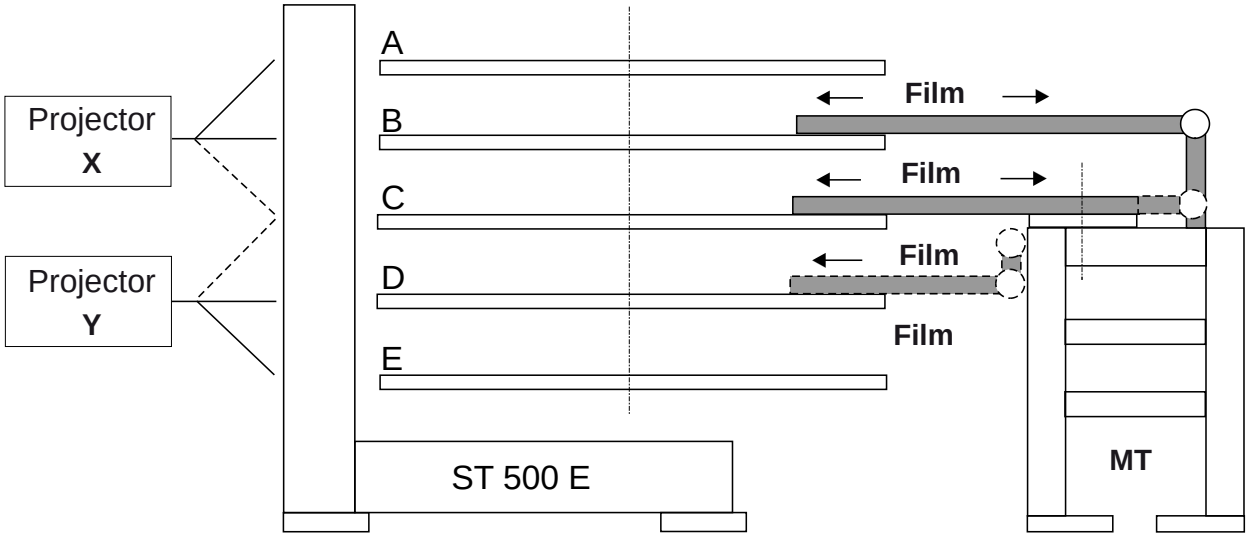
▷ If the platter system is equipped with the optional film break relays, you must select that level, which is not in use.

▷ The film break function has to be configured, depending on the use with one or two projectors.

Operation only with make-up table:

- The make-up table runs with platter A, B, C or D (the rotary switch must be positioned on this platter):
  - Tear-down operation is only possible on platter level A or B.
  - Make-up operation is possible on all four platters.

4.3.4 ST 500 E



Operation with two projectors and make-up table:

- The projector X runs with the upper platters A and B and the projector Y runs with the lower platters D and E.
- The make-up table runs with the free platter level B, C, D or E (the rotary switch must be positioned on this platter).

Operation with one projector and make-up table:

- The projector X or Y runs with two of the five platters.
- The make-up table runs with a free platter (the rotary switch must be positioned on this platter).

Operation with two projectors

- Two projectors (X and Y) run each with two platters.

▶ **NOTE**

▷ The platter system can be equipped for running at 1 projector operation or 2 projector operation (numbers and order of the guide rollers and film tension switch).

▷ If the platter system is equipped with the optional film break relays, you must select that level, which is not in use.

▷ The film break function has to be configured, depending on the use with one or two projectors.

Operation only with make-up table:

- The make-up table runs with platter B, C, D or E (the rotary switch must be positioned on this platter):
  - Tear-down operation is only possible on platter B or C.
  - Make-up operation is only possible on platter B, C, D or E.

4.4 Switch On / Switch Off

Switch On

- Switch on the external power supply and the control box in the performance room.
- Switch on the non-rewind system's main switch (position "I").

☛ The key lamp illuminates red.

- Switch on the make-up table's main switch (position "I").

☛ The indicator LED under the toggle switch illuminates orange.

Switch Off

- Switch off the non-rewind system's main switch (position "0").

☛ Red lamp gets off.

- Switch off the make-up table's main switch (position "0").

☛ Orange LED gets off.

- Switch off the external power supply and the control box.

4.5 Projection Operation

At projection operation the platter system runs together with the projector.
The projector "takes" the film from the "take-off" level of the platter system.
After projecting the projector "gives" the film to the "take-up" level of the platter system.

Projector and platter system communicate together in a way that starting the projector will start the platter system too.

If a film break happens, the operation will be stopped by the projector due to its film break sensor.

If the platter system is equipped with the optional film break relay and wired corresponding to the connected projector (NO or NC relay), the platter system can stop the operation by a film break signal.
The film break relay is necessary if the connected projector is not equipped with film break sensors.

If the film tension exceeds 5 N, the platter system ST 100/200 E / ST 400/500 E for 1 projector operation will stop the operation by the integrated film tension switch.

ST 400/500 E for 2 projector operation can optionally be equipped with film tension switches on the compensation brackets to be able to stop the projectors at too strong film tension.

▶ **NOTE**

At projection operation, the platter selection rotary switch must be positioned to **OFF** or to this platter which is not used (free).

☛ The film reel is positioned on the platter – beginning of film reel is inside.

- Plug the take-off unit.
- Open the tension jack of the insert ring and put it down on the “take-up” platter.

☛ The platter selection switch **must be position on OFF** or on this **platter level, which is not in use** (mandatory with an optional film break relay)

- Thread the beginning of the film into the take-off unit, then into the guide rollers of the column.

☛ The platter is activated and turns itself.

- Run the film to the projector.
- Run the film from the projector over the adjustable guide roller on the column back to a platter.
- Thread the film into the guide rollers of the corresponding lever arm.
- Wind-up the film with two to three winding over the insert ring.
- Turn the platter manually.

☛ The film will be stressed.

☛ The lever arm will automatically move into its working position.

☛ The projector / projector pair is ready for start.

ATTENTION

△ The film must always be threaded between the guide roller and the red stay roller.

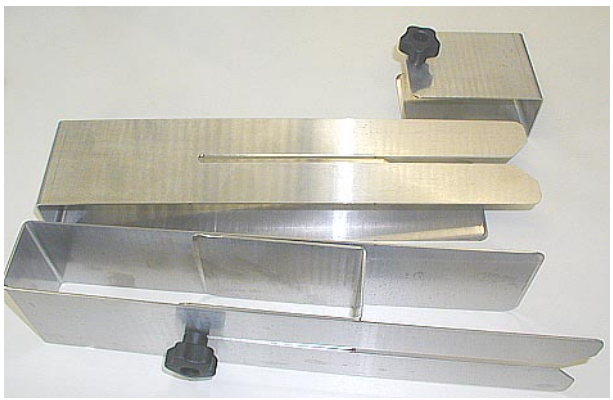
△ Check all runs and rollers if the film is threaded correctly.

4.5.1 Changing the Program (film reel)

If the program will be finished, then you should tear-down the program with the aid of the make-up table especially a heavy 70 mm, therefore see chapter 4.5.2.

If you want to take the complete film reel from the platter, then proceed as follows:

- Fix the end of the film with a tape.
- Fasten the film transport clip over the film reel and the insert ring.
- Remove the secured film from the platter.
- Put your new program onto the platter and remove the film transport clip.



4.6 Operation with Make-Up Table

Together with the make-up table the film can be made up onto the platter system or tore down from the platter system to the make-up table.
Platter system and make-up table communicate together in a way that the reeling speed will be adapted corresponding to the current reel diameter.
Furthermore the film tension is kept between the platter system and the make-up table.

ATTENTION

△ Never spool a film with a magnetic sound track on the make-up table, because the control roller is equipped with four solenoids and therefore the sound track can be destroyed.

△ Special solution (encoder roller) can be delivered if films with magnetic sound tracks will be used.

4.6.1 Make-Up Operation

▶ **NOTE**

▷ At make-up operation, the **platter selection rotary switch must be positioned** to this platter which **operates with the make-up tablet**.

▷ Do not place the film splicer on a platter of the non-rewind system, place it, for example, on the make-up table.

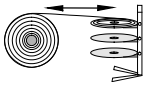
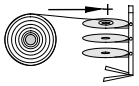
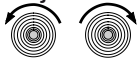
▷ Keep the working place clean.

▷ If you have to make-up several small trailers, it can be useful at first to make-up the whole trailers part on a rewind table or a make-up table with two friction shafts and at second to rewind it on the platter system.

- Connect the make-up table to the non-rewind system (3-pole connector).

▶ **NOTE**

Be sure, the non-rewind system and the make-up table are connected to the same phase and ground for a reliable operation. Use twin power outlets for both devices.

- Switch on the make-up table (switch position “I”).
- Adjust the upper toggle switch to position  (operation with non-rewind system).
- Adjust the lower toggle switch to position  (make-up operation).
- Adjust the desired rotating direction by setting the upper right toggle switch  (left or right).

☛ The first reel, for example a trailer, is put on the right side of the make-up table.

- Pin an insert ring on a platter of non-rewind system.

- Lead the film via the control roller and then via the associated guide rollers on the roller holder to the selected platter of the non-rewind system.

ATTENTION
Never lead the film via the lever arm of the non-rewind system to the make-up table.

- Wind-up the film (two to three winding) around the insert ring on the “reel-up” platter.
- Activate the corresponding platter A, B, C, D or E by turning the rotary switch on the platter system.
- Turn the potentiometer clockwise to the desired reel speed, to start the make-up operation.

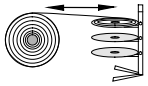
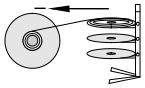
☛ While starting the green LED illuminates continuously.
During the operation the green LED blinks.

☛ Should the red LED illuminate there is a malfunction or a fault.

- To reset the table turn the potentiometer to the stop position and restart the platter system as soon as the green LED illuminates.
- Repeat this process until your program is finished.

4.6.2 Tear-Down Operation

▶ **NOTE**
At tear-down operation, the **platter selection rotary switch must be positioned to this platter which operates with the make-up table**.

- Connect the make-up table to the non-rewind system (3-pole connector).
- Switch on the make-up table (switch position “I”).
- Adjust the upper toggle switch to position  (operation with non-rewind system).
- Adjust the lower toggle switch to position  (tear-down operation).
- Adjust the desired rotating direction by setting the upper right toggle switch  (left or right).

☛ The program for separating is positioned on a platter.

- Lead the film to the make-up table via the guide roller on the column.

ATTENTION
Never lead the film via the lever arm of the non-rewind system to the make-up table.

- Activate the corresponding platter A, B, C, D or E by turning the rotary switch on the platter system.
- Turn the potentiometer clockwise to the desired reel speed, to start the tear-down operation

☛ While starting the green LED illuminates continuously.
During the operation the green LED blinks.

☛ Should the red LED illuminate there is a malfunction or a fault.

▶ **NOTE**

Troubleshooting, see chapter 4.7.

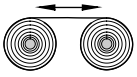
- By the time the process ends, reduce the reel speed. Stop reeling and open the slice between the acts by peeling off the tape.
- Repeat this process until your program is separated.

4.6.3 Rewind Operation

▶ **NOTE**

▷ The rewind operation (from left to right) is only possible with an optional second friction shaft.

▷ By using the UT 600/2000 rewind table you can rewind in both directions.

- Switch on the make-up table (switch position “I”).
- Adjust the upper left toggle switch to position  (rewind operation).
- Adjust the possible rotating direction by setting the upper right toggle switch  (left or right).

ATTENTION

To reverse the rotation the drive has to stand still.

- Turn the potentiometer clockwise to the desired reel speed, to start the rewind operation.

☛ While starting the green LED illuminates continuously.
During the operation the green LED blinks.

☛ Should the red LED illuminate there is a malfunction or a fault.

▶ **NOTE**

Troubleshooting, see next chapter 4.7.

4.7 Troubleshooting

Even though we produce high quality, reliable equipment, there still can be problems due to incorrect operation, poor maintenance, incorrect procedures etc.

This chapter has information about some common problems and about solving those problems.
It is not possible to cover all possible problems in an operating manual; we suggest each owner develops a relationship with a competent cinema service provider.

4.7.1 Clearing of Errors

Igniting the xenon bulb and rewinding the film generate charges. Therefore a high flexible and reliable PE connection between lamphouse and projector and between projector and non-rewind system is very important.

4.7.2 Non-Rewind System

Non-rewind / platter system is not running.

Malfunction	Possible clearing of errors
The lever arm is not in the working position	• Turn the platter to move the lever arm to the working position. • Hall potentiometer on the lever arm is defective. If necessary, call service.
The projector (X or Y) (ST 500 E) is not selected, which is assigned to the platter in the middle.	• Select the projector on the toggle switch.
The unused platter is not selected (necessary when a film tension switch is integrated in control unit (only ST 500 E)).	• Select the unused platter.

4.7.3 Make-Up Table

Make-up Table is not running => the red LED illuminates

Malfunction	Possible clearing of errors
The rotation direction was set wrongly.	• Adjust the rotation direction corresponding to the operation mode.
The rotation direction was changed during the operation.	• Turn the potentiometer left to its stop => the red LED turns off and the green LED illuminates. To start again turn the potentiometer clockwise.
Malfunction because of wrong operation	• Turn the potentiometer left to its stop => the red LED turns off and the green LED illuminates. To start again turn the potentiometer clockwise.
Unreliable operation	• The non-rewind system and the make-up table must be connected as short as possible to the same phase and ground for a reliable operation. Use twin power outlets for both devices.

5 Cleaning and Maintenance / Adjustments

5.1 General Hints

ATTENTION

△ Allow work on the electric supply only to be carried out by competent electricians.

△ Make sure that nobody starts the non-rewind system while you are working. With all maintenance and cleaning work you must separate the non-rewind system from the power supply (switch off the main switch).

△ All adjustments are to be carried out by service from KINOTON.

Because of using maintenance-free elements, the consumption of material and the expenditure of time for maintenance work and attendance are reduced to a minimum.

