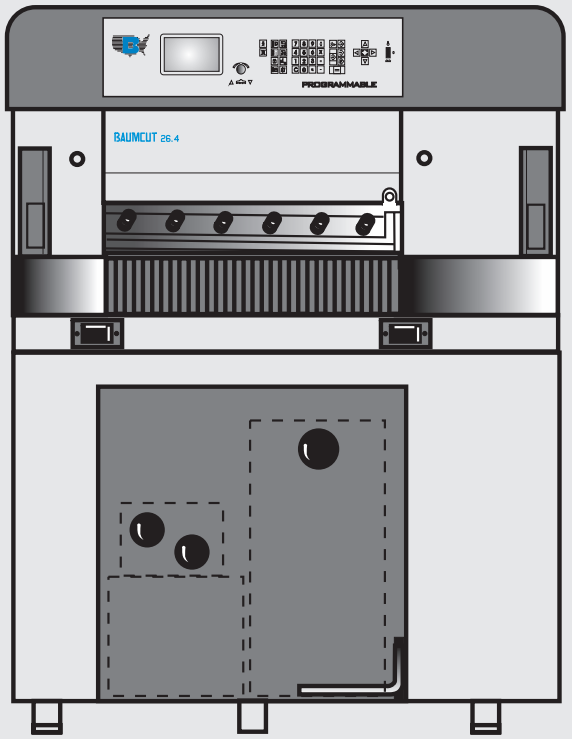
Original Operating Instructions

BAUMCUT 26.4 PROGRAMMABLE



BAUM USA

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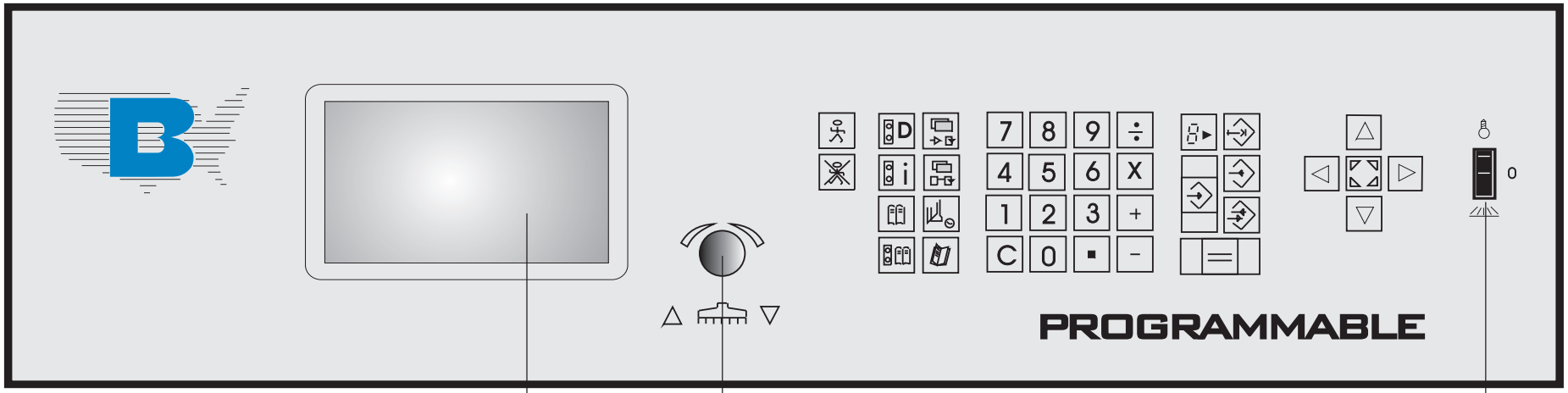
Control Panel / Operating Elements



- Automatic ON
- Automatic OFF
- Program Data
- Program Information
- Function Survey (Main Menu)
- Program Directory
- Program Selection
- Machine Parameter
- Auxiliary Program Functions
- Additional Functions
- Numerical keyboard
- Division
- Multiplication
- Addition
- Subtraction
- Enter
- Insert; subsequent insertion of data
- Delete
- Correction (of stored data)
- Equal key
- Transfer key: Transfer backgauge pos. into input field
- Clear input field
- Decimal point
- Cursor (4 keys: right, left, up, down; Center key: Additional cursor motion; cursor in basic position

1 Display

2 Turning knob for backgauge movement (Electronic hand wheel)

3 Switch for optical cutting line indicator and table light ON

Explanation of Pictographs on the Display

-  Pre clamping time
-  Clamping force grade
-  Feed mark
-  Programmable ejector
-  External special functions
-  Program functions
-  Program parameters
-  Various auxiliary functions
-  Free program
-  Paper sizes
-  Enter
-  Correction
-  Delete
-  Insert
-  Key Equal
-  Key Positioning (2x Ist-Gleich)
-  Program selection
-  Program data display
-  Program information
-  Function survey
-  Program directory
-  Nominal position
-  Key Cursor right/left
-  Key Cursor up/down
-  Help
-  Key Cursor Home
-  Numerical keyboard
-  Hand wheel/electr. hand wheel
-  Sensor key forward
-  Sensor key reverse
-  Cut buttons
-  Marking during cutting
-  Actual to nominal position
-  Automatical ejector off
-  Function survey/Memory
-  function survey/Language
-  Function survey/Service
-  Function survey/Block programming
-  Function survey/preset functions
-  Machine parameters
- Number (1 - 0)
- Clear/Clear input
- Service
- Call sevice
- Error
- Reference run
- Correct basic position
- Correct actual position
- German (Language)
- Please wait
- Clear/Exit
- Spare cursor
- Main drive unit not ready
- Press pedal
- Order
- Look for order
- Select program number
- Delete program number
- Under cut
- Plus/positive sign
- Minus/negative sign
- Change contrast of display
- Spare cursor
- Original sheet size/Block programming
- Label size/Block programming
- Edge trim/Block programming
- (-) Subtraction repetition unit
- Grafics off
- Block programming
- Knife/Lower dead point time

Chapter Survey **Page**

Introduction

BAUM cutting machines form a part of the wide range of products manufactured by the BAUM company.
Decades of experience in constructing high speed cutting machines and peripheral equipment, together with state-of-the-art engineering and manufacturing procedures, careful testing and highest quality standards ensure the reliability and performance of your BAUM machine.

Please pay special attention to the following information:

- The section on “Safety” in the operating instructions!
- The operating instructions are not meant as an instruction for repair. Such work should be carried out by BAUM service, exclusively.
- Use only original BAUM spare parts; indicate type and machine number in your requests.
- Illustrations in the operating instructions/spare parts catalogue may deviate from the real design. Nevertheless, the information given is not altered by this.
- The use of the aids mentioned in the operting instructions, such as oils, greases, cleansing agents etc. refers to the preparation date of these instructions.

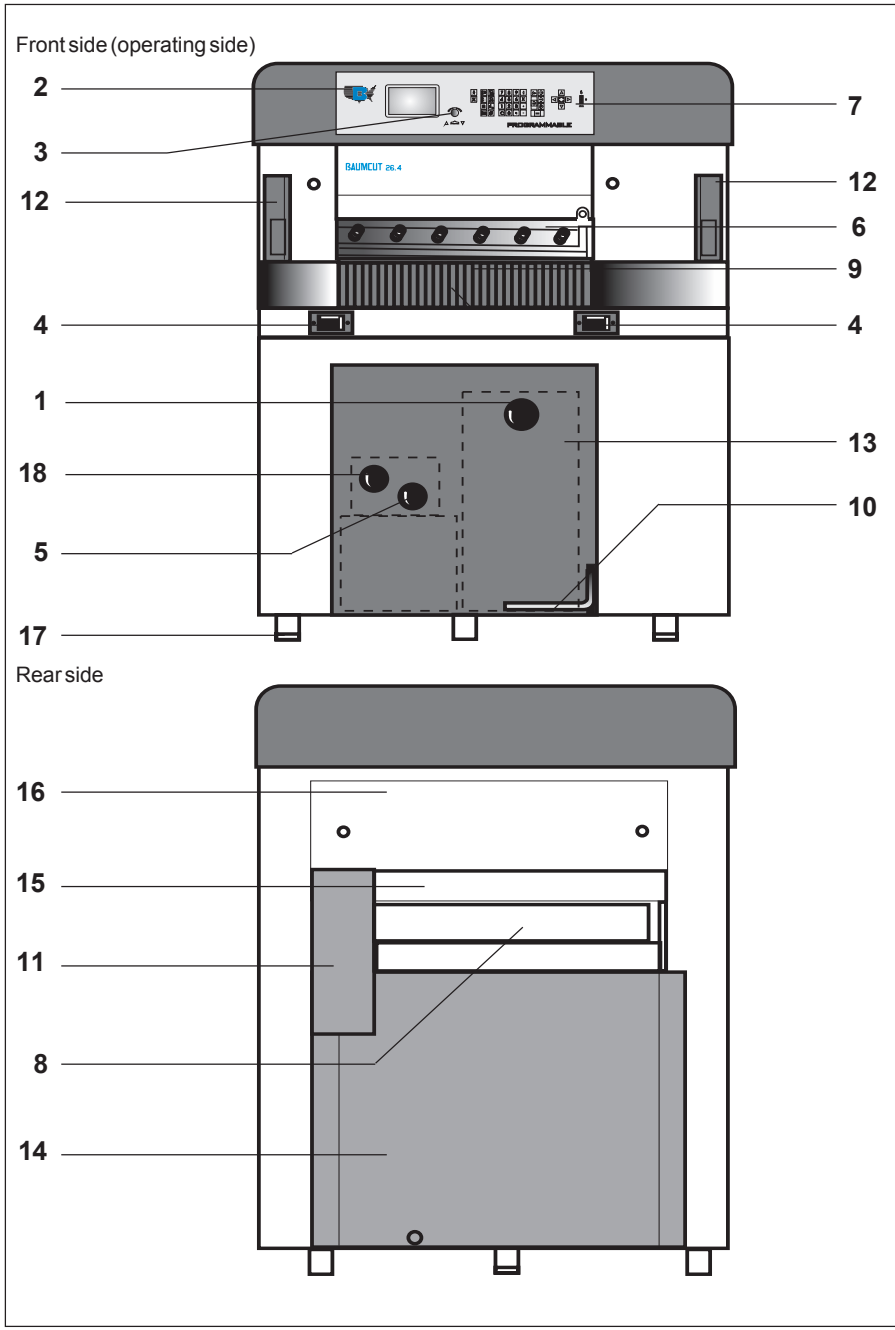
The complete Technical Documentation should always be kept near the machine.
We recommend to read these operating instructions carefully prior to commissioning the machine, because we shall not be liable for any damage or breakdown resulting from any nonobservance of these operating instructions.

The Operating Instructions must be stored for future use!

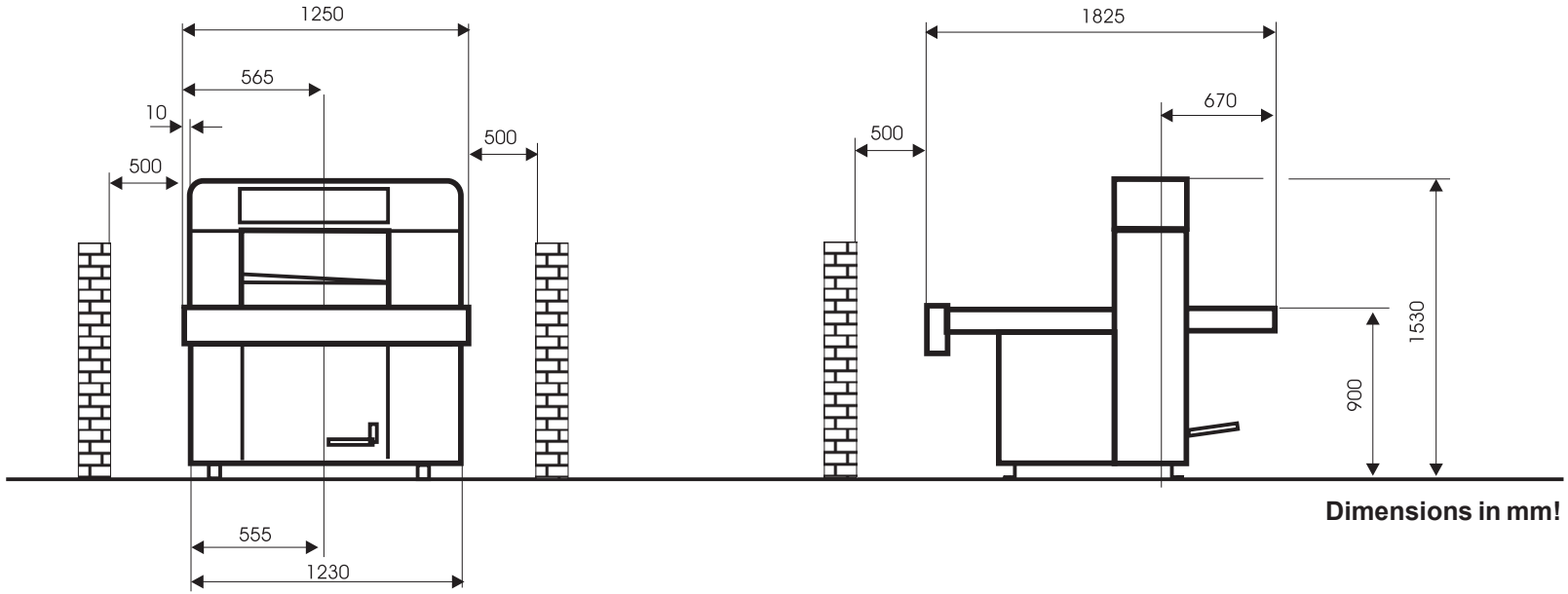
1.0	Technical Data / Machine Layout / Transport and Installation of the Machine / Safety Relevant Machine Elements

Machine Layout

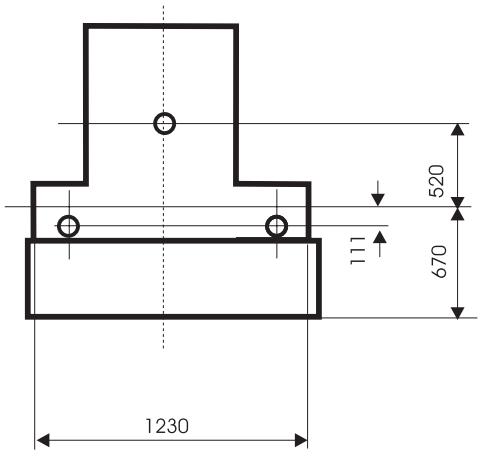
1	Main switch
2	Control panel with display
3	Electronic hand wheel / fine adjustment of cut size
4	Cut buttons
5	Clamping pressure adjustment
6	Clamp and knife bar with knife
7	Switch for cutting line indicator/ Table lamp
8	Backgauge with rakes
9	Cutting stick / Cutting line
10	Pedal
11	Protective guard for backgauge drive
12	Light barrier with guard
13	Guards - front side
14	Guards - rear side
15	Guard - rear table
16	Guard to prevent reaching under the clamp bar
17	Foot
18	Turning knob for knife change



Plan



Dimensions in mm!



Transport and Installation of the Machine

Have the machine installed by BAUM service personnel, exclusively!

The installation of the machine requires special skills which can be guaranteed only by especially trained experts of BAUM agencies. Arbitrary working on the machine may damage the machine itself or other material property of the user or cause accident endangering life and limb of the staff.

The machine must be unpacked, moved, transferred and installed by authorized BAUM Service Technicians only. Dangers might arise from the machine itself or from its packing if it is unpacked, moved, transferred or installed with unsuitable devices.

While the machine is unpacked, moved, transferred and installed, no other persons must be present in the range of the machine or its packing.

The BAUM Service Technician must also take care that no unauthorized persons work at the machine, its packing or the installation equipment.

After Unloading

- Remove all packing and wrapping material
- Check machine and accessories for damages
- Check for missing parts

In Case of Complaints

Immediately send written note to:

- Railway or shipping company
- Insurance company
- BAUM / Agency

Place of Installation

The location must meet the following requirements:

- Vibration free location
- Even concrete flooring, concrete property class min. (N/mm²) according to eurocode 2: C20/25 or according to DIN1045: B 25.
- Observe carrying capacity!
- Avoid possible accidents of operator by uneven flooring
- Adhere to minimum distance from buildings or peripheral equipment (see plan)

After the Installation of the Machine

1. Remove anti rust paint (agent: kerosene, gasoline) from the machine on the site of installation
   Note:
   Do not use any sharp tools to remove anti-rust paint!
2. Clean plastic covers only with plastic cleansing agent
3. Final check according to check list
4. Have handover signed

Power Supply

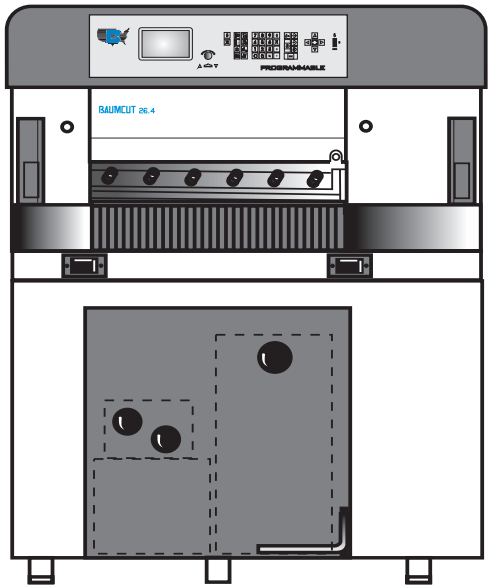
The machine is to be connected by an authorized electrician, only!

<u>Connect machine according to diagram!</u>

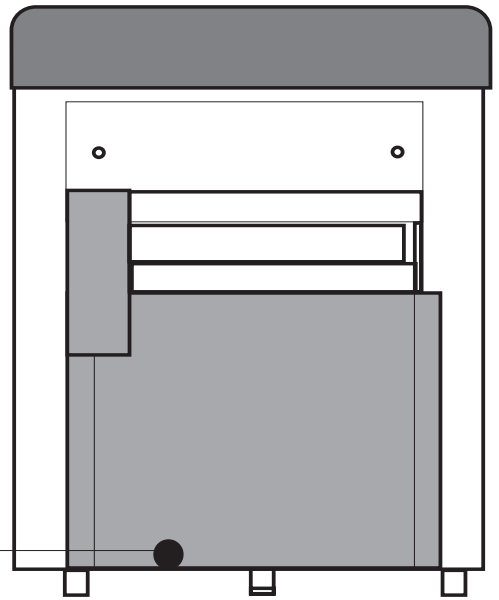
- **When the system is operated with residual current breaker, use a residual current breaker (> 30 mA) for each machine!**
- **All the cables marked with a ⚠ symbol, as well as any cables with orange sheath are still alive even if the main switch has been shut off.**

Energy supply is made from the rear of the machine.
Power supply is located within the connection box; access via front guard.

Front side (Operating side)



Rear side



Type Plates

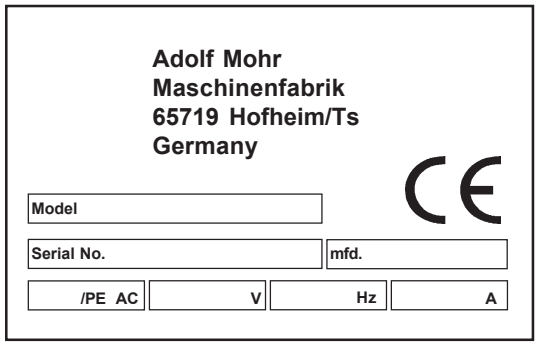
Type plate

The machine designation including

- manufacturer‘s address
- model
- machine number
- date of fabrication
- electric. equipment

is indicated on the machine type plate.

Type plate



Safety Relevant Machine Elements

1 Main switch

2 Light barrier (20 - channel)
Capacity to recognize object: 25 mm

Min. distance of light barrier:	Total reaction time of system:
328 mm	< 120 ms

3 Knife bar spring assembly (mechanical lock against lowering of knife bar)

4 Clamping bar spring assembly (mechanical lock against lowering of clamping bar)

5 Two-handed cutting release with simultaneity control and anti-repeat circuit

6 Electronics:
- Failsafe control by multiple self-diagnostics
- Machine self-diagnostics with error message

7 Guard to prevent reaching under the clamp bar

8 Rear-table guard

9 Guard of backgauge drive unit

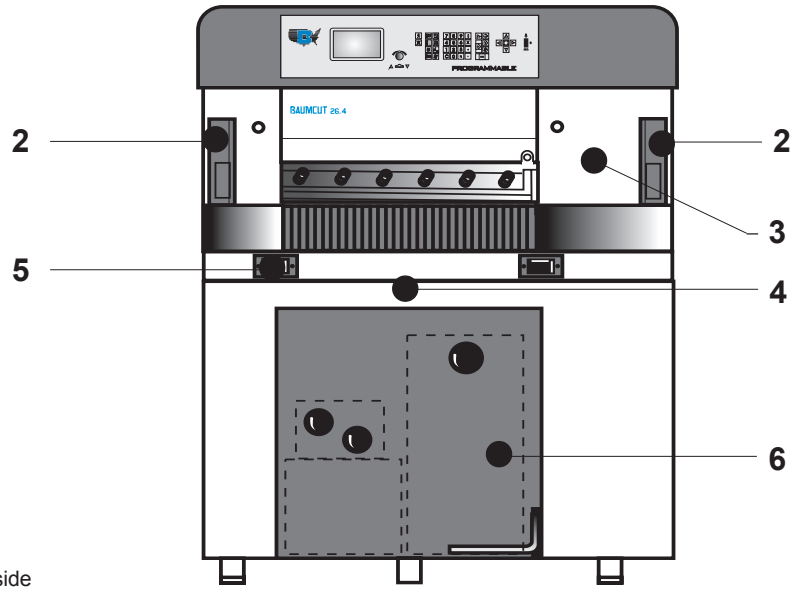
Safety Auxiliary Tools

Angle for jogging the cutting material
Knife protection for knife change

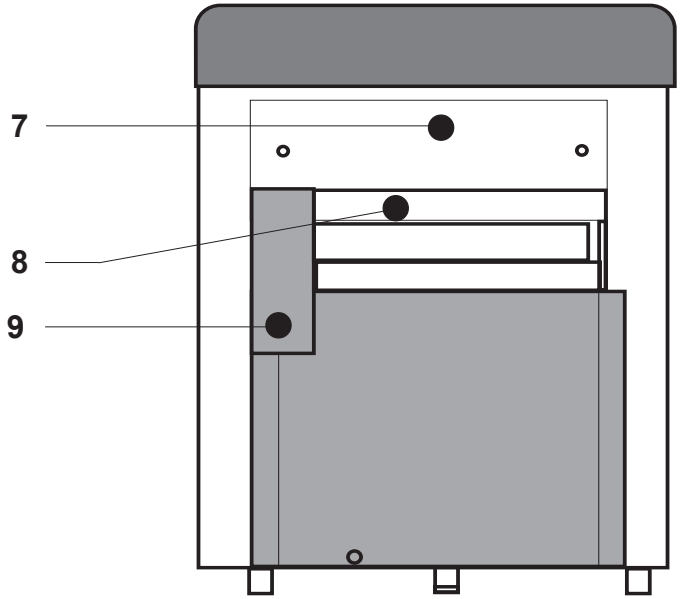
Working Area of Operating Personnel

Working area is the complete front side (operating side) of the machine.

Front side (operating side)



Rear side



Safety Relevant Machine Elements

Accident prevention warning labels at BAUM cutters.

Placement of the warning label

Warning labels are of little value if the foreseeable user cannot see them at the appropriate time, i.e., before he or she encounters the hazard. Labels, therefore, should be placed near the hazard and in such a position that the worker will see and be able to read them before encountering the hazard.

Durability

Accident prevention warning labels should be kept sufficiently durable to remain easily readable at an appropriate distance for a reasonable life.

Placement of the warning labels

Label 1 (1x):

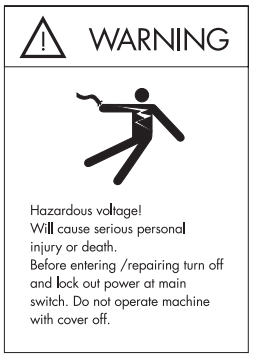
Location:
At backgauge drive guard.
BAUM order no.:
281267

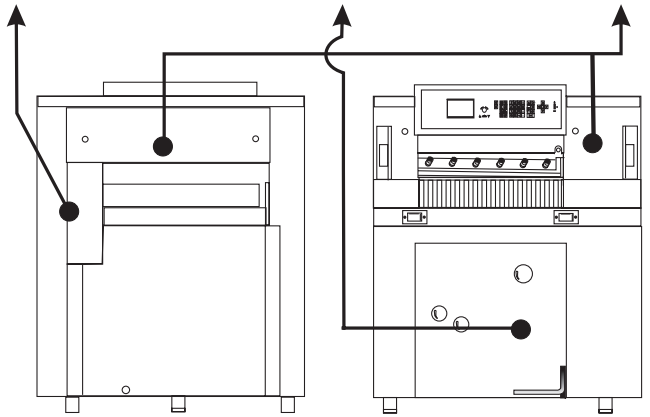
Label 2 (1x):

Location:
At the lower front of the cutter.
BAUM order no.:
281266

Label 3 (2x):

Location:
At the front and the rear of the cutter.
BAUM order no.:
281268





Safety Signs / Warning Signs

In order to ensure maximum safety the machine / system is provided with safety signs. Safety signs are either standardized safety signs warning of risks or danger, or warning signs alerting the operating or service staff of
- any forbidden actions at the machine / system,
and/or
- informing about any load limits, such as the max. carrying capacity of the machine and/or its load carrying unit.

Safety signs must be durable and have to be kept in a perfectly visible condition. Warning signs ought to be visible in good time even from a great distance.

The machine /system <u>may be</u> provided with the following safety or warning signs on various components of the machine:

Warning: Dangerous voltage
(e. g. electrical connector boxes, control boxes/control cabinets of machine control systems)

Technical Data

Permissible Environmental and Operating Conditions

Operate the machine in closed areas, exclusively!

Air humidity:	35% - 95% (non condensing)
Ambient air temperature:	+5°C - +40°C

Hydraulic Data

Hydraulic pressure, max.:	160 bars!

Safety Precautions

- Minimum age of operating staff: 18 years!
- Before starting any work at the machine - read safety section of manual!
- During the working process no other persons must enter the working area or interfere with the process
- Use the angle included in the scope of supply for positioning the cutting material
- Knife change may only be carried out by personnel especially trained for this purpose
- Utmost care must be taken when handling the knife!! Always deposit or transport the knife in the knife case.
- Use only undamaged and sharp knives!
- During the cutting no tool or objects - such as e.g. T-wrench must be on the machine table in order to prevent them from reaching unintentionally under the clamp and/or knife during the cutting process. There is a high risk of injuries due to little parts of the knife edge coming off in splinters.
- Observe the procedures described in case of malfunctions and the mainte nance intervals indicated.

Residual Risk

In spite of the safety measures provided by construction there remains a residual risk when operating the machine.
This residual risk mainly concerns the danger of contusions and cuts during clamping, cutting or knife change as well as handling the cutting material in general, if the necessary care is neglected.

The parts especially affected are the upper extremities of the operating staff - especially their arms and hands.

Special care must be taken when performing the knife change. It may only be carried out by personnel especially trained for this job!
During knife change no other persons must enter the working area of the machine (cuts)!

Technical Data

Cutting width	67 cm / 26,38"
Clamp opening	8 cm / 3,15"
Feed depth	67 cm / 26,38"
Power requirement (main motor):	
Single phase A C	2,2 kW / 3,1 H.P.
3 phase	2,4 kW / 3,4 H.P.
Net weight	620 kg / 1367 lbs
Width	125 cm / 49,2"
Length	182,5 cm / 71,85"
Height	151,5 cm / 59,64"
Front table length	67 cm / 26,38"
Table height	90 cm / 35,43"
Clamp pressure, min.	200 daN / 440 lbs
max.	1500 daN / 3300 lbs
Knife thickness	9,7 mm / 0,38"
Grinding reserve, max.	2,2 cm / 0,86"
Smallest cut	
without false clamp, min.	1,5 cm / 0,6"
with false clamp, min.	5 cm / 1,96"
Backgauge speed	0 - 7 cm/sek.
Knife speed/min.	20

daN = kp

Voltage supply (3 phase) 200 - 240, 50/60Hz

Fusing 3 x 25A

Voltage supply (3 phase) 360 - 420V, 50/60Hz

Fusing 3 x 16A

Voltage supply single phase AC (200 - 240, 50Hz)

Fusing 1 x 32A

Voltage supply single phase AC (210 - 240, 60Hz)

Fusing 1 x 32A

Attention!
The wire cross section of the main power supply according to the countrys regulations.
Same regulations according the plug connectors.

Noise emission
Metering of noise level according to DIN EN 13023, LpA (dB):

76,5 with 300 cuts/hour (manual feeding)
79,5 with 600 cuts/hour (manual feeding)

Extraneous and room noise correction has been carried out.

2.0 Safety

Any person on the user´s premises concerned with the operation, maintenance and repair of the machine, resp., is expected to have read and comprehended the section on "Safety"

Foreword to the operating instructions

These operating instructions are designed to familiarize the user with the machine/plant and its designated use.

The instruction manual contains inportant information on how to operate the machine/plant safely, properly and most efficiently. Observing these instructions helps to avoid danger, to reduce repair costs and downtimes and to increase the reliability and life of the machine/plant.

The instruction manual is to be supplemented by the respective national rules and regulations for accident prevention and environmental protection.

The operating instructions must always be available wherever the machine/plant is in use.

These operating instructions must be read and applied by any persons in charge of carrying out work with and on the machine/plant such as

- **operation** including setting up, troubleshooting in the course of work, evacuation of production waste, care and disposal of fuels and consumables.

- **maintenance** (servicing, inspection, repair) and/or

- **Transport**

In addition to the operating instructions and to the mandatory rules and regulations for accident prevention and environmental protection in the country and place of use of the machine/plant, the generally recognized technical rules for safe and proper working must also be observed.

Fundamental safety instructions

Warning and symbols

The following signs and designations are used in the manual to designate instructions of particular importance

Note/Attention: refers to special information on how to use the machine/plant most efficiently

Symbol:  refers to orders and prohibitions designed prevent injury or extensive damage

Basic operation and designated use of the machine/ plant

The machine/plant has been built in accordance with state-of-the-art standards and the recognized safety rules. Nevertheless, its use may constitute a risk to life and limb of the user or of third parties, or cause damage to the machine and to other material property.

The machine/plant must only be used in technically perfect condition in accordance with its designated use and the instructions set out in the operating manual, and only by safety-conscious persons who are fully aware of the risks involved in operating the machine/plant. Any functional disorders, especially those affecting the safety of the machine/plant, should therefore be rectified immediately.

The machine is meant exclusively for cutting leaved materials, such as paper, cardboard or plastic films.
Any other use, such as the cutting of harder, especially thicker materials and materials of other kinds, as well as any further use beyond this, is considered as not being in accordance with the designated use. Such materials may be processed only according to prior agreement with the manufacturer of this machine and after a written confirmation by the manufacturer. The manufacturer/supplier cannot be held liable for any damage resulting from such use. The risk of such misuse lies entirely with the user.

Operating the machine within the limits of its designated use also involves the instructions set out in the operating manual and complying with the inspection and maintenance directives.

Organizational measures

The operating instructions must always be at hand at the place of use of the machine/plant.

In addition to the operating instructions, observe and instruct the user in all other generally applicable legal and other mandatory regulations relevant to accident prevention and environmental protection.

These compulsory regulations may also deal with the handling of hazardous substances, issuing and/or wearing of personal protective equipment, or traffic regulations.

The operating instructions 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 operating instructions and in particular the chapter on safety before beginning work. Reading the instructions after work has begun is too late. This applies especially to persons working only ocassionally on the machine, e. g. during setting up or maintenance.

Check - at least from time to time - whether the personnel is carrying out the work in compliance with the operating instructions and paying attention to risks and safety factors.

For reasons of security, 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 up in the machinery or from rings catching on moving parts.

Use protective wherever required by equipment by the circumstances or by law.

Observe all safety instructions and warnings attached to the machine/plant.

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 behaviour of the machine/plant during operation, stop the machine/plant immediately and report the malfunction to the competent authority/person.

Never make any modifications, additions or conversions which might affect safety without the supplier´s approval. This also applies to the installation and adjustment of safety devices and valves as well as to welding work on load-bearing elements.

Spare parts must comply with then technical requirements specified by the manufacturer. Spare parts from original equipment manufacturers can be relied to do so.

Never modify the software of programmable control systems.

Replace hydraulic hoses within stipulated and appropriate intervals even if no safety-relevant defects have been detected.

Adhere to prescribed intervals or those specified in the operating instructions for routine checks and inspections.

Selection and qualification of personnel - Basic responsibilities

Any work on and with the machine/plant must be executed by reliable personnel only. Statutory minimum age limits must be observed.

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

Make sure that only authorized personnel works on or with the machine.

Define the machine operator´s responsibilities - also with regard to observing traffic regulations - giving the operator the authority to refuse instructions by third parties that are contrary to safety.

Do not allow persons to be trained or instructed or persons taking part in a general training course to work on or with the machine/plant without being permanently supervised by an experienced person.

Work on the electrical system and equipment of the machine/plant must be carried out only by a skilled electrician or by instructed persons under the supervision and guidance of a skilled electrician and in accordance with electrical engineering rules and regulations.

Work on the hydraulic system must be carried out only by personnel with special knowledge and experience of hydraulic equipment.

Safety instructions governing specific operational phases

Standard operation
Avoid any operational mode that might prejudicial to safety.

Take the necessary precautions to ensure that the machine is used only when in a safe and reliable state.

Operative machine only if all protective and safety-oriented devices, such as removable safety devices, emergency shut-off equipment, sound-proofing elements and exhausters, are in place and fully functional.

Check the machine/plant at least once per working shift for obvious damage and defects. Report any changes (incl. changes in the machine´s working behaviour) to the competent organization/person immediately. If necessary, stop the machine immediately and lock it.

In the event of malfunctions, stop the machine/plant immediately and lock it. Have any defects rectified immediately.

During start-up and shut-down procedures always watch the indicators in accordance with the operating instructions.
Before starting up or setting the machine/plant in motion, make sure that nobody is at risk.
Never switch off or remove suction and ventilation devices when the machine is in operation.

Special work in conjunction with utilization of the machine/plant and maintenance and repairs during operation; disposal of parts and consumables

Observe the adjusting , maintenance and inspection activities and intervals set out in the operating instructions, including information on the replacement of parts and equipment. These activities may be executed by skilled personnel only.

Brief operating personnel before beginning special operations and maintenance work, and appoint a person to supervise the activities.
In any work concerning the operation, conversion or adjustment of the machine and its safety-oriented devices or any work related to maintenance, inspection and repair, always observe the start-up and shut-down procedures set out in the operating instructions and the information on maintenance work.

Ensure that the maintenance area is adequately secured.

If the machine/plant is completely shut-down for maintenance and repair work, it must be secured against inadvertent starting by:
- locking the principal control elements and removing the ignition key and/or
- attaching a warning sign to the main switch.

Clean the machine, especially connections and threaded unions, of any traces of oil or presevatives before carrying out maintenance/repair. Never use aggressive detergents. Use lint-free cleaning rags.
Always tighten any screwed connections that have been loosened during maintenance and repair.

Any safety devices removed for set-up, maintenance or repair purposes must be refitted and checked immediately upon completion of the maintenance and repair work.
Ensure that all consumables and replaced parts are disposed of safely and with minimum environmental impact.

Warning of special dangers

Any procedure impairing the safety at the machine must be refrained from. In particular do not

- reach into the range of knife and clamp, use auxiliary tools (e. g. material gauge)

- reach into the range between clamp and cutting material gauge (backgauge with rake) on the machine rear table

- with Autotrim function:
entering the opened table crack to remove residual cuttings. Only do that with the machine switched off.

- at machines with attached and/or separately installed peripheral equipment with lifting/swivelling/moving and/or clamping function:
do not enter or reach into the danger zone during movement (provide guard rail)

- The knife may only be changed by personnel especially instructed for this purpose

Electrical energy

Use only original fuses with the specified current rating. Switch off the machine/plant immediately if trouble occurs in the electrical system.

Work on the electrical system or equipment may only be carried out by a skilled electrician himself or by specially instructed personnel under the control and supervision of such electrician and in accordance with the applicable electrical engineering rules.

If provided for in the regulations, the power supply to parts of machines and plants, on which inspection, maintenance and repair work is to be carried out must be cut off. Before starting any work, check the de-energized parts for the presence of power and ground or short-circuit them in addition to insulating adjacent live parts and elements.

The electrical equipment of machines/plants is to be inspected and checked at regular intervals. Defects such as loose connections or scorched cables must be rectified immediately.

Necessary work on live parts and elements must be carried out only in the presence of a second person who can cut off the power supply in case of danger by actuating the emergency shut-off or main power switch. Secure the working area with a red-and-white safety chain and a warning sign. Use insulated tools only.

Before starting work on high-voltage assemblies and after cutting out the power supply, the feeder cable must be grounded and components, such as capacitors, short-circuited with a grounding rod.

Gas, dust, steam and smoke

Carry out welding , flame-cutting and grinding work on the machine/plant only if this has been expressly authorized, as there may be a risk of explosion and fire.

Before carrying out welding, flame-cutting and grinding operations, clean the machine/plant and its surroundings from dust and other inflammable substances and make sure that the premises are adequately ventilated (risk of explosion).

Observe any existing national regulations if work is to be carried out in narrow rooms.

Hydraulic and pneumatic equipment

Work on hydraulic equipment may be carried out only by persons having special knowledge and experience in hydraulic systems.

The pneumatic equipment at the machine must only be connected to plant compressed-air supply system secured against overpressure.

Check all lines, hoses and screwed connections regularly for leaks and obvious damage. Repair damage immediately. Splashed oil may cause injury and fire.
Depressurize all systems sections and pressure pipes (hydraulic system, compressed-air system.

Hydraulic and compressed-air lines must be laid and fitted properly. Ensure that no connections are interchanged. The fittings, lenghts and quality of the hoses must comply with the technical requirements.

Oil, grease and other chemical substances

When handling oil, grease and other chemical substances, observe the product-related safety regulations.

Be careful when handling hot consumables (risk of burning or scalding)

3.0 Start Up

Attention!
<u>Prior to any commissioning and any change of shifts</u> the operating staff has to check if the safety-related machine elements are in proper service condition and complete.

Switching Machine ON

Attention!
<u>Prior to any commissioning and any change of shifts</u> the operating staff has to check if the safety related machine elements are in proper service condition and complete.

1. Turn main switch (2) from "0" to "I"

   < Control voltage is switched on.
   After several seconds display shows Program data display >

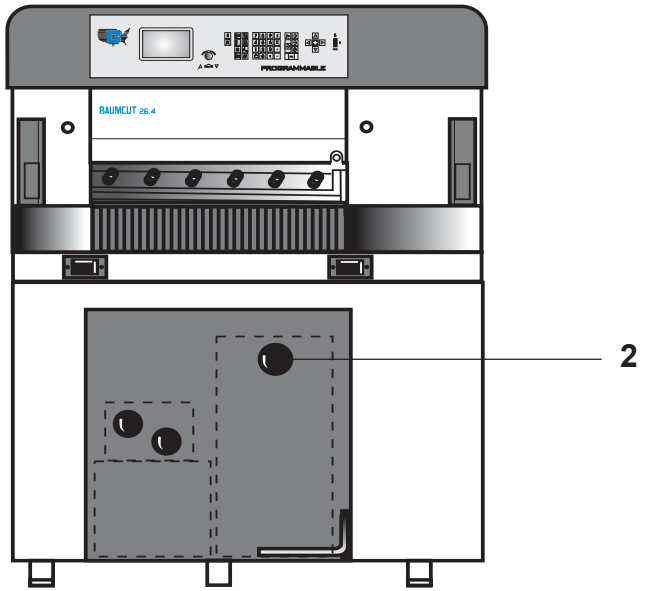
Turning Machine OFF

1. Wait until automatic operations have ended.

2. Turn main switch from " I " to "0" position

to prevent a start-up of the machine:

Place padlock into main switch, lock it and remove the key.



Measurement Display and Measurement System

After switching on, the **"Program Data Display"*** appears on the screen.

It shows among other things...

on the upper screen (A): **ACTUAL POSITION**

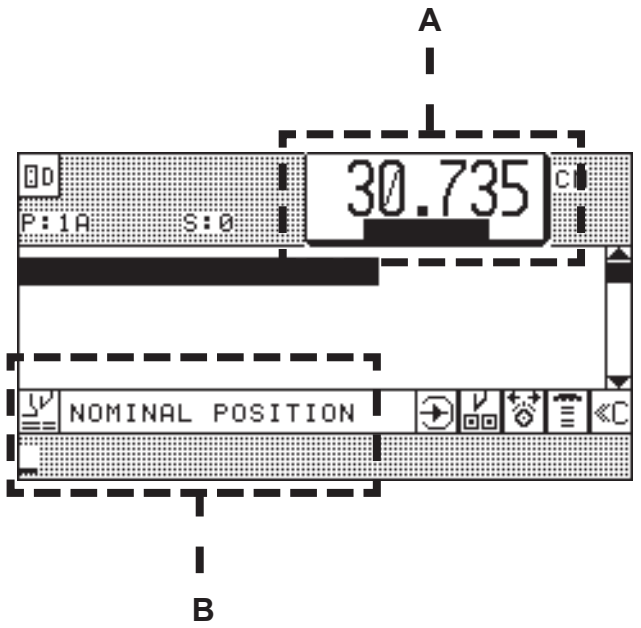
on the lower screen (Nominal position input field, B):
NOMINAL POSITION INPUT

The actual position (A) shows the real backgauge position in mm, cm, inches or sun = 1/10 shaku (Japan).

Measurement system can be changed - see "Function Survey, page K5B - 3"

* If this fails, see Malfunctions/Breakdowns, page K7 - 5.

Program Data Display



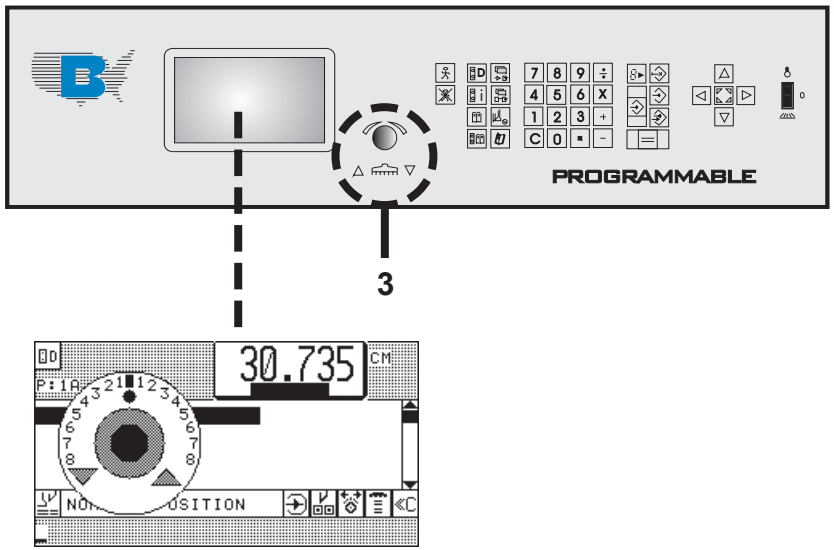
4.0 Manual Operation

Setting of Measurements (Backgauge Movement) by Hand

1. Press electronical hand wheel and hold it in this position; turn hand wheel

   to the left = forward movement of the backgauge
   or to the right = reverse movement of the backgauge

   The backgauge speed gets faster by turning the electronical hand wheel to the left/right .



Cutting Line Indicator, Mechanical with Clamp

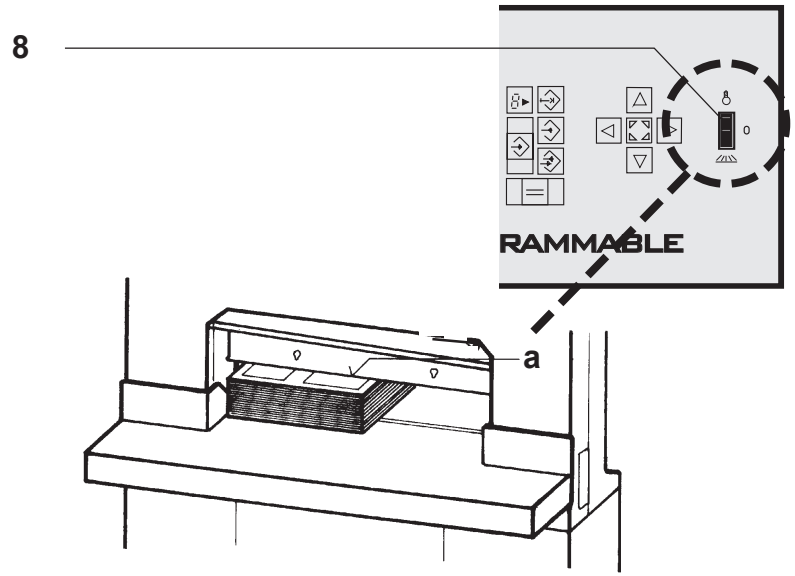
Lower clamp with pedal onto stock:

The front edge (a) of the clamp is identical to the cutting line and can be used as cutting line indicator. Clamp can be stopped in any position.
Max pressure with fully activated pedal: 30 daN

Cutting Line Indicator, Optical

Actuate toggle switch (8) at main switch plate

Upper position: Table light ON
middle position: "0" - position
lower position: Optical cutting line indicator ON. A thin light line indicates the cutting line; the table light is switched off at that moment.



Clamping and Cutting

Starting the cut:

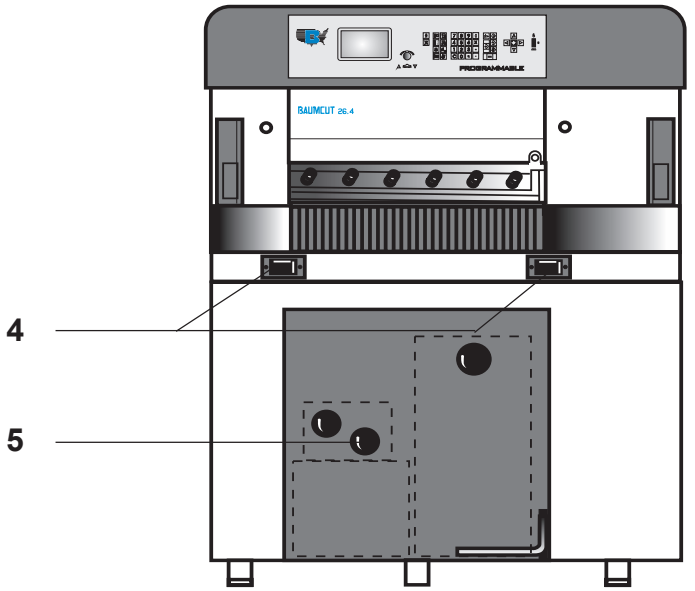
Push both cut buttons (4) simultaneously.
(Hold buttons until knife is on upstroke)!

Interrupting the cut:

Release one or both cut buttons
(clamp and knife stop immediately and move back to initial position).

Continuing the cut:

Release and simultaneously push both cut buttons.



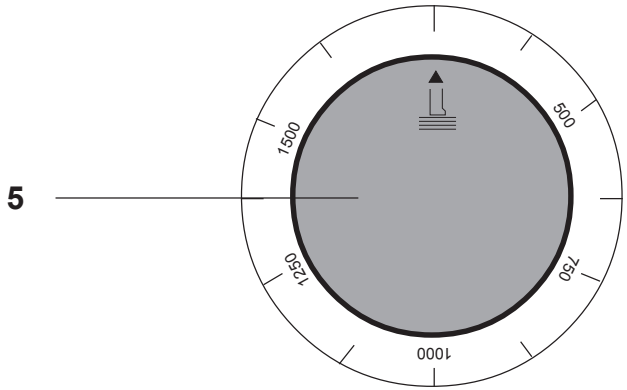
Clamp Pressure Adjustment

Turn knob (5) to desired position
Stepless adjustment - ranges of adjustment:

200 - 1500 daN (daN = kp)

Setting the Clamping Time

For bulky cutting material, it may be of advantage to set an extended clamping time prior to cutting.
The clamping time is set via selection menu - refer to "Machine Parameter - Select "Pre-clamping time"



Light Barrier

The lightbarrier (17) forms a curtain of invisible beams in front of the knife. Any obstacle in the beams will stop clamping and cutting.
In that case the clamp can still be lowered with the pedal (indication of cutting line).

Interference into the light curtain causes:

- clamping bar and knife stopped instantaneously and move back to initial position
- a beep sound
- the monitor to display the message: **CUT INTERRUPTED**

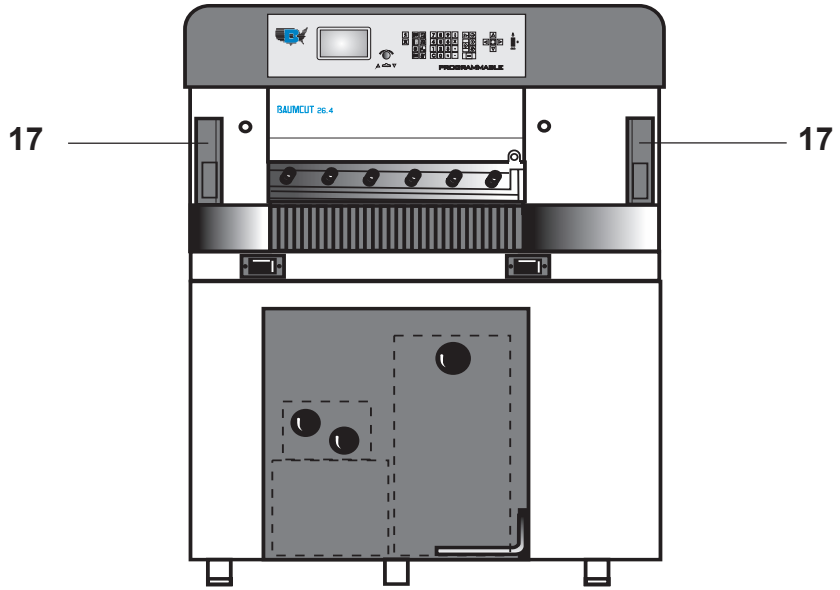
To continue the cutting process:

Release cut buttons; trigger the cut again

The light barrier used is an infrared light barrier with twenty channels and a self-inspection system. This monitoring is indicated optically in the left-hand light barrier (receiver side) by LEDs as part of a display unit.

The machine control system generates a test signal whenever ..

- a cut is released
- the lower dead centre of the knife is reached
- cutting is interrupted



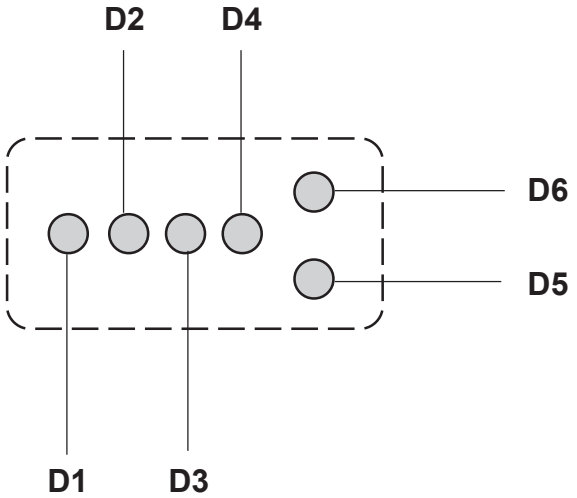
Continuation: Light Barrier

Meaning of LEDs in display unit

D1	D2	D3	D4	D5	D6	Meaning
on	on	on	on	off	off	Protect. area „unobstructed“, light reception excellent
off	on	on	on	off	off	Protect. area „unobstructed“, light reception good
off	off	on	on	off	off	Protect. area „unobstructed“, light reception just sufficient
on	on	off	off	on	on	Protect. area obstructed or a test is performed
off	off	off	off	on	on	Protect. area has never been unobstructed since Voltage ON
flashing		off	off	on	on	Error

Attention!
In the case of a breakdown of the display unit the safety function of the light barrier will <u>not</u> be impaired!

Display unit in the left-hand part of the light barrier (receiver side):



Clamping with False Clamp Plate

The clamp plate avoids clamping marks on sensitive stock.

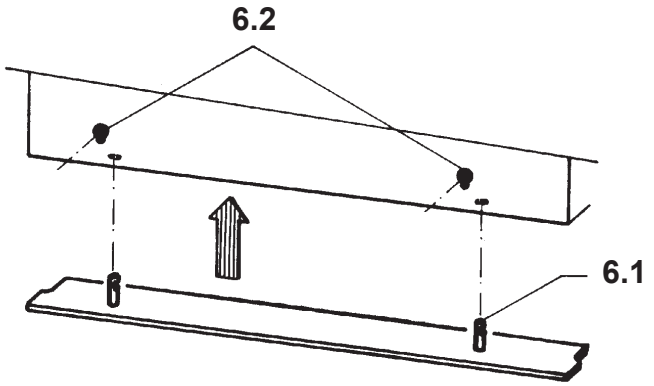
Attaching false clamp plate:

Push plate against clamp from underneath until you hear guide pins (6.1)snap.

Removing of false clamp plate:

1. Lower clamp with pedal approx. 2" above table and fix it in this position.

2. Press two screw drivers simultaneously into the drillings (6.2) in the clamp.
   False clamp plate is dropped!



5.0 Automatic Operation

Introduction

A position (cut size) entered via numerical keyboard can be stored permanently.
Any number of cut sizes necessary for the processing of a pile of material can be input and stored.

All the data (cut sizes, information, additional functions) concerning one particular order can be stored under one program number.

Cut sizes can also be stored automatically when a cut is triggered.

A programmable automatic function enables the advance movement of the cutting material to the next position stored once a cut has been performed.

The machine is provided with a subtraction repeat unit to process invariable cutting sequences in a fast and simple way.

All the data and information are shown on four basic displays:

1. **Program Data** 
2. **Program Information** 
3. **Main menu (Function Survey)** 
4. **Program Directory** 

Program Data display and Program Information display are meant for the input of cut sizes or the display of additional information concerning a particular program.
Operator prompting on all display levels and input of clear text via softkey input (function pictographs (symbols) on the display)

The Program Directory display shows all the assigned programs contained in the memory.

By means of the Function Survey display it is possible to select various machine functions.

The keyboard of the operating panel with its menu keys makes it possible to store additional functions for individual cut sizes, which accompany and facilitate or accelerate the working sequence.

Functions of the menu keys*

Key "Main menu (Function Survey)" 

- Select language
- Select measuring unit
- Service
- Knife compensation
- Resting time for knife at BDC
- Maintenance cut counter
- Preset functions
  - Reference run
  - Adjustment of display contrast
  - Correction of current position
- Block programming
- Help

Menu key "Additional Functions" 

- Automatic ejector OFF
- Jogging mark
- Help

Menu key "Machine Parameters" 

- Pre-pressing time
- Resting time for knife at BDC

Menu key "Auxiliary Functions" 

- Programming with cut
- Sheet size tables
- Subtraction repetition unit
- Graphics OFF
- Help

Direct keys: Automatic Function ON, Automatic Function OFF, Program Selection, Numerical Keyboard (with 4 fundamental operations of arithmetic), Correction, Insert, Delete, Store, Cursor Keys, Backgauge Movement with Electronical Hand Wheel

* Technical alterations reserved!

Basic Displays

1.	**Program Data:**	**key**		3.	**Main Menu (Function Survey):**	**key**	
2.	**Program Information:**	**key**		4.	**Program Directory:**	**key**	

Basic Display: Program Data

Press key < display shows program data display:(appears automatically after start-up*)

Explanation of Program-Data-display:

1 Program head (menu pictograph, program number (P: 1A) with memory segment (S: 0) designation A)

2 Data section (3 step number visible on one page

3 Input section

4 Size display

5 Display of additional functions stored with step number

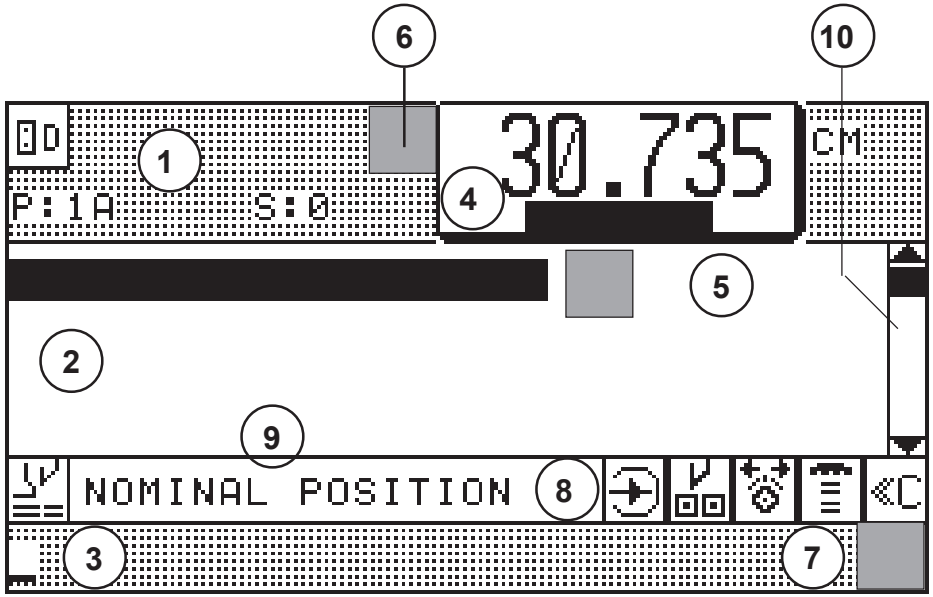
6 Status display (current machine function)

7 Display section Additional Function (after selection

8 Pictographs for user prompting (possible operating functions)

9 Current programming function with pictograph

10 Rolling bar (movement by cursor keys)



* If this fails, see "Malfunctions/Breakdowns, page K7 - 2"

Contin.: Basic Display: Program Data

Conc. 1 **Program Head shows:**

P: Program number of indicated program with memory segment e.g. 1A = program 1, memory segment A and program protection (asterisk)

S: Quantity of step numbers assigned by the program

Conc. 2 **Program Data section shows:**

e.g. **1** step number of program (with abbrev. for particular additional functions such as Eltrotact etc.)

Pictograph(s) additional function(s) stored:
Display of pictograph/s (symbol(s) of additional function(s) stored

Conc. 3 **Input section shows:**

Data (cut size)/arithmetic functions entered

Conc. 4 **"Position display“ section shows:**

ACTUAL POSITION Actual backgauge position/measuring unit

NOMINAL POSITION Indication of nominal position

Conc. 5 **Display of Additional functions**

Display of the pictograph/s representing the Additional function/s

Conc. 6 **Status display "Actual machine function"**

Display of the pictograph representing the actual machine function

Conc. 7 **Display section "Additional function"**

Indication of the additional function to be stored after function has been selected from menu.

Conc. 8 **Pictographs user prompting**

Indication of possible operating functions in the current menu image

Conc. 9 **Actual programming function with pictograph**

Indication of current programming function as a plain text and as a pictograph

Conc. 10 **Scroll bar**

For paging through the actual menu image; movement by cursor keys

Basic Display: Program Information

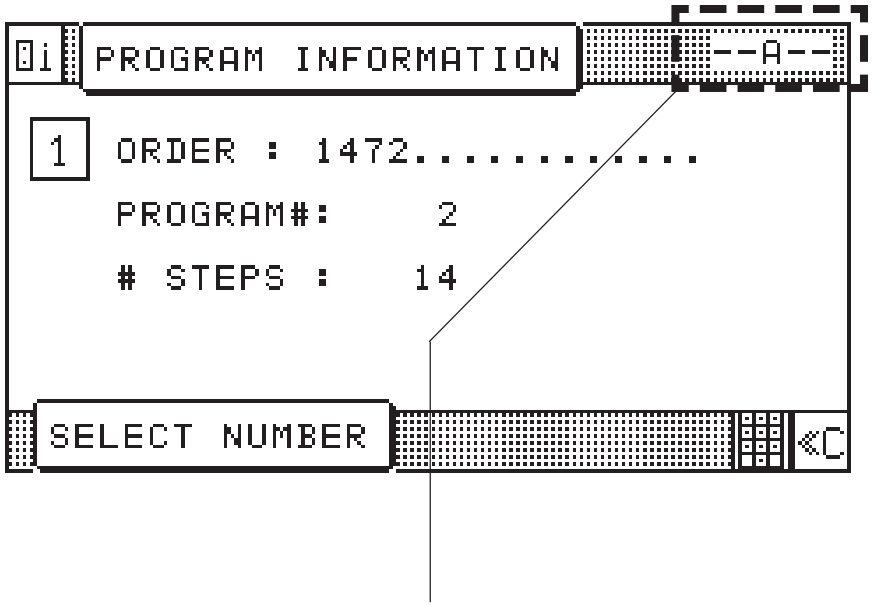
Press key [i]

The Program Information display shows information about the currently selected program. These pieces of information can be complemented by entering an order number or order name in clear text. The alpha input is performed via a keybord displayed on the screen.

Input capacity: max. 16 characters!

For the storing of information - refer to page K5A - 20.

Program Information display:



display "memory segment"

Basic Display: Program Directory

Press key 

The program-survey shows all stored programs of the selected memory with the following data:

(screen top): e.g.: **- A -** = memory "A"

e.g.: **1/** = program number

e.g.: 1/**1575** = order number/order name

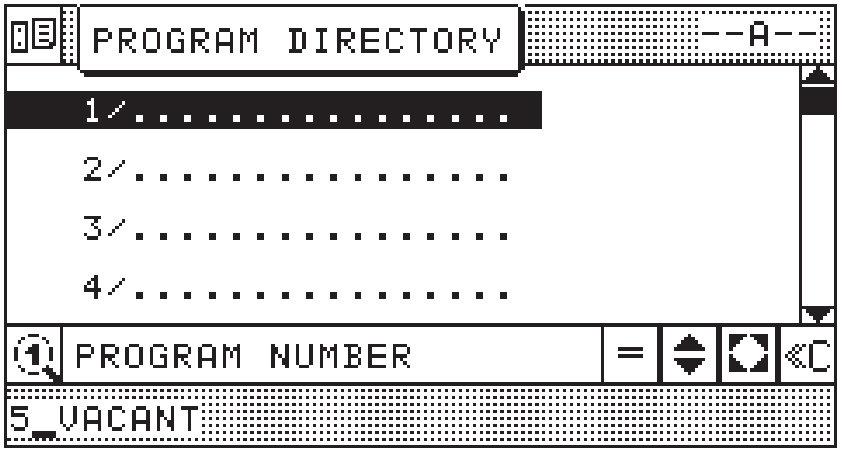
PROGRAM NUMBER
5_VAC. = display of number of the next free program of the actual memory section

Note:
One "page" of the display can show a maximum of 4 programs.
If more than one page is used, you can turn to next page with cursor key (observe rolling bar on display)

Other input modes in this display:

- program selection
- program deletion
- memory deletion

Basic display "Program Directory"



Basic Display: Main Menu (Function Survey)

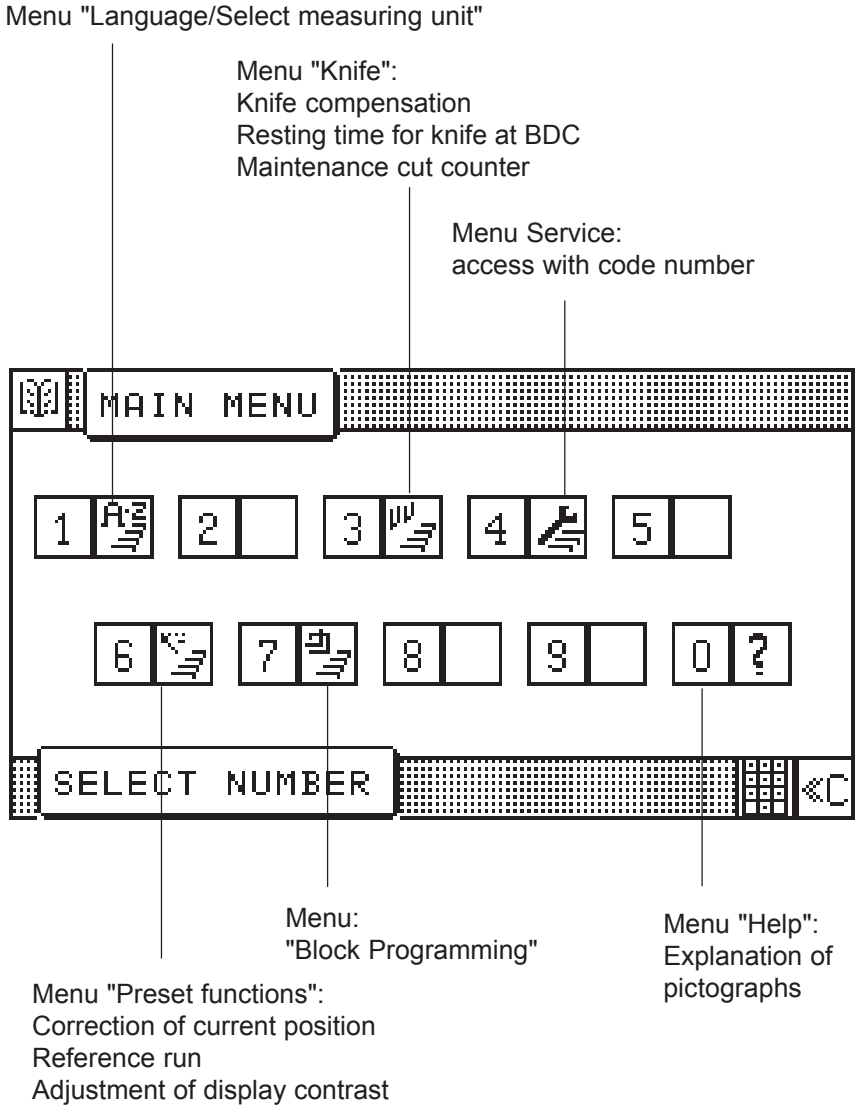
Press menu key 

The Main Menu (Function Survey) contains a selection menu of various machine functions.

It provides the user with the possibility to select functions which „accompany“ the sequence of operation, i.e. such functions are either set at the start of the operation or in case of need.

Select and run any of the operation see K5B - 2

Basic display "Main Menu" (Function Survey):



Cursor Movement in Basic Display

Cursor = indicator

The basic displays contain two kinds of cursor :

A. **Cursor "step"** (in program data section)

B. **Cursor "input"** (flashes in input section)

Cursor movement:

Meaning:

Cursor "step": △ ⛶ ▽

Cursor "input": ◁ ▷

Operation

pressing of keys △ ▽ or ◁ ▷ once

< cursor moves to next step (up or down) or input digit >

pressing of keys constantly:

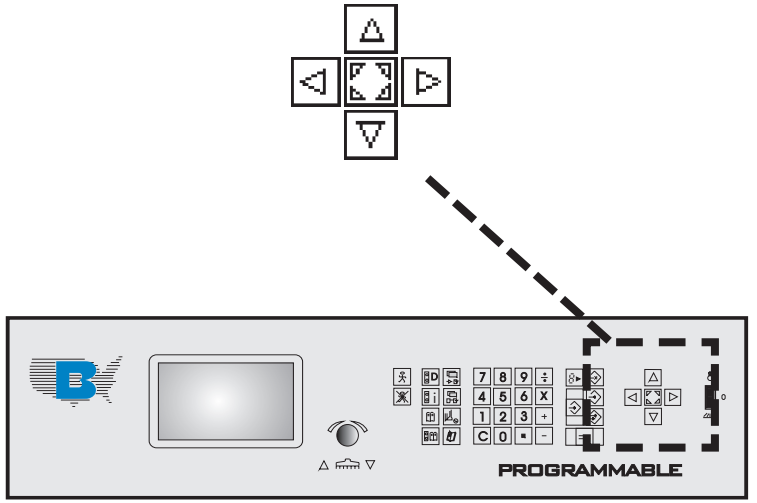
< cursor moves constantly up/down >

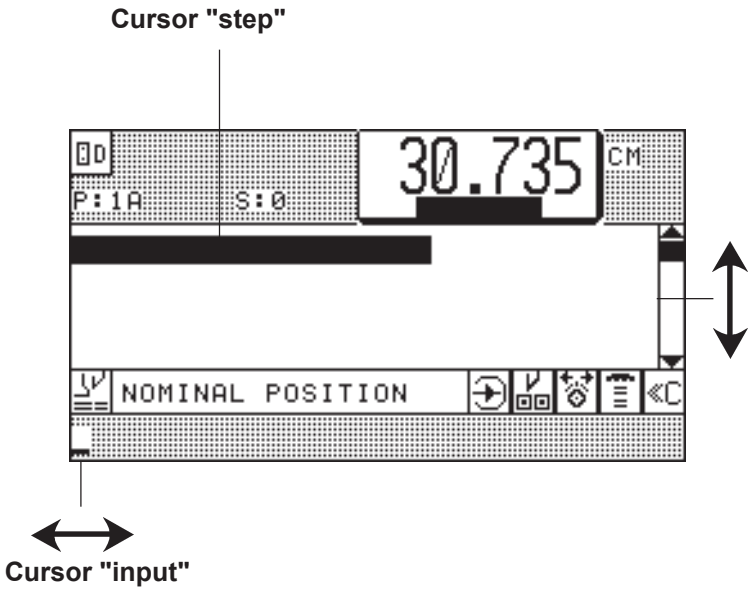
only cursor "step":

if together with key △ or ▽ key ⛶ is pressed

< cursor will "jump" to first or last step >

Cursor keys





Automatic Backgauge Adjustment through Numerical Keyboard

Conditions: Automatic OFF

A Measurement input with metric system (cm)

Example:

	Size	Key input
1.	30,735	3 0 ■ 7 3 5
2.	Positioning, press	= 2 x shortly

B Measurement input in inches

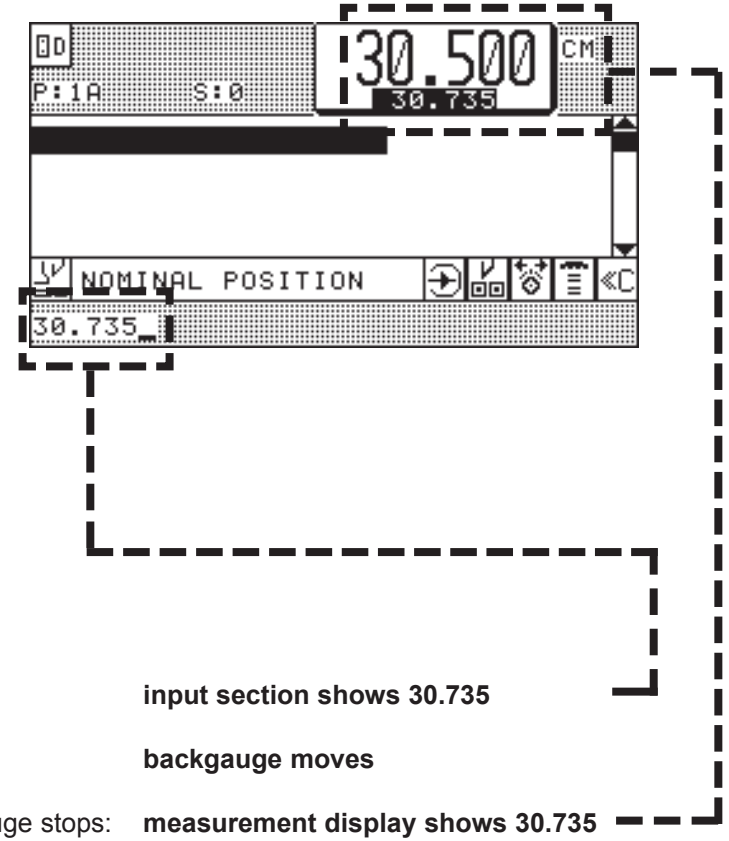
Same way of input as for metric system
however
value in inches entered as a fraction:

Example:

	Size	Key input
1.	12 1/2"	1 2 + 1 ÷ 2 =
2.	Positioning, press	= 2 x shortly

Note:
For whole sizes (no digits behind decimal point) zeroes do not have to be keyed in. This is done automatically.

Program data display:



after 1. input: **input section shows 30.735**

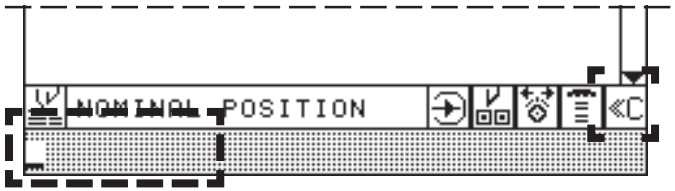
after 2. input: **backgauge moves**

after backgauge stops: **measurement display shows 30.735**

Deletion of a Wrong Input

Press [C]

< input section is deleted >



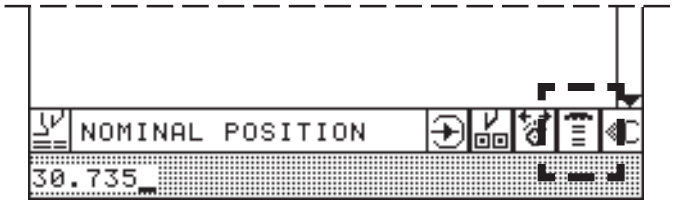
Moving Backgauge to a Nominal Position (Positioning)

1. Enter nominal position
2. Press [| = |] twice shortly

   < backgauge moves to nom. pos. forward or backward >

Deletion of a wrong input

Press [C]



Input Error: Value of Nom. Backgauge Position too Low/High

If a nominal size is inserted which cannot be reached by the backgauge the following reaction will be caused:

< a beep will sound - display: **SIZE ERROR**

Remedy:
1. Press any key on numerical keyboard e.g.: [C]
2. Insert correct size

Selection of a Free Program / Display of the Next Free Program

Possible in all 4 basic monitor displays!

1. Press key [T] "Program Selection"

   < Selection menu appears;
   Assignment display in the right-hand section of the image: display of free programs of selected memory segment A in % >

Make selection "Program Number":

2. Press key [3]

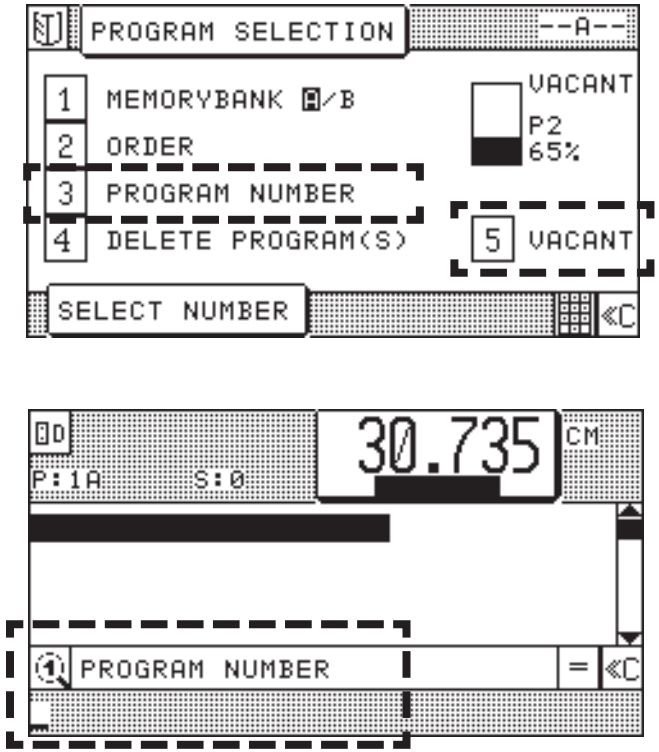
3. Enter desired program number

4. Press key [=] < *Program Data display of the program appears* >

   or

5. Select free program - press key [5] < *next free program appears* >

Display (example):



Selecting a Program

Possible in all 4 basic monitor displays!

Two calling modes:

A. According to program number

B. According to order number/order name

A. According to Program number:

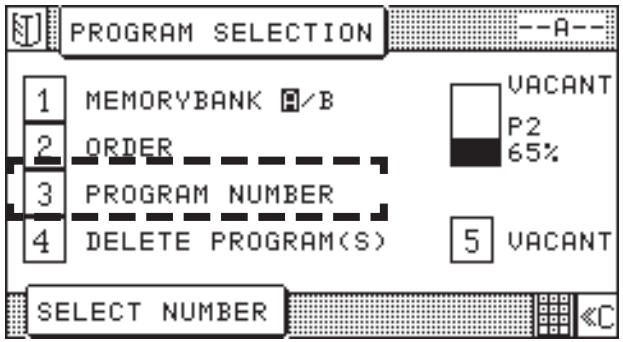
1. Press key [T] "Program selection" < *menu appears* >
2. Select "program number" with key [3]
3. Enter desired program number
4. Press key [=]
   < *program data display of selected program appears* >

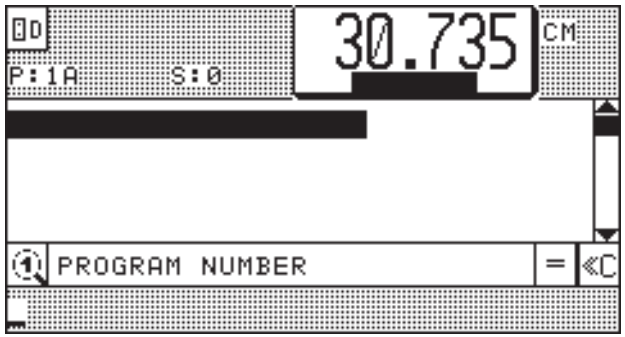
B. According to order number:

Note: Previous storing of order number/order name to a program is conditional (see "Storing of program information", page K5A - 20)

1. Press key [T] "Program selection" < *menu appears* >
2. Select [2] "Order" < *alpha keyboard appears on display* >
3. Enter order number/order name via softkey selection

Example:





Continuing: Selecting a Program

Select a character using the cursor keys (with the equal key [=] you can jump over five characters in a line), then press cursor key [⛶]

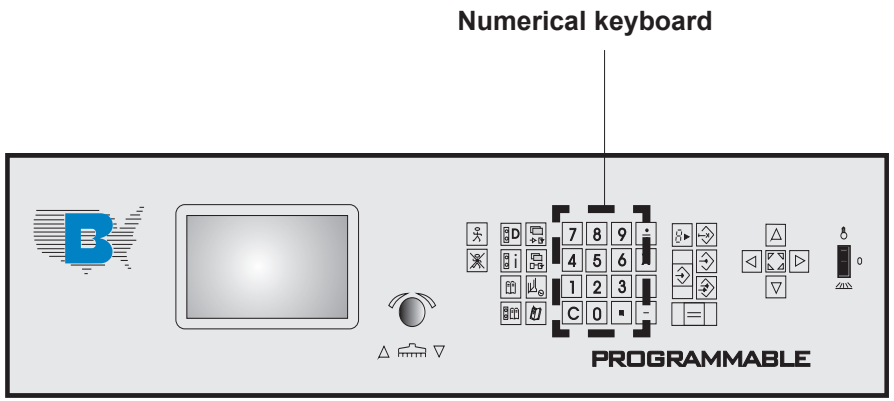
"Home" * *< character is inserted into input section >*

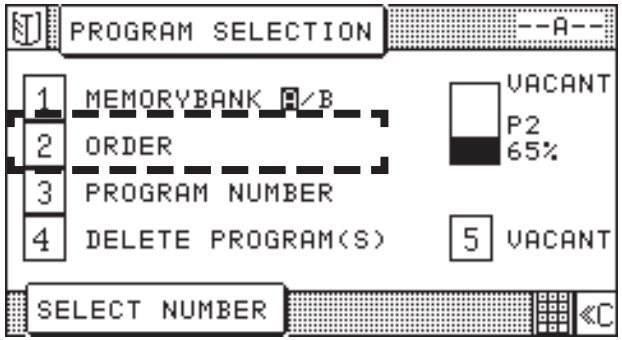
4. Press key [X] (multiply)

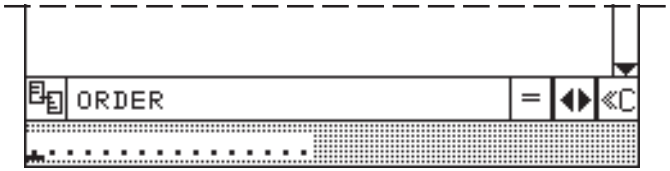
5. Press key [=]

< the desired program (order) appears in the data section, the resp. order number/order name is faded in. The fading in is automatically cleared upon the next data input >

*** Note:**
Input of order number/order name can be done by entering only a part of the name or the number.
After pressing the "equal" key the computer will "search" for the desired order according to the entered characters.
In case memory contains several orders with the same characters display will show the next program number/name whose characters matches the entered characters.







Storage of Measurements

Only in Program data display!

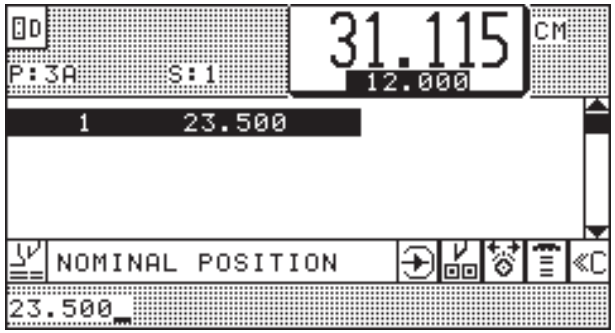
1. Select free program

2. Enter desired size with numerical keyboard (e.g. size 23,5 cm)

3. Press key "Enter"
   < beep sounds;
   nominal position is on step 1 in program data section >:

Note:

Display can show up to 3 steps (lines). When entering step 4 former step 1 will disappear into screen memory.



Setting Up a Cutting Program, Example 1

Two side trim on size DIN A3

untrimmed size 31 x 43 cm

Cut sizes to be stored on program no. 2A

1. Cut size: 30,5 cm
2. Cut size: 42,5 cm

Key input:

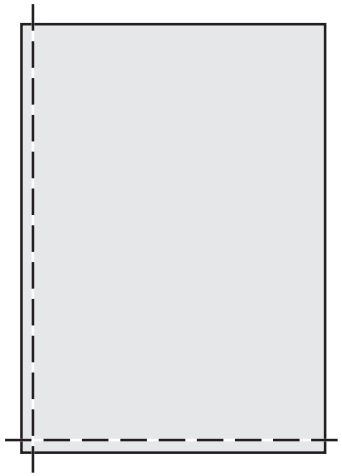
1. Call program 2A
2. 3 0 ■ 5 (Enter)
3. 4 2 ■ 5

Running the program:

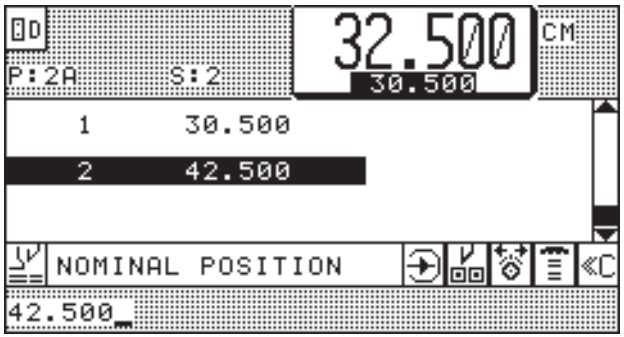
Press key (Automatic ON)

Press key = twice

< backgauge moves to first cutting position; after the cut is triggered: ejector moves forward automatically; after that the second cutting position is approached >



Program data display after key input:



Setting Up a Cutting Program, Example 2

Four edge trim with following cuts;
starting size DIN A3 untrimmed 31 x 43 cm;
finish size DIN A4 (21 x 29,7 cm)

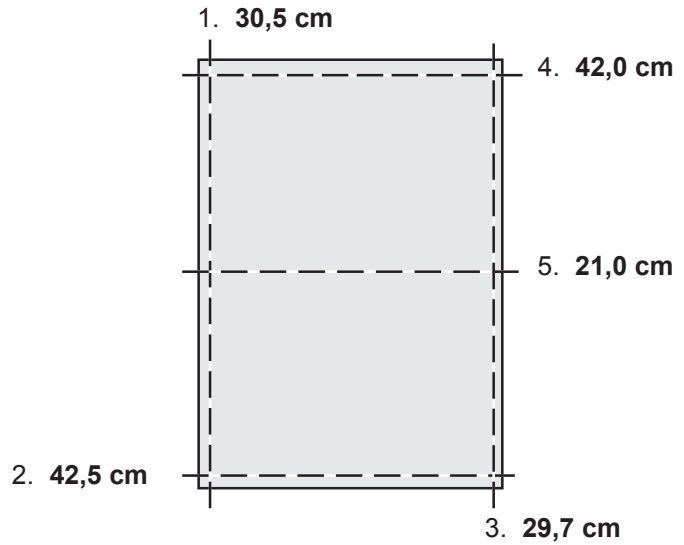
Cut sizes:

1. 30,5 cm
2. 42,5 cm
3. 29,7 cm
4. 42.0 cm
5. 21,0 cm

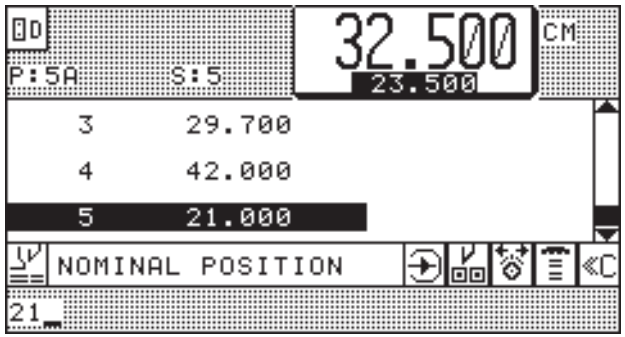
Cut sizes to be stored in program 5A

Key input:

1. Call program 5A
2. 3 0 ■ 5 (Enter)
3. 4 2 ■ 5
4. 2 9 ■ 7
5. 4 2
6. 2 1



Program data display after key input:



Correction of an Input Error

A. Correcting before storing

(prior to pressing of key "Enter" ; nom.pos. is shown in input section

1. Press key C *< nom. pos. in input section disappears >*
2. Enter correct size/comment
3. Press key "Enter"

B. Correcting after storing

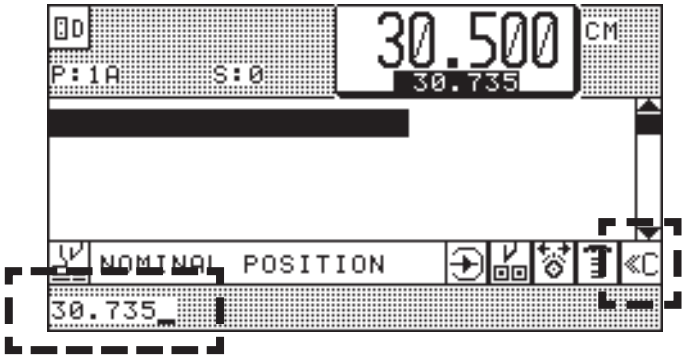
(Nom. pos. is shown in program-data section)

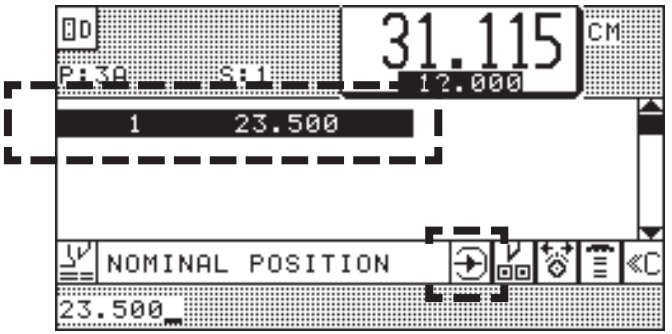
1. Select step number (cursor)
2. Press key "Correction"
3. Enter right size "Enter"
4. Press key

Example: *size 23.500 cm in program*
has to be changed to 24.5 cm

Key input: 2 4 ■ 5

< nom. pos. in program data section is deleted and replaced by new measurement >





Automatic ON/OFF

Function: **Automatic backgauge advance to the next step number after cutting process**

Automatic ON:

Press key < *after cut: automatic backgauge advance to next cut size; display reads:* **AUTOMATIC**

Automatic OFF:

Press key

Attention!
When Automatic is switched on the following operations are **not** possible:

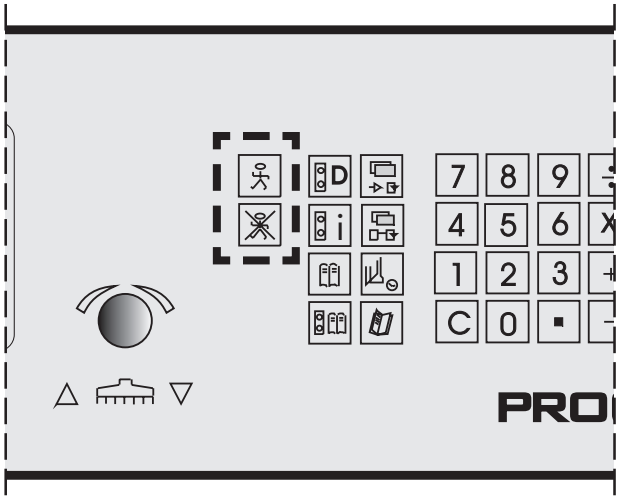
- programming
- automatic setting of backgauge through size input

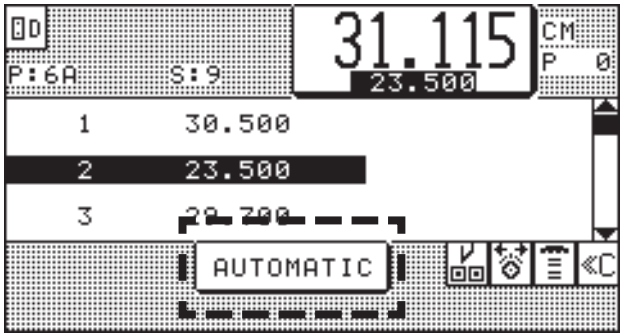
Positioning check in automatic operation

For example, when a positioning process in automatic operation has been interrupted (cutting position has not been reached!) and the operator tries to release a cut in automatic mode after that, a visual and audible indication is made **"GO TO POSITION".**

When the position must be moved to:

Press key twice





Running a Cutting Program

Example: Setting a cutting program, example 1

1. Call program 2A < *display shows program data of program 2A* >

2. Switch on Automat forward: press key
   Operation mode: **AUTOMATIC**

3. Press key 2 x shortly < *backgauge moves to 1. cut size* >

4. Align stock

5. Make cut

After cut:

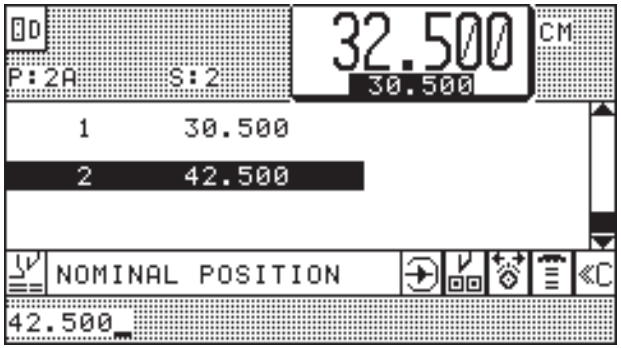
- backgauge advances approx. 5 cm / 2" (ejector)

- then reverse to 42.500 (with air table)

6. Turn stock by 90° and line up

7. Make cut

after last cut of a program:
- cursor jumps back to 1. step
- backgauge moves to that size



Storing of Program Informations

Press key [i] "Program Information"

The Program Information display shows information about the currently selected program. These pieces of information can be complemented by entering an order number or order name in clear text. The alpha input is performed via a keybord displayed on the screen.

Input capacity: max. 16 characters!

Storing "Order"

1. Press key [1] < *keyboard is displayed* >
2. Select a character using the cursor keys (with the equal key [| = |] you can jump over five characters in a line).
3. Press cursor key [⌂] "Home" < *character is inserted into input section* >
4. Press key [⏎] "Enter"

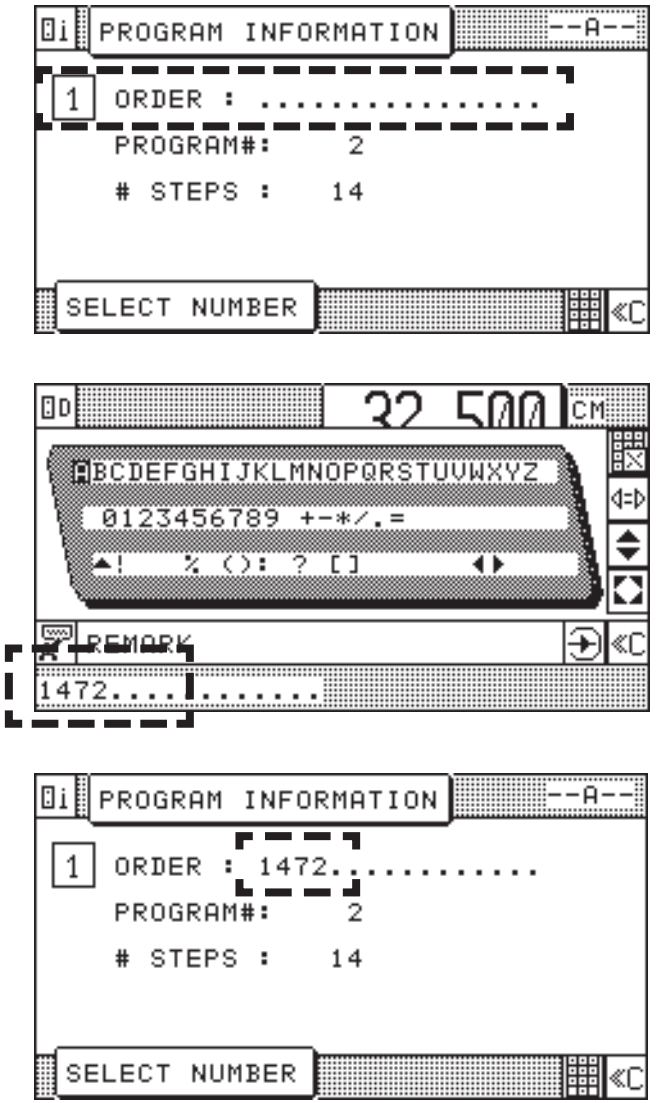
   < *beep sounds; information is stored in the line* "**ORDER**" >

Deleting an input: 1. Press key [X] (multiply)

2. Press key [C]

End of information input:

1. Press key [C] or [00] < *Program Data display appears* >



Deletion of a Step Number

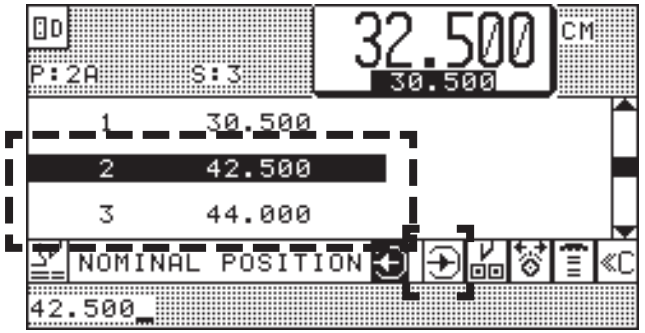
1. Select program *< program data display appears >*

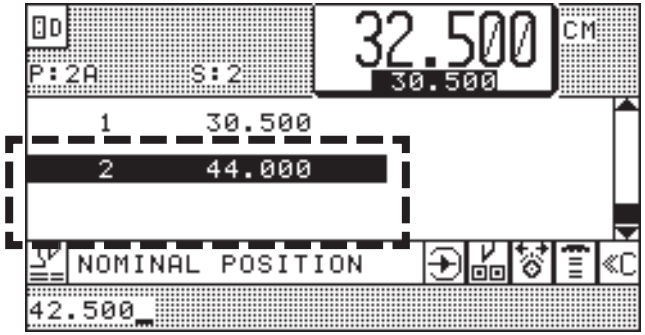
2. Select step (with cursor)

3. Press key "Delete"

4. Press key "Enter"

   < size (step) is deleted.
   Note: all following steps move down by one number >





Deletion of One/Several Program(s)

Possible variations:
1. **Deleting in Program Data Display and Program Information Display**
2. **Deleting in Program Directory Display**

1. Deleting in Program Data Display and Program Information Display

Attention! In the Program Directory display only the current shown program can be deleted.

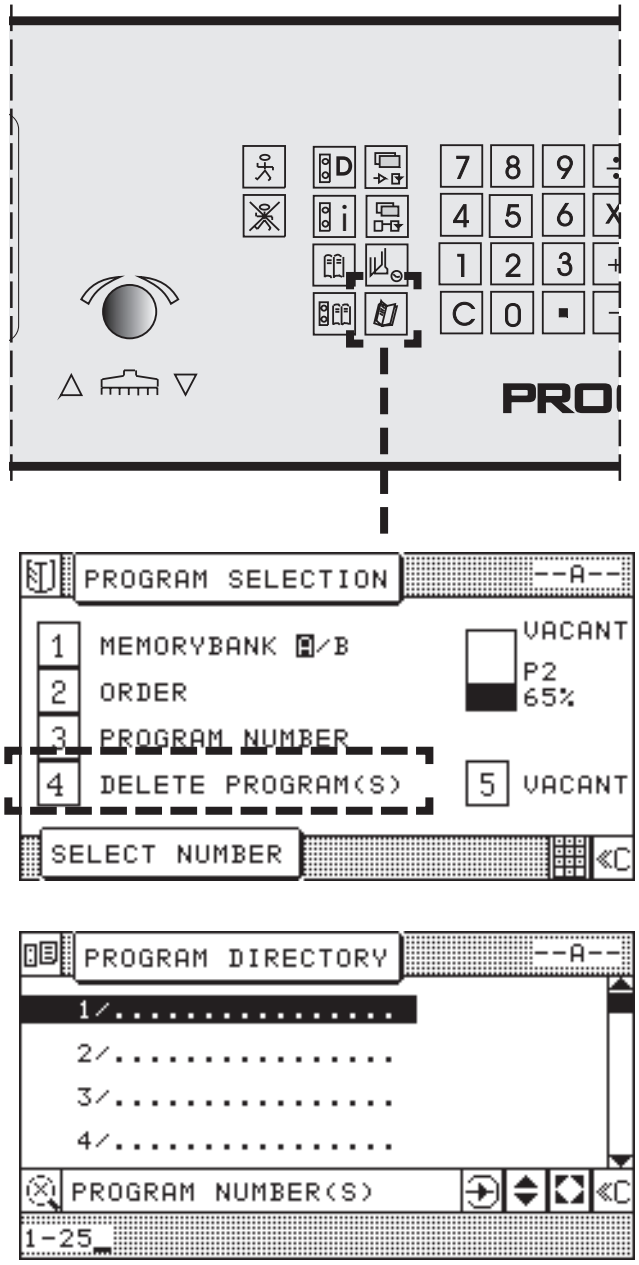
1. Press key [program selection] program selection *< menu appears >*
2. Select "Delete program/s" with key [4]
   < program data display appears >
3. Program number to be deleted appears in input section
4. Press key [Enter] "Enter" *< current program is deleted >*

2. Deleting in Program Directory Display

In the Program Directory display one or several programs can be deleted!

1. Press key [Program Directory] "Program Directory"
2. Press key [program selection] "Program selection" *< menu appears >*
3. Select "Delete program/s" with key [4]
4. Enter program number to be deleted e.g. [1]

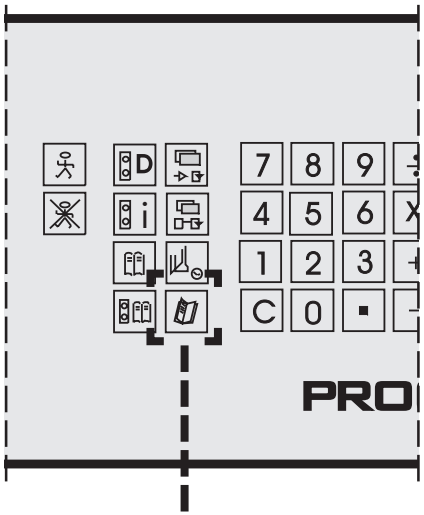
   or deleting of several programs, input e.g.: [1] [–] [2] [5]
5. Press key [Enter] "Enter"

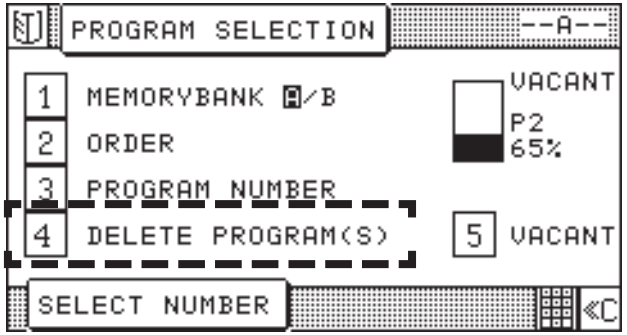


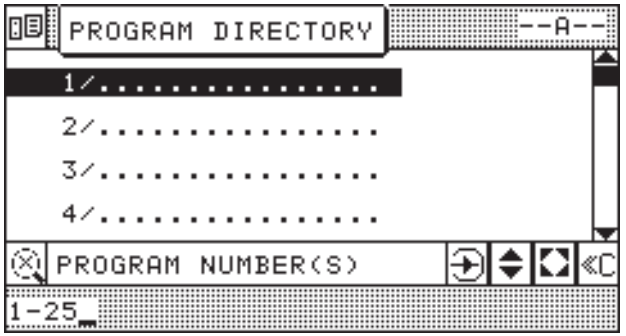
Deletion of Complete Memory

1. Select Program Directory: press key [ ] *< menu appears >*
2. Press key [ ] "Program Selection" *< menu appears >*
3. Press key [4] "Delete program(s)"
4. Press keys [1] [–] [9] [9]
5. Press key [ ] "Enter"

< complete memory is deleted >



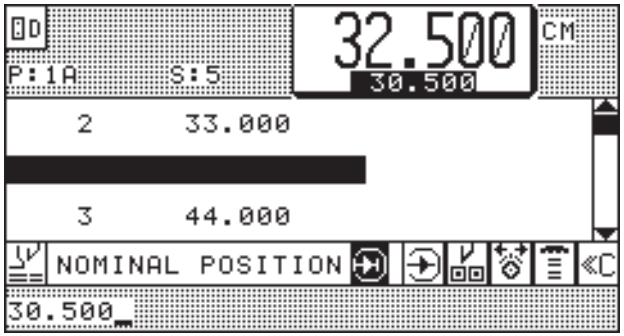




Inserting of Measurements into a Program

1. Select program < *program data display appears* >
2. Select step that will receive new measurement (cursor)
3. Press key "Insert" < *step is left open for entry* >
4. Enter measurement (e.g. 30.500)
5. Press key "Enter"

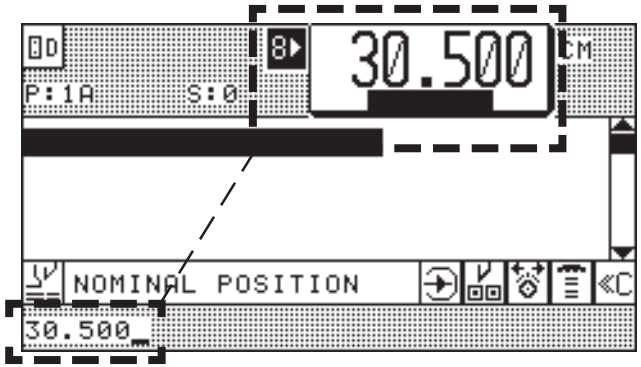
Example:



Storing of Measurements According to Printed Image

1. Select free program
2. Press key "Actual - Nominal Position"
   < *actual size appears in input section* >
3. Align stock at backgauge
4. Adjust backgauge by handwheel to correct cut position
   (use optical/mechanical cutting line indicator)
5. Press key "Enter" < *actual size is stored* >

   < *function is switched off automatically when automatic function is switched on* >



Calculator Functions

Conditions: Automatic OFF

The digital and calculator keys enable 4 basic arithmetