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multimaster CAS 35 PBA

Operator's Manual

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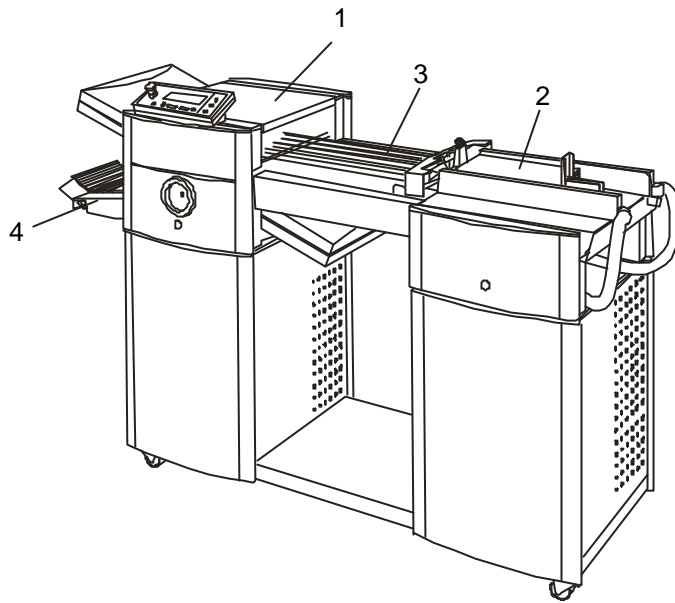
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1. GENERAL DESCRIPTION

The machine multimaster CAS 35 PBA is a computer-controlled folder with an infeed width of up to 35 cm.

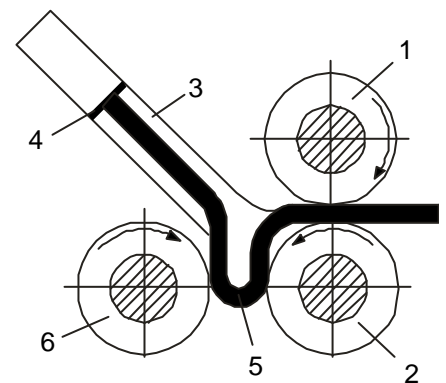
The sheets are fed by means of the bottom-feed, top-loading air feeder PBA (2).
The register table (3) aligns the sheets before folding.
The folded sheets are fanned out on the delivery table (4).



Fold Principle

Buckle Fold

The infeed rollers (1) and (2) transport the sheet to be folded into the fold plate (3).
As soon as it comes up against the adjustable stop (4), the sheet forms a buckle (5) because the infeed rollers keep on moving.
The loop gets bigger until the sheet is seized by rollers (2) and (6); this is where the actual fold occurs.



2. SPECIFICATIONS

Paper size:	max.: 35 x 46 cm (width x length) min.: 8.5 x 10 cm (width x length)
Fold length:	max. 36 cm min. 5 cm
Speed:	160 m/min resp. 30 000 sheets/h for zigzag-fold A4, 80 GSM
Paper weight:	40 - 250 GSM for single folds
Electrical:	Voltage: 230V Current consumption: max. 10A Power consumption: Fold unit with feeder 0.4 kW Pump: 0.7 kW
Ambient conditions:	Room temperature: 15-40°C Air humidity: 50-90%
Weight (net):	multimaster CAS 35 PBA with stand: 185 kg multimaster CAS 35 PBA without stand: 105 kg Pump: 16 kg

3. PROPER HANDLING OF THE MACHINE

The machine multimaster CAS 35 is built for folding paper. They may also be used for perforating, scoring, slitting, cutting and counting paper using the proper attachments. They are unsuitable for handling other materials such as foils, plastics and textiles. The manufacturer/distributor is not responsible for damages resulting from such unsuitable applications. Responsibility lies alone with the user.

Installation of the machine, i.e. assembling as well as electrical or pneumatical work should be carried out only by skilled personnel authorized by the manufacturer or his representatives. Additional instructions are provided for this purpose.

Repairs and service should be carried out only by skilled personnel authorized by the manufacturer or his representatives. The interval between inspections including safety-related functions depends on the machine usage. For regular one-shift-operation, one inspection per year is recommended.

The folder may be placed on already existing sturdy tables or on mobile stands available from the manufacturer. The machine weight should be considered when choosing a location for the machine.

The mobile stands are equipped with casters which can be locked to guarantee the stability of the machine during operation.

The line voltage must correspond to the voltage on the serial plate.

No harmful emissions are produced.

Read the Operator's Manual before working with the machine!

We recommend to carry out all operations and settings in the sequence mentioned in this manual.

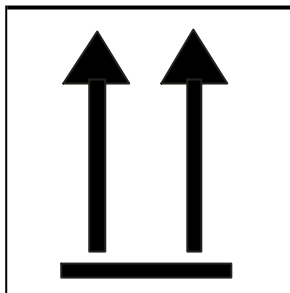


The terms "left" or "right" in the following text always refer to the direction of paper travel. Therefore the left side is the operator side.

4. SAFETY INSTRUCTIONS

4.1 Safety Instructions for Transport and Set-Up

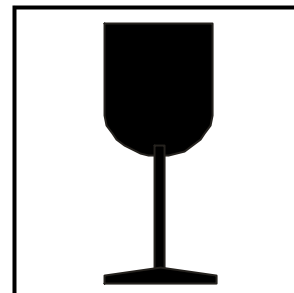
The following instructions and warnings are applied to the packing to ensure appropriate and safe transport.



Top! Transport in upright position only!



Protect from humidity!



Fragile! - Handle with care!

These instructions and warnings must also be observed for transport within the users premises.

For transport to other premises resp. for return shipment the machines must be packed and provided with the same markings.

4.2 Fundamental Safety Instructions

Warnings and Symbols

The following symbols and designations are used in the manual to identify instructions of particular importance:



General instructions and special information on how to use the machine most efficiently.



Instructions designed to prevent injury or extensive equipment damage.

Basic Operation

The machine has been built in accordance with state-of-the-art standards and the recognized safety rules.

Nevertheless, operators and third parties may get injured when working with the machine, or damage to the machine and to other material property may result.

The machine must only be used in a technically perfect condition in accordance with its designated use and the instructions set out in the operator's manual.

Any malfunctions, especially those affecting the safety of the machine, should therefore be rectified immediately.

Organizational Measures

The operator's manual must always be available near the machine.
In addition to reading the operator's manual, observe and instruct the user in all other generally applicable legal and other mandatory regulations relevant to accident prevention and environmental protection.

The operator's manual must be supplemented by instructions covering the duties involved in supervising and notifying special organizational features such as job organization, working sequences or the personnel entrusted with the work.

Personnel entrusted with work on the machine must have read the operator's manual and in particular the chapter on safety before beginning the work.

Reading the instructions after work has begun is too late.

This applies especially to persons working occasionally on the machine, e.g. during setup or maintenance.

Check, at least from time to time, whether the personnel is carrying out the work in compliance with the operator's manual and paying attention to risks and safety factors.

For reasons of safety, long hair must be tied back or otherwise secured, garments must be close-fitting and no jewellery - such as rings - may be worn.

Injury may result from being caught on moving parts.

Observe all safety instructions and warnings attached to the machine.

See to it that safety instructions and warnings attached to the machine are always complete and perfectly legible.

In the event of safety-relevant modifications or changes in the performance of the machine during operation, stop the machine immediately and report the malfunction to the competent person.

Never make any modifications, additions or conversions which might affect safety without the manufacturer's approval.

Adhere to prescribed intervals or those specified in the operator's manual for routine checks and inspections.

Selection of Personnel, Basic Responsibilities

Employ only trained or instructed staff and set out clearly the individual responsibilities of the personnel for operation, set-up, maintenance and repair.

Work on the electrical system and equipment of the machine must be carried out only by a skilled electrician in accordance with electrical engineering rules and regulations.

Standard Operation

Avoid any operational mode that might be detrimental to safety.

Take the necessary precautions to ensure that the machine is used only in a safe and reliable state. Operate the machine only if all protective and safety-oriented devices such as removable devices, emergency stops, sound proofing elements, are in place and fully functional.

In the event of malfunctions, stop the machine immediately and prevent further use. Have any defects rectified immediately.

Before starting up or setting the machine in motion, make sure that nobody is in danger.

Special Work, Maintenance, Repair

Observe the adjusting, maintenance and inspection activities and intervals set out in the operator's manual, including information on the replacement of parts and equipment.

If the machine is completely shut down for maintenance and repair work, it must be secured against inadvertent starting by attaching a warning sign to the main switch. Always tighten any screw connections that have been loosened during maintenance and repair.

Special Dangers

The electrical equipment of machines is to be inspected and checked at regular intervals.

Defects such as loose connections or scorched cables must be rectified immediately.

Product-Specific Safety Instructions



Exercise caution in the vicinity of rotating shafts, rollers and moving belts! Hair, loose garments and jewellery may get caught!
SERIOUS INJURY MAY RESULT!



Exercise caution when running the machine with safety covers open and fold plates removed! Do not get close to the rotating fold rollers!
SERIOUS INJURY MAY RESULT!



When making or breaking any electrical connection, always first turn OFF the main switch! Non-compliance may cause damage to electronic components!



Exercise caution at the delivery end of the fold unit! Do not get close to the rotating delivery shafts! **SERIOUS INJURY MAY RESULT!**

4.3 Cleaning and Maintenance

Regular and proper cleaning contributes to a long life of the machine and a consistent quality. Therefore it is important to clean the machine in regular intervals and above all to remove paper dust.

It is recommended to clean the machine once a week.



Before cleaning the machine always pull the power plug!!



Exercise caution in the vicinity of the perforating- and slitting knives! They have sharp edges for proper function! SERIOUS INJURY MAY RESULT!

Use only the special cleaning fluid from MB for cleaning the fold rollers.

Do not use any solvents such as Acetone or Toluol. They would damage the non-metal parts of the rollers.

Remove paper- or print powder dust from all fixed and moveable parts of the machine.

Clean the photodetectors with a brush.

Use compressed air to clean the fold plates when paper with a high degree of powder has been folded. Carefully remove deposits in the control box with a vacuum cleaner.

Clean the air filter of the compressor and the pump using brushes or air.

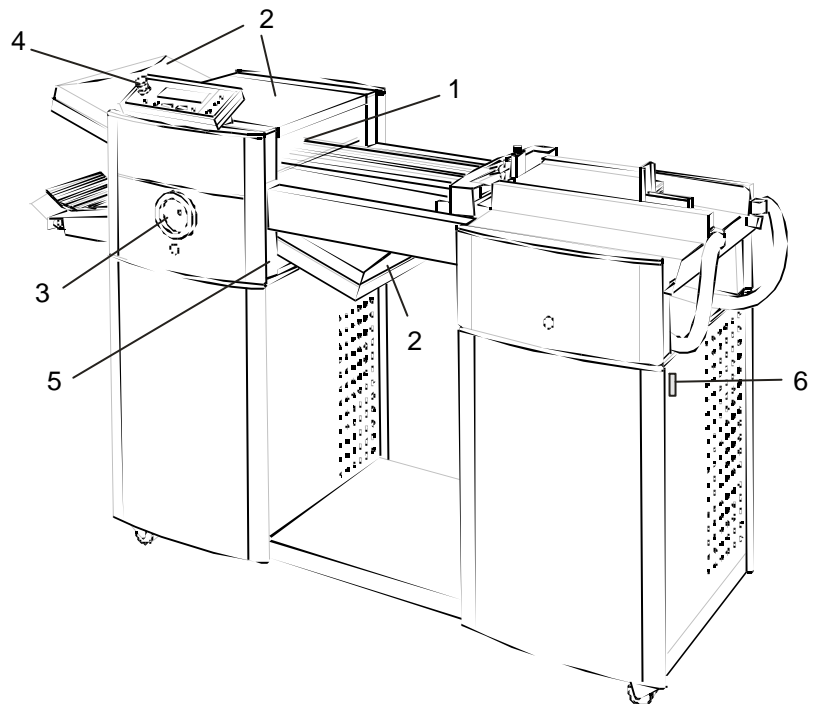
The maintenance-free flat belt drive needs no lubrication of any kind.