This maintenance work and attendance which are necessary may be observed especially from operators. These works have to be carried out regularly and carefully.

5.2 Maintenance and Cleaning

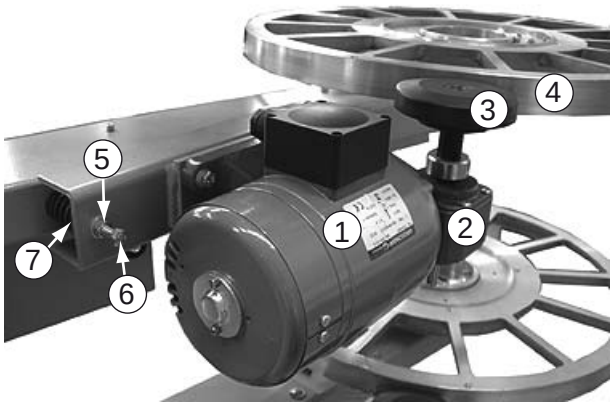
Component	as required
take-off unit	Before the film change clean it with air pressure.
guide rollers	Listening check: Noises because of defect ball bearing => change the ball bearing or the complete roller
friction wheel drive	Function check: Observe the right and functional pressure of the friction wheel. If grease comes out of the drive or the bearing bushing has a play, the whole drive has to be changed (service).
film platter	Clean the platter with a linen cloth, before putting a new film reel.

5.3 Repair

5.3.1 Changing a Guide Roller

- Release the Allen screw or the hexagon head cap screw of the corresponding roller and pull the defect roller from its shaft.
- Put on a new roller and tighten the screw.

5.3.2 Adjusting the Friction Wheel Pressure



① motor
② drive
③ friction wheel
④ platter drive flange
⑤ lock nut
⑥ adjusting screw
⑦ pressure spring

Adjust the pressure in a way a reliable function is guaranteed.

If the platter is stopped manually the friction wheel should slip and the motor should turn.

- If the pressure is too high, the drive can be damaged and the friction wheel wears fast.
- If the pressure is too low, the lever arm triggers the film break switch when projector has been started.

Adjusting:

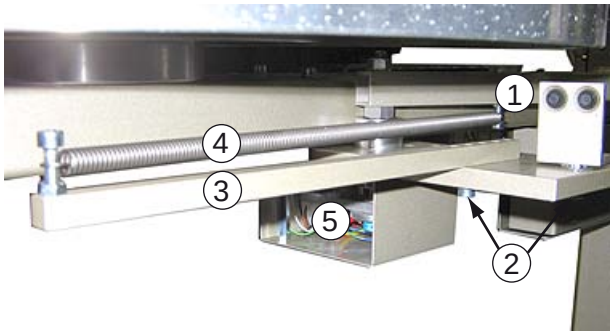
- Release the lock nut ⑤.
- Turn the setting screw ⑥ clockwise - the pressure spring ⑦ relaxes, the friction wheel with motor moves nearer to the flange.
- If the friction pressure is correct, fix this adjustment with the lock nut ⑤.

5.3.3 Adjusting the Lever Arm Spring

▶ **NOTE**

▷ The spring tension is factory-set.

▷ The closeness of a film reel depends on lever arm spring tension . If reels are wound up too loose, it is necessary to increase the spring tension.



① lever arm in zero-position

② Allen screws

③ spring bar

④ spring

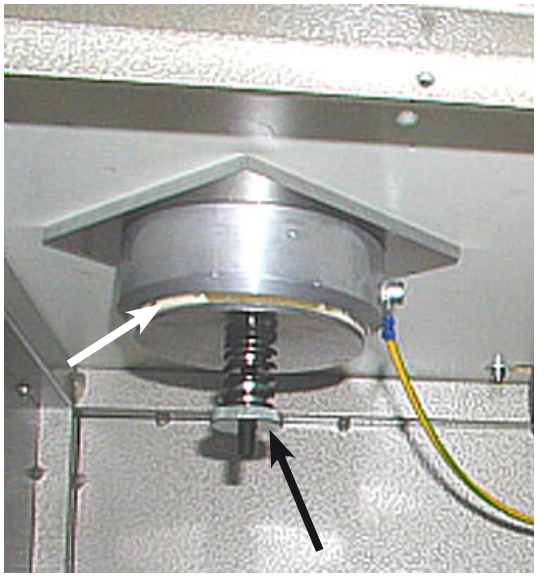
- Release the two Allen screws ② and remove them.
- Fasten the spring bar ③ with spring ④ on one of the outer threaded hole.
- Tighten the screws ② again.

▶ **NOTE**

The adjustment of the lever arm Hall potentiometers should only be carried out by service technicians.

5.3.4 Changing and Lubricating the Felt Disk of the optional Mechanical Friction

- Remove the front plate of the make-up table.
- Remove the knurled nut, spring, friction plate and felt disk on the friction shaft (white arrow).
- Once in a year the felt disk should be put in a Cardan oil bath.
- If the felt disk is worn (surface is hardened) it has to be changed. The new felt disk has to be oiled too.
- Mount the friction again and adjust it, see next page.



5.3.5 Adjusting the Friction

- Thread a film and adjust the friction by turning the knurled nut (black arrow) such the film gets no loops when stopping the rewinding:
- Right turn => spring increases the pressure (friction increases)
- Left turn => spring decreases the pressure (friction decreases)

6 Parts and Wearing Parts

6.1 Non-Rewind Systems

6.1.1 Mechanical Parts

Part	Fig.	Code number
mounting angle “film outlet with compensation” with braking roller, pivoting angle holder, guide and stay roller	**1**	1000 525 37097
pivoting angle holder with ball bearing	**1A**	1000 404 57108
guide roller with stay roller, holder and screw	**1B**	1000 525 37022
stay roller	**1C**	5322 705 30967
half grey guide roller		5322 705 30909
shaft for grey guide roller, threading 6 mm shaft for grey guide roller, threading 10 mm		5322 705 30911 5322 705 30958
braking roller complete with shaft and washers	**1D**	1000 525 67030
braking roller	**1E**	1000 525 67027
upper column angle holder, pivoting, with guide roller	**1F**	1000 525 37048
lower column angle holder, pivoting, with guide roller	**1G**	1000 525 37095
holder for mounting a compensation bracket	**2**	1000 693 57048
sucker stop for platter	**3**	5322 705 31016
insert ring (35 mm) Ø 400 mm insert ring (35 mm) Ø 600 mm	**4**	5322 705 30936 5322 705 30934
tension jack with cone head and holder for insert ring	**4A**	1000 705 37001
pin 7 mm for insert ring		5322 705 30938
platter Ø 1240 mm		5322 705 30939
platter Ø 1320 mm		5322 705 30941
insert ring for ST 270 E		5322 705 30932
pin for insert ring for ST 270 E		1000 535 37002

