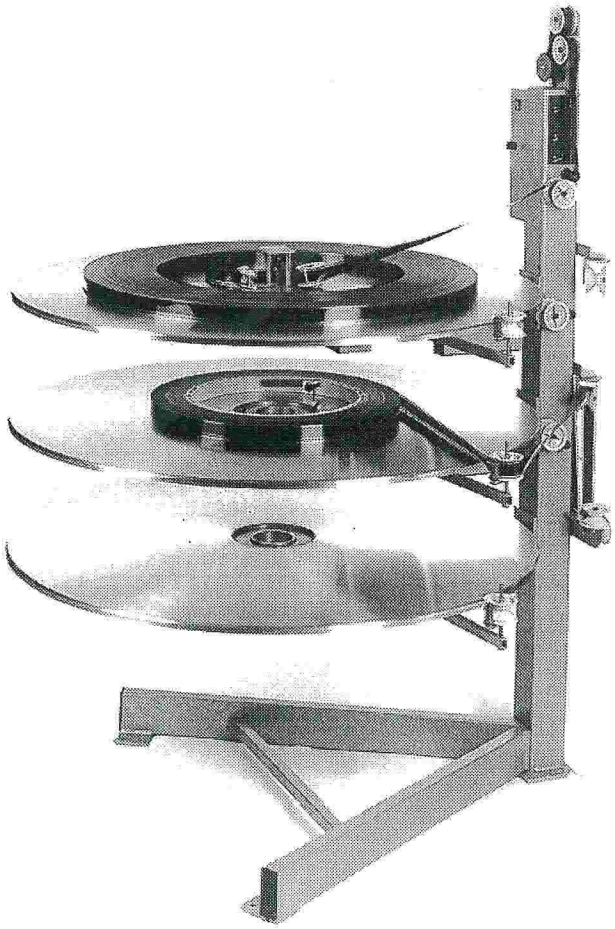
Kinoton GMBH
Filmtheater- und Studiotechnik

Operating Manual

Non-Rewind System

ST 200 E

ST 100/400/500/270 E



Preface

Dear customer,

Thank you for your decision to buy the Non-Rewind System and for your confidence in our product.

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.

Changes

Issue of this manual: August 98

Changes, additions	Chapter, page	Date

Contents

1 Safety

1.1 Safety Notes

1.1.1 General Hints

- The operating manual is to be kept with the Non-Rewind System at all times.
- Precondition for the safe running and trouble-free operation of Non-Rewind System 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.

1.1.2 Proprietor Obligations

The proprietor is obliged to allow only those persons to work and / or operate the non-rewind system that

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

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

1.1.3 Personnel Obligations

Those persons who work with the Non-Rewind System 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 and have signed their name to that effect.

1.1.4 Danger when Working with the System

Non-Rewind Systems are constructed according to the latest engineering and state-of-the art safety standards. The Non-Rewind System is only to be employed 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.

1.1.5 Intended Purpose

Non-Rewind 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 make-up table).
Any other or further 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 intructions contained in the manual
- adherence to the inspection
- implementation of maintenance and repair work.

1.1.6 Guarantee and Liability

In principle the „General Terms of Buisiness" 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 Non-Rewind System
- improper assembly, commissioning, operating and maintenance of Non-Rewind System
- operation the Non-Rewind System with defective and / or non-functioning safety and protection devices
- non-observance of instructions in the manual regarding transportation, storage, assembly, commissioning, operation and maintenance
- modification of Non-Rewind System without authorization from the manufacturer
- faulty monitoring of parts subject to wear and tear
- improperly effected repair work
- emergencies due to influence from outside bodies or force mayeur.

1.2 Safety instructions

1.2.1 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 personal injuries to highly dangerous injuries.

ATTENTION

This symbol indicates a possibly dangerous situation.

Disregard of this warning can result in light personal injuries or damage of System.

NOTE

This symbol indicates where notes, user tips and useful information can be found.

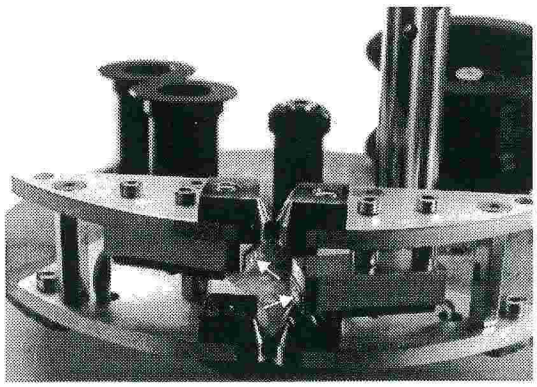
They serve to use the Non-Rewind System to its optimum.

1.2.2 Organizational Measures

All existing safety devices must be checked regularly.

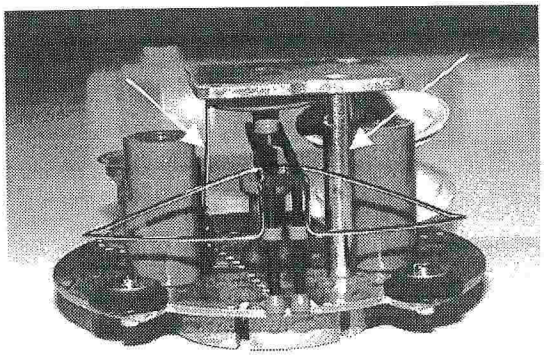
1.2.3 Protective Devices

Light barriers (only IR-take-off unit)



Light barriers (arrows) sense the position of the film during feed-out. The values are transmitted to the electronic of take-off unit and then to control unit in column.
The control unit works out the correct values of rotary speed (depending on reel perimeter) and controls the motor of the corresponding platter via motor amplifier.

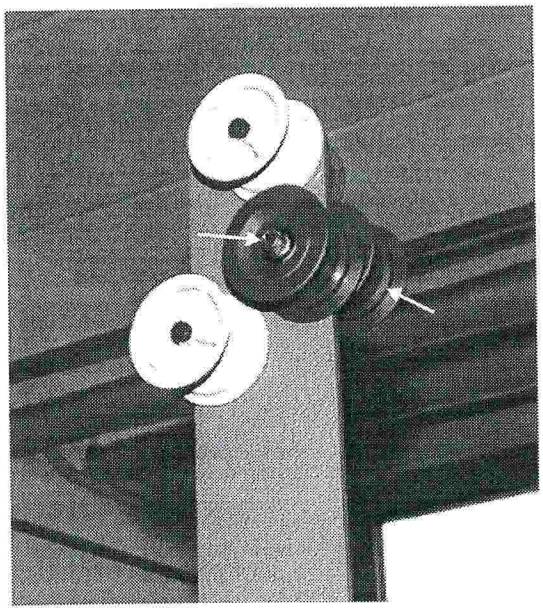
Figure 1-1 IR-Take-off unit



Microswitch (only mechanical take-off unit)

Microswitches (arrows) sense the position of the film during feed-out. The values are transmitted to the electronic of take-off unit and then to control unit in column.
The control unit works out the correct values of rotary speed (depending on reel perimeter) and controls the motor of the corresponding platter via motor amplifier.

Figure 1-2 IR-Take.off unit



Braking roller

The braking roller at the column (arrows) or in take-off unit (arrow) ensures that the film does not hang down.

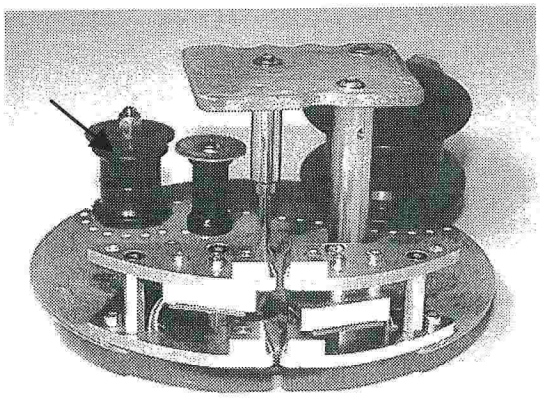
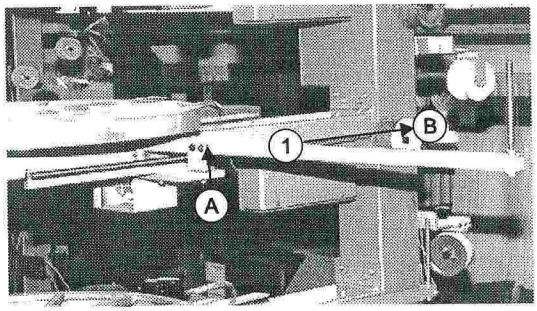


Figure 1-3 Guide rollers and braking rollers



Film break switch

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

Figure 1-4 Lever arm

Film tension switch (option)

When using polyester films it is recommened to apply an additional film tension switch which is to be mounted on the column. If film tension is > 5 N this switch will be activated: motor stops and current transfer will be interrupted.

1.2.4 Special Hazard Points

Mechanical danger by squashing:
– when changing platter
– when inserting in take-off unit
– when closing and opening insert rings
– when putting on the film transport clips

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

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

Mechanical danger (during wind off and take up):
– when operating the System
– when threading the film

DANGER
Do not work with long loose hair, loosen 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 interuption 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 top of ST 500 E.

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

- Regularly check function of film tension switch.
- Never touch running platters during operation.
- Make sure that nobody starts the unit while somebody is working on it.

1.2.5 Electric Power Hazards

Allow work on the electrical supply to be carried out by competent electricians only. The unit electronics must be checked regularly. Loose connections must be restored immediately.

The access to the control cabinet must always be closed. Only authorized staff with a key have access to the control cabinet.

When working on life parts, switch off main switch.

1.2.6 Modification of Non-Rewind System Construction

No alterations, additions or modifications may be made to Non-Rewind System 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.

1.2.7 Cleaning and Disposal of Non-Rewind System

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

1.2.8 Copyright

2 Transportation and Installation / Mounting

2.1 Transportation

2.1.1 Package

- Non-Rewind System is mounted on a pallet and fixed with screws.
- The pallet with the unit is packed in a wooden box.
- The accessories are packed into the box too.
- Weight (gross):
  - ST 100 E: 200 kg
  - ST 200 E: 300 kg
  - ST 400 E: 370 kg
  - ST 500 E: 500 kg
  - ST 270 E: 390 kg

2.1.2 Storage

If unit is stored for a longer time:

- Only store in dry rooms.
- Choose a suitable protective coating or leave Non-Rewind System in the original coating.

NOTE

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

2.1.3 Delivery

- Non-Rewind System
  Versions:
  - ST 100 E, two-platter (film 35 mm)
  - ST 200 E, three-platter (film 35 mm)
  - ST 400 E, four-platter (film 35 mm)
  - ST 500 E, five-platter (film 35 mm)
  - ST 270 E, three-platter (film 35 mm and 70 mm)
  - ST Spezial, special formats
- Accessories
  - 2 or 1 Electronic IR Take-off Unit (four/five-platter or two/three-platter)
  - Make-up Table
  - 5 or 2 Insert rings (five-platter or two-platter)
  - 1 Set of guide rollers for corresponding projector
- Operating Manual

NOTE
For further information about accessories please contact your local dealer.

2.2 Installation

ATTENTION

- Make sure that electric lines are not damaged or squeezed during transportation.
- Only use suitable hoisting machines (portal crane, fork-lift, truck).
- Do not use unit parts as climbing aid.
- Electric lines have to be in accordance with local regulations and be laid professionally.

2.2.1 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 compension brackets and / or guide rollers.

In figure 2-1 to 2-5 you see the requirement of the different systems.
In figure 2-6 you see the requirement of the make-up table.

2.2.2 Unpacking and Installation

1. Open the box and take out roller matrix, platters and accessories.
2. Remove wooden box.
3. Transport Non-Rewind System on pallet to the place of installation.
4. Release Non-Rewind System from pallet (release screws).
5. Lift up Non-Rewind System from pallet and remove pallet.
6. Horizontally line up Non-Rewind System by levelling the jackscrew. Check it with a level.
7. Remove (pull off) transport retainer keys which are crambed between motors and support arms.

ATTENTION

Do not jam your fingers, when you remove transport retainer keys, because motor with frictional wheel will tilt against flange.

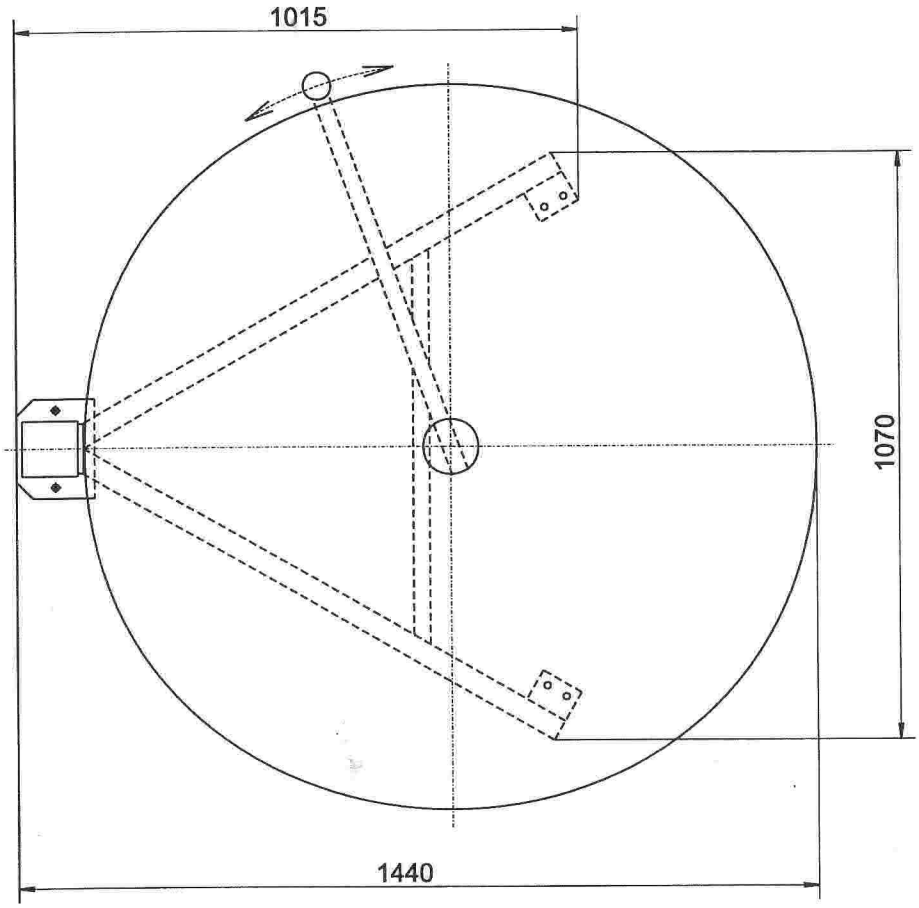


Figure 2-1 Requirement ST 100/200/400/500/270 E (top view)