5. SAFETY FEATURES

The folder multimaster CAS 35 is equipped with various safety features. They ensure the safety of the persons working with the machine.

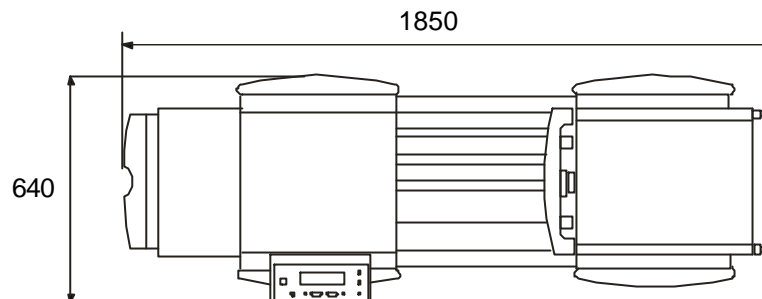
The machine is equipped with the following safety features:

- Fixed cover at the fold roller infeed section (1)
- Swing-up and removable noise covers (2)
- Safety handwheel (3)
- Emergency stop button (4)
- Main switch for fold unit (5)
- Switch for pump (6)



Possible remaining risks are pointed out in the respective paragraphs of this manual.

6. SPACE REQUIREMENTS

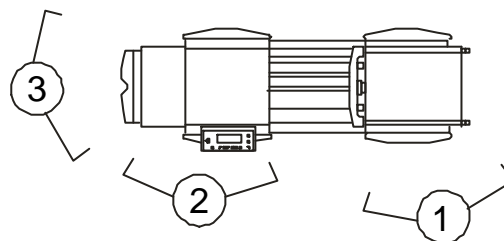


7. OPERATING POSITIONS

There is no fixed operator position at the machine.

The operator must move between the following positions:

- | | | |
|---|-----------|--------------------------------|
| 1 | Feeder | for loading the unfolded paper |
| 2 | Fold unit | for set-up |
| 3 | Delivery | for removing the folded paper |



In addition, the machines are accessible from any other positions for cleaning, resetting, jam clearance, service jobs, etc.

8. AIR FEEDER PBA

Principle of Operation

The air feeder PBA is suitable for handling a wide variety of papers - uncoated as well as coated, freshly printed or thin papers. The sheets are separated by air and vacuum.

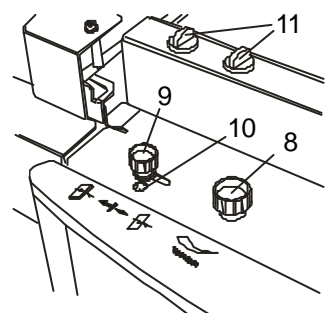
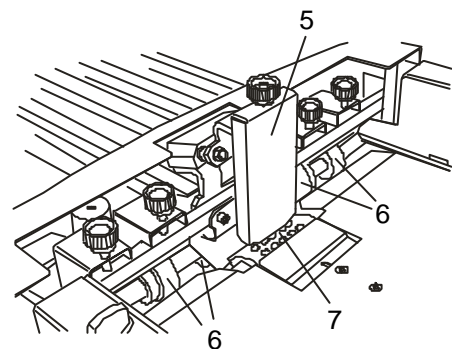
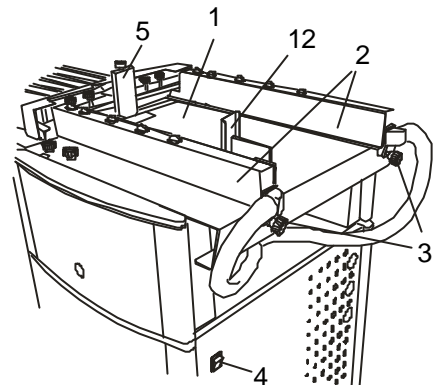
Air is supplied from the bottom of the stack both on the left and right side, separating the paper in the stack which now floats in a cushion of air. A rotating suction drum can then separate the sheets from the bottom of the paper stack.

This principle has the advantage that paper can be continuously reloaded with the machine running. There is no need to stop the machine.

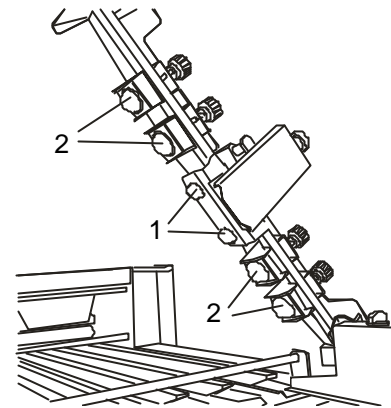
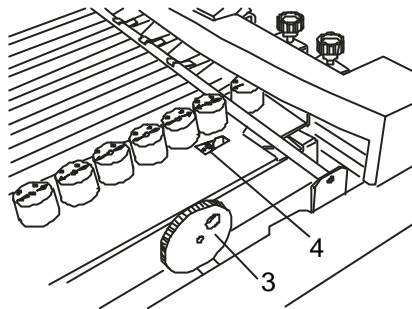
Description

Components and operating elements of the air feeder PBA:

- 1 Feed table
- 2 Air guides left and right
- 3 Knobs for adjusting the air guides
- 4 On/Off switch for pump
- 5 Front paper stop
- 6 Guide rollers
- 7 Suction drum with suction segment
- 8 Vacuum adjustment valve
- 9 Lever for adjusting the suction segment
- 10 Window for adjustment of suction segment
- 11 Air adjustment valves
- 12 Rear paper stop



- 1 Stationary infeed balls
- 2 Adjustable infeed balls
- 3 Adjustment wheel for changing the infeed angle
- 4 Display window for angle adjustment

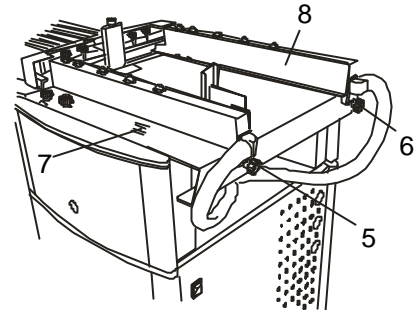


Setting the Format



When setting the format, care should be taken that the sheets are fed approximately from the center.

- Loosen the handles (5 and 6) by turning them counter-clockwise.
- Set the left feed guide to half sheet width with the help of the scales (7).
- Tighten the handle of the left feed guide (5).
- Place a stack of about 50 sheets on the feed table.
- Slide the right feed guide (8) against the edge of the stack.



Make sure that the sheet does not actually touch the guide. There should be a gap of approx. 0.5 mm. The right and left feed guide should be parallel.

- Tighten the handle (6) at the right feed guide.



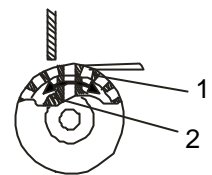
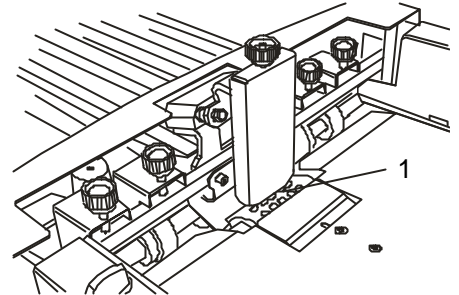
If the width of the paper is less than 7 cm, only one paper guide can be used.

Setting the Sheet Separation

Sheet separation is achieved by the combined action of the rotating suction drum, the paper stop and the air.
Paper weight and type of paper have an influence on the setting.

Setting the Air

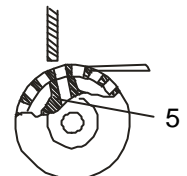
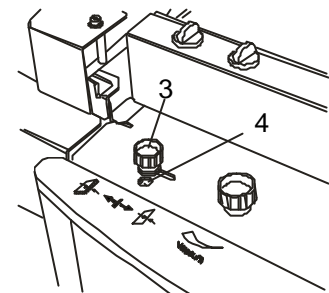
A suction drum (1) separates the sheets from the bottom of the stack.
This is achieved by the suction segment (2) inside the suction drum.
The angle of the suction segment with respect to the paper stop can be changed to suit different types of paper.



Basic Setting

- Loosen the screw (3).
- Shift the screw (3) to the left or to the right until the figure "0" appears in the window (4).
- Tighten the screw (3).

Now the suction segment is in its zero position (5).



Most types of paper with a weight of 80 to 90 GSM can be separated in this position.
For different paper grades, other figures must be set in the window.

- Paper grades below 80 GSM: 1 to 2
- Paper grades above 90 GSM: -1 to -2

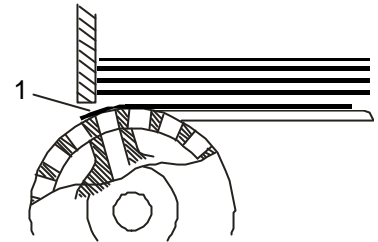
Vacuum setting for light paper grades:

For running light-weight paper, first try the suction segment setting as described under "Basic Setting".

A steeper inclination is only necessary for special types of paper.

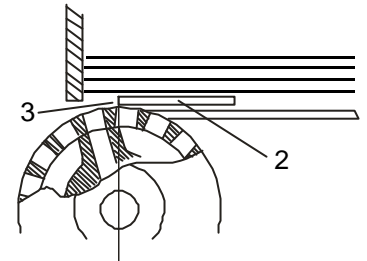
Light paper grades easily cling to the curve of the suction drum. Therefore the suction segment must be tilted in direction of the paper stop.

The inclination of the suction segment in this direction has the effect that the paper is wrapped around the suction drum (1). The sheets are easily separated from the stack and double sheets occur very rarely.



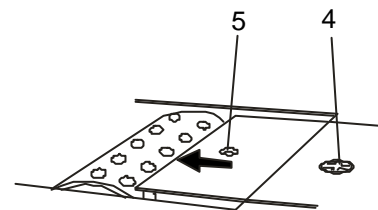
In the batch counting mode it may happen occasionally that a single sheet is fed during the interval time. This is caused by the fact that the suction drum continues to turn during the interval time (although without vacuum). For light paper grades the friction between paper and suction drum may be sufficient for detaching a sheet.

To prevent this, a special plate (2) can be placed over the suction drum. This plate, which is pulled out of the feed table, can cover the suction drum to its highest point (3). Sheet are no longer affected by the friction of the suction drum.



Proceed as follows to pull out the plate:

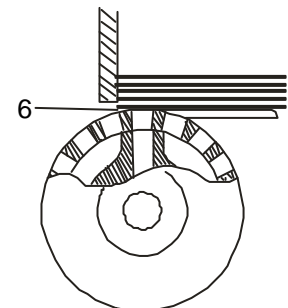
- Loosen the screw (4).
- Insert a screwdriver in the hole (5).
- Pull out the plate.
- Tighten the screw (4).

**Vacuum setting for heavy paper grades**

Heavy paper grades do not easily cling to the curve of the suction drum.

For this reason the suction segment must be tilted in direction of the paper stack.