6.1.2 IR Take-Off Unit

Part	Fig.	Code number
IR take-off unit	**5**	5322 705 30910
braking roller with ball bearing and O-ring	**5A**	1000 525 67048
braking roller set	**5B**	1000 705 37007
big guide roller with ball bearing and shaft	**5C**	1000 525 67047
small guide roller	**5D**	1000 525 37047
film skate right film skate left		1000 463 47003 1000 463 47004
IR take-off unit for ST 270 E, 70 mm film		5322 705 30921
mechanical take-off unit for ST 270 E, 70 mm film		5322 705 30918
braking roller for ST 270 E, 70 mm film		1000 525 67046
guide roller for ST 270 E, 70 mm film		5322 705 30925
small center guide roller for ST 270 E, 70 mm film		1000 525 67023

Figure 1

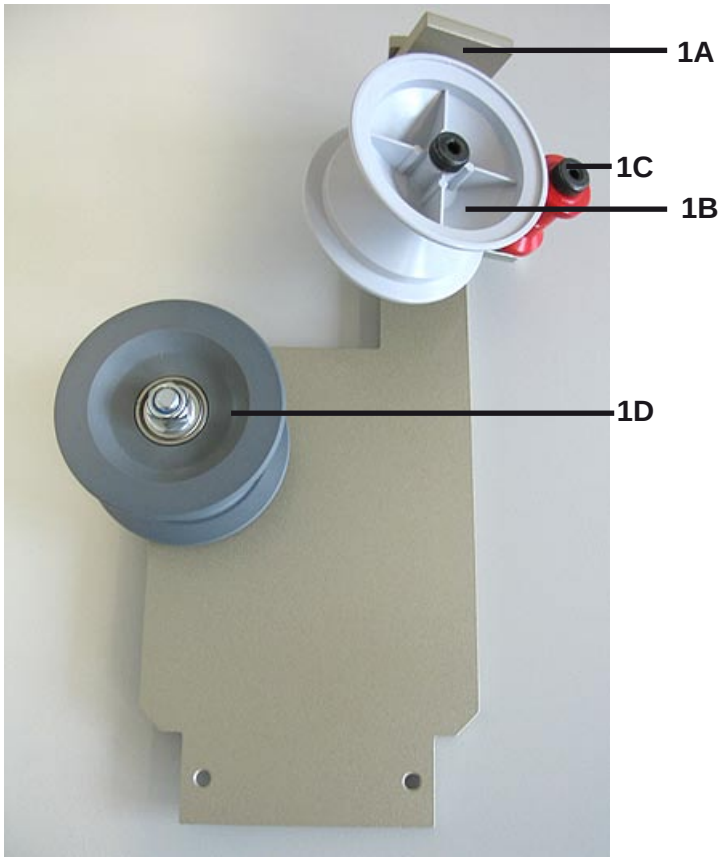


Fig. 1A + 1B

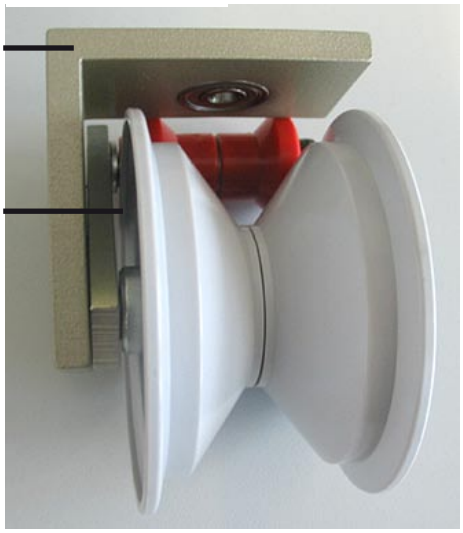


Fig. 1D

Fig. 1F

Fig. 1G

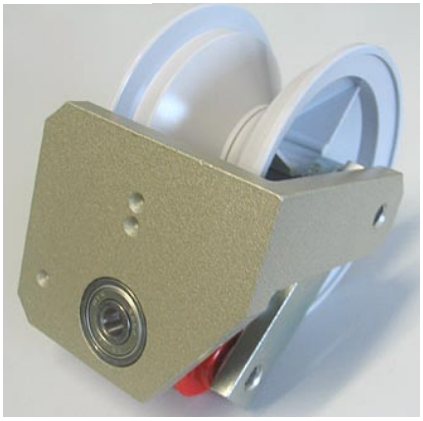


Figure 2

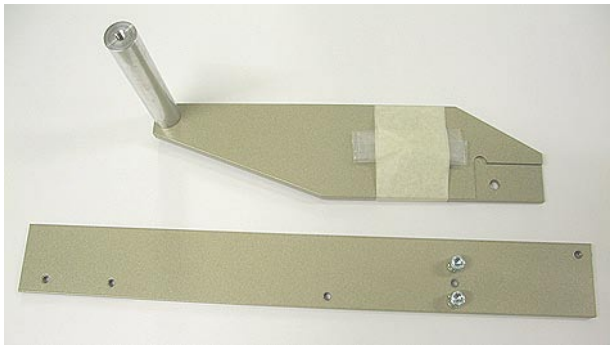


Figure 3

Figure 4

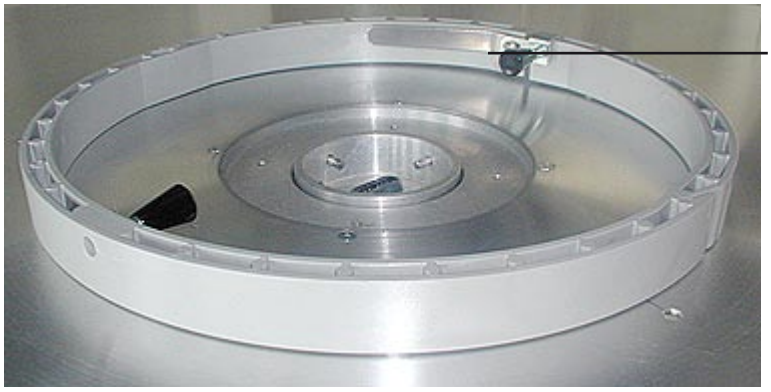


Fig. 4A

Figure 5

Fig. 5A

Fig. 5B

Fig. 5C

Fig. 5D

6.1.3 Electronic Parts for Non-Rewind Systems

Part	Code number
fuse 2A	4822 253 30025
fuse 2.5A	4822 253 30026
fuse 6.3A	4822 253 30031
connecting cable to projector (new design)	1000 321 27008

6.4 Parts for MT 600 / MT 2000 Make-Up Table

6.4.1 Guide Rollers

Part	Fig.	Code number
half grey guide roller shaft for grey guide roller, threading 6 mm shaft for grey guide roller, threading 10 mm	**6A**	5322 705 30909 5322 705 30911 5322 705 30958
stay roller	**6B**	5322 705 30967

6.4.2 Friction Drive

Part	Fig.	Code number
felt disk for mechanical friction	**7**	1000 532 57007
spring for mechanical friction	**8**	5322 492 50064
knurled nut M8 for mechanical friction	**9**	1000 505 17006
additional mechanical friction with take-up device		1000 528 27011