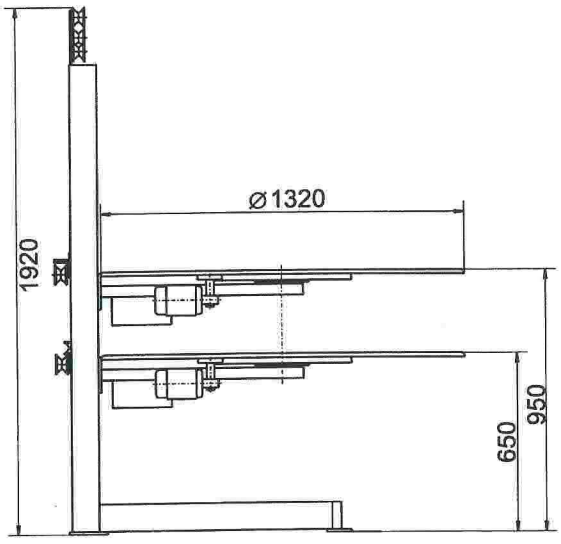


Figure 2-2 Requirement ST 100 E

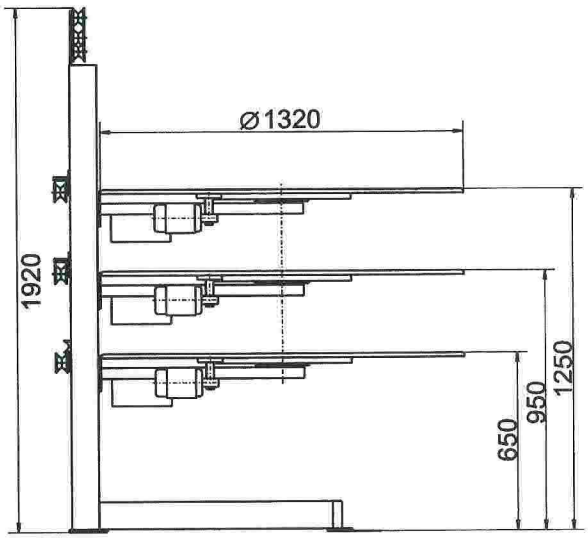


Figure 2-3 Requirement ST 200 E / ST 270 E

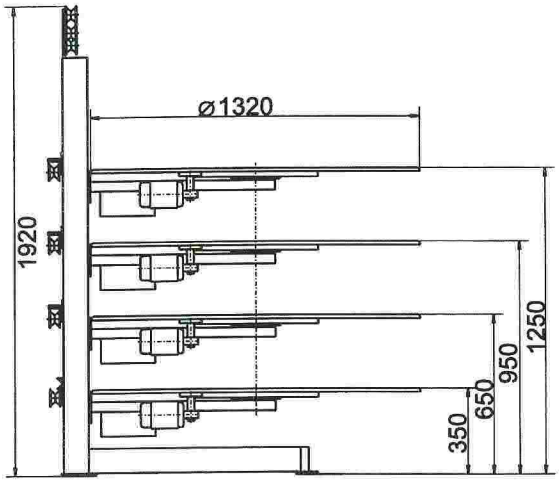


Figure 2-4 Requirement ST 400 E

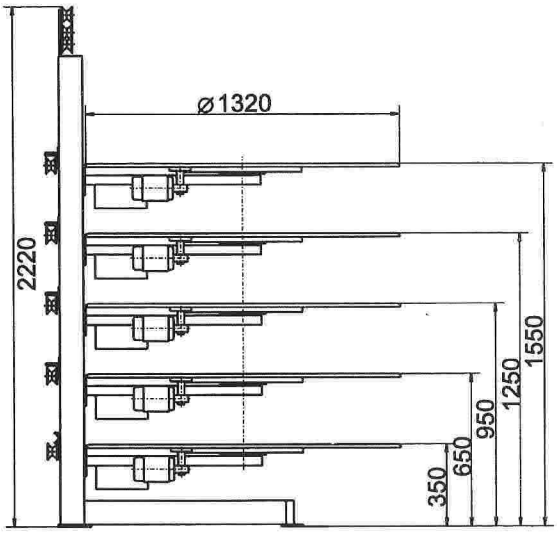


Figure 2-5 Requirement ST 500 E

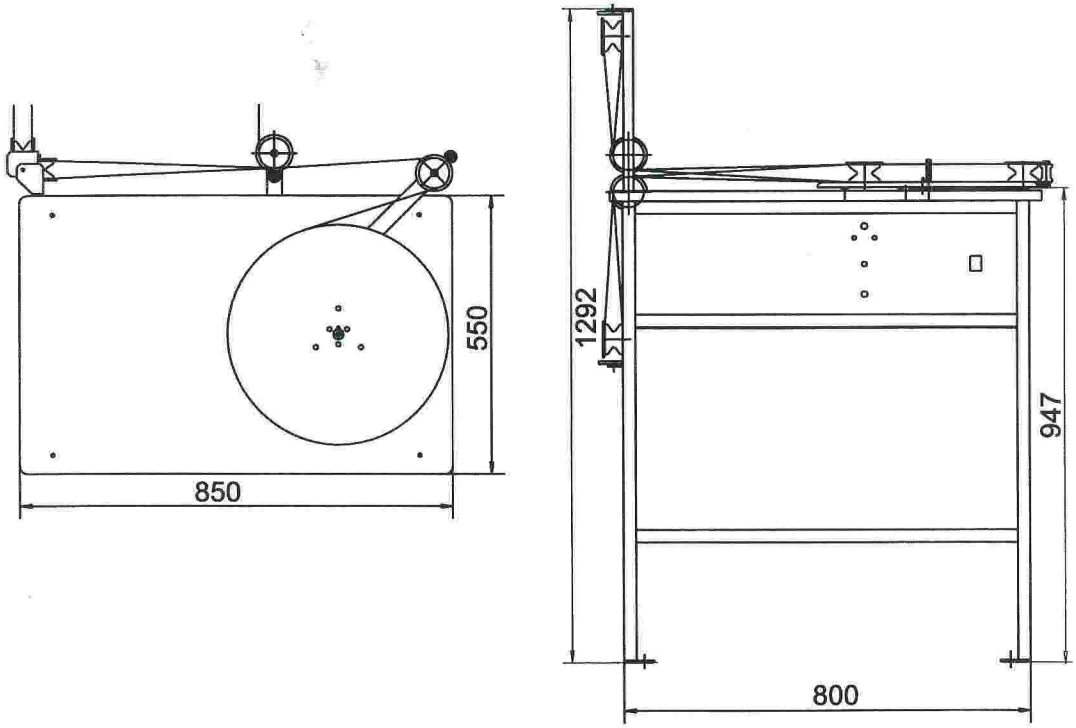


Figure 2-6 Requirement of make-up table

2.3 Mounting

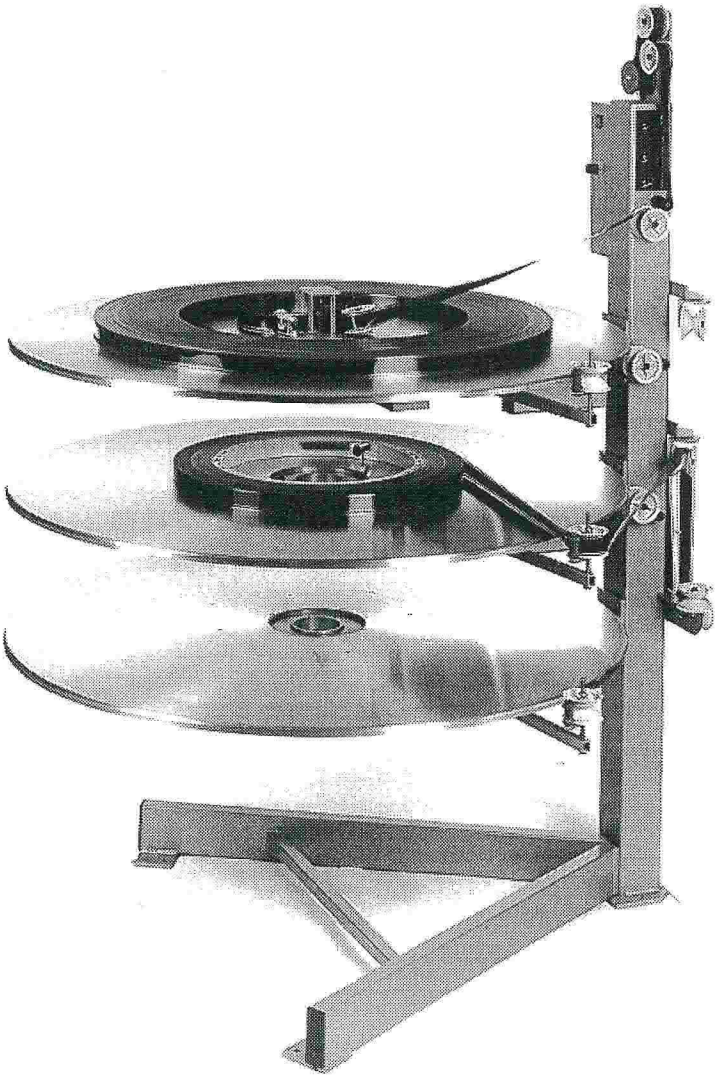


Figure 2-7 Non-Rewind System complete (ST 200 E)

2.3.1 Mount Film Platters

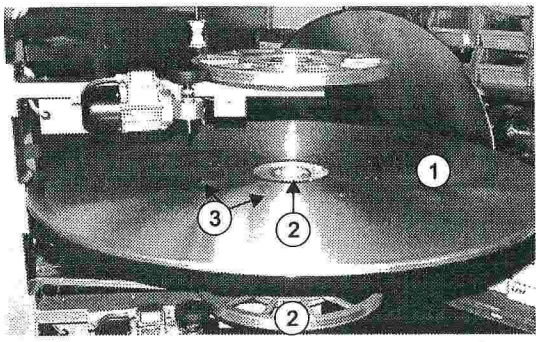


Figure 2-8 Film platters

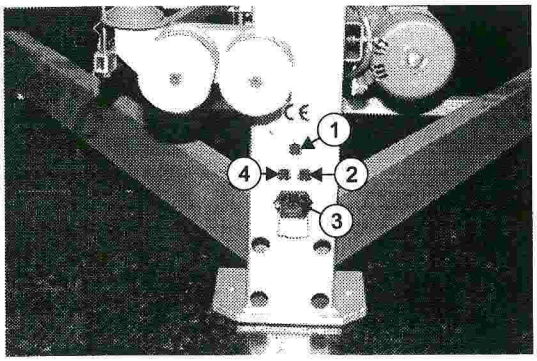
① Platter

② Flange/Drive

③ Tightening srews (two of eight)

Put down one platter on each flange. Fit each platter with eight screws with a srew driver.

2.3.2 Connect Cable



① three-pole port: connection make-up table

② five-pole port: connection projector Y

③ connecting mains cable

④ five-pole port: connection projector Z

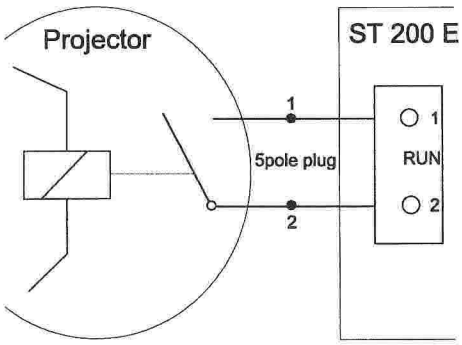
The five-pole ports to connect projectors, the three-pole port to connect make-up table and the mains connecting are on the backside of column.

Figure 2-9 Connecting Non-Rewind System / make-up table / projectors

Connect Non-Rewind System with network ④ and with projectors ②/③ (only KINOTON projectors).

Non-Rewind System is now ready for running.

Connecting with other projectors (not KINOTON)



Install a suitable relay (electrically isolated) in your projector. Connect it via a 5pole connection to run relay (run 1 and run 2) of Non-Rewind System.

See also wiring scheme of ST 200 E, chapter 8.2.1.

Figure 2-10 How to connect a foreign projector

2.3.3 Mount Set of Guide Rollers

A set of guide rollers (corresponding to your projector) will be supplied with Non-Rewind System.

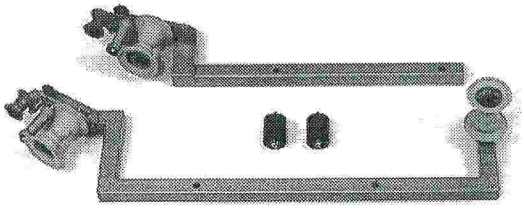
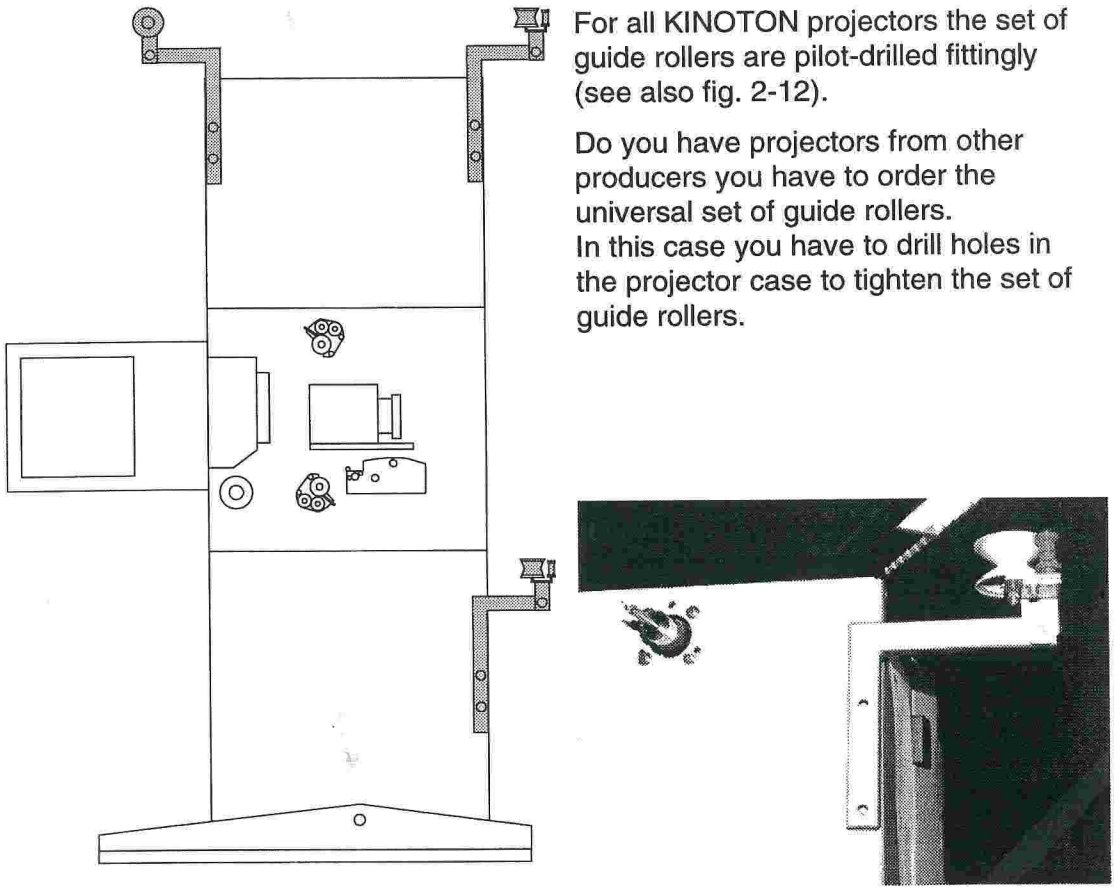


Figure 2-10 Set of guide rollers for ST 270 E and projector DP 75



For all KINOTON projectors the set of guide rollers are pilot-drilled fittingly (see also fig. 2-12).

Do you have projectors from other producers you have to order the universal set of guide rollers.
In this case you have to drill holes in the projector case to tighten the set of guide rollers.

Figure 2-11 Set of guide rollers for ST 200 E mounted on projector FP 30

ATTENTION
Be careful with drilling you do not damage components which are behind the case.

2.4 Transportation of Film Platters

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

NOTE
Because of the heavy weight of 70-mm-films you have to tear them down.

3 Function, Components and Operating Elements

3.1 Description / Function

Non-Rewind System is suitable to transport films while projector is running and/or to make-up / tear-down film programs.

ST 200 E (three platters) can operate with one projector and make-up table:
Two platters („giving" and „taking" level) operate with projector, the free platter operates with make-up table. The choice of platters is free.

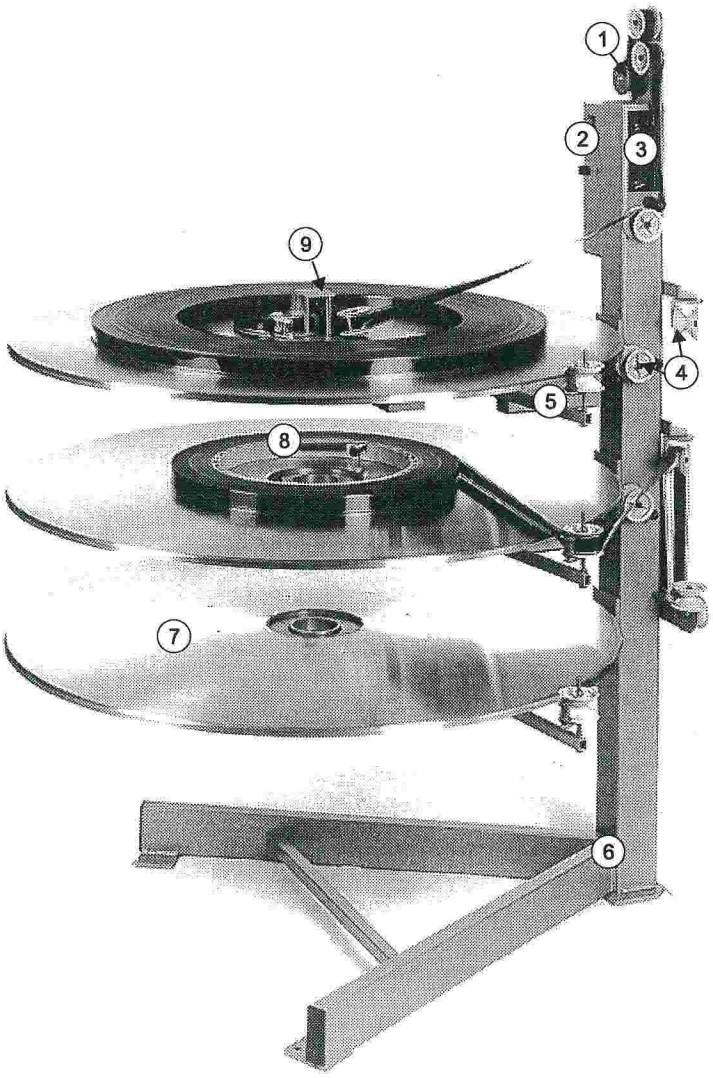
Operation:
The made-up film is lying on a platter (giving level). The film is threaded through take-off unit, which is placed in the middle of the same platter. From there the film is threaded via guide roller at column to projector. There you can thread film through projector as usual.
From projector the film are threaded via the movable guide roller at column and then via lever arm to platter, where the film are made-up (taking level).

The five- and four-platter version is especially suitable for operation with two projectors.

The five-platter version ST 500 E is especially suitable for operating with two projectors and for simultaneously make-up or tear down a program with make-up table.

With make-up table or make-up table and a free platter of Non-Rewind System you can make up and tear down film programs.

3.2 Components



① braking roller
② control unit and operation
③ threading scheme
④ guide rollers
⑤ lever arm
⑥ column with base
⑦ platter
⑧ insert ring
⑨ IR-take-off unit

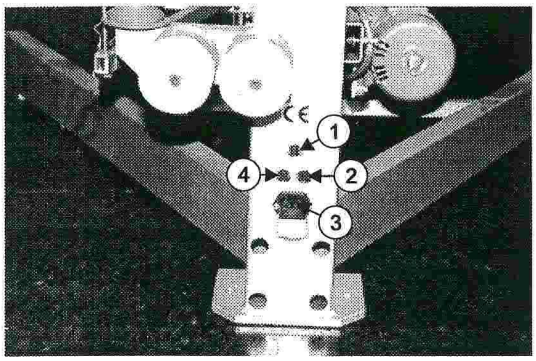
Figure 3-1 Non-Rewind System ST 200 E

3.2.1 Chassis

The chassis is built out of column and base.

The support arms and the guide rollers are screwed connected with column.

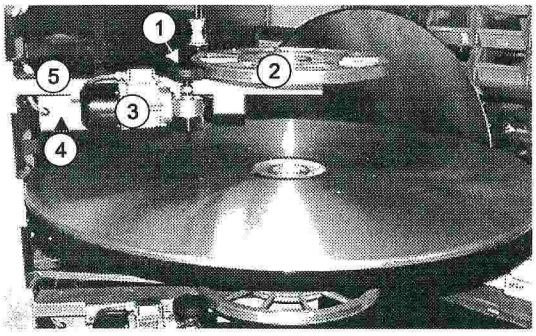
Mains cable of Non-Rewind System, connecting cable of projectors and make-up table will be plugged in column.



① three-pole port make-up table
② five-pole port projector Y
③ Connecting mains cable
④ five-pole port projector X

Figure 3-2 Connecting Non-Rewind System (here ST 500 E)

3.2.2 Support Arm with Friction Gear / Platter



① Frictional wheel
② Flange / friction gear
③ Motor (here ST 270 E)
④ Motor amplifier
⑤ Lever am

Every platter is driven from a motor via a friction gear.