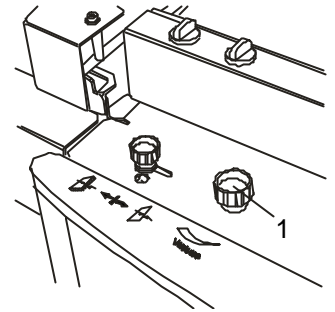
The inclination of the suction segment in this direction has the effect that the paper is barely wrapped around the suction drum (6). This is sufficient because heavier paper grades are more easily separated from the stack.



Vacuum:

Vacuum can be modified by means of a regulating valve (1). This is necessary because heavy paper grades require more vacuum than light paper grades.

The vacuum can be modified by turning knob (1).



more vacuum



less vacuum

Setting the vacuum:

For setting the vacuum, the machine must be turned on (see paragraph 13).



Exercise caution in the vicinity of rotating shafts and rollers!
Hair, loose garments and jewellery may get caught!
SERIOUS INJURY MAY RESULT!



Do not get close to rotating shafts and rollers while the machine is running and the noise-absorbing cover is open!
SERIOUS INJURY MAY RESULT!



Exercise caution at the delivery end of the fold unit!
Do not get close to the rotating delivery shafts!
SERIOUS INJURY MAY RESULT!

- Close the valve (1) for setting the minimum effect.
- Start the machine.
- Slowly open the valve (1) by turning the knob clockwise.
Observe the sheet separation while doing this.



At first no sheets are pulled off the stack or they are pulled off irregularly.
The more the valve is opened, the smoother is the paper transport.



Make sure that much vacuum does not cause feeding of double sheets.

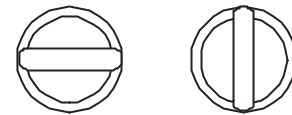
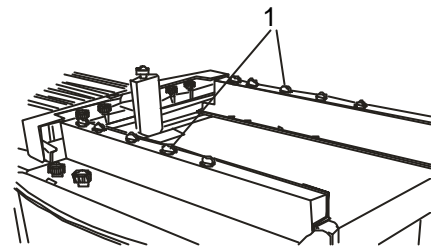
- Switch off the machine.

Air

- Open the valves (1) at both air brackets.



In most cases it is sufficient to open the second and the last valve (with respect to the format length).

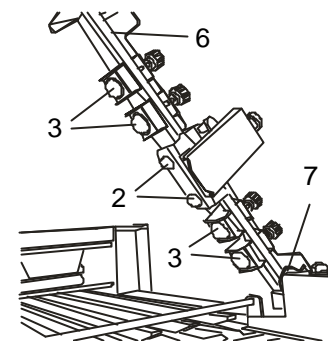


closed

open

Infeed Balls

During transport from the feeder to the register table, the separated sheets are guided by infeed balls (2, 3). Adjust the infeed balls in such a way that they run on the guide rollers (4) below, independent of the paper size.

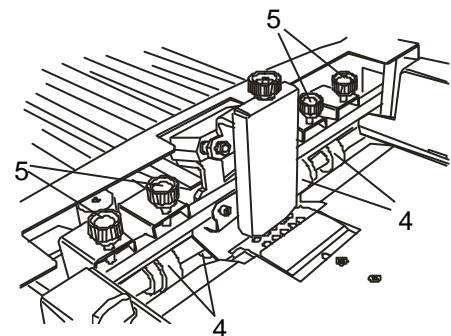


For accurate positioning, loosen the clamp screw (5) of the ball cages by turning them counter-clockwise.

If the infeed width of the paper is smaller than 28 cm resp. 11", the outer infeed balls must be removed. For this lift the carrier arm (6) until it is locked (7).



Make sure that the carrier arm is locked home!



Proceed as follows to return the carrier arm to its operating position after removal of the outer infeed balls:

- Further lift the carrier arm with your left hand.
- Loosen the red locking bracket with your right hand.
- Lower the carrier arm.
- Lock the carrier arm firmly by pressing it against the spring.

Front Paper Stop

The position of the front paper stop (1) can be adjusted in a horizontal and vertical direction.

Adjusting the horizontal position:

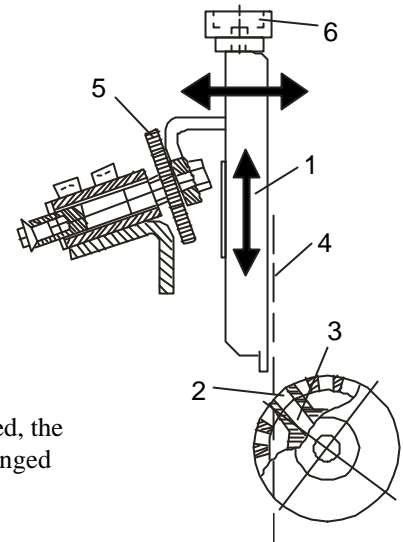
The horizontal position of the front paper stop determines the suction point on the paper and in turn depends on the position of the suction segment in the suction drum.



The inclination of the suction segment must be set correctly before making the horizontal adjustment.



When the suction segment is adjusted, the horizontal position must also be changed accordingly.



- Turn the handwheel until the openings of the suction drum (2) are exactly above the openings of the suction segment (3).
- Adjust the horizontal position of the front paper stop in such a way that it forms a vertical line (4) with the leading edge of the suction openings. To achieve this, turn the knurled screw (5) counter-clockwise.

Adjusting the vertical position:

The respective paper thickness is set by adjusting the vertical position of the front paper stop. Proceed as follows:

- Place a stack of about 50 sheets on the feed table.
- Start the machine (see paragraph 13).



**Exercise caution in the vicinity of rotating shafts and rollers!
Hair, loose garments and jewellery may get caught!
SERIOUS INJURY MAY RESULT!**



**Do not get close to rotating shafts and rollers while the machine is running and the noise-absorbing cover is open!
SERIOUS INJURY MAY RESULT!**

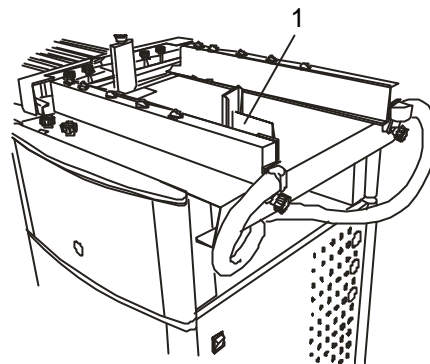


**Exercise caution at the delivery end of the fold unit!
Do not get close to the rotating delivery shafts!
SERIOUS INJURY MAY RESULT!**

By turning the knurled screw (6), adjust the vertical position of the paper stop in such a way that only one sheet is pulled off the stack.

Positioning the Paper Stack

- Fan the paper stack well to avoid double sheets.
- Place the stack on the feed table.
- Position the rear paper stop (1). It prevents the paper from sliding off the table.



9. REGISTER TABLE

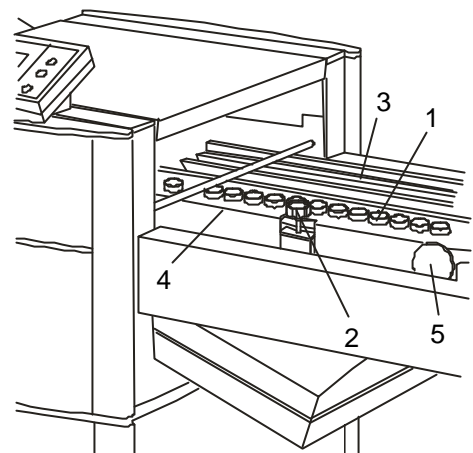
Principle of Operation

On the register table, an inclined transport belt drives the sheets against an alignment rail equipped with driver balls.

Description

Functional parts and operator elements of the register table:

- 1 Ball cages
- 2 Lock screw for register rail
- 3 Hold-down bars
- 4 Register rail
- 5 Adjustment wheel for changing the infeed angle
- 6 Display window for angle adjustment



Setting the Format

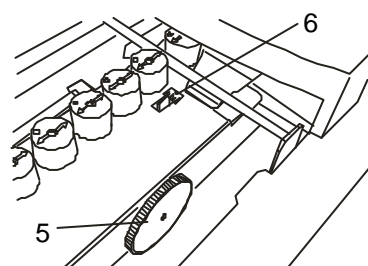
Register rail, ball cage and transport belt form one single unit and are adjusted together.



Make sure that the feeder is set to the correct format.

- Loosen the lock screw (2) by turning it counter-clockwise.
- Move the alignment rail in such a way that the mark on the rail lines up with the mark on the left air bracket.
- Retighten the lock screw (2) by turning it clockwise.
- Distribute the hold-down bars (3) across the sheet width.

The infeed angle can be changed by means of the adjustment wheel (5) and the scale (6).

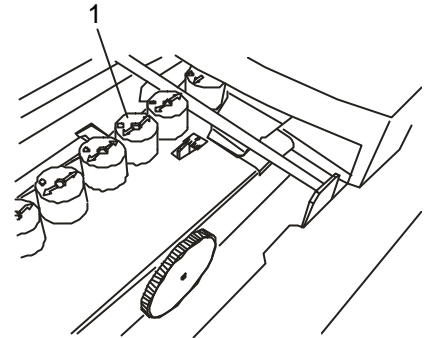


Type of Balls

The number and type of balls in the ball cage (1) depend on format and type of paper.



Always try to use as few balls as possible. Balls not needed for a particular job should be removed to avoid premature belt wear.



It is recommended to use the following balls:

Paper grades below 60 GSM:	Plastic balls
Paper grades from 60 - 150 GSM:	Plastic balls, every 6th should be a steel ball
Paper grades above 150 GSM:	Mainly steel balls

In the infeed section (the first 4 to 6 balls) it is recommended to always use one or two steel balls.

For very light paper grades every second ball opening should be left free.

All balls are positioned in removable ball cages (2).

When inserting the ball cages make sure that the guide key of the ball cages engages the corresponding cutouts in the ball rail.



Introduce the ball cages in such a manner that the arrows always point in direction of paper travel.

Exchanging the Balls

- Remove the ball cages from the ball rail.
- Use a pin (3) to push the ball from the ball cage.
- Insert a new ball into the ball cage from the bottom.
- Insert the ball cages in the ball rail.



10. FOLD UNIT

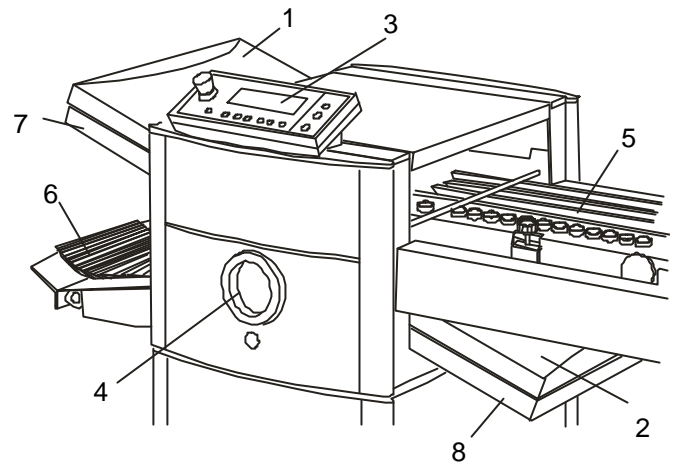
The fold unit of the multimaster CAS 35 has an infeed width of 35 cm and is generally equipped with two automatic fold plates.

The automation of these fold plates comprises the automatic positioning of the fold plate stops and the automatic closing of the deflectors.