6.4.3 Electronic Parts

Part	Code number
fuse 2.5 AT	4822 253 30026
fuse 2 AT	4822 253 30026

6.4.4 Platters and Interchangeable Flanges

Part	Fig.	Code number
reel platter for Kodak core Ø 12.7 mm reel platter for Kodak core Ø 9.2 mm	**10A / 11**	0040 220 00011 0040 220 00010
Kodak core Ø 12.7 mm for 35 mm bobbins Kodak core Ø 9.2 mm for 35 mm bobbins	**11A**	1000 705 37013 1000 705 37014
interchangeable flange, shaft Ø 9 mm with reel platter for 35/16 mm film Kodak core adapter		1000 535 77041 1000 705 37014
interchangeable flange, adjustable core with reel platter		1000 535 77042
interchangeable flange, shaft Ø 5/16” with reel platter for 35 mm film Kodak core adapter		1000 535 77043 1000 705 37016
interchangeable flange, shaft Ø 12.7 mm with reel platter for 35 mm film Kodak core adapte		1000 535 77044 1000 705 37013
interchangeable flange, shaft Ø 12.7 mm with reel platter for 70 mm film Kodak core adapter		1000 535 77045 1000 705 37017

6.4.5 Film Spools and Friction Shafts

Part	Fig.	Code number
film spool 600 m Ø 9 mm		0040 060 00750
film spool 1800 m Ø 12.7 mm	**10B**	0040 060 00765
film spool 2000 m Ø 12.7 mm		0040 060 00770
shaft Ø 5/16” for 35 mm film	**12**	1000 535 77052
shaft Ø 9 mm for 35 mm film		1000 535 77053
shaft Ø 12.7 mm for 35 mm film		1000 535 77054
shaft Ø 12.7 mm (US norm) for 35 mm film		1000 535 77055
shaft Ø 12.7 mm for 70 mm film	**13**	1000 535 77056
shaft Ø 12.7 mm (US norm) for 70 mm film		1000 535 77057
shaft Ø 8 mm for 16 mm film	**14**	1000 535 77051

Figure 6

Fig. 6B

Figure 7

Figure 8

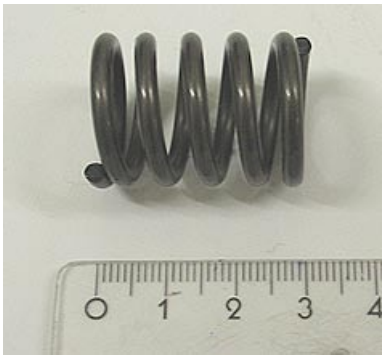


Figure 9

Figure 10

Figure 11

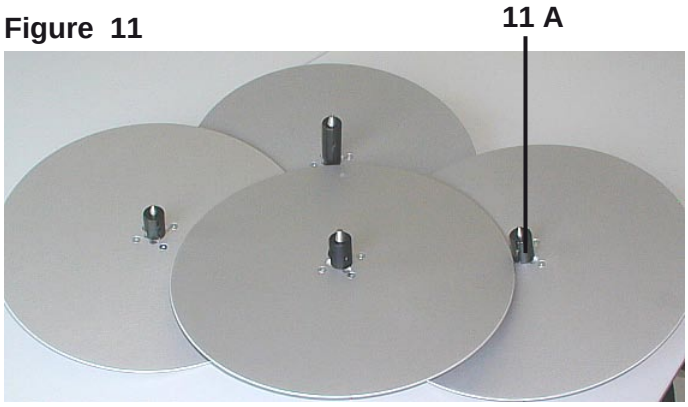


Figure 12

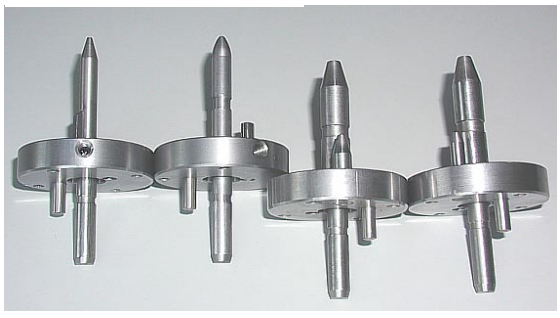


Figure 13

Figure 14

7 Technical Data

7.1 Non-Rewind System

Name	Non-Rewind System / Platter System
Type	ST 100 E / ST 200 E / ST 270 E / ST 400 E / ST 500 E
Machine No.	See data plate on base

Connection data

Mains voltage	120 V or 230 V
Frequency	50 Hz or 60 Hz
Pre-fuse	6.3 A
Power max.	500 VA

Power and Operating Data

Nominal rotary frequency of motor	3000 rpm
motor power	100 VA
Nominal reel rotary speed	27.4 m/min
Reel rotary speed max.	400 m/min

Sizes and Weights

Components	**Ratio of Sizes**	**Weights**
ST 100 E	1440 mm x 1320 mm x 1920 mm	approx. 120 kg
ST 200 E / ST 270 E	1440 mm x 1320 mm x 1920 mm	approx. 210 / 260 kg
ST 400 E	1440 mm x 1320 mm x 1920 mm	approx. 280 kg
ST 500 E	1440 mm x 1320 mm x 2220 mm	approx. 310 kg
Film platter	Ø 1320 m	approx. 55 kg
Distance between the platters	300 mm	

7.2 Make-Up Table

Connecting Data

Mains voltage	230 V AC
Frequency	50 Hz / 60 Hz
Power input max.	250 VA

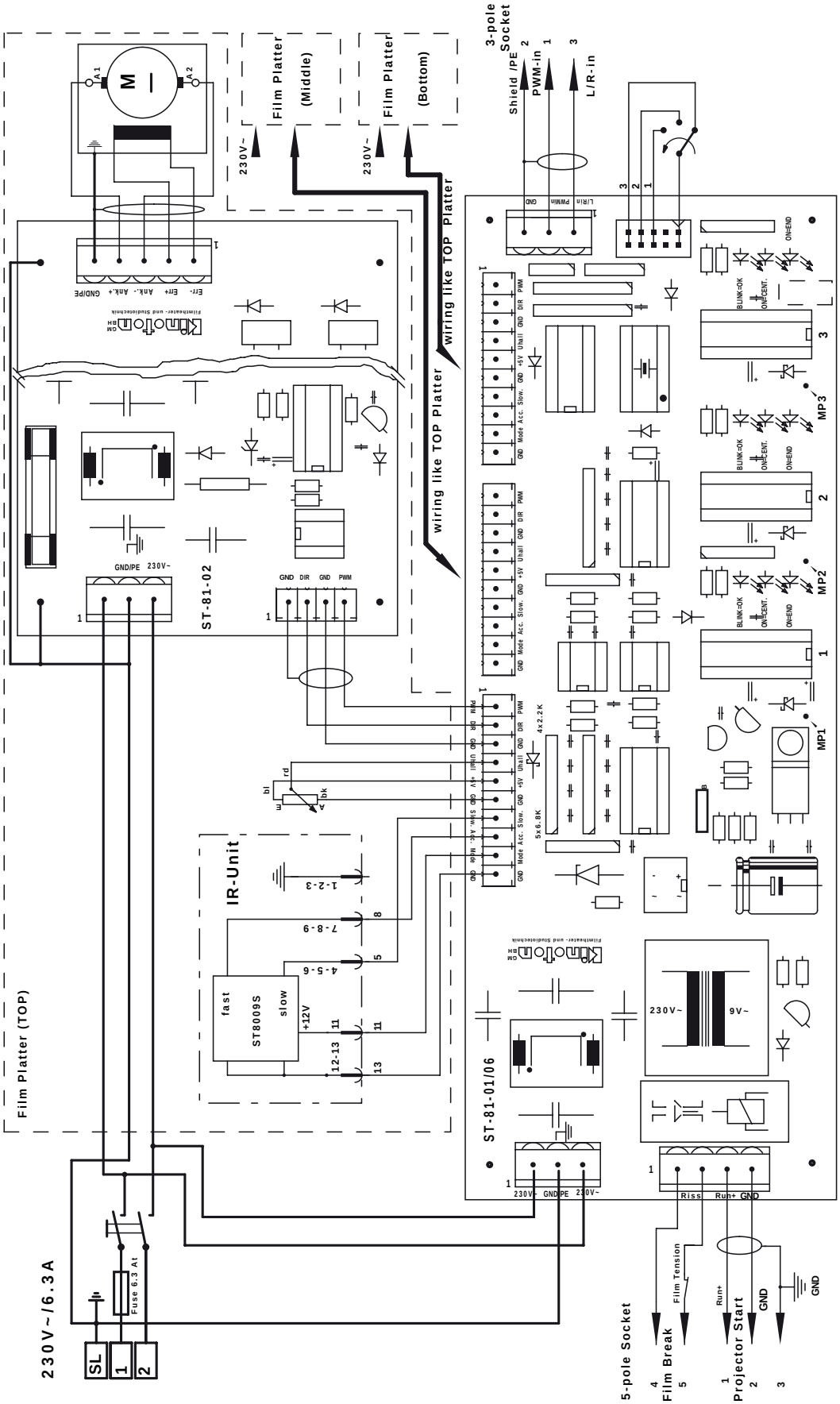
Power and Operating Data

Nominal rotary frequency of motor	3000 rpm
motor power	200 VA
Reel rotary speed max.	400 m/min

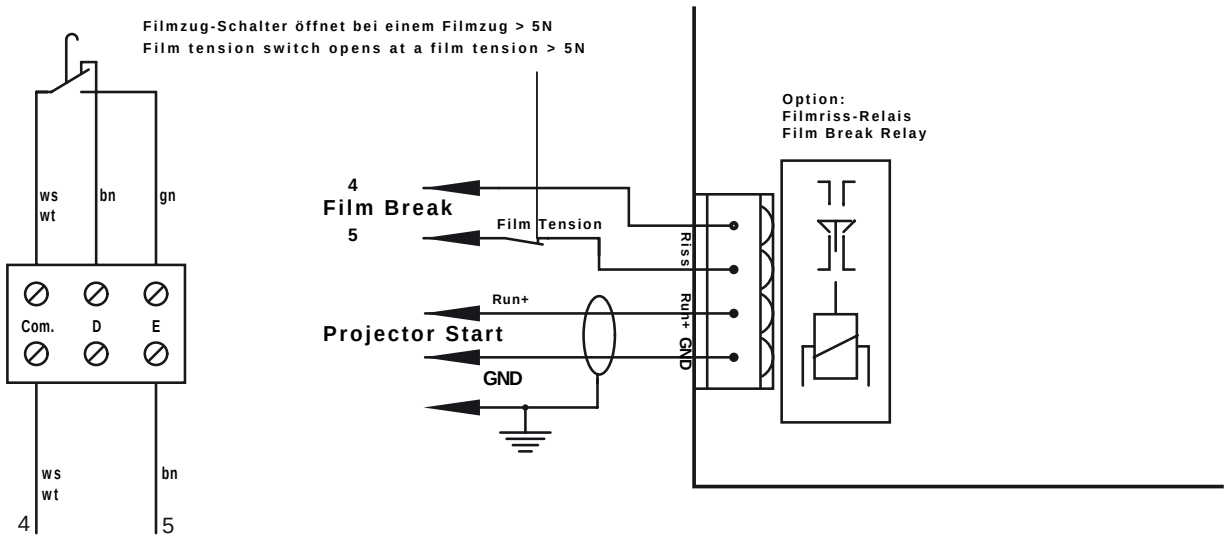
Sizes and Weights

Components	**Ratio of Sizes**
MT 600	696 mm x 890 mm
MT 2000	746 mm x 1350 mm
Reel platters	Ø 1320 m
Film spool	up to 2000 m

7.3 Connecting Diagram for ST 100/200/270/400/500 E



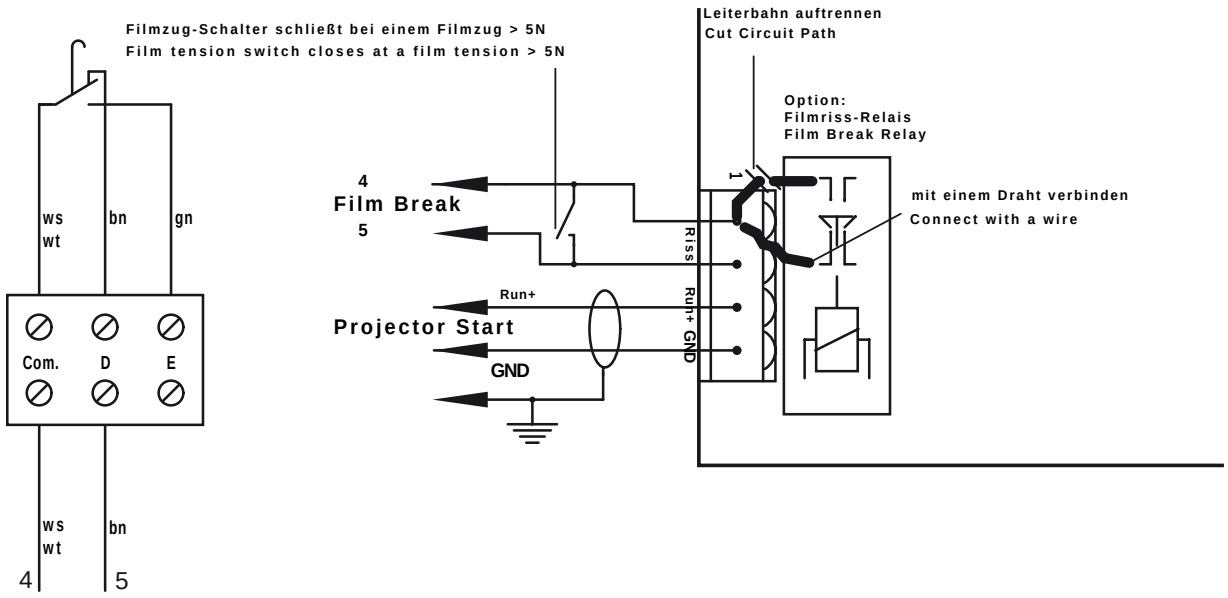
7.3.1 Configuration of the Film Tension Switch and Film Break Switch (option) for Operation with an E-Projector



▶ **NOTE**

Connecting an E-projector to the platter system with a film break relay installed no modifications are necessary, because E-projectors operate like the film break relay “Normally Closed (NC)”.

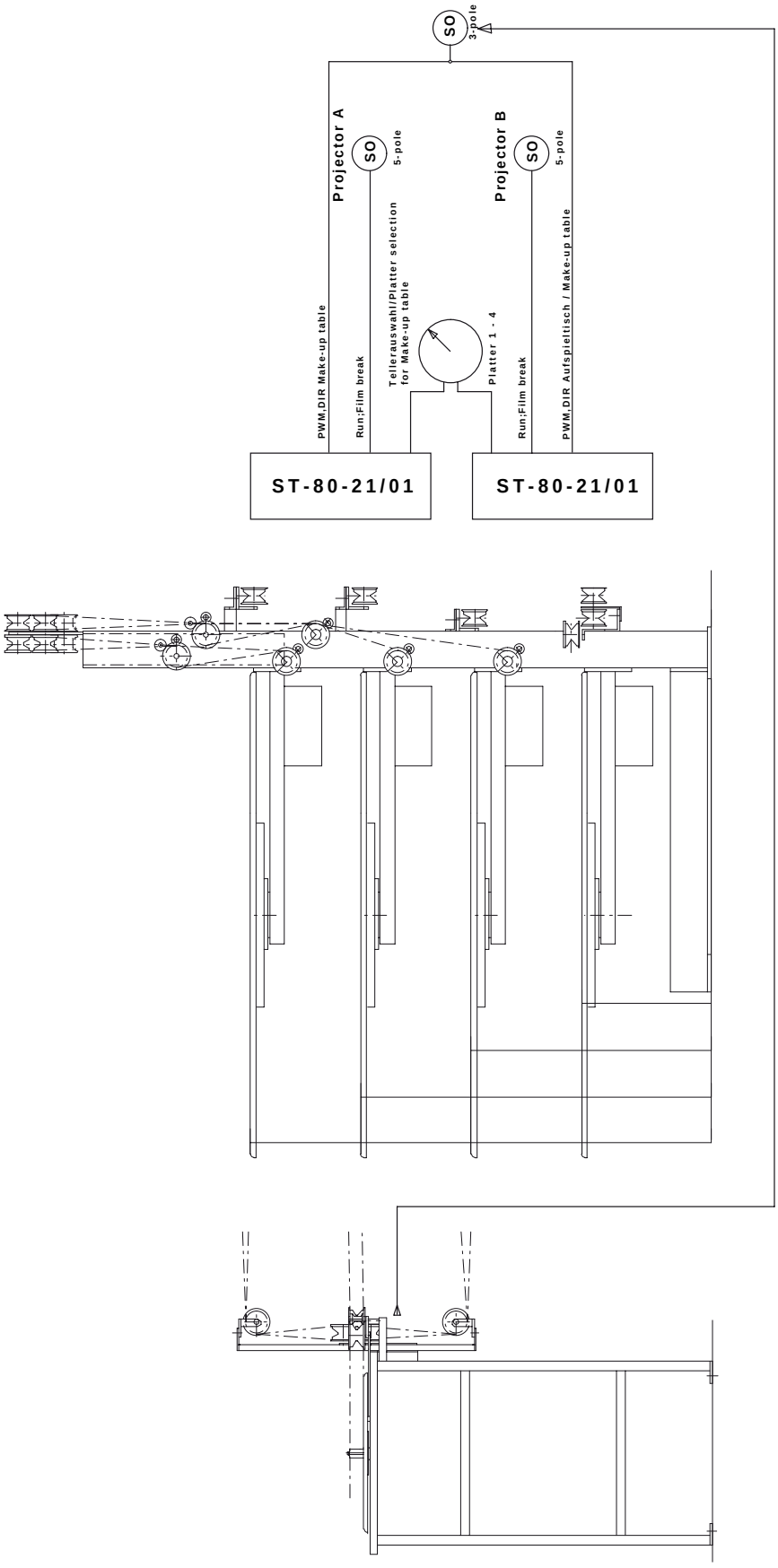
7.3.2 Configuration of the Film Tension Switch and Film Break Switch (option) for Operation with a D-Projector or an A-Projector



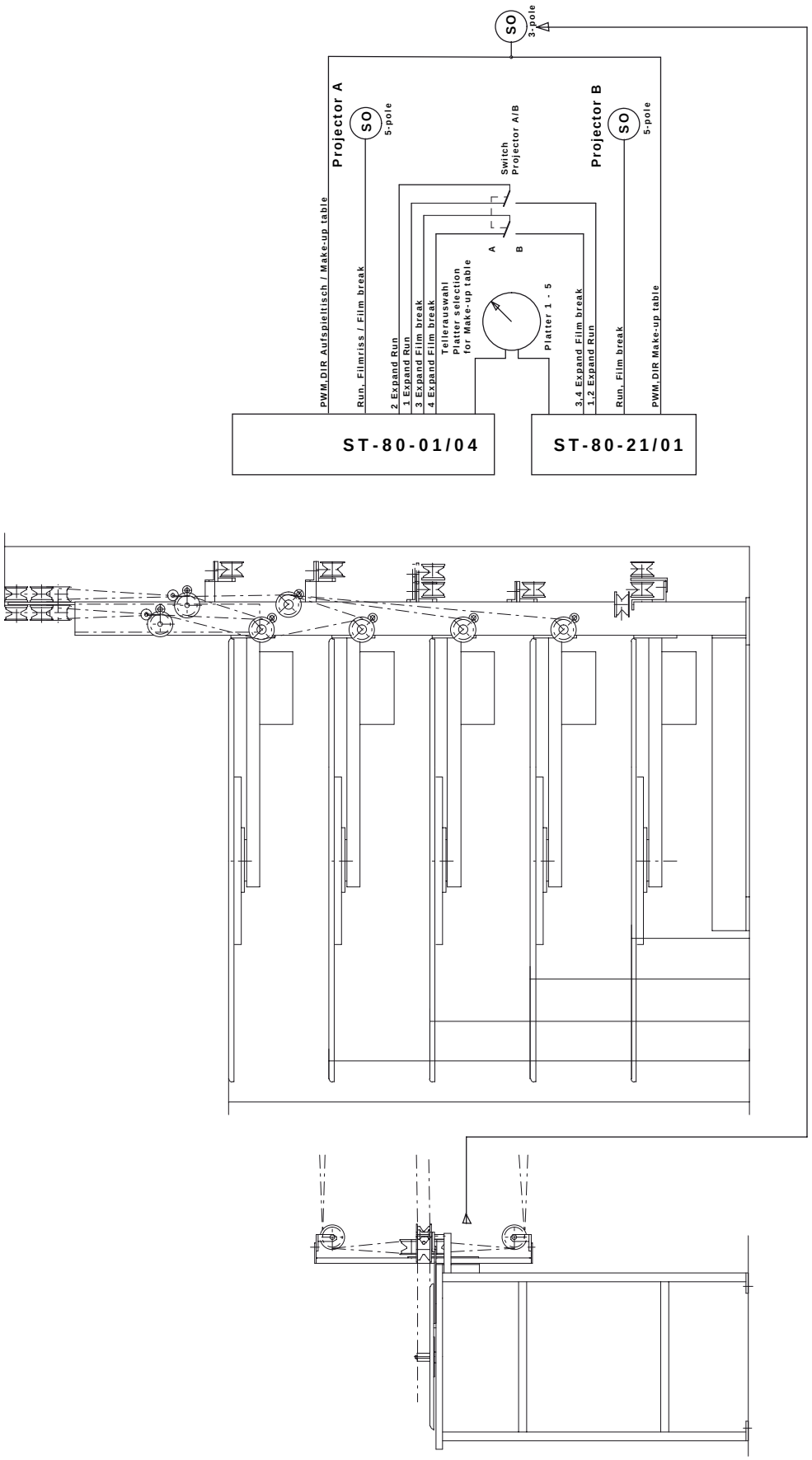
▶ **NOTE**

Connecting an D-/A-projector to the platter system with a film break relay installed modifications are necessary, because D-/A-projectors operate “Normally Open (NO)” and the film break relay “Normally Closed (NC)”.

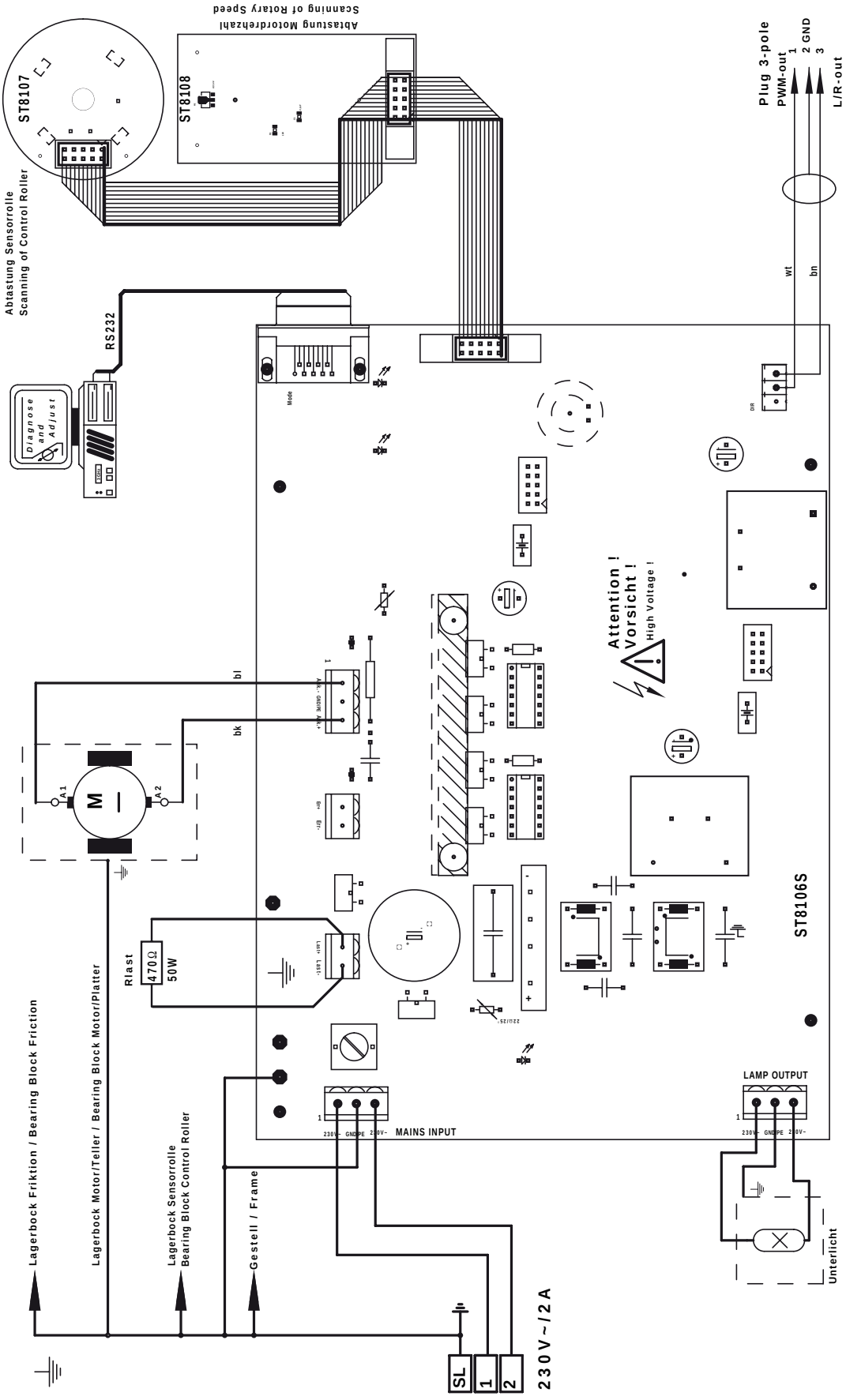
7.4 Connecting Plan for ST 400 E



7.5 Connecting Plan for ST 500 E



7.6 Connecting Diagram for Make-Up Table



Kinoton GMBH

EC Declaration of Conformity

Company name	**Kinoton GmbH**
Address:	Industriestr. 20a, D-82110 Germering
Machine designation:	Non-Rewind Platter Systems
Machine type:	**ST 100/200/270 E / ST 400 E / ST 500 E**
Maschine serial number:	J5328 / L0641 / K0617

Relevant EC stipulations:

Machine regulation	**2006/42/EG (98/37/EG)**
Low Voltage regulation	**73/23/EWG**
EMC regulation	**2004/108/EG**

Standards:

if need be harmonized standards	EN 61000-6-3, EN 61000-6-1, EN 61000-6-2 EN 60034-5
if need be national standards	DIN 19090 part 1 and part 2, VDE 05030

and technical specifications

It is certified herewith that the machine specified above satisfies the above-listed EC regulations

Place, date:	Germering, 02. 07. 2007
Signature:	
Prename, name:	Herbert Zipfel
Function:	Production Manager

Kinoton GMBH

EC Declaration of Conformity

Company name	**Kinoton GmbH**
Address:	Industriestr. 20a, D-82110 Germering
Machine designation:	Make-Up Tables
Machine type:	**MT 600 / MT 2000**
Maschine serial number:	H1976

Relevant EC stipulations:

Machine regulation	**2006/42/EG (98/37/EG)**
Low Voltage regulation	**73/23/EWG**
EMC regulation	**2004/108/EG**

Standards:

if need be harmonized standards	EN 50081 part 1, EN 60034-5, EN 61000-6-1, EN 61000-6-2
if need be national standards	DIN 19090 part 1 and part 2, VDE 05030

and technical specifications

It is certified herewith that the machine specified above satisfies the above-listed EC regulations

Place, date:	Germering, 02. 07. 2007
Signature:	
Prename, name:	Herbert Zipfel
Function:	Production Manager