Figure 3-3 Support arm and components

ATTENTION
Do not touch the frictional wheel when motor is running.

3.2.3 Motors

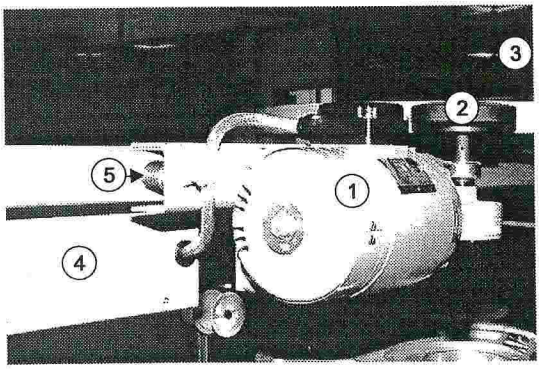


Figure 3-4 Motor ST 100/200/400/500 E

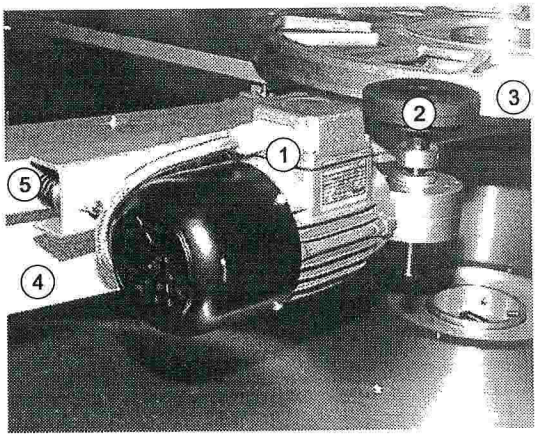


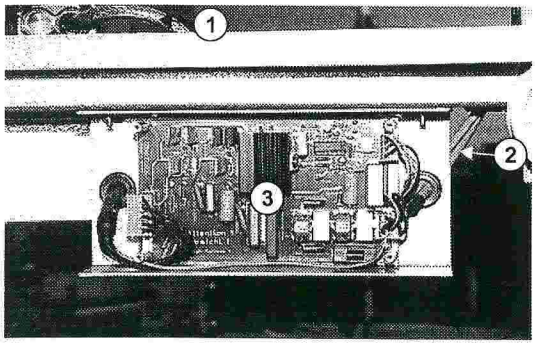
Figure 3-5 Motor ST 270 E

① motors
② frictional wheel
③ flange / friction gear
④ motor amplifier
⑤ adjusting pressure of frictional wheel

With spring ⑤, screw and locknut you can adjust the pressure of frictional wheel ② against flange ③.
The stronger the spring is compressed the stronger is pressure of frictional wheel.

NOTE
The motor of ST 100/200/400/500 E has a ratio of transmission of 7:1.
The motor of ST 270 has a ratio of transmission of 10:1.

3.2.4 Motor Amplifier



① cable to motor

② cable to control unit

③ board motor amplifier

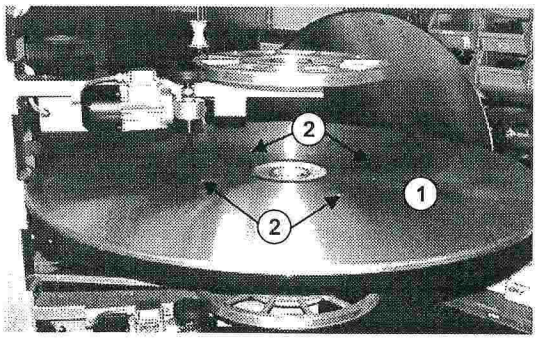
Figure 3-6 Mother board of motor amplifier

Control unit in column registers the excursion of lever arm out of its working position (depending on diameter of film reel) and transmits the new values of rotary speed via motor amplifier to the corresponding motor.

DANGER

- Power 220 V: Use a separating transformer when you measure with an oscilloscope.
- Allow work on the motor amplifier to be carried out by competent service men only.

3.2.5 Platter



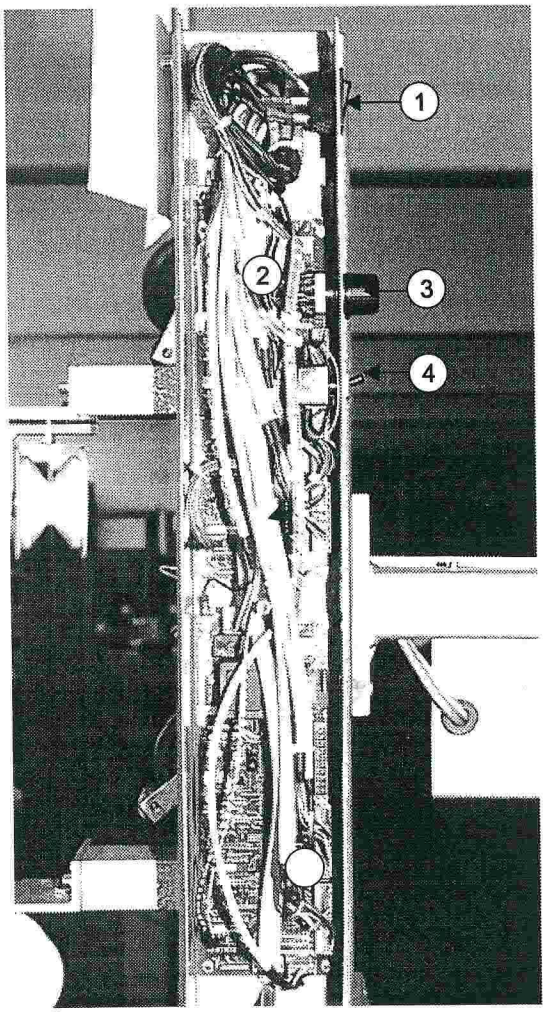
① platter

② holes for insert ring

The platters are suitable to store and transport films.

Figure 3-7 Platter

3.2.6 Control Unit



① switch ON / OFF

② control board (all versions of Non-Rewind System

③ monitoring switch

④ reversible switch projector X or Y (only with ST 500 E)

⑤ control board (only with ST 400/500 E)

Figure 3-8 Control unit

NOTE

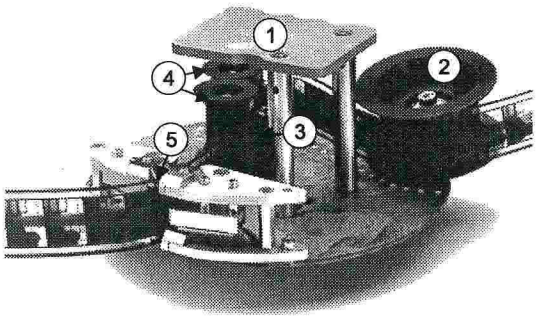
A relay (film tension switch) can be mounted optionally on mother board (version from 80-01/06)

ATTENTION

Allow work on the control unit and the motor amplifier to be carried out by competent service men only.

3.2.7 IR-Take-Off Unit

IR-take-off unit without braking roller



① handle
② guide roller (big)
③ pressure roller
④ guide rollers (small)
⑤ light barriers

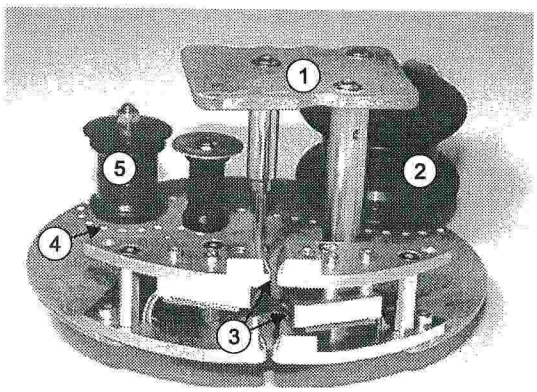
Take-off unit is inserted in the middle of „giving" platter.

Figure 3-9 IR- Take-off unit

Light barriers ⑤ indicate the position of the film and transmit the position to electronic of take-off unit and then to control box at column (see also fig. 3-8). The control unit works out the correct values of rotary speed (depending on reel perimeter) and controls the motor of the corresponding platter.

NOTE
See also Chapter 1.2.3, Protective Devices.

IR-take-off unit with braking roller



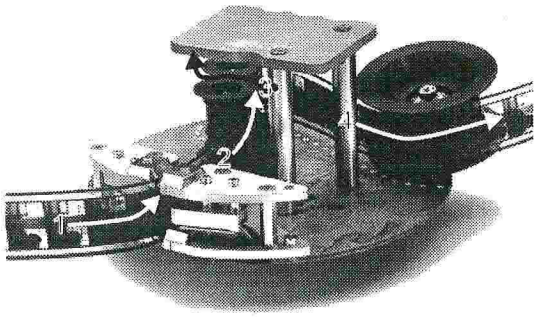
① handle
② guide roller
③ light barrier
④ threading instruction
⑤ braking roller

Take-off unit is inserted in the middle of „giving" platter.

Figure 3-10 IR- Take-off unit

NOTE
- The braking roller at column of Non-Rewind Equipment is not applied (see chapter 3.2.12).
- See also IR-take-off unit without braking roller on the top of the page and chapter 1.2.3, Protective Devices.

Threading instruction



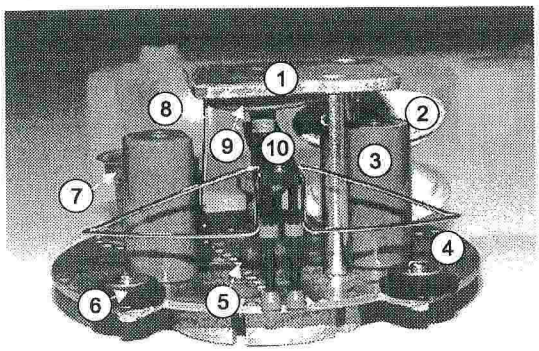
1. through opening take-off unit (between light barriers)
2. between pressure roller and guide roller
3. via guide roller
4. via guide roller to column

Figure 3-11 Threading instruction

NOTE
Observe the white points on the base. They show you how to thread the film.

3.2.8 Mechanical Take-Off Unit

ST 200 E

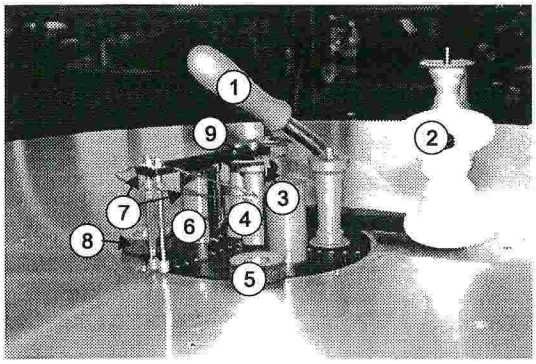


① handle
② guide roller big
③ microswitch
④ base
⑤ line threading instruction (pointed)
⑥ stop ring
⑦ guide roller

Figure 3-12 Take-off unit ST 200 E

⑧ bar of microswitch ⑨ excenter disc ⑩ switching arm with bracket

ST 270 E



① handle
② guide roller big
③ microswitch
④ guide rollers small
⑤ stop ring
⑥ microswitch
⑦ switching arm with bracket

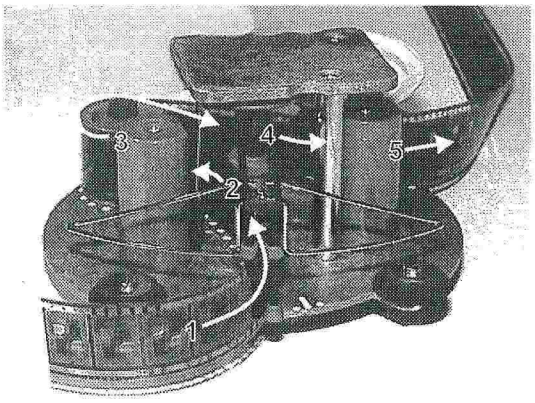
Figure 3-13 Take-off unit ST 270 E

⑧ stop ring ⑨ sxcenter disc

Take-off unit (see figure 3-12 and 3-13) is inserted in the middle of „giving" platter.

The switching arm ⑩/⑦ will be excursed corresponding to the position of the film. At the same time the bar of the microswitch ⑧ slides at the excenter disc ⑨.
The microswitch ③/⑥ transmits this current position to control unit.
The control unit works out the correct values of rotary speed (depending on reel perimeter) and controls via motor amplifier the motor of the corresponding platter.

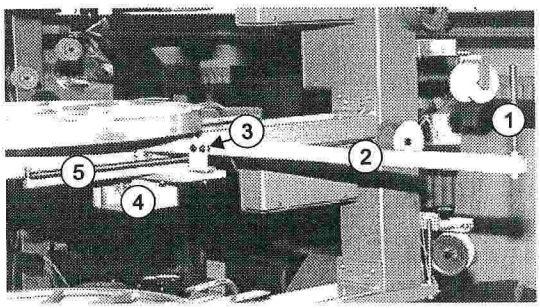
Threading instruction



1. through opening switching arm
2. between microswitch and guide roller
3. via guide roller
4. between microswitch and big guide roller
5. to column

Figure 3-14 Threading instruction

3.2.9 Lever Arm



① axis for guide roller
② lever arm
③ stop
④ hall potentiometer
⑤ spring

Figure 3-15 Lever arm and components

The film which is leaded from projector is threaded in the movable guide roller at column and then in lever arm and from there to the „taking" platter.

While the System is working, the lever arm ② is kept in working position:

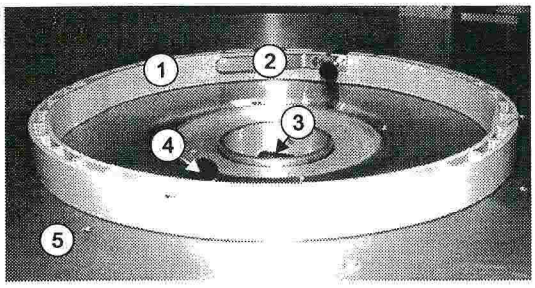
- The reel perimeter is getting bigger (with make-up), the lever arm moves out of its working position.
- A hall potentiometer ④ senses the excursion of the lever arm and transmits values to control unit.
- The control unit works out the correct values of rotary speed (depending on reel perimeter) and controls the motor of the corresponding platter.
- The motor will turn in a way that lever arm moves back in working position.

Lever arm is completely moved to the stop ③:

- Film tension switch is active, the platter will be retarded.
- To activate platter drive again, you have to turn platter.

ATTENTION
Never hinder excursion of lever arm.

3.2.10 Insert Ring



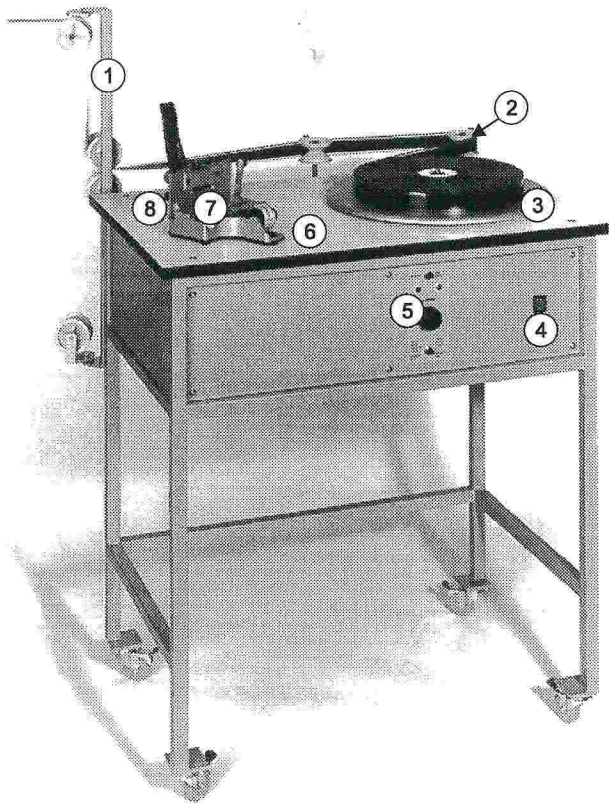
① insert ring (no ST 270 E)
② tension jack (closed)
③ port take-off unit
④ handle
⑤ platter

Figure 3-16 Insert ring

The insert ring, used to reel up / down a film, will be pinned on a platter. With tension jack you can spread and fix the insert ring.

You have to open the tension jack to take insert ring out of the middle of the reel.

3.2.11 Make-up Table



① swivel arm
② lever arm
③ platter right with drive
④ switch ON / OFF
⑤ operating panel
⑥ make-up table
⑦ joining press
⑧ platter flange right without drive (behind joining press)

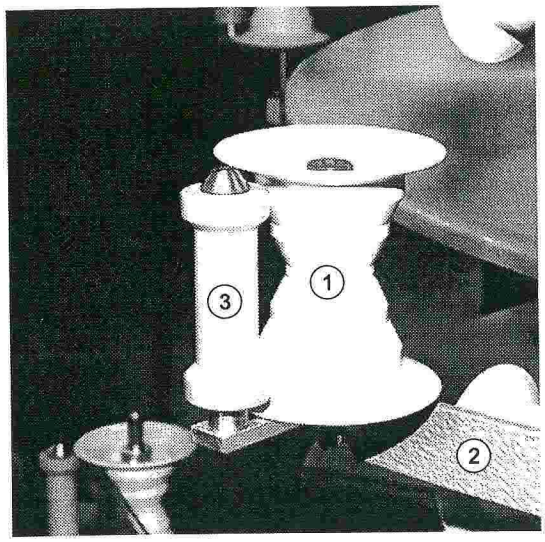
With make-up table you can make-up and tear down film programs.

Doing this you can move the make-up table to the Non-Rewind System.

Figure 3-17 Make-up table

NOTE
See also chapter 4.1, Operating with Projector and Make-up Table.