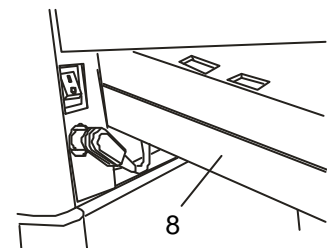
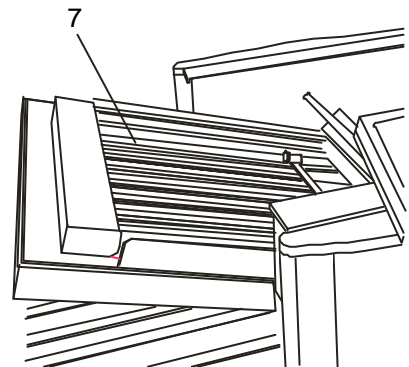
It is not necessary to remove the fold plates and to insert the deflectors when changing the fold.

Description

- 1 Noise cover
- 2 Noise cover
- 3 Operator panel
- 4 Handwheel
- 5 Register table
- 6 Delivery



- 7 Fold plate 1
- 8 Fold plate 2

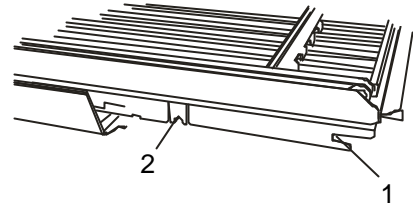


Positioning the Fold Plates

Mount the fold plates in such a way that two cut-outs (1, 2) each engage in the dowel pins located on the side plates of the fold unit.

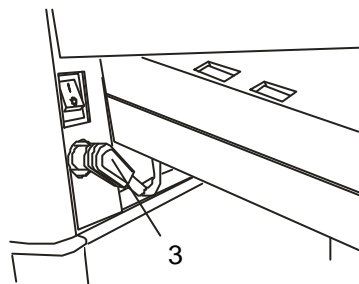
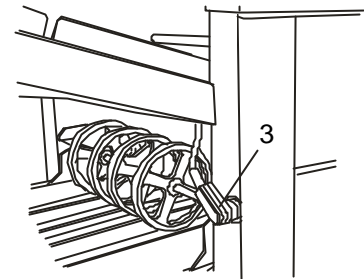


After mounting the fold plates, check that all pins are engaged properly by manually turning the fold rollers (no resistance should be felt).



Electrical Connection of Fold Plates

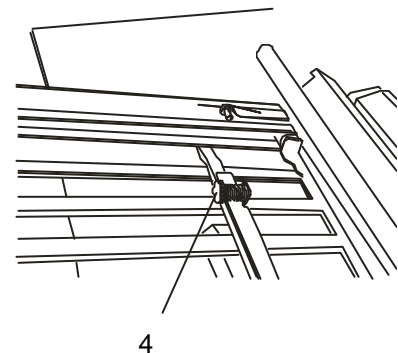
The electrical connection is done by means of special 90° plugs. They are inserted in the respective receptacles of the fold unit (3) and secured by tightening the threaded sleeve.



Make sure that the main switch is OFF before pulling or inserting the plug!

Setting Elements of the Fold Plates

By turning the knurled screw (4) it is possible to make angle corrections of the paper stop, for example if the paper is out-of-square.




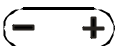
Setting the Fold Lengths

Setting the fold lengths and closing the deflectors is controlled by the computer. The respective commands are entered on the operator panel (see paragraph 12, Automatic Setting).

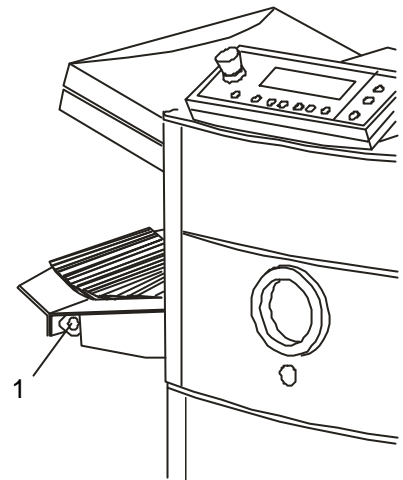
11. DELIVERY

The computer control of the folder automatically sets the delivery rollers, depending on the final size of the folded sheets. Individual changes can be made by pressing the respective button on the operator panel.

Mark the pictogram  140.0 in the BASIC menu.

Change the position of the delivery rollers by pressing key 

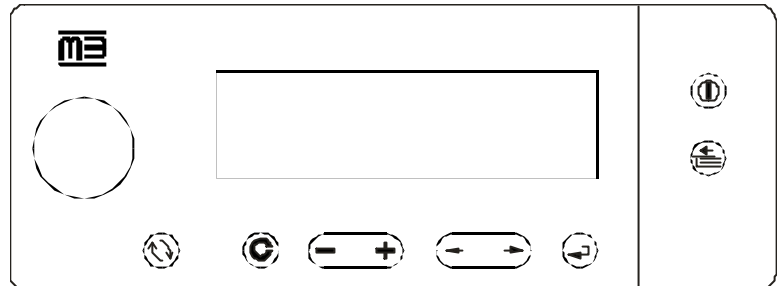
By pressing button (1) it is possible to advance the delivery belts at high speed for easy removal of trial sheets during the set-up procedure.



12. AUTOMATIC SETTING

Operator Panel

The computer-controlled folder multimaster CAS 35 has a central operator panel with a dialogue display. It is here where all the important setting and monitoring functions are carried out.



Description



Change between BASIC and SET-UP menus



Clear



Change of settings (e.g. fold length, speed)



decrease



increase



Keys for cursor movement (dark rectangle)



forwards



backwards



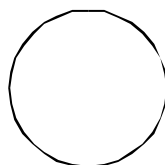
Enter - Confirmation of an entry



Drive















Sheet feed



Emergency stop

Description of the Dialogue Display













The operator panel of the multimaster CAS 35 is equipped with a dialogue display. The BASIC menu always appears when the machine is switched on.

 12000		
 148.0	 74.0	 74.0
 70 %	 20 mm	 20 mm
 437	 25	 5

BASIC Menu Monitoring Functions

In the BASIC menu, the operation of the machine is monitored and the basic and fine adjustments of the different parameters are made.

The following informations and settings are displayed for monitoring the operation of the machine:

 12000	Performance in sheets/h
 148.0	Fold length in fold plate 1
 74.0	Fold length in fold plate 2
 74.0	Position of delivery rollers on the delivery table
 70 %	Speed
 20 mm	Shingling
 20 mm	Length of shingle on the delivery table
 437	Total count
 25	Batch count
 5	Interval between batches
	Double sheet detection (if the icon is visible, the function has been activated)
	Paper travel control (if the icon is visible, the function has been activated)



The figures that are displayed always refer to the current job.


**Menu BASIC
Setting Functions**

The following adjustments can be made in the BASIC menu:

With the machine running: Fine adjustments for:


Fold length in fold plate 1  148.0



Fold length in fold plate 2  74.0


Position of delivery rollers
in delivery section  74.0


Basic settings for:


Machine speed  70 %


Length of shingle on delivery  20 mm

To edit information displayed, mark the respective field by pressing the cursor key  , then change the value using the  key.

Sheet gap on register table  20 mm



 If the sheet gap is set to smaller than 10 mm, the machine automatically switches to "Continuous suction" and the display shows:


 OFF




By pressing key  (+), it is possible to return from continuous suction to pulsed operation.


Erasing

Total counter  437

For erasing the total counter, mark the icon  437 with the cursor key  .


The press key  .


The display alternately shows the current count  437 and the symbol   = 0 .


The counter is reset by pressing the  key.


Only with machine not running

Settings for:

Batch counter  25

Interval between batches  5

For setting the batch counter or the interval between batches, the icon in question must be marked with the cursor key .

The setting values can be changed with key .



If the batch in the counter is changed, the letter "L" comes on next to the figure. This means "LEARN" and draws the operator's attention to the change.

The "L" disappears as soon as sheet transport has been activated.



Switching the batch counter off:


Mark the icon  25 with the cursor key .


Reset the batch number that is displayed by means of key  (-).

The pictogram now shows the  OFF icon and the display for the interval disappears.


Switching the batch counter on:

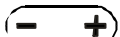
Mark the icon  OFF with the cursor key .

Set the batch number needed by pressing the key  (+).

The pictogram shows the number set and the display for the interval between batches  20 L  10

Setting the interval between batches:


Mark the icon  10 with the cursor key .

Set the batch number needed by pressing key .




Setting the types of fold, activating the double sheet detection and the paper travel control as well as the choice of languages take place in the SET-UP menu.



By pressing the  key, it is possible to switch from the BASIC to the SET-UP menu and vice versa.

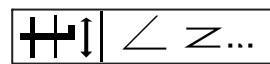
Menu SET-UP

Call up the SET-UP menu to set up the machine for another folding job.

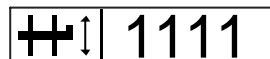
By pressing the  key, it is possible to switch from the BASIC menu to the SET-UP menu and vice versa.



The icons stand for the various possibilities of automatic setting.



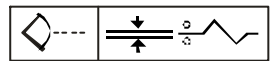
STANDARD FOLDS menu



SPECIAL FOLDS menu



MEMORY menu



MONITORING menu
Double sheet detection or paper travel control are
switched on resp. off

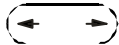



SPECIAL menu for choosing between various languages



SERVICE menu

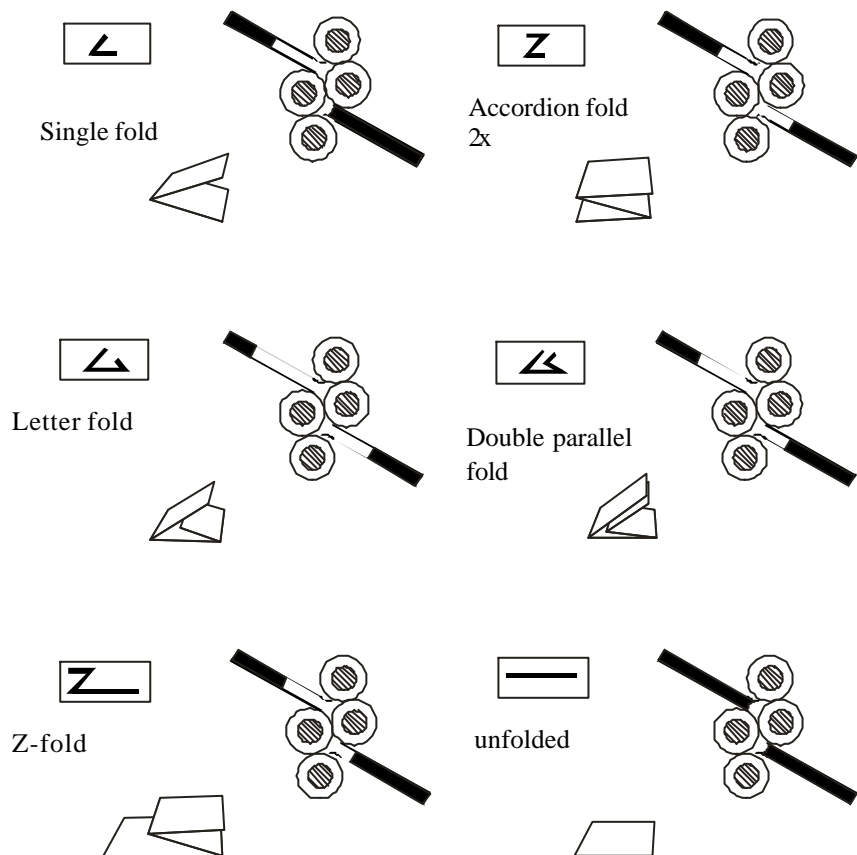
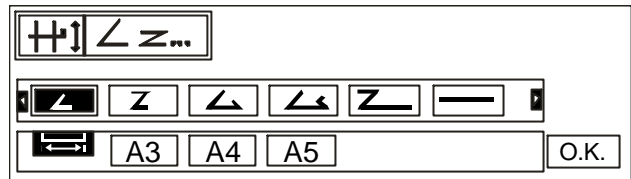
The programs are chosen by means of the cursor.