3.2.12 Rollers



① guide roller (here ST 270 E)

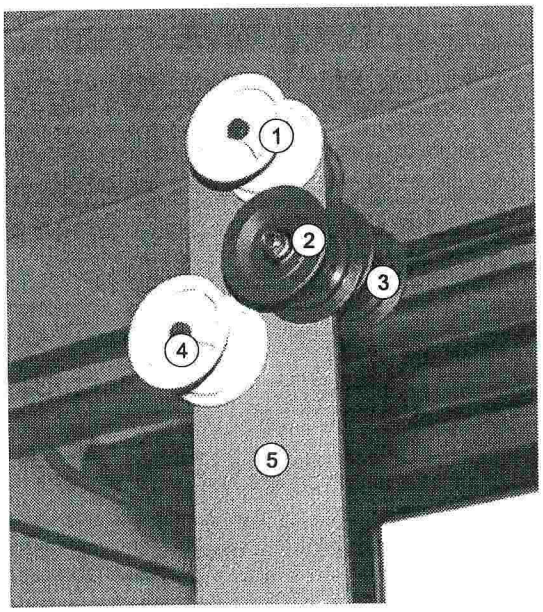
② extension arm (only ST 270 E)

③ stay roller

Guide rollers are used for film guidance.

Only thread film between guide roller and stay roller.

Figure 3-18 Guide roller with stay roller



① guide roller (here ST 500 E)

② braking roller in front of column

③ braking roller behind column

④ guide roller

⑤ column

The braking rollers ensure that the film is not saging down.

Figure 3-19 Guide rollers and braking rollers

NOTE

- If take-off unit has a braking roller it is not applied at column (see also chapter 3.2.7).
- See also chapter 1.2.3, Protective Devices.

3.3 Threading Schemes

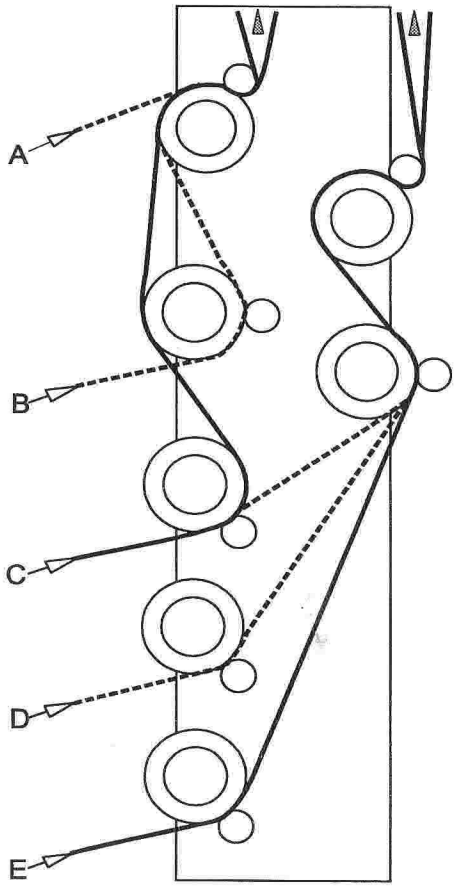


Figure 3-20 Scheme for ST 500 E

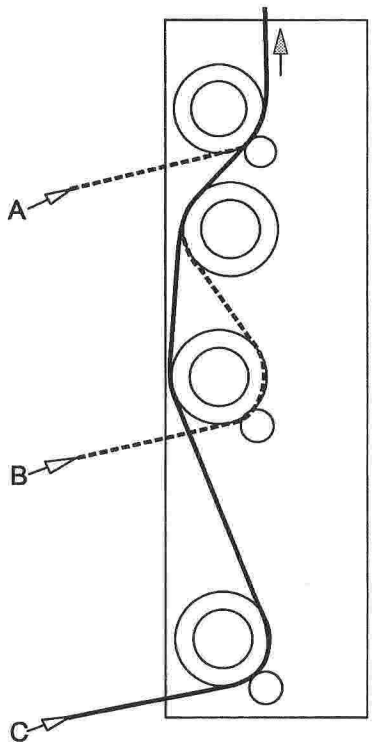


Figure 3-21 Scheme for ST 200/270 E

NOTE

In principle, you always have to thread the film from take-off unit in the next guide roller at column and lead to the guide rollers at the top of column.

From projector you have to thread the film in the movable guide roller at column then to lever arm to the „taking" platter.

In figure 3-20 you see the threading scheme (only „giving" platter level) for ST 500 E working with two projectors.

NOTE

The platter in the middle (C) can work with the two upper or with the two lower platters. Therefore you have to choose the corresponding projector (see also fig. 3-26).

3.4 Operating Elements

3.4.1 Operating Panel

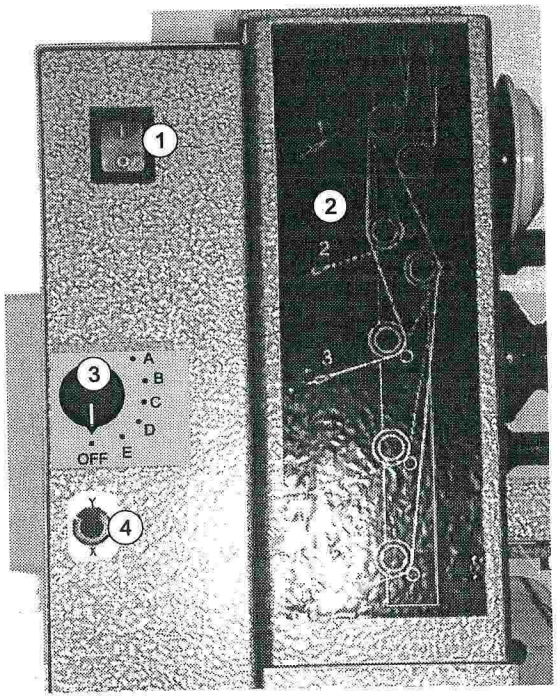


Figure 3-22 Operating panel ST 500 E

① light switch ON / OFF

② threading scheme

③ monitoring switch platter level

④ reversible switch projector X or Y (only ST 500 E)

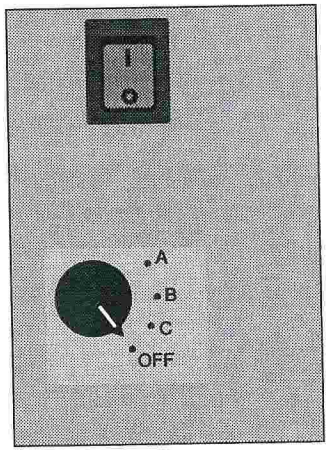


Figure 3-23 Operating panel ST 200/270 E

Switch ON / OFF

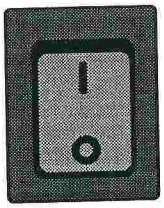


Figure 3-24 Switch ON / OFF

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

Main switch in position 0:
Current transfer is switched off.
The switch light is off.

Monitoring Switch Platter Level

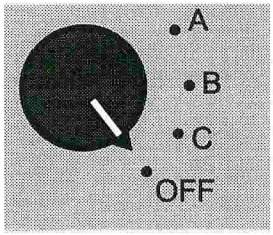


Figure 3-25 ST 200/270 E

Monitoring switch on A, B or C:
Operating with make-up table:
Corresponding platter level will be chosen.

Monitoring switch on OFF:
No platter level will be used with make-up table.

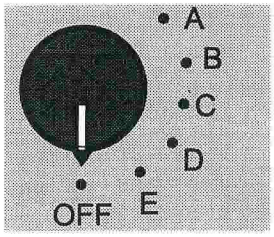


Figure 3-26 ST 500 E

Monitoring switch on A, B, C, D or E:
Operating with make-up table:
Corresponding platter level will be chosen.

Monitoring switch on OFF:
No platter level will be operated with make-up table.
There is no film tension switch integrated, the free platters have not be chosen.

NOTE

- **Monitoring switch on A, B, C, D or E:**
  If either a film tension switch is integrated in control unit or you have an foreign projector (not KINOTON) you **must** choose that level which is not in use.
- **ST 500 E:**
  The platter in the middle (C) can work with the two upper or with the two lower platters. Therefore you have to choose the corresponding projector (see also the following description of reversible switch „projector").

Reversible Switch „Projector" (only ST 500 E)

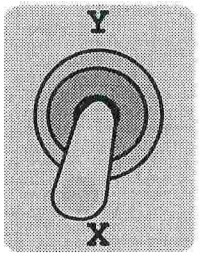


Figure 3-27 ST 500 E

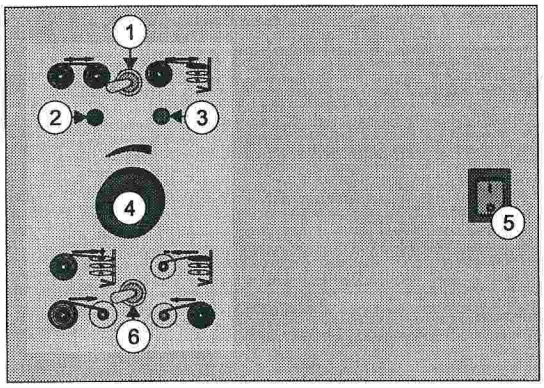
Reversible switch on Y:
The platter in the middle (C) is assigned to projector Y.

Reversible switch on X:
The platter in the middle (C) is assigned to projector X.

NOTE

During projector operating you always have to assign the platter in the middle to a projector, otherwise the system will get no „Run" signal and if film break is activated it is not necessary to assign the corresponding projector.

3.4.2 Operating Panel Make-up Table



① reversible switch to reel / operating with Non-Rewind System

② LED red

③ LED green

④ potentiometer motor speed

⑤ switch ON / OFF

⑥ reversible switch motor-winder left / right to make-up / to tear down

Figure 3-28 Operating make-up table

The red LED ②:

illuminates with a maloperation or fault

The green LED ③:

blinks with start reeling and illuminates continuously with operation.

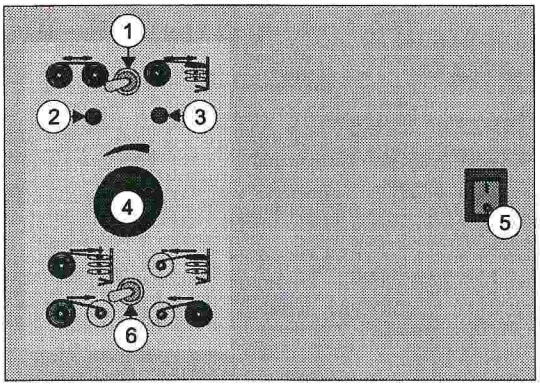
Potentiometer ④:

adjust the reel speed continuously and start operation

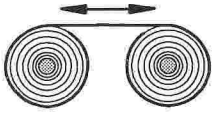
NOTE
If you turn potentiometer left to its stop you clear the drive and all adjustments.

Switch ON /OFF ⑤:

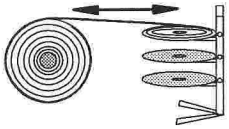
You can activate or deactivate the drive of make-up table.
The switch illuminates with activated drive.



The reversible switch ①:

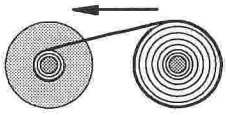


Reeling (only operating make-up table)

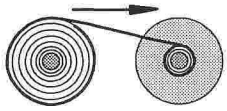


Operating make-up table with Non-Rewind System

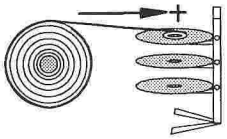
The reversible switch ⑥:



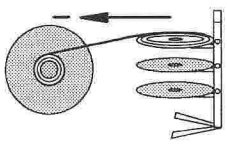
Reeling with motor-winder left
(only operating make-up table)



Reeling with motor-winder right
(only operating make-up table)



Making up a program
(operating make-up table with Non-Rewind System)



Tearing down a program
(operating make-up table with Non-Rewind System)

4 Operating

4.1 Operating with Projector and/or Make-up Table

4.1.1 ST 200 E and ST 270 E

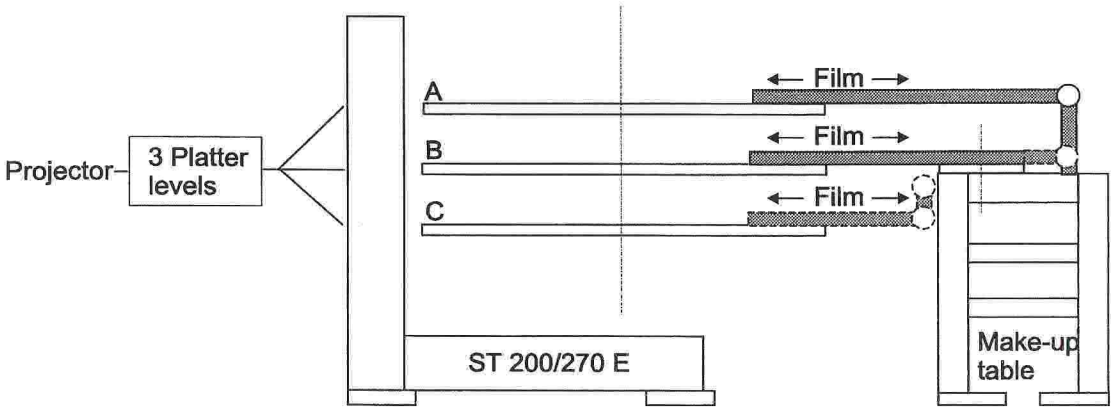


Figure 4-1 ST 200/270 E with projectors and make-up table

Operating simultaneous with one projector and make-up table:

- projector with any platter level („giving" or „taking")
- make-up table with free platter level

Operating with projector:

projector with two of the three platter levels

NOTE
If a film tension switch is integrated in control unit you have to choose that level, which is not in use.

Operating with make-up table only:

make-up table with any platter level

4.1.2 ST 500 E

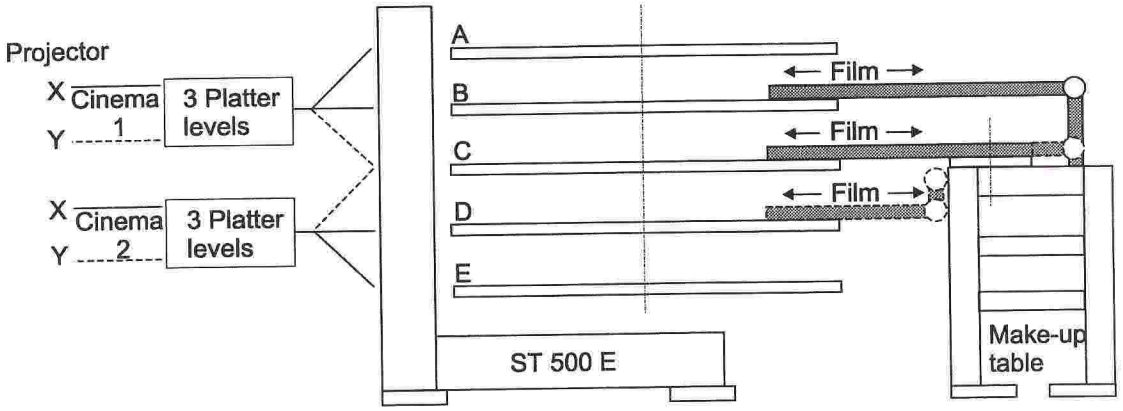


Figure 4-2 ST 500 E with projectors and make-up table

Operating simultaneous with two projectors and make-up table:

- two projectors with upper platter levels A and B („giving" or „taking" for one projector) and lower platter levels D and E („giving" or „taking" for the other projector)
- make-up table with platter level C

Operating simultaneous with one projector and make-up table:

- one projector with two of the five platter levels („giving" or „taking")
- make-up table with the free platter B, C or D

Operating with two projectors:

two projectors with A / B and D / E
or A / C and D / E
or B / C and D / E
or A / B and C / D
or A / B and C and E

NOTE

- The platter in the middle (C) can work with the two upper or with the two lower platters. Therefore you have to choose the corresponding projector X or Y.
- If a film tension switch is integrated in control unit you have to choose that level, which is not in use.

Operating with make-up table only:

make-up table with platter level B or C or D

4.1.3 ST 400 E

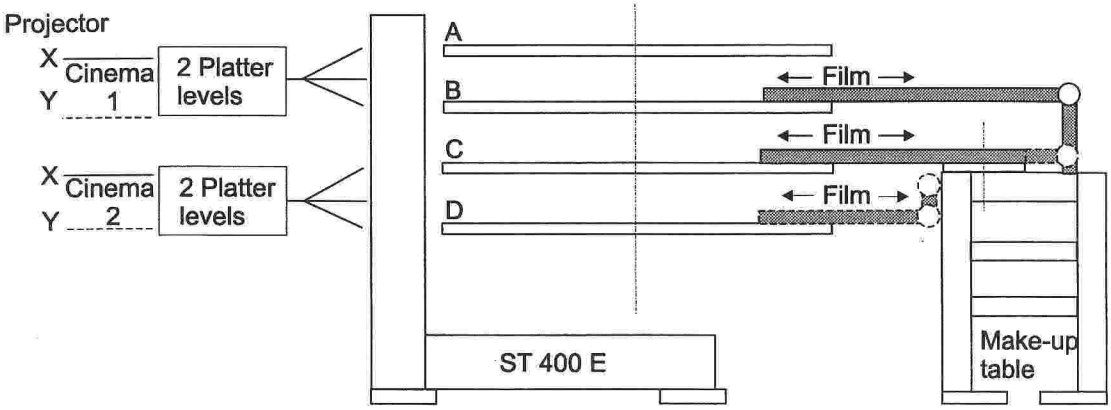


Figure 4-3 ST 400 E with projectors and make-up table

Operating simultaneous with one projector and make-up table:

- one projector (X or Y) with two of the four platter levels („giving" or „taking")
- make-up table with free platter level B or C or D

Operating with two projector:

two projectors (X and Y) with four platter levels (two „giving" one and two „taking" one)

NOTE

If a film tension switch is integrated in control unit you have to choose that level, which is not in use.

Operating with make-up table only:

make-up table with platter level B or C or D

4.1.4 ST 100 E

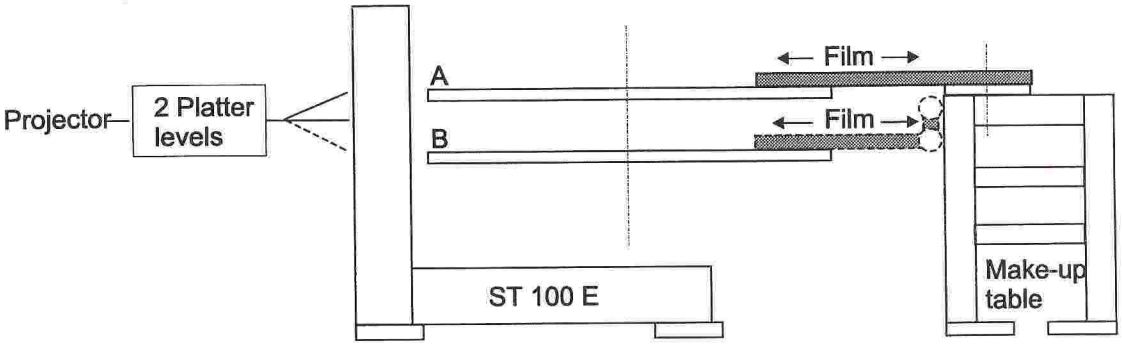


Figure 4-4 ST 100 E with projector and make-up table

Operating with projector:

projector with platter level A and B

Operating with make-up table only:

make-up table with platter level A or B

4.2 Switch-On / Switch-Off

4.2.1 Switch-On

1. Switch on external power supply and control box in performance room.
2. Switch on light switch (position „I“)  of Non-Rewind System.
   Switch is shining red.

4.2.2 Switch-Off

1. Switch off light switch (position „0“)  of Non-Rewind System.
   Switch is off.
2. Switch off external power supply and control box.

4.3 Threading for Operating

4.3.1 For „giving“ Platter Level

1. The film is lying on the platter – beginning of reel is inside.
2. Open tension jack of insert ring.
3. Take insert ring and put it down on the „reel-up“ platter level.
4. Push in take-off unit.
5. Thread the beginning of the film in take-off unit, then in guide rollers of column. The platter is activated and turns itself.
6. Lead film to projector.

4.3.2 For „taking“ Platter Level

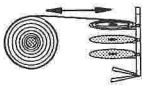
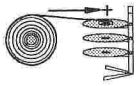
1. Lead film from projector over the moveable guide roller of column back to a platter.
2. Thread film in guide rollers of lever arm.
3. Wind-up film with two to three windings on the insert ring lying on „reel-up“ platter level.
4. Turn platter manually.
   The lever arm will automatically move into its working position.
5. The lever arm is in working position.
6. The projector / pair of projector is ready for start.

ATTENTION

- The film must always be threaded between guide roller and red stay roller.
- Check all guidances and rollers if the film threads correctly.

4.4 Threading to Operate with Make-up Table

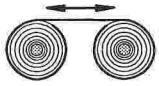
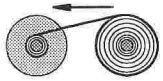
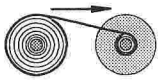
4.4.1 To Make-up

1. Switch on make-up table  (switch in position „I“, switch is shining).
2. Adjust the upper reversible switch in position  (operating with Non-Rewind Eqipment).
3. Adjust the lower reversible switch in position  (making up).
4. The first reel, for example a trailer, is lying on the right side of make-up table.
5. Pin an insert ring on a platter of Non-Rewind System.
6. Lead film via lever arm and guide rollers of make-up table to the level of the chosen platter of Non-Rewind System.

ATTENTION
Never lead film via lever arm of Non-Rewind System to make-up table.

7. Wind up film (two to three windings) around the insert ring on the „reel-up“ platter level.
8. Activate the corresponding platter A, B, C, D or E with monitoring switch on System.
9. Move lever arm of make-up table out of zero-position.
10. Turn potentiometer clockwise to the reel speed you want, the make-up operating starts.
    During start the green LED illuminates continuously. During operation the green LED blinks.
    Should the red LED illuminate there is a malfunction or a fault.
11. Repeat this process until your program is finished.

4.4.2 To Reel

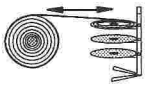
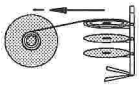
1. Switch on make-up table  (switch in position „I“, switch is shining).
2. Adjust the upper reversible switch in position  (reeling).
3. Adjust the lower reversible switch in position  or  (left or right (rotation sense)).

ATTENTION

To reverse the rotation the drive has to stand still. The green LED illuminates continuously.

4. Turn the potentiometer clockwise to the reel speed you want, the make-up operating starts.
   During start the green LED illuminates continuously. During operation the green LED blinks.
   Should the red LED illuminate there is a malfunction or a fault.

4.4.3 To Tear down

1. Switch on make-up table  (switch in position „I“, switch is shining).
2. Adjust upper reversible switch in position  (operating with Non-Rewind System).
3. Adjust lower reversible switch in position  (tearing down).
4. The separating program is lying on a platter.
5. Lead film to make-up table via guide roller of column.

ATTENTION

Never lead film via lever arm of Non-Rewind System to make-up table.

6. Activate corresponding platter A, B, C, D or E with monitoring switch.
7. Thread film via guide roller of lever arm to insert ring on the „reel-up“ platter level and wind up film (two to three windings).
8. Move lever arm of make-up table out of its zero-position.
9. Turn potentiometer left to its zero-position.
10. Turn potentiometer clockwise to the reel speed you want, tear down operation starts.
    During start the green LED illuminates continuously. During operation the green LED blinks.
    Should the red LED illuminate there is a malfunction or a fault.
11. By the time the process ends, reduce reel speed. Stop reeling and cut tear down act from the rest of the film.
12. Repeat this process until your program is separated.

4.5 Changing Program

1. After running the program fix the end of the film.
2. Fasten a film transport clip with film reel and insert ring.
3. Remove the fixed film from platter.
4. Put on your new program on platter and remove film transport clip.

ATTENTION

Only change and transport heavy 70-mm-films with a suitable hoisting machine.

5 Trouble Shooting

5.1 General Hints

Currently technology and programming guarantee a perfect process of the system, nevertheless there could be errors because of maloperation, wrong procedures and other things.
In this chapter you get information about possible errors and error messages and about possible clearing of these errors.

5.2 Clearing of Errors

5.2.1 Equipment

If system has spontaneous breakdowns especially with starting lamps you have to check wether all mechanical connections are low impedance, because of electrostatic charging.
In this case put anodized plain washers or tooth lock washers between these connections.

5.2.2 Make-up Table

Make-up table is not running
The red LED illuminates.

Lever arm cannot move out of ist zero-position.

Perhaps the tension of spring is too strong.
Remove spring and stretch it repeatedly.

Sense of rotary was changed during operation.

Turn potentiometer left to its stop. To start again turn potentiometer clockwise.

Malfunction because of wrong operation

Turn potentiometer left to its stop. To start again turn potentiometer clockwise.
Please read chapter 3.4.2, Operating Panel Make-up table and chapter 4.4, Threading for Operating for Make-up table to operate correctly.

5.2.3 NON-Rewind System

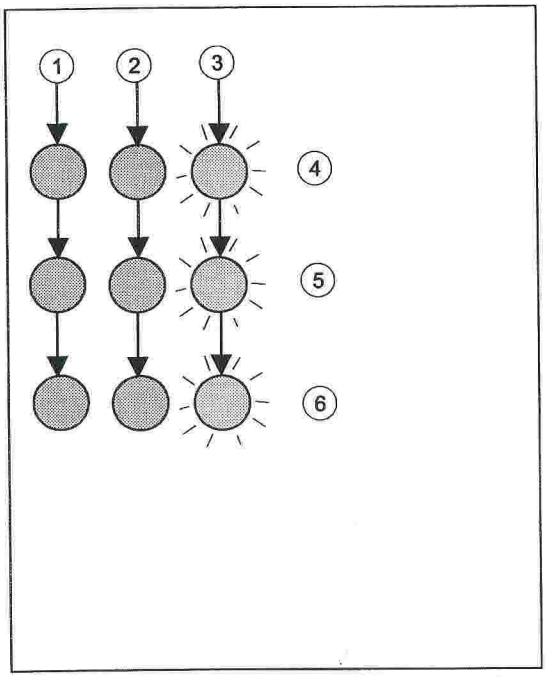


Abbildung 5-1 Mother board ST 81-02 for ST 200/270 E

The control board is mounted in column.

① LEDs: state of platter levels

The LED of the corresponding platter illuminates when the lever arm is in zero-position.

The LED of the corresponding platter gets off when:
- Take-off unit is inserted.
- The platter level is chosen.
- The lever arm is not in zero-position (stop).

② Lever arm in working position (corresponding LED illuminates)

③ Processor is working (corresponding LED blinks)

④ LEDs platter level A

⑤ LEDs platter level B

⑥ LEDs platter level C

NON-Rewind System is not running.

Lever arm is not in working position.
Check LEDs ① and ② (see fig. 5-1).

☛ Turn platter to move lever arm in working position.

☛ Check hall potentiometer. Is it damaged, exchange it.

The projector (X or Y) (ST 500 E) is not chosen, which is assigned to the platter in the middle.
Check LEDs ① (see fig. 5-1).

☛ Choose projector.

The unused platter is not chosen (necessary when a film tension switch is integrated in control unit (only ST 500 E)).
Check LEDs ① (see fig. 5-1).

☛ Choose the unused platter (A, B or C).

6 Maintenance and Cleaning / Attendance

6.1 General Hints

ATTENTION

- Allow work on electric supply to be carried out by competent electricians only.
- Make sure that nobody starts Non-Rewind System while you are working. With all maintenance and cleaning work you must separate Non-Rewind System from power supply (switch off main switch).
- All adjustments to be carried out by competent service men 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.

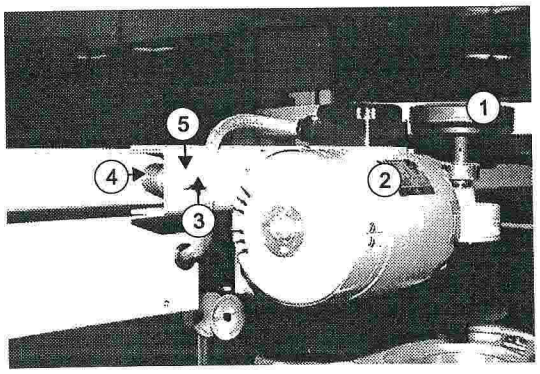
This maintenance work and attendance which are necessary may be observed especially from operators. These works have to be carried out regularly and carefully.

6.2 Maintenance Work and Attendance

Components	**as required**
Take-off unit	Before film change clean it with air pressure.
Guide rollers	Listening check: noises because of defect ball bearing Change ball bearing or complete roller.
Friction gear	Functioning check: rough running because of too big distance between frictional wheel and flange Adjust motor with frictional wheel nearer to flange. If the frictional wheel is worn, exchange it.
Platters	Before you put a new film reelon platter, clean it with a fuzzy-free cloth.

6.3 Repair

6.3.1 Adjust Friction Gear

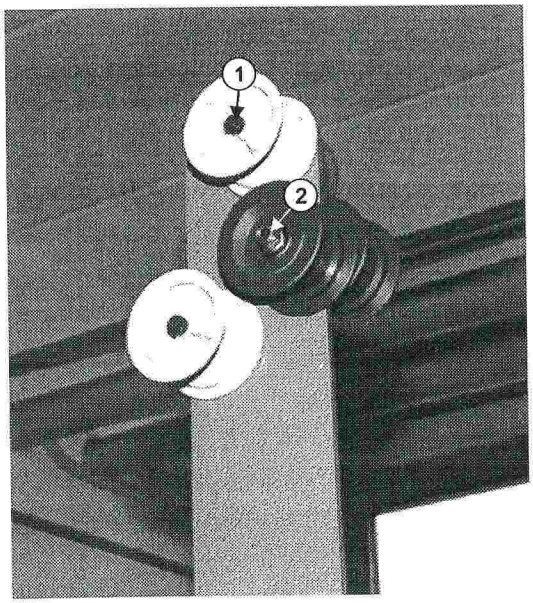


① frictional wheel
② motor
③ setting screw
④ pressure spring
⑤ locknut

Figure 6-1 Adjusting friction gear

1. Release locknut ⑤.
2. Turn setting screw clockwise, pressure spring ④ relaxes, frictional wheel ① with motor ② gets nearer to flange.
3. If frictional pressure is correct, fix this adjustment with locknut ⑤.

6.3.2 Exchange Rollers



① hexagon socket srew
guide roller

② hexagon head cap srew
braking roller

1. Release hexagon socket srew or hexagon head cap srew of the corresponding roller.
2. Pull off defect roller from axis.
3. Put on a new roller and tighten screw.

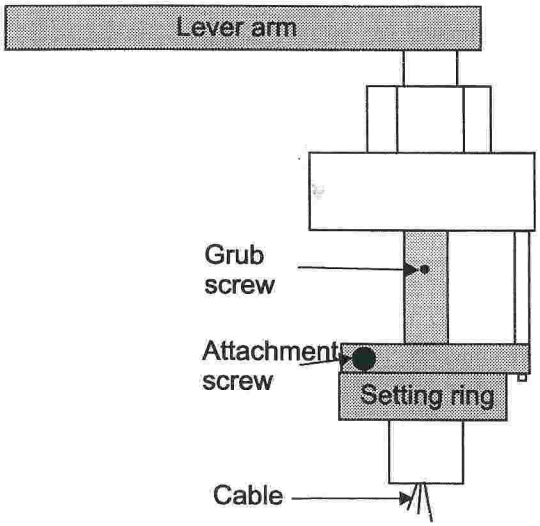
Figure 6-2 Changing rollers

6.3.3 Adjust Hall Potentiometer / Lever Arms

- Remove cover of column to reach mother board in it.
- Cramp a voltmeter on corresponding metering point MP1, MP2, MP3 etc. and on GND.

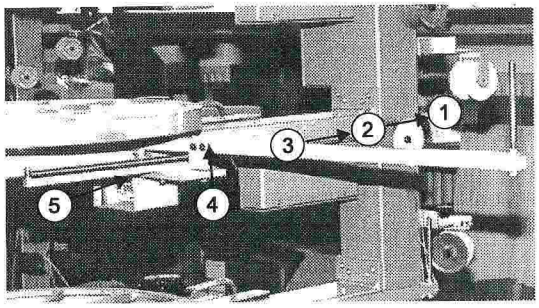
NOTE

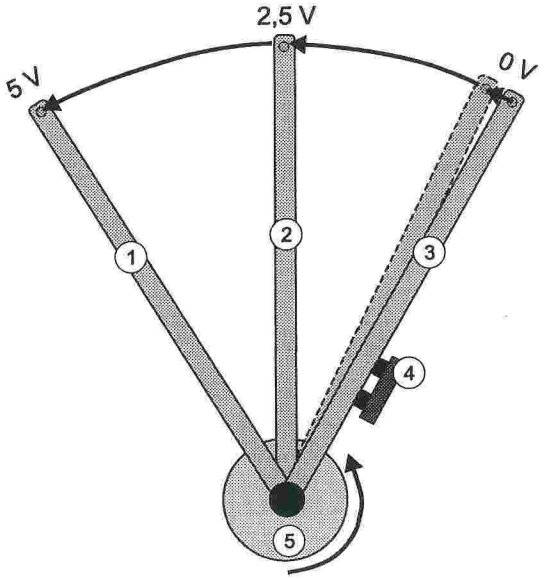
See circuit schemes in chapter 8.2.2, Circuit Scheme Platter Control (ST 200 E / ST 270 E), 8.2.3, Circuit Scheme Platter Control (ST 100 E) and 8.2.8, Circuit Scheme Make-up Table Control.



- Remove cover of hall potentiometer.
- Release jamming screw (hexagon socket screw 2,5) of potentiometer.
- The grub screw (hexagon socket screw 1,5) has to be tightened.
- While turning setting ring you can carry out the following adjustments.

Figure 6-3 Adjusting hall potentiometer





① lever arm in end-position (column)

② lever arm in working position

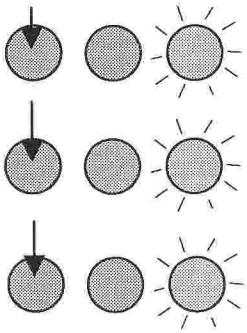
③ lever arm in zero-position (limit stop)

④ limit stop

⑤ hall potentiometer

Figure 6-4 Adjusting hall potentiometer / lever arm

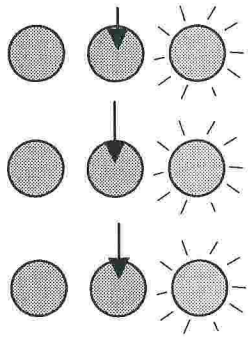
Lever arm in zero-position (limit stop)



Lever arm is in zero-position ③ (limit stop ④).
The LED (arrows) of the corresponding platter is illuminating.

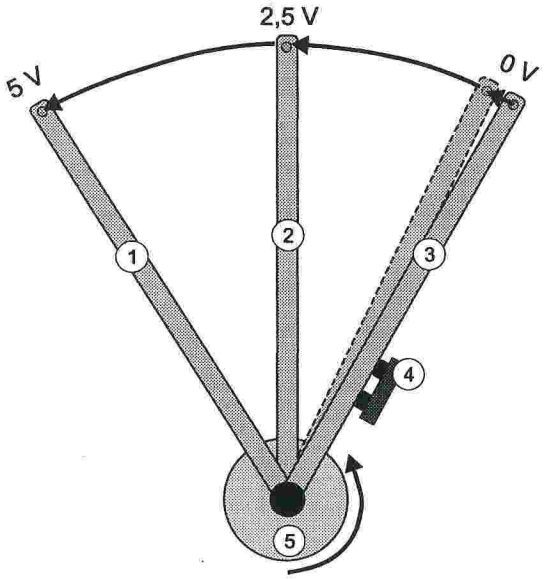
Turn hall potentiometer ⑤ with setting ring until voltmeter indicates „0 V".
The voltmeter has to indicate „0 V" too, when lever arm will move about 1 cm out of zero-position (see figure 6-5).

Lever arm in working position (between zero- and end-position)



Move lever arm in working position ②.
If the lever arm in working position the LED (arrows) of the corresponding platter is illuminating.

During lever arm is moving from zero-position ③ to working position ② the voltmeter indicates ascending values up to „2,5 V" when reaching working position ②.



Lever arm in end-position (at column)

Move lever arm to column in end-position ①.
If the lever arm in working position the LED (arrows) of the corresponding platter is illuminating.

During lever arm is moving from working position ② to end-position ① the voltmeter indicates ascending values up to „5 V“ when reaching end-position ①.

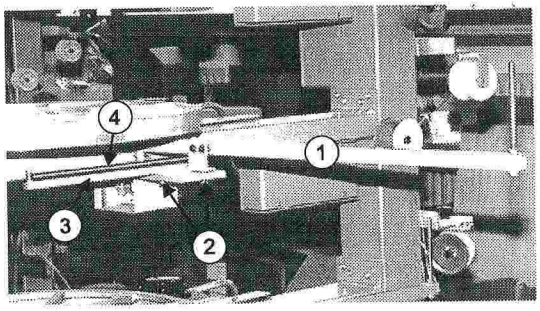
NOTE

- Repeat the described adjustment for all hall potentiometers/lever arms.
- The same operating is to do with hall potentiometer of make-up table.

6.3.4 Adjust Spring of Lever Arm

NOTE

The closeness of a film reel depends on tension of spring of lever arm. With often using reels which are reeled up to loose, it is perhaps necessary to increase the tension of spring.



① lever arm in zero-position
② hexagonal socket screws
③ bar of spring
④ spring

Figure 6-5 Adjusting spring of lever arm

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

7 List of Parts and Wearing Parts

7.1 Parts and Wearing Parts of Mechanics

7.1.1 Parts and Wearing Parts for ST 100/200/400/500 E

Part	Fig.	Pos.	Piece	Item No.
braking roller (column)	7-3	**1**	01	1000 525 67030
half guide roller	7-3	**2**	01	5322 705 30909
axis for movable guide roller		**3**	01	5322 705 30911
axis for fitted guide roller	7-2	**4**	01	5322 705 30958
stay roller	7-1	**5**	01	5322 705 30967
platter ∅ 1240 mm normal size platter ∅ 1320 mm special size		**6**	01 01	5322 705 30939 5322 705 30941
insert ring ∅ 400 mm insert ring ∅ 600 mm	7-1	**7**	01 01	5322 705 30936 5322 705 30934
IR-take-off unit complete	7-7	**8**	01	5322 705 30910
take-off unit complete	7-8	**9**	01	5322 705 30907
switching arm	7-8	**10**	01	5322 705 30913
base	7-8	**11**	01	5322 705 30997
handle plate	7-8	**12**	01	1000 413 87001
sloping base	7-8	**13**	01	1000 404 57009
motor	7-5	**14**	01	5322 705 30859
frictional wheel	7-5	**15**	01	5322 705 30944
lever arm unit	7-2	**16**	01	1000 693 57042
spring at lever arm	7-2	**17**	01	5322 705 30951

NOTE

- The parts in the list are positioned with a number. You will find these numbers in figures 7-1, 7-2, 7-3, 7-5, 7-7 and 7-8.
- If you need some other parts, please call KINOTON.

7.1.2 Parts and Wearing Parts for ST 270 E

Part	Fig.	Pos.	Piece	Item No.
combi-roller upper part	7-4	**18**	01	5322 705 30923
combi-roller lower part	7-4	**19**	01	5322 705 30924
platter ∅ 1240 mm normal size platter ∅ 1320 mm special size		**6**	01 01	5322 705 30939 5322 705 30941
take-off unit complete	7-9	**20**	01	5322 705 30918
microswitch	7-9	**21**	01	5322 705 30883
excenter disc	7-9	**22**	01	5322 705 30926
switching arm	7-9	**23**	01	5322 705 30913
motor	7-6	**24**	01	1000 361 87016
frictional wheel	7-6	**15**	01	5322 705 30944

NOTE

- The parts in the list are positioned with a number. You will find these numbers in figures 7-4, 7-6 and 7-9.
- If you need some other parts, please call KINOTON.

7.1.3 Parts and Wearing Parts for Make-up Table

Benennung	Abb.	Pos.	Stück	Artikelnummer
lever arm unit	7-10	**25**	01	1000 693 57045
spring at lever arm			01	1000 492 37020

NOTE

- The parts in the list are positioned with a number. You will find this number in figure 7-10.
- If you need some other parts, please call KINOTON.

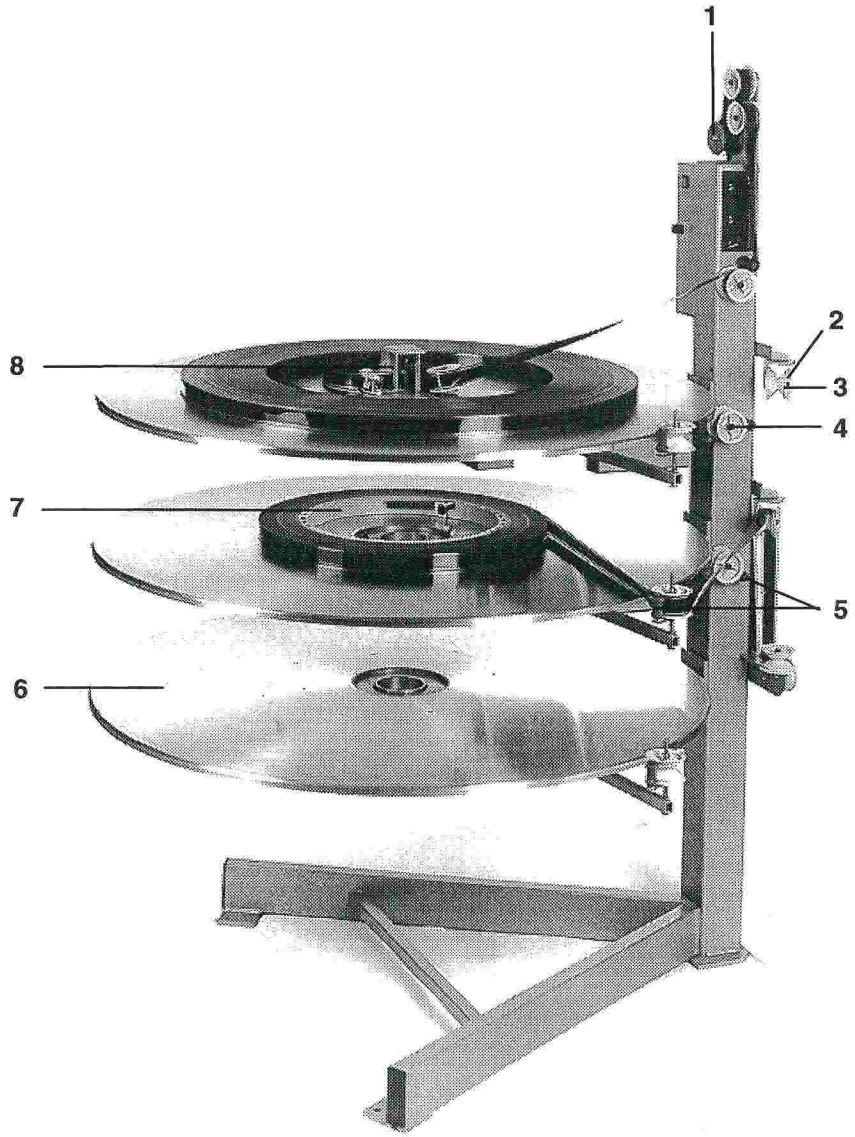


Figure 7-1

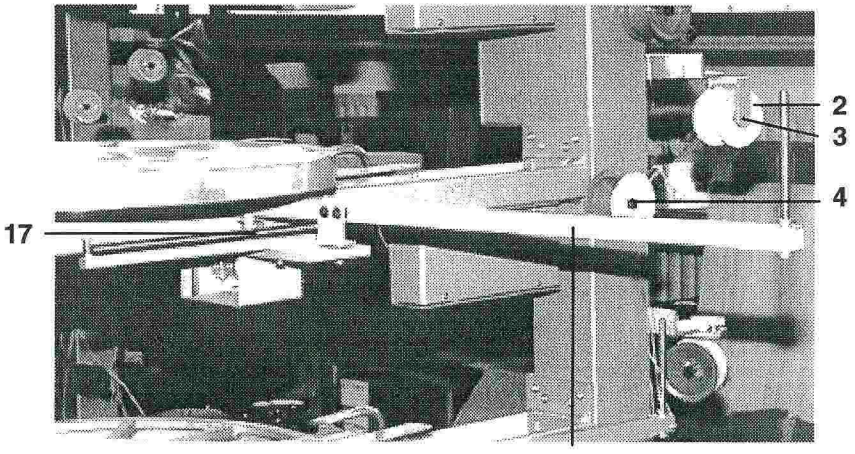


Figure 7-2

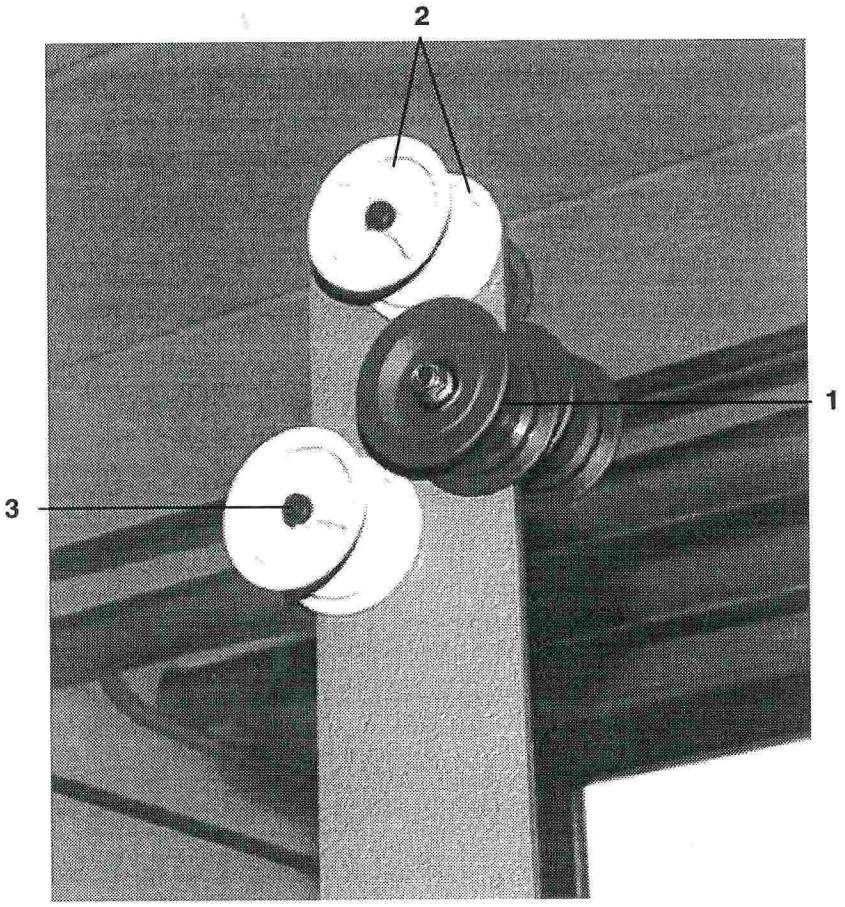


Figure 7-3

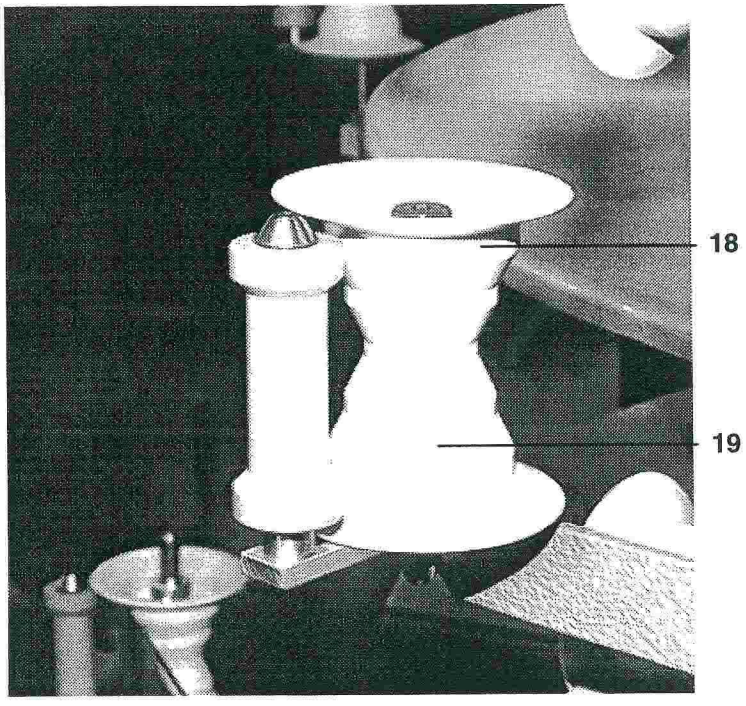


Figure 7-4

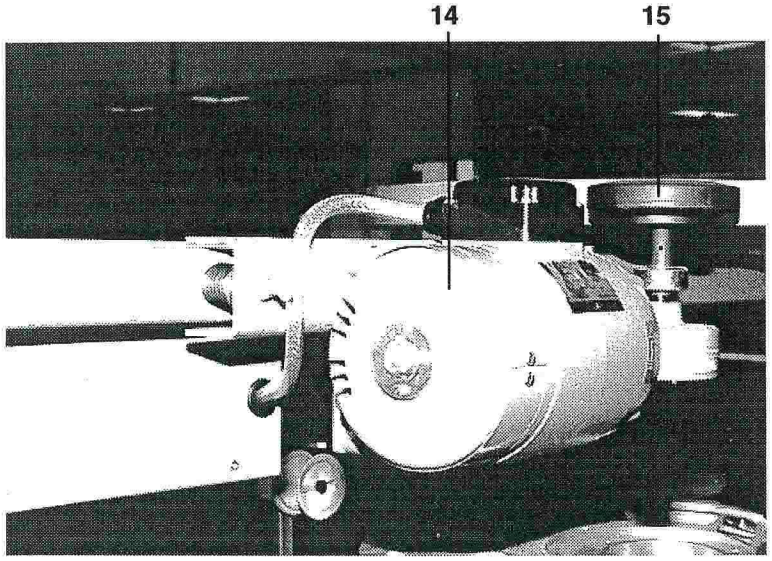


Figure 7-5

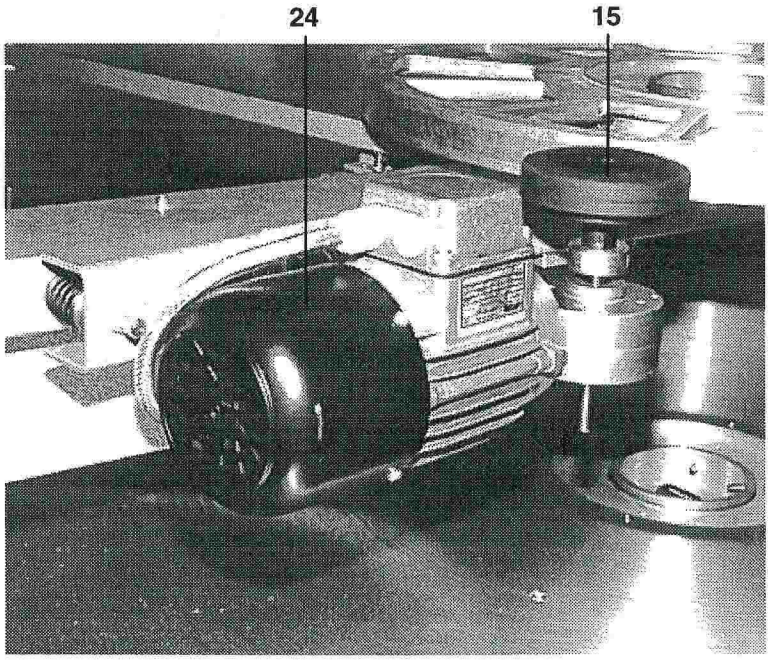


Figure 7-6

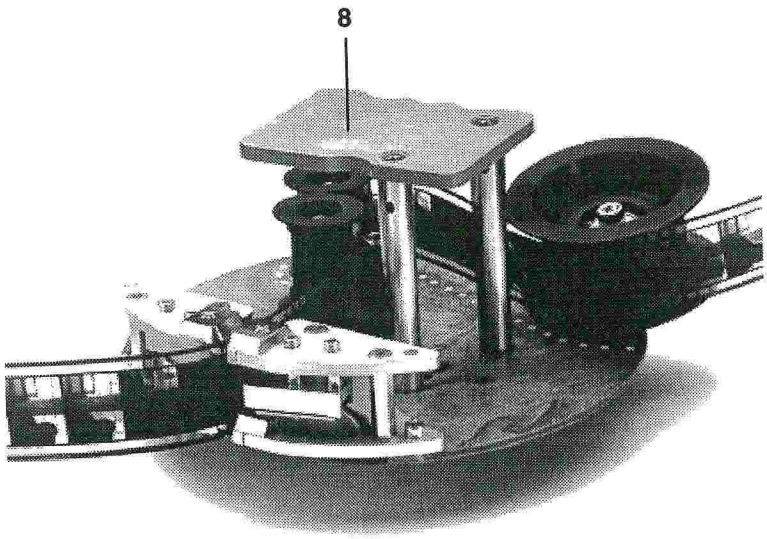


Figure 7-7

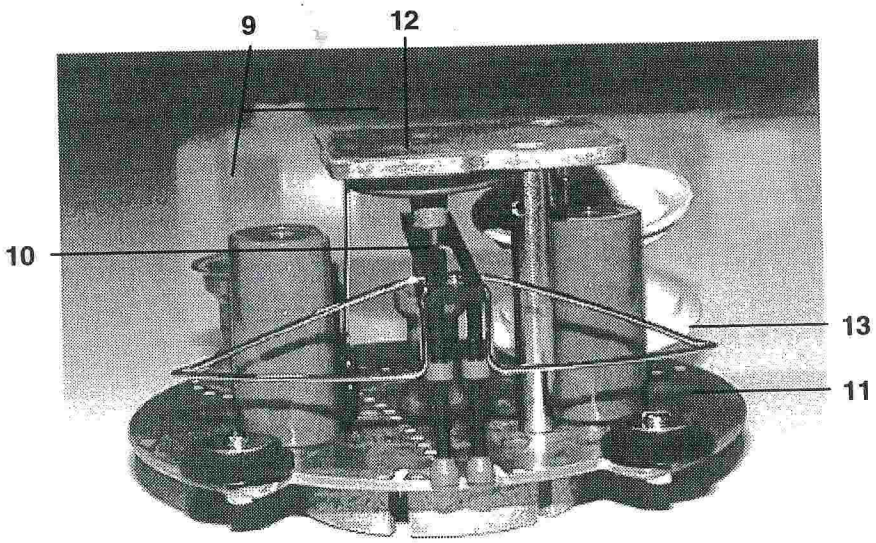


Figure 7-8

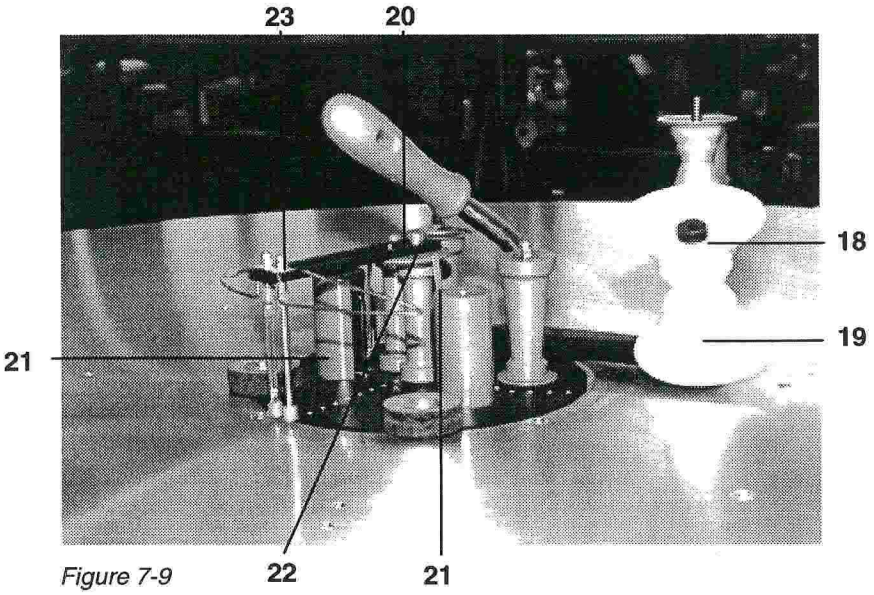


Figure 7-9

Figure 7-10

7.2 Parts of Electricity

7.2.1 Control Parts

Part	Fig.	Pos.	Piece	Item No.
hall potentiometer	7-11	**26**	01	1000 105 97006
mother board ST 81-02 platter	7-12	**27**	01	1000 216 97057
mother board ST 81-01	7-13	**28**	01	1000 216 97055
mother board ST 81-03 make-up table			01	1000 216 97057
relay film break switch	7-13	**28**	01	0050 332 00005

7.2.2 Operating Elements

Part	Fig.	Pos.	Piece	Item No.
monitoring switch „platter level“ for ST 200/400/100 E			01	1000 273 87002
monitoring switch „platter level“ for ST 500 E	7-14	**29**	01	1000 273 87001
reversible switch „choosing projector“ only ST 500 E	7-14	**30**	01	5322 705 30888
ON/OFF switch Non-Rewind Equipment and make-up table	7-14 7-15	**31** **32**	01	1000 277 27002
reversible switch make-up table	7-15	**33**	01	1000 277 17007
LED green make-up table	7-15	**34**	01	1000 134 97003
LED red make-up table	7-15	**35**	01	1000 134 97002

7.2.3 Fuses

Part	Fig.	Pos.	Piece	Item No.
fuse time-lag 2 A ST 200 E	7-12	**26**	01	4822 253 30025
fuse time-lag 2,5 A ST 200 E	7-13	**27**	01	4822 253 30026
fuse time-lag 3,15 A make-up table			01	4822 253 30027

8 Technical Data and Circuit Diagrams

8.1 Data of Non-Rewind System

Name	Non-Rewind System
Type	ST 200 E (ST 100/400/500/270 E)
Machine No.	See numberplate at base

8.1.1 Connection Data

Power supply	110/120/230/240 V AC
Frequency	50/60 Hz
Operating power	24 V DC
Power max.	500 W

8.1.2 Power and Operating Data

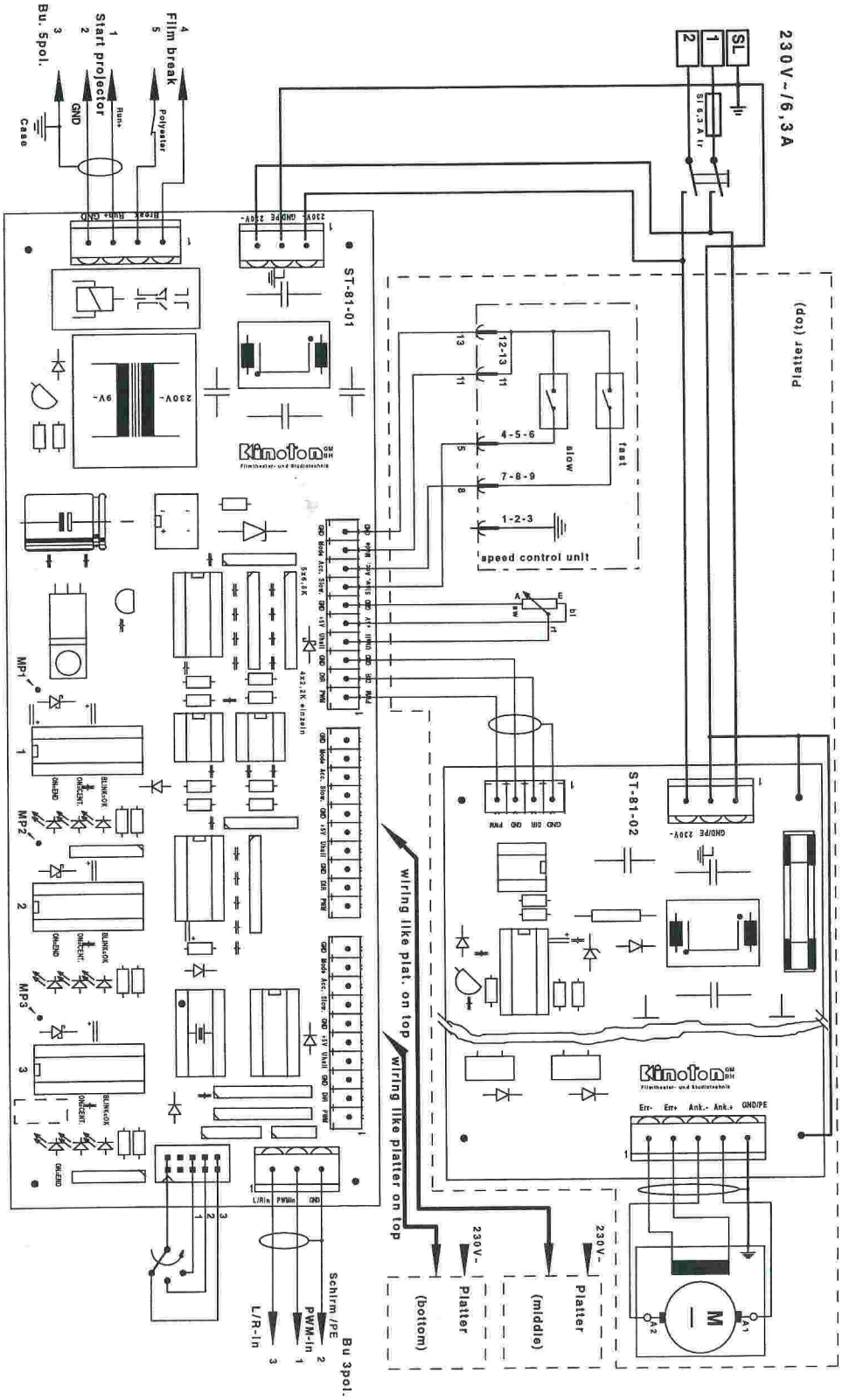
Nominal rotary frequency of motor	3000 U/min
Power of motor	100 W
Reel rotary speed max.	400 U/min
Nominal reel rotary speed	27,4 m/min

8.1.3 Sizes and Weights

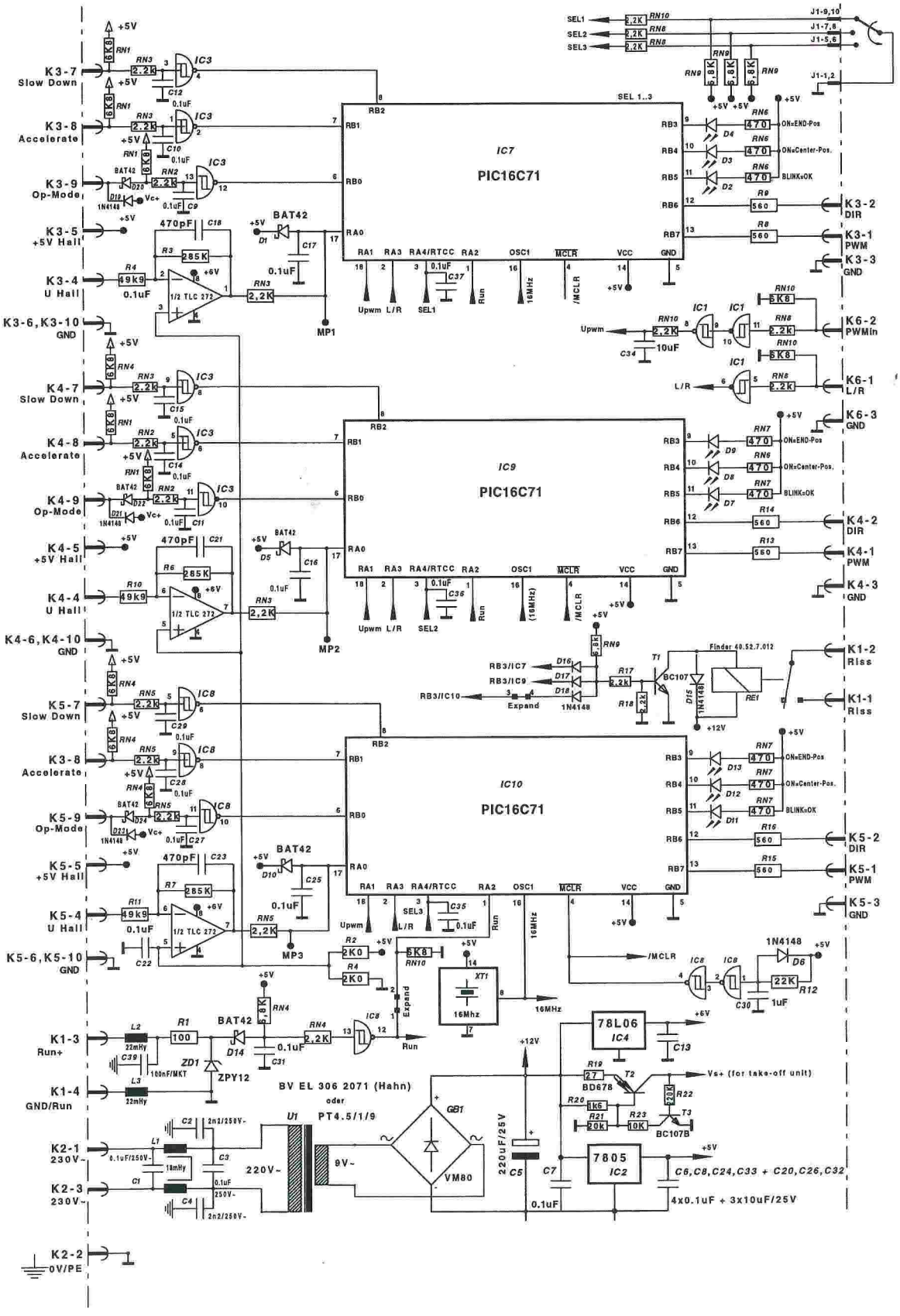
Version/components	**depth x width x height or ∅ [mm]**	**Weight [kg]**
ST 100 E	1440 x 1320 x 1920	120
ST 200 E / ST 270 E	1440 x 1320 x 1920	210/260
ST 400 E	1440 x 1320 x 1920	280
ST 500 E	1440 x 1320 x 2220	310
platter	∅ 1320	approx. 55
distance of platters	300	
make-up table	800 X 850 x 1292	

8.2 Circuit Diagrams

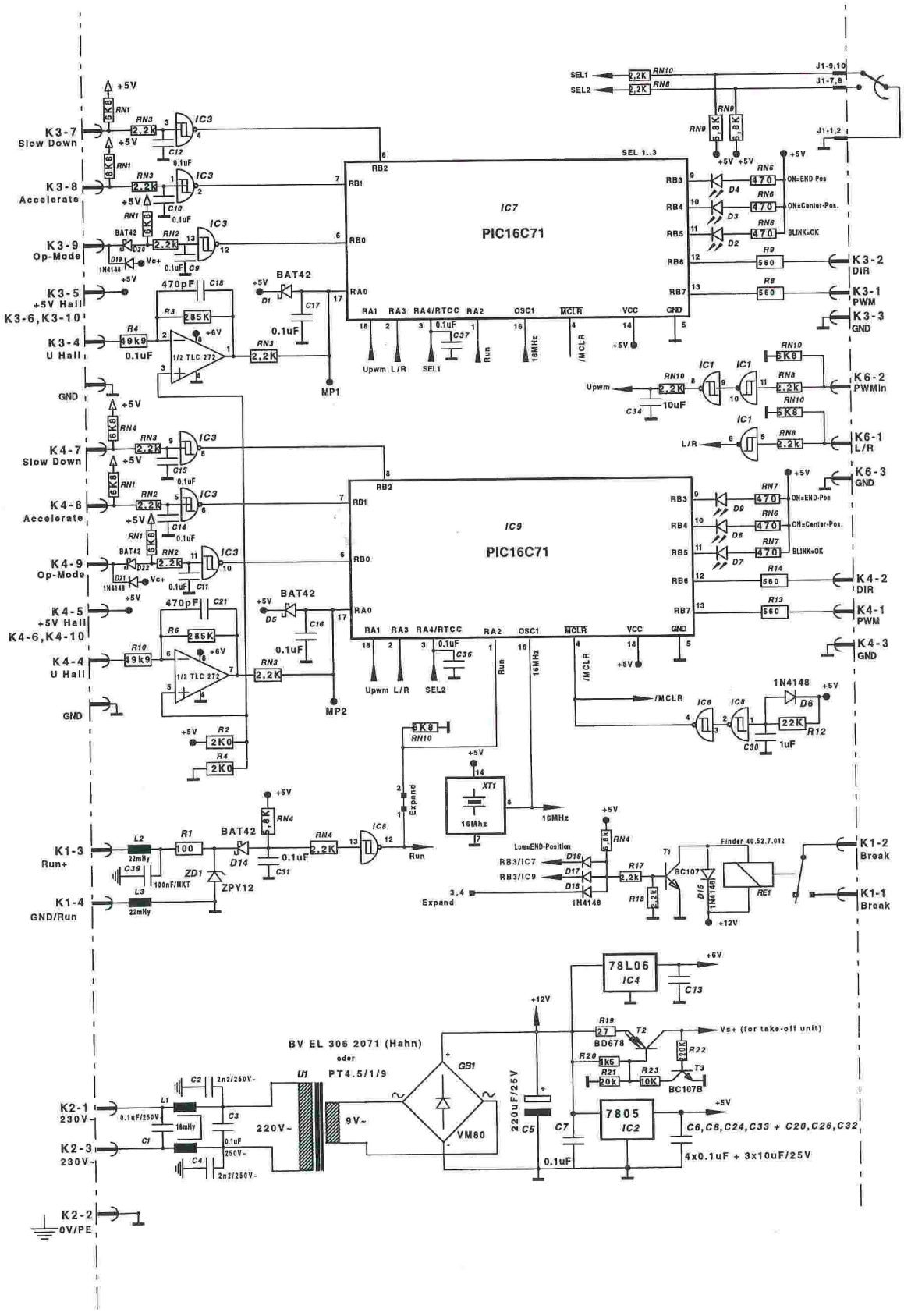
8.2.1 Circuit Scheme ST 200 E



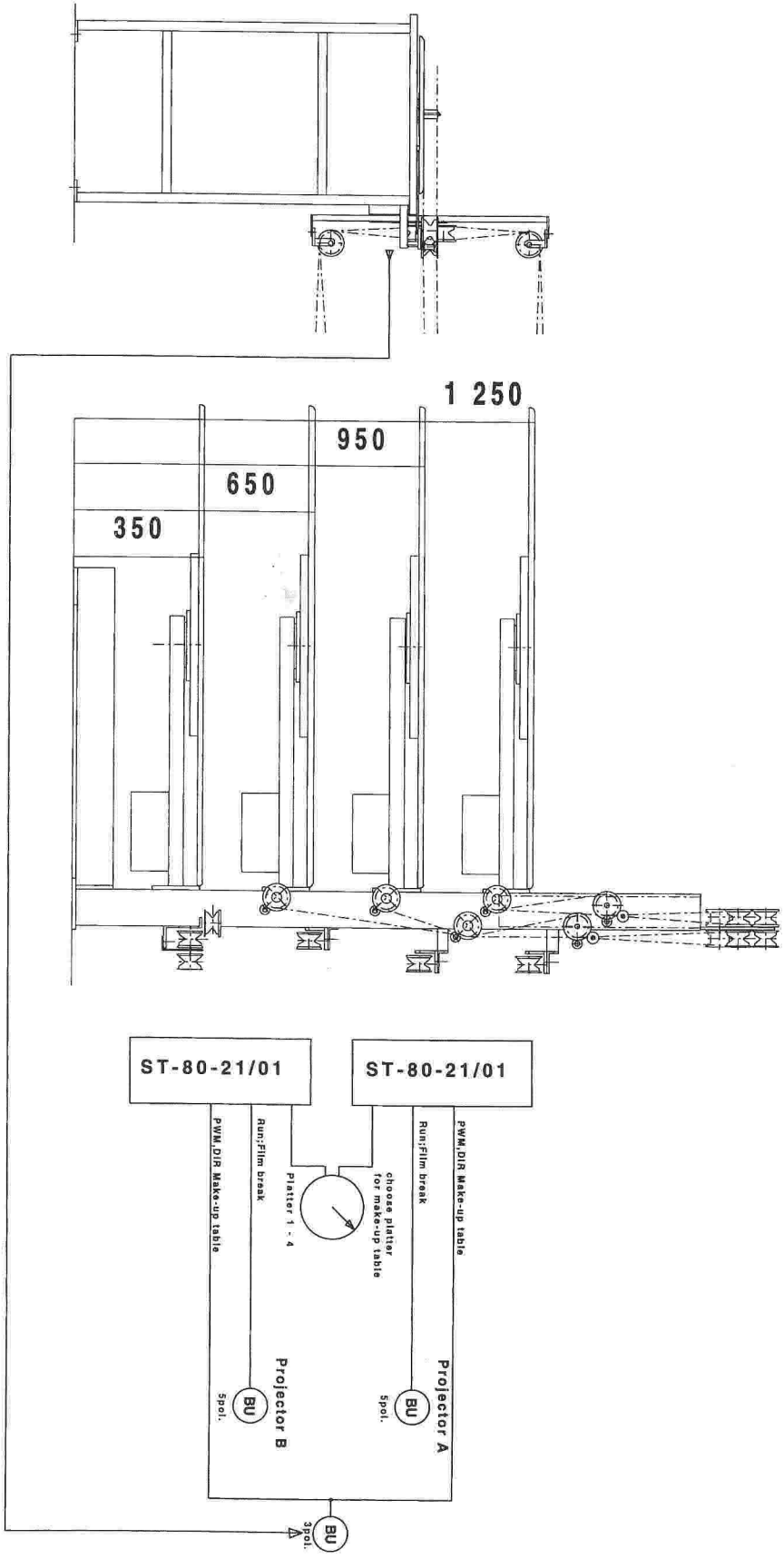
8.2.2 Circuit Scheme Platter Control (ST 200 E / ST 270 E)



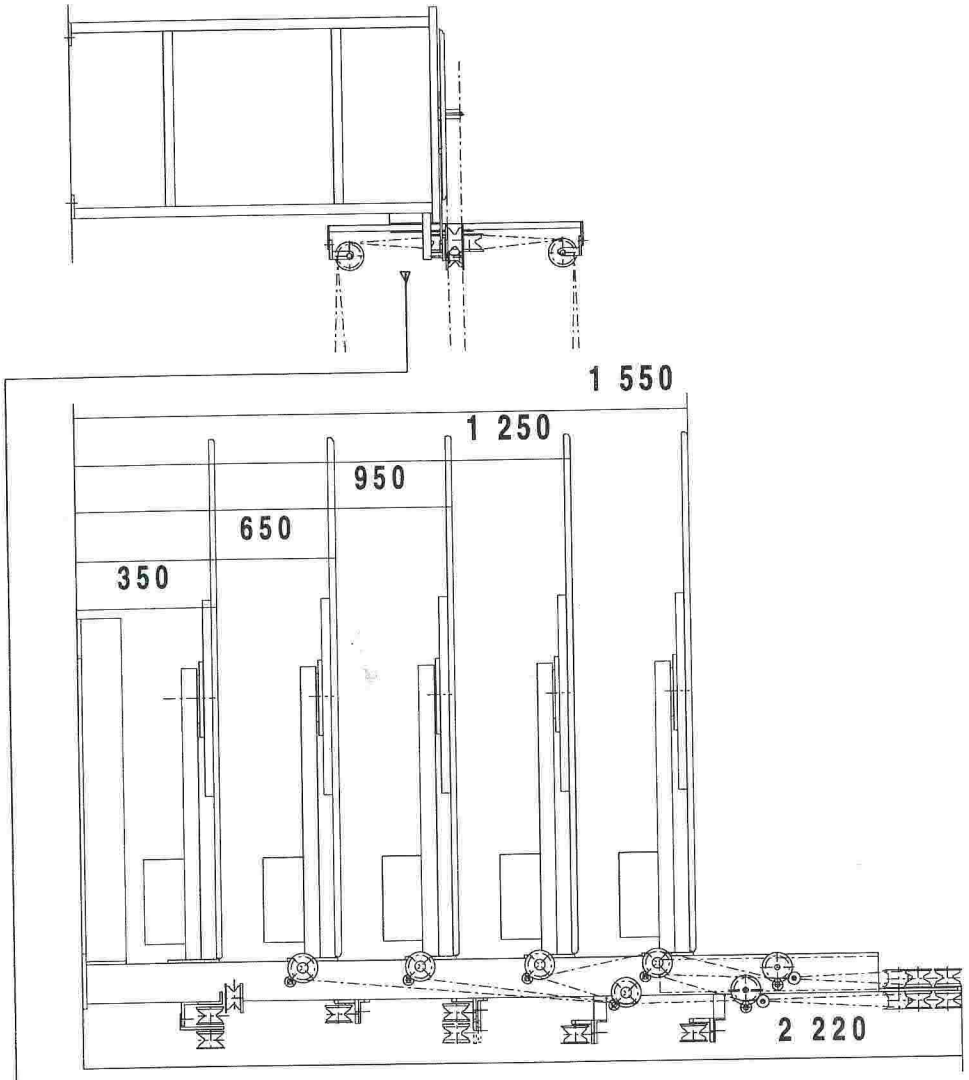
8.2.3 Circuit Scheme Platter Control (ST 100 E)

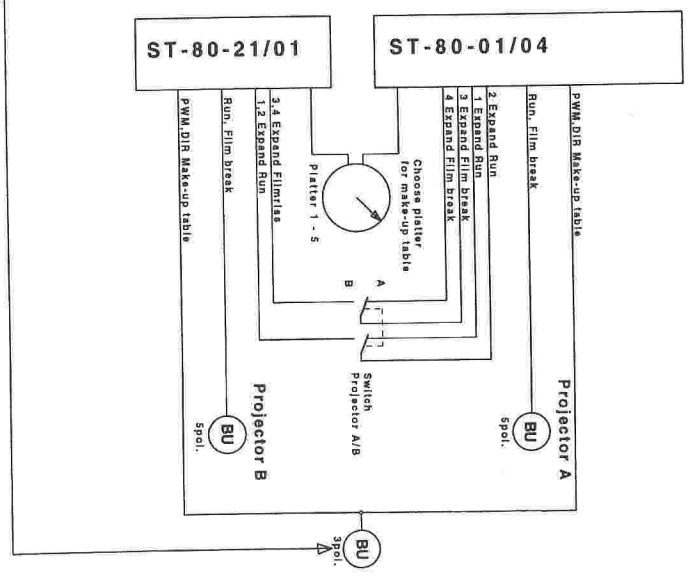


8.2.4 Wiring ST 400 E

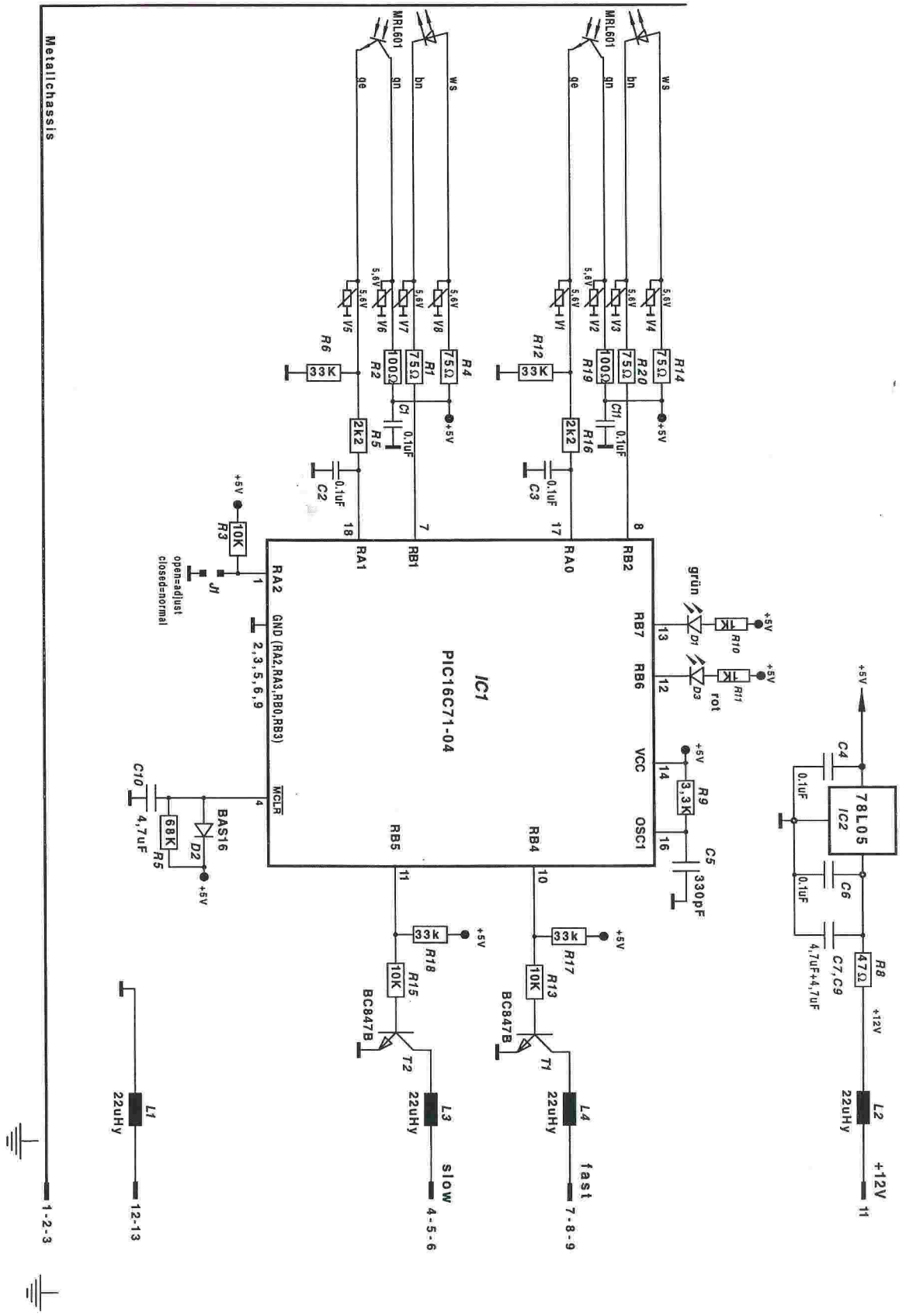


8.2.5 Wiring ST 500 E

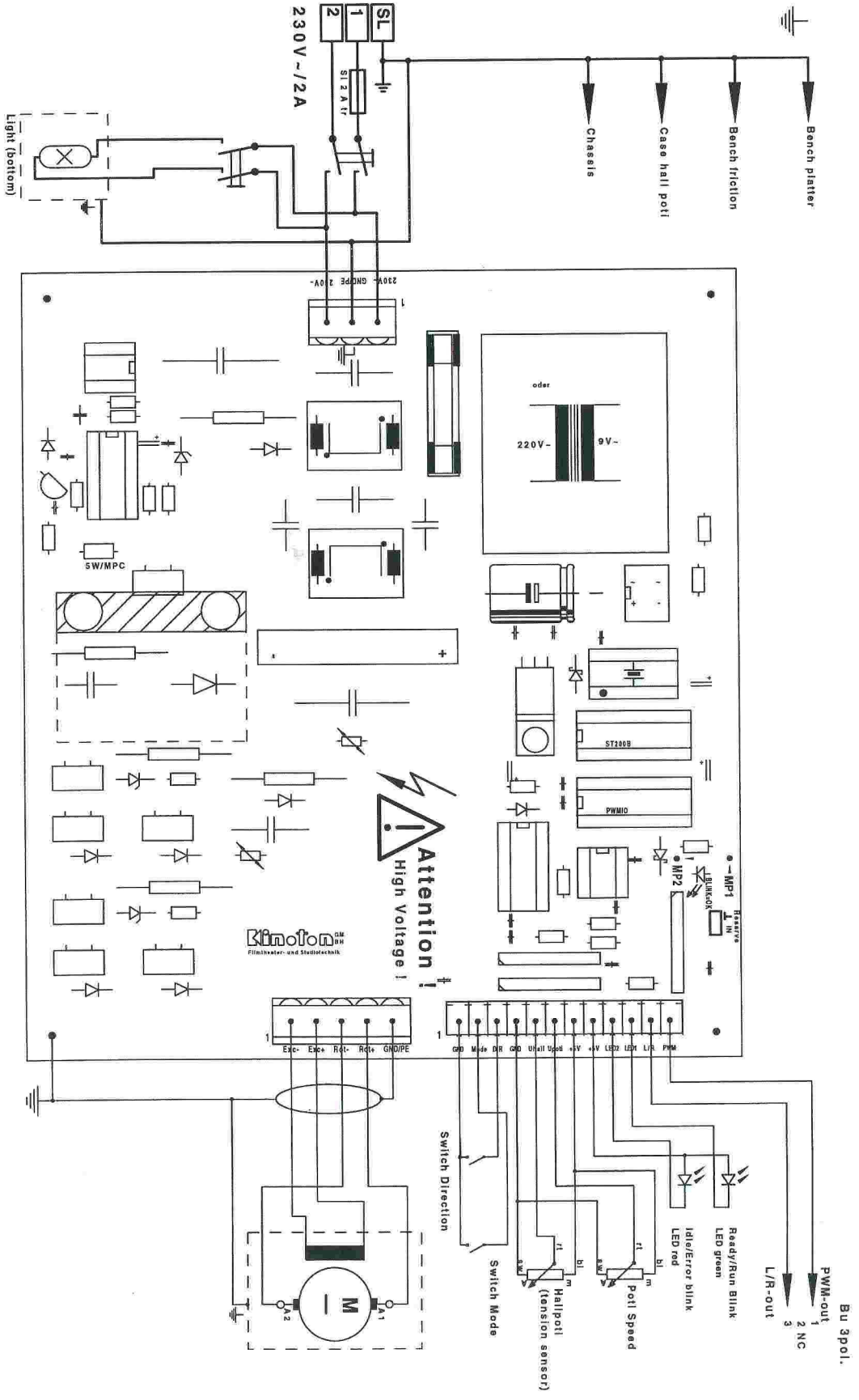




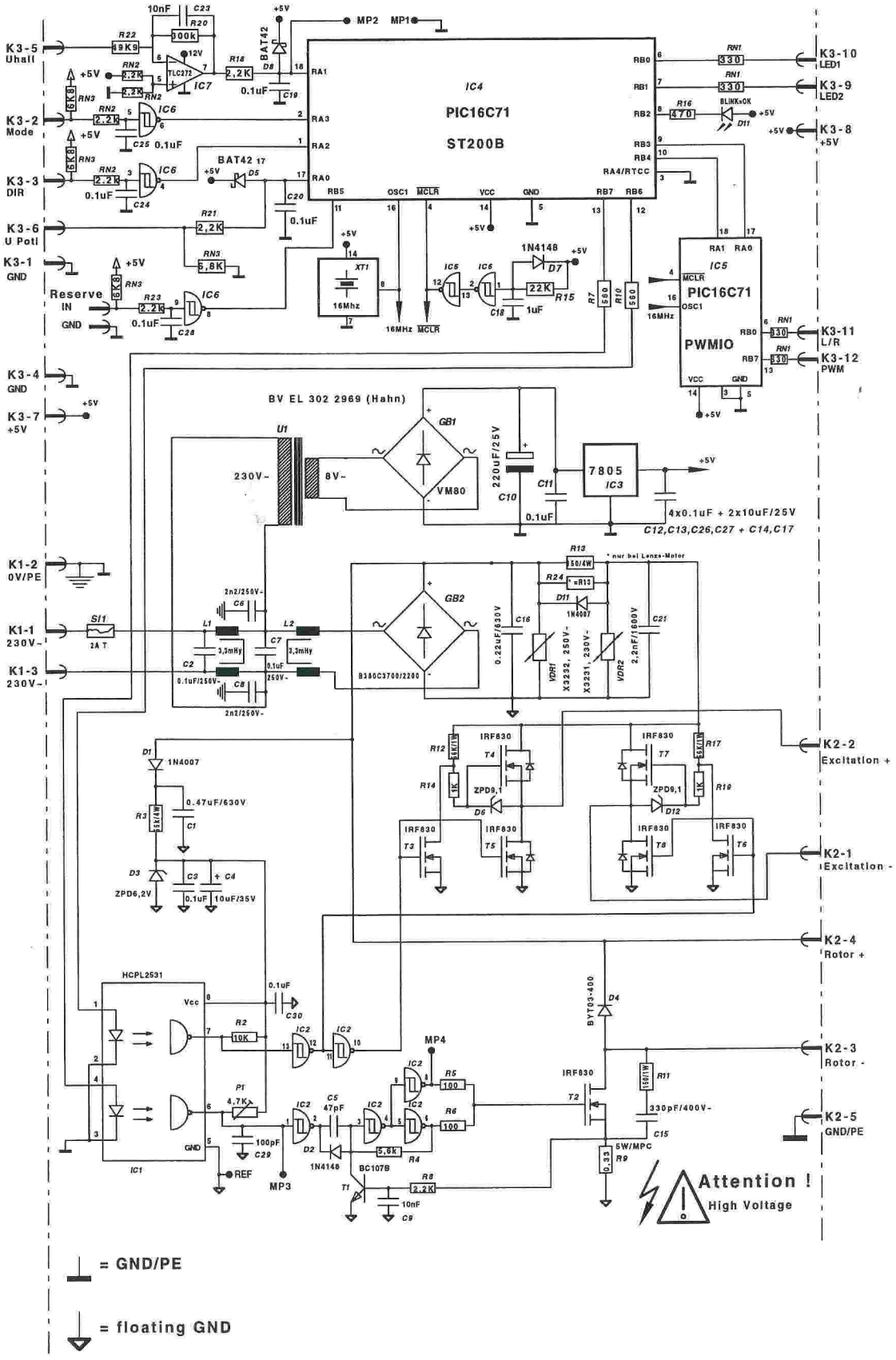
8.2.6 Circuit Scheme Take-off Unit



8.2.7 Circuit Scheme Make-up Table



8.2.8 Circuit Scheme Make-up Table Control



8.2.9 Wiring Motor Amplifier