Mark the field in question by pressing the cursor key  and confirm by pressing key . The display now shows a sub-menu.


Set-Up with the STANDARD FOLDS Menu



In this operating mode, icons of six different types of folds are shown.
The desired fold can be chosen by means of the cursor key.

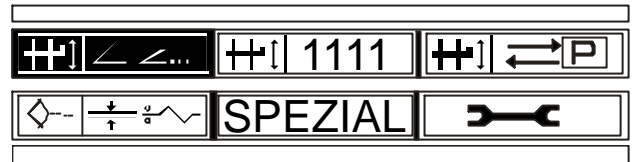



To set-up, proceed as follows:

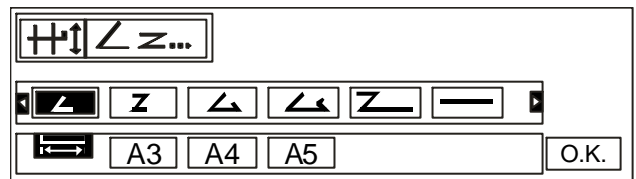
1. Call up the SET-UP menu by pressing key 





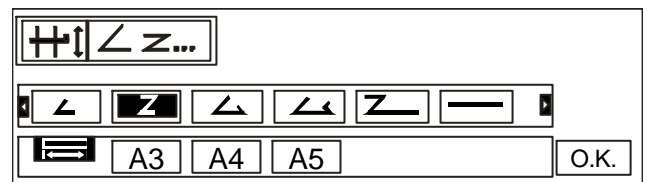
2. Choose the STANDARD FOLDS menu with the cursor key 




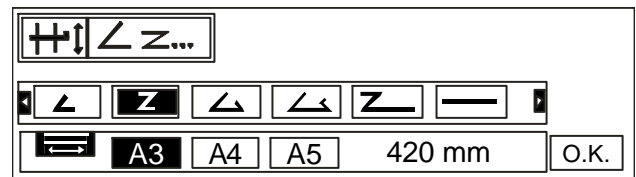
3. Confirm with key 



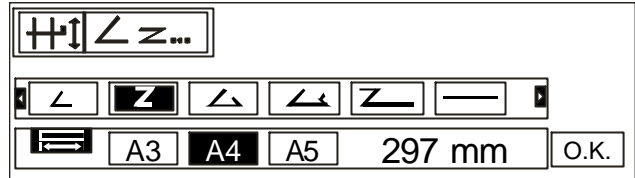
4. Mark the type of fold with the cursor key  Example: 




5. Confirm with key 

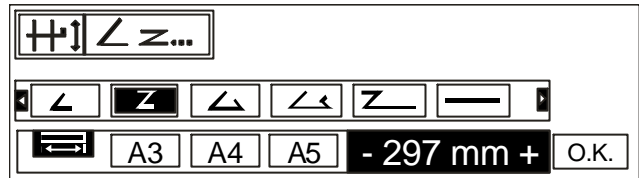



6. Choose the format with the cursor key  Example: A4

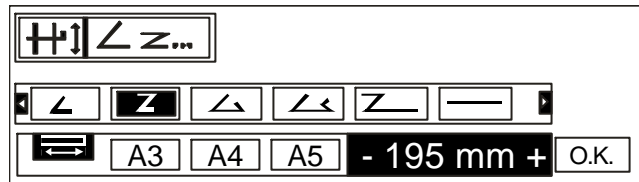


 If paper is used that is not in the formats A3, A4 or A5 resp. 17", 14" or 11", the paper length must be entered as a number.

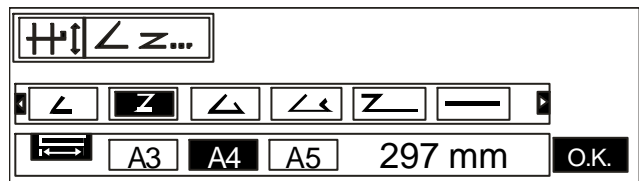
A. Mark the field next to the format description with key 




B. Hold the minus or plus sign of the key  depressed until the format length needed is shown. Example: 195












7. Confirm with key 





8. Activate automatic setting by pressing key 


- The fold plate stops and delivery rollers in the delivery section are set automatically.
- After the setting is completed, the BASIC menu comes on automatically.

CAS 35			
 1	99.9	 2	99.0
	70 %		20 mm
	37		25
			5

- The folding process can be started.

9. Turn on the pump. 


10. Switch on the drive by pressing key 

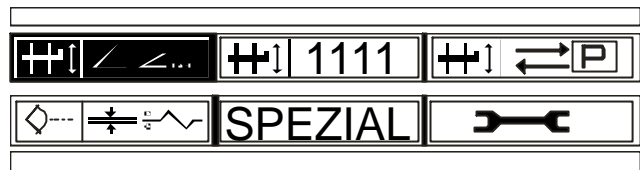
11. Start sheet feed by pressing key 

Set-Up with the SPECIAL FOLDS Menu

In this operating mode, the fold lengths to be set must be calculated or measured prior to the set-up procedure.

To set up, proceed as follows:

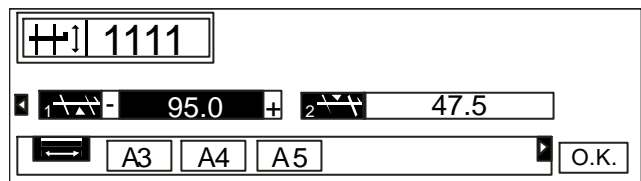
1. Call up the SET-UP menu by pressing key 




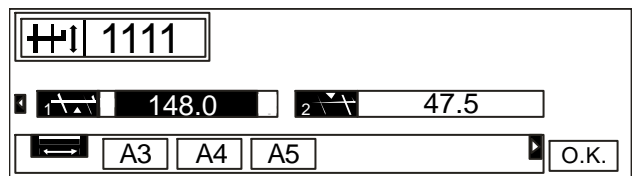
2. Choose the menu SPECIAL FOLDS with the cursor key 




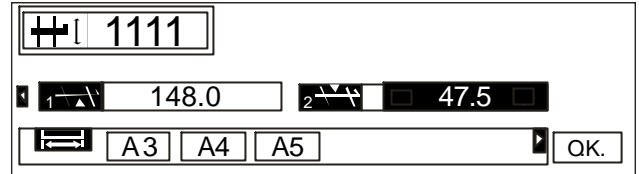
3. Confirm with key . Fold plate I is marked automatically.




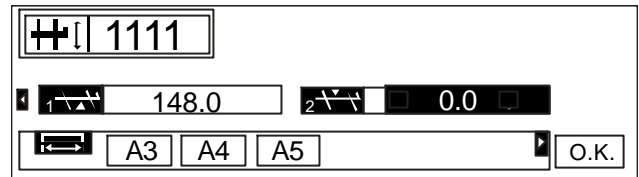
4. Keep the  key depressed until the new setting value is shown
Example: 148




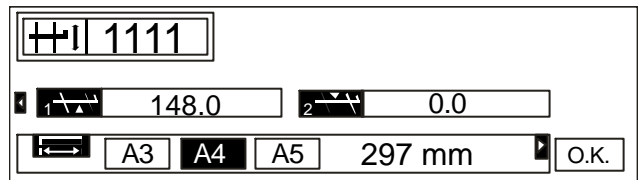
5. Mark FOLD PLATE II with the cursor key 





6. Keep the key  depressed until the new setting value is shown
Example : 0

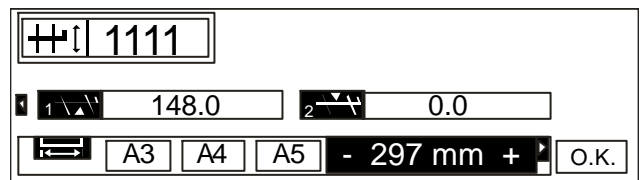



7. Mark FORMAT with the cursor key  Example: A4

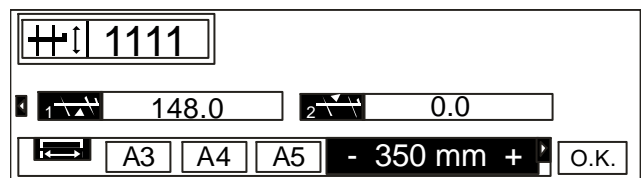



 If paper is used that is not in the formats A3, A4 or A5 resp. 17", 14" or 11", the paper length must be entered as a number.

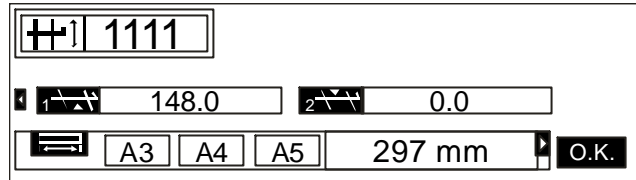
A. Mark the field next to the format description with key 




B. Hold the minus or plus sign of the key  depressed until the format length needed is shown.
Example: 350

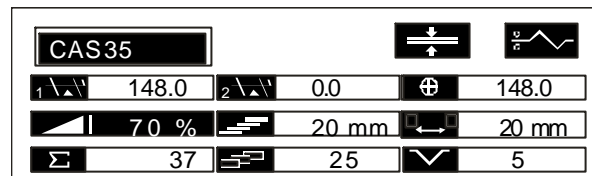


8. Confirm with key 



9. Activate automatic setting by pressing key 

- The fold plate stops and delivery rollers in the delivery section are set automatically.
- After setting is completed, the BASIC menu comes on automatically.



- The folding process can be started.

10. Turn on the pump.

11. Switch on the drive by pressing key 

12. Start sheet transport by pressing key 

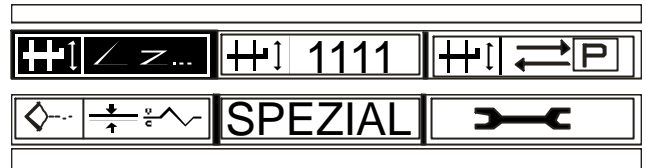
Working with the MEMORY Menu

In this operating mode, information about settings for fold lengths, delivery, speed, sheet gap, counter setting is taken from the memory and set automatically.

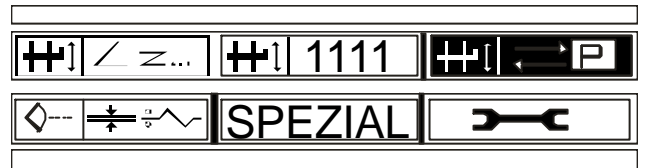
To set up, proceed as follows:

Calling up jobs from the memory

1. Call up the SET-UP menu by pressing key



2. Choose the menu MEMORY with the cursor key



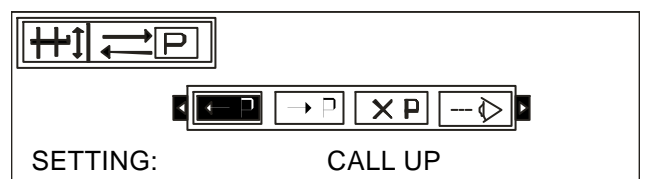
3. Confirm with key




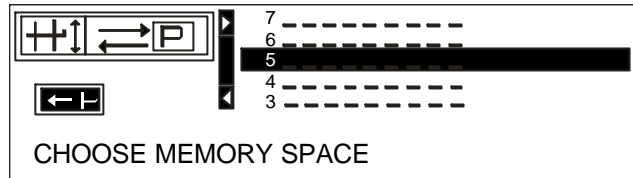
The icons have the following meaning:


- | | | | |
|--|-------------------------|--|----------------------------|
| | Call up job from memory | | Erase job from memory |
| | Save job in memory | | Display job data in memory |

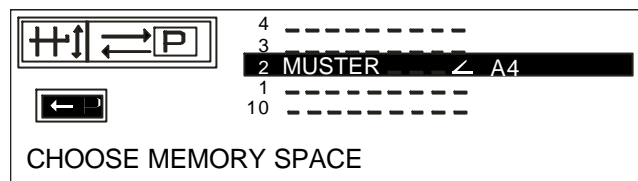
4. Mark the function with the cursor key




5. Confirm with key 



6. Choose the job saved in memory with the cursor key 



7. Activate automatic setting by pressing key 


- The fold plate stops and delivery rollers in the delivery section are set automatically.
- The setting information for speed, fanned delivery, sheet gap, counter, double sheet detection and paper travel control saved in memory is also taken over.
- After setting is completed, the BASIC menu comes on automatically.



- The folding process can be started.

8. Turn on the pump.

9. Switch on drive by pressing key 


10. Start sheet feed by pressing key 

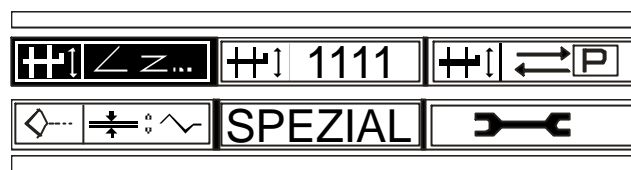
Working with the MEMORY Menu

In the fold program memory, the setting information for 10 different jobs can be saved. A job should not be saved before all settings have been completed, i.e. when no further corrections are needed for:

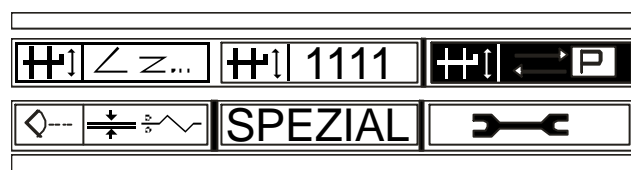
- Fold length
- Speed
- Counter
- Sheet gap
- Shingling
- Double sheet detection
- Paper travel control


Saving Jobs

1. Call up the SET-UP menu by pressing key 




2. Choose the MEMORY menu with the cursor key 





3. Confirm with key 





The icons have the following meaning:

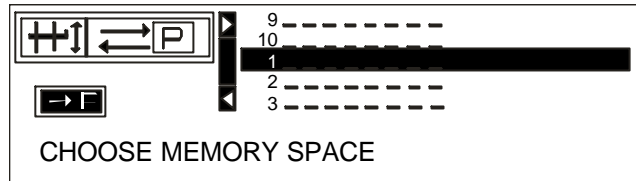
 Call up job from memory

 Erase job from memory

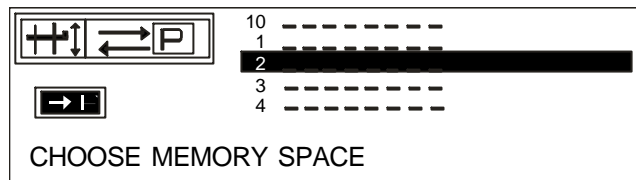
 Save job in memory


 Display job data in memory

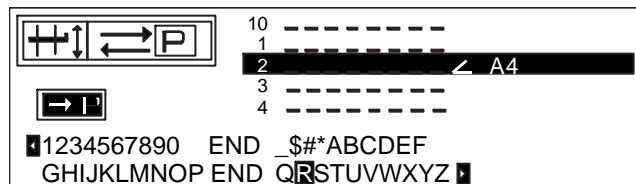
4. Confirm with key 



5. Choose the MEMORY SPACE with the cursor key 
Example: Space 2



6. Confirm with key 



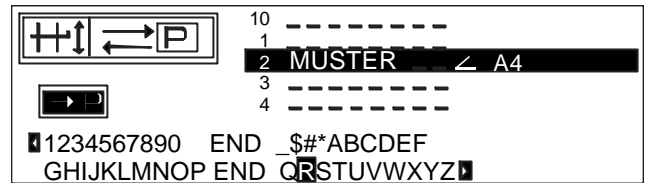
The type of fold and the format of the job to be saved are automatically displayed.



- Types of fold: - Standard folds by a fold symbol: < , Z , Δ , ...
- Special folds by a fold plate symbol +†
- Format - by displaying the DIN format A3, A4 or A5
- by displaying the format length in millimeters


Further identification of the job is possible in the 8-digit description field.


To do this, mark all letters, numbers or symbols individually with the cursor key and confirm by pressing the enter key.

7. Mark letters, numbers or symbols with the cursor key 



 To delete an incorrect entry, the last character written can be cleared by pressing key 

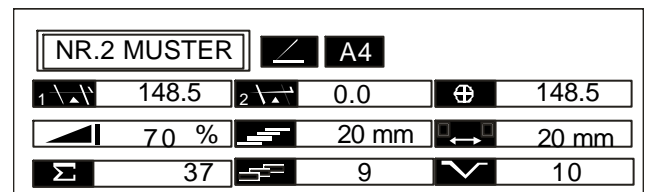
8. Confirm each marked character with key 

 Once the description of the job with letters and numbers is completed, mark END with the cursor key.

9. Mark END with the cursor key 

10. Confirm with key 


The setting information of the job is saved and the display changes to:




Working with the MEMORY Menu

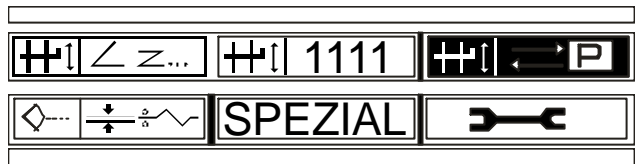
In this menu it is possible to have a look at the contents of the job data saved in the memory.


Display of Job Data

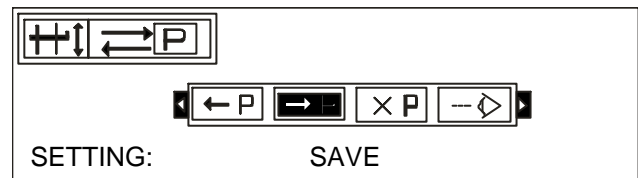
1. Call up the SET-UP menu by pressing key 




2. Choose the MEMORY menu with the cursor key 





3. Confirm with key 





The icons have the following meaning:

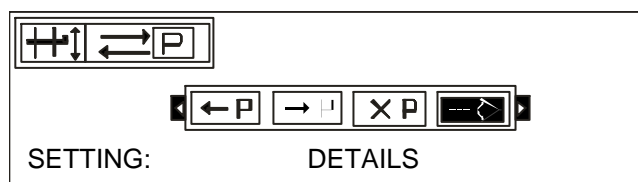
 Call up job from memory

 Erase job from memory

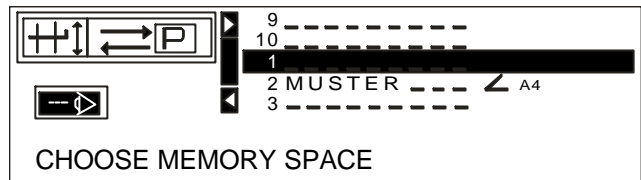
 Save job in memory


 Display job data in memory

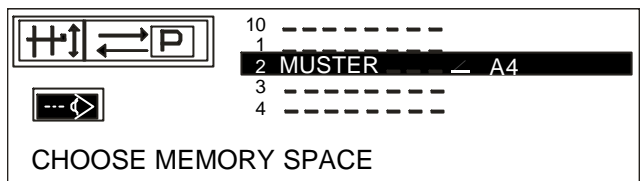
4. Choose the "Display of Job Data" function with the cursor key 



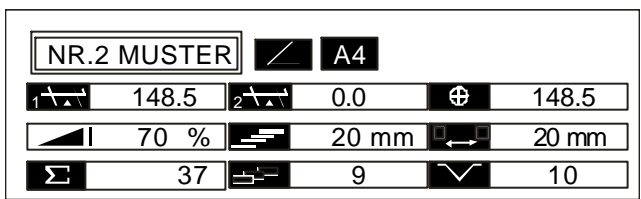
5. Confirm with key 



6. Mark the desired memory space with the cursor key 



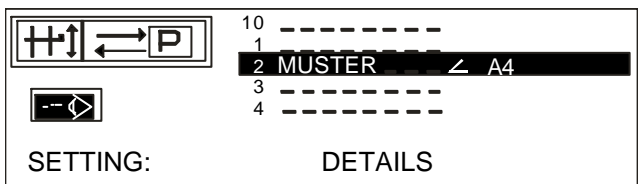
7. Confirm with key 







Brief display of setting information from the memory:

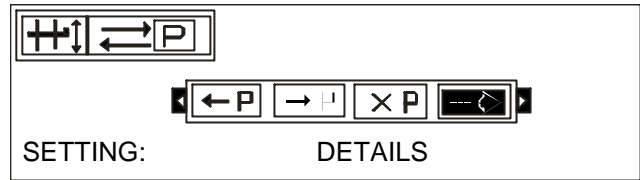
- Number of memory space
- Description
- Type of fold
- For mat
- Fold length in fold plate 1
- Fold length in fold plate 2
- Position of delivery rollers
- Speed in % (of top speed)
- Shingling
- Sheet gap
- Total counter
- Batch counter
- Interval for batch counting



After 4-5 seconds, the display returns to the previous display:

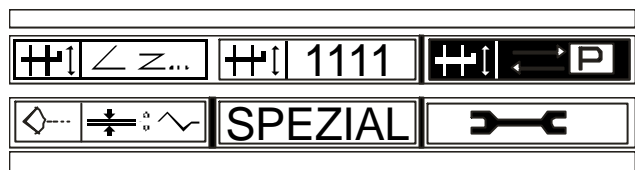


 By pressing key  , the display of the job data can be repeated.

 Return to the MEMORY menu by pressing key 




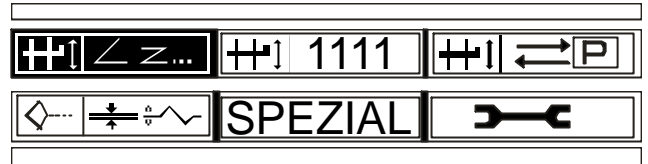
 Return to the SET-UP menu by pressing key  again.




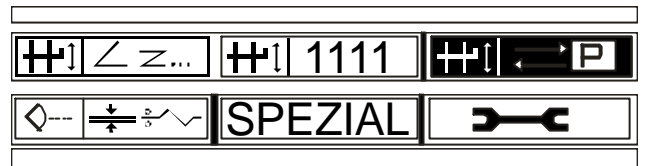
Working with the MEMORY Menu

Erase Job

1. Call up the SET-UP menu by pressing key 




2. Choose the MEMORY menu with the cursor key 





3. Confirm with key 





The icons have the following meaning:

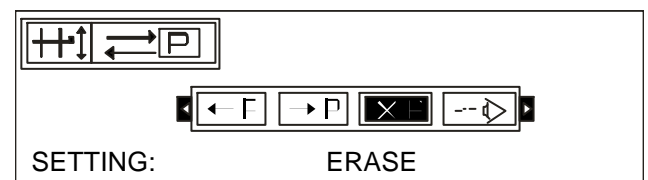
 Call up job from memory

 Erase job from memory

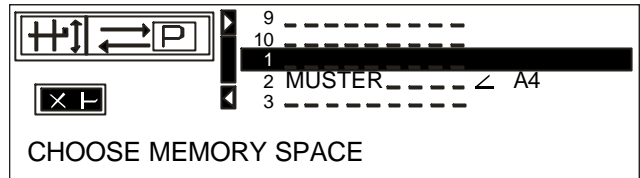
 Save job in memory


 Display job data in memory

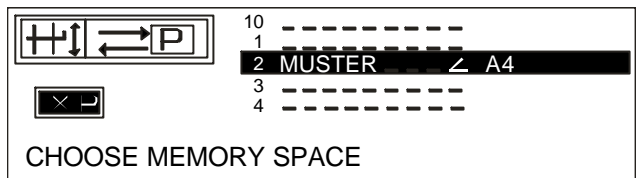
4. Choose the ERASE function with the cursor key 




5. Confirm with key 

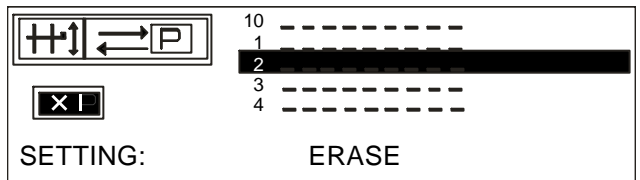


6. Mark the job to be erased with the cursor key 

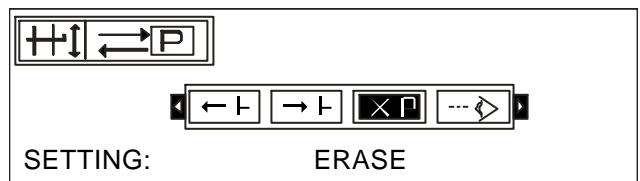


7. Confirm with key 

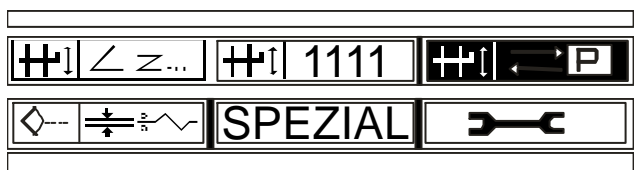
The setting information of the folding job is erased and the display changes to:



 Return to the SET-UP menu by pressing key 

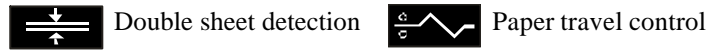


 Return to the BASIC menu by pressing key 








Monitoring

The following icons are used in the BASIC menu to show the operating status:




If the corresponding icon is **visible**, the function is **in operation**
 If the corresponding icon is **not visible**, the function is **not in operation**.

Example:


	0		
	139.9		140.0
	70 %		20 mm
	37		9
			10

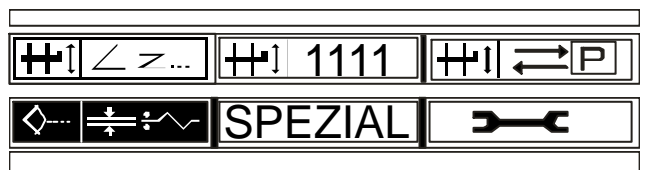
- Double sheet detection in operation
- Paper travel control not in operation

With the MONITORING menu, it is possible to set double sheet detection and paper travel control.

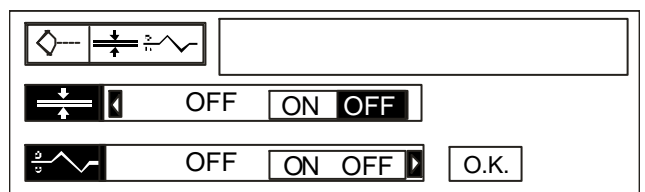
1. Call up the SET-UP menu by pressing key 



2. Choose the MONITORING menu with the cursor key 

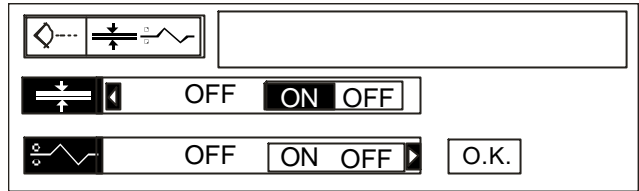


3. Confirm with key 

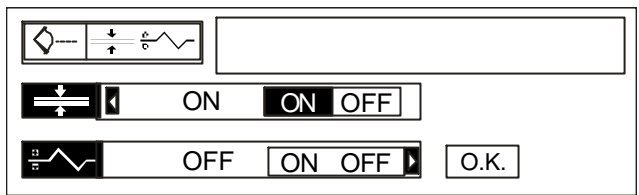


For switching the function on or off, use the cursor to mark ON or OFF in the respective line.

4. Mark ON with the cursor key 

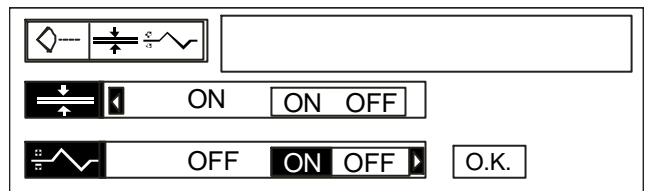


5. Confirm with key 

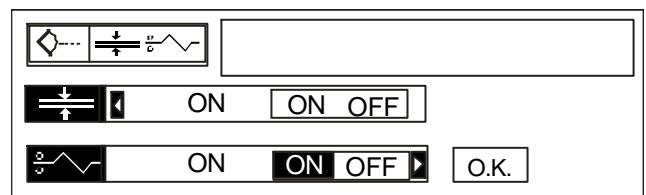



Mark ON in the next line if you want to activate the paper travel control.

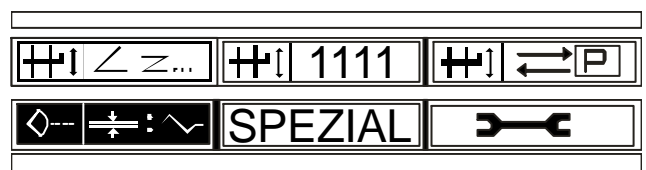
6. Mark ON with the cursor key 
















7. Confirm with key 



8. Call up the SET-UP menu by pressing key 



9. Call up the BASIC menu by pressing key 

	12000				
	148.0		74.0		74.0
	70 %		20 mm		20 mm
	437		25		5


The respective icons show whether double sheet detection and paper travel control are switched on.

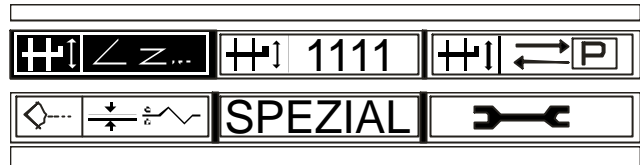



The symbol for double sheet detection keeps flashing until the first sheet is started.

SPEZIAL


With the SPEZIAL menu it is possible to choose between several languages on the display.

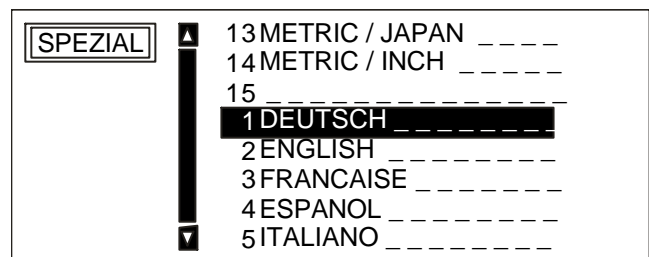
1. Call up the SET-UP menu by pressing key 




2. Choose the SPEZIAL menu with the cursor key 

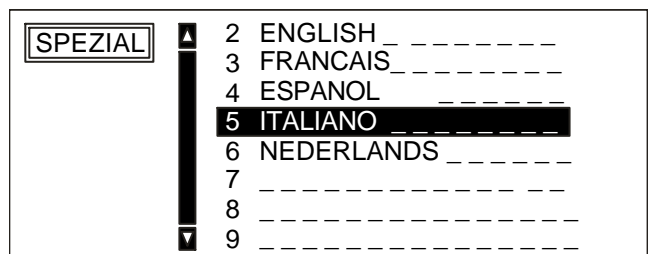


3. Confirm with key 



4. Choose the desired language with the cursor key 

Example: ITALIANO




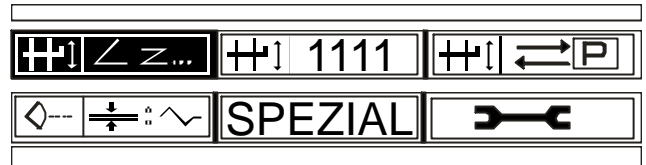
5. Confirm with key 


SERVICE

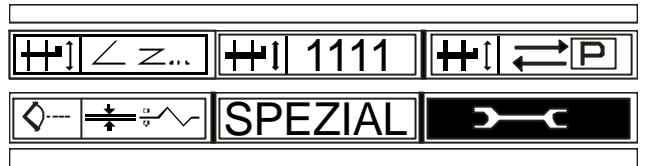
This menu is used by the service technician for maintenance and repair work.


Access is protected by a code to prevent that incorrect basic settings are made.

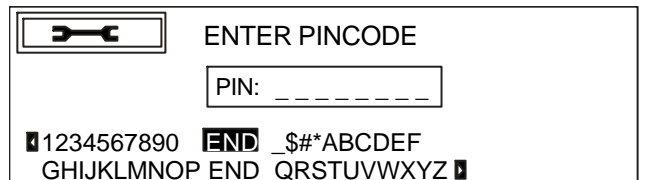
1. Call up the SET-UP menu by pressing key 



2. Choose the SERVICE menu with the cursor key 



3. Confirm with key 



13. OPERATION AND TRIAL FOLDS

When all settings and inputs for a folding job are completed and the feeder has been loaded with paper, check the result by folding some trial sheets.



Exercise caution in the vicinity of rotating shafts, rollers and moving belts! Hair, loose garments and jewellery may get caught! SERIOUS INJURY MAY RESULT!



Exercise caution when running the machine with safety covers open and fold plates removed! Do not get close to the rotating fold rollers! SERIOUS INJURY MAY RESULT!



When making or breaking any electrical connection, always first turn OFF the main switch. Non-compliance may cause damage to electronic components!



Exercise caution at the delivery end of the fold unit! Do not get close to the rotating delivery shafts! SERIOUS INJURY MAY RESULT!

Proceed as follows:



Switch on the pump (1)



Switch on the main switch of the fold unit (2)



Switch on the motor by touching this key (3)



Activate sheet feed by touching this key (4)

- Brief touch: single sheet
- Touching key for approx. 2 sec.: continuous feed

Make some trial folds.

Switch off the machine in reverse order.



Sheet feed (4)

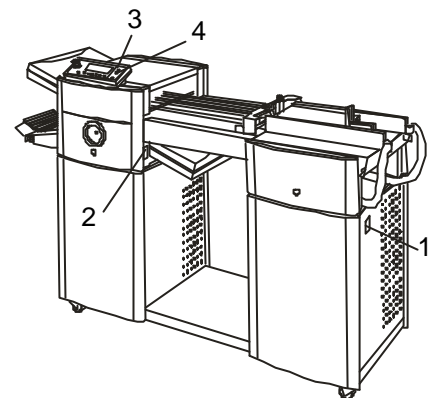


Motor of fold unit (3)



Pump (1)


Remove and check the trial folds.




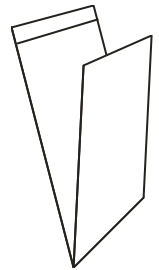
14. FINE ADJUSTMENTS AND CORRECTIONS

Fold Lengths

Fold variations may occur if the fold plate stops are not set accurately or if the folding speed is changed. The fold is off across the entire width of the sheets.

Use the cursor key  in the BASIC menu to choose

fold plate 1 or 2 and change setting value by pressing key 

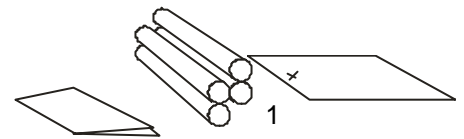


A change in the folding speed also changes the fold length. Therefore the set-up speed must be maintained.

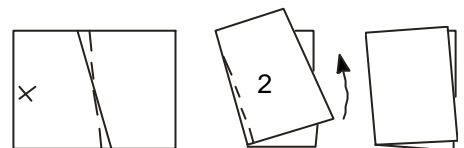
Skewed Folds

Skewed (out-of-square) folds occur when the paper is not fed at right angles with respect to the fold rollers. This can be corrected as follows:

- Mark the leading edge of a sheet and feed it through the folder (1).

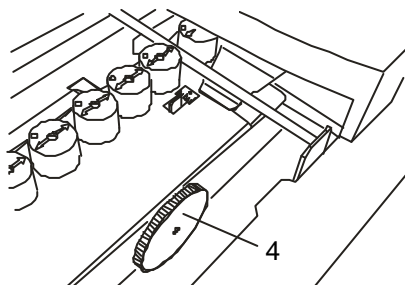
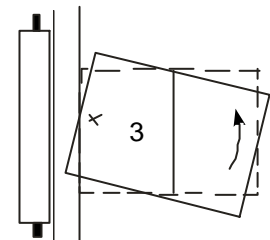


- To make the deviation more obvious, exaggerate the skewed fold by hand (2).



- Open the folded sheet and place it in front of the roller infeed section. (3).

- By turning the adjustment wheel on the register table (4), the register rail must be adjusted in such a way that the leading edge of the paper is parallel to the fold rollers.



Out-of-Square Paper

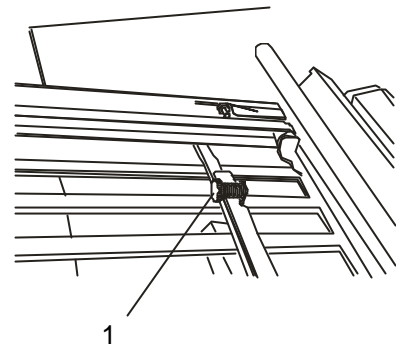
If the paper is not cut precisely at right angles, the folded sheet may show "points". By turning a setting knob (1), the fold plate stop can be made parallel to the out-of-square leading edge of the paper.



- Turning the knob clockwise:
The right side of the stop moves towards the fold rollers.
- Turning the knob counter-clockwise:
The right side of the stop moves away from the fold rollers.



Make this correction only in the first fold plate!



15. Perforating-, Scoring- and Slitting Tools

The following perforating-, scoring- and slitting tools are available:

- **Perforating:** standard, short Order-no. 9.100.356
 standard.medium 9.100.357
 blade, short 9.100.358
 blade, medium 9.100.359
 blade, long 9.100.360

- **Scoring:** narrow Order-no. 9.100.017
 medium 9.100.018
 wide 9.100.019

- **Slitting:** Order-no. 9.100.027



**Perforating- and slitting knives have sharp edges for proper function!
Exercise caution when removing and installing them!
SERIOUS INJURY MAY RESULT!**



**Before installing or removing perforating-, scoring- or slitting tools,
always PULL the power plug. This will ensure that no other person
will be able to start the machine while you are working on it.**

The perforating-, scoring- and slitting tools consist of an upper and a lower part, which have to be mounted on the upper resp. the lower delivery shaft. The tools are split, therefore it is not necessary to remove the delivery shafts when exchanging the tools.

Perforating

Various perforating knives are available which differ in the type and number of teeth. Their usage is determined by the type of paper and the kind of perforating job.



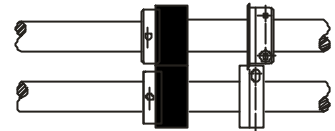
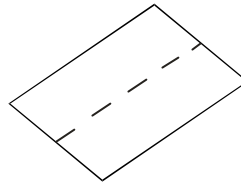
Thin paper: short cuts, many teeth
Heavy paper: long cuts, few teeth

There are two general types of perforations:

1.) Push-through

Push-through perforations 9.100.356 and 9.1001.357 run in the groove of a roller. Make sure that the perforating knife runs exactly in the center of the groove of its counterpart.

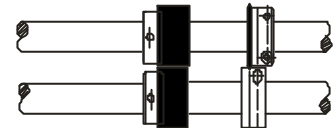
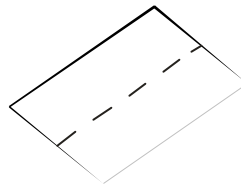
If the setting is not precise, this may lead to inaccurate perforations and premature wear of the tools.



2.) Knife

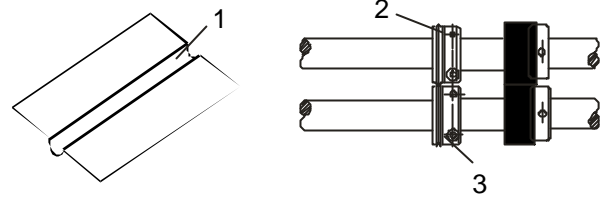
The counterpart of knife perforations 9.100.358, 9.100.359 and 9.100.360 is a rotary knife.

Position the upper and lower tools so that they touch each other lightly like the two knives of a pair of scissors.



Scoring

Scoring (1) is done with a male scoring wheel and a female counterpart. A groove is pressed into the paper when it passes between the tools. The texture of the material remains intact.



The male scoring wheel can be attached on the upper or lower ejector shaft.

Scoring wheels with different widths are available for scoring, depending on the paper thickness.



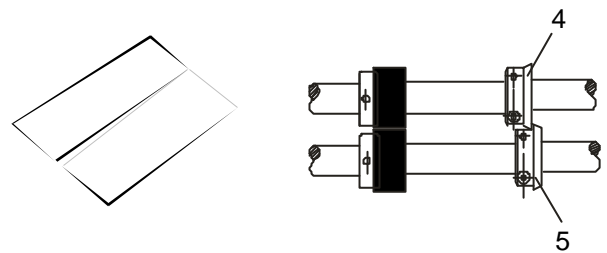
Thin paper: narrow scoring wheel
Heavy paper: wide scoring wheel



The scoring disk (2) is used in conjunction with a grooved counterpart (3). Make sure that the scoring disk runs exactly in the center of its groove. If the setting is not precise, this may lead to inaccurate perforations and premature wear of the tools.

Slitting

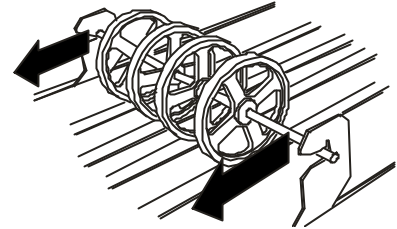
An upper (4) and a lower knife (5) are required for slitting. The lower knife must be positioned close to the upper knife.



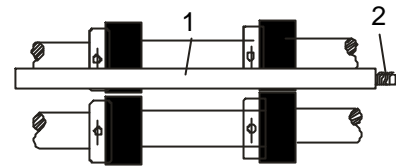
Installation of the Tools

The delivery rollers and a square shaft must be removed for the installation and removal of the perforating-, scoring- or slitting tools.

- Pull the shaft with the delivery rollers towards you.



- Push the square shaft (1) against the spring (2) and disengage it from the mounting hole in the side plate.

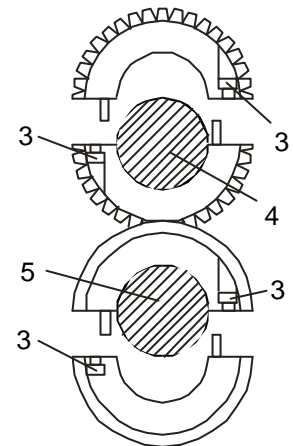


Install in reverse order.

The perforating-, scoring- and slitting tools may be positioned anywhere on the ejector shaft. To determine the correct position, run an unfolded sheet through the fold unit by turning the handwheel and marking the correct position of the tool on the sample sheet.

The perforating-, scoring- and slitting tools are installed as follows:

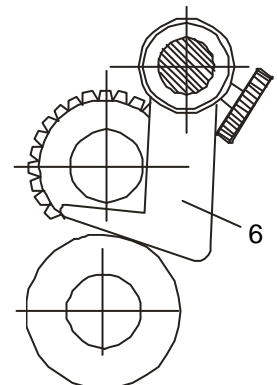
- Loosen the two Allen screws (3) on the perforating-, scoring- or slitting tools. The screws are secured against loss. Now it is possible to separate the two parts of the tools.
- Connect both parts of the tool on the upper (4) and lower (5) ejector shaft.
- Slightly tighten both Allen screws.
- Slide the assembled tool to the exact location on the ejector shaft.
- Tighten both Allen screws (3).



When perforating and slitting, the paper - especially light paper grades - may stick to the knife.

Install a stripper (6) to prevent this from happening.

The stripper should be located as close as possible without touching it.



16. Possible Malfunctions and their Remedies

Error:	see no.					
	Intermittent and irregular paper feed	1	2			
Creasing	3	4	5	6	7	
Several sheets are fed together	8	9	10			
Sheets are not transported up to fold plate stop	11					
Feeder does not start	12	13	14			
Skewed folds	15					
Points	16					
Fold variations	17	18				
Paper jam in delivery section	19	20	21			
Folder does not start	22					

No.	Possible Cause	Remedy
1	Air brackets are set too narrow	Set with a little more side play
2	Vacuum too low	Increase vacuum by opening the corresponding valve a little more
3	Speed too high	Reduce speed
4	Sheets are not fed at right angles	Align register rail
5	Pressure of first pair of fold rollers too strong or uneven	Have pressure and parallel alignment set by service technician
6	Too many steel balls in ball cage of register rail	Use more plastic balls
7	Insufficient guidance by balls	Shift ball cages
8	Front paper stop is not set to the correct height	Change height by means of setting screw
9	Vacuum too strong	Reduce vacuum

No.	Possible Cause	Remedy
10	Air brackets not set parallel	Adjust air brackets according to scale
11	Gap between sheets is too narrow	Increase sheet gap via BASIC menu
12	Pump not switched on	Switch on pump
13	Suction drum is loose	Tighten suction drum (3 Allen screws)
14	Timing belt pulley is loose	Tighten timing belt pulley
15	Sheets are not fed at right angles	Align angle of register rail
16	Sheets are not cut at right angles	Adapt fold plate stop to the sheet by adjusting the knurled screw
17	Fold plate stop not set correctly	Readjust fold length via the BASIC menu
18	Change of fold speed	Set regular speed via the BASIC menu
19	Distance between ejector rollers and hold-down rollers too short	Increase distance via the BASIC menu
20	Ejector rollers on knife shafts are not distributed evenly across paper width	Arrange ejector rollers evenly across the paper width
21	Ejector rollers worn	Replace rollers
22	Paper jam, safety system has switched off the machine	Clear jam, switch the machine off and then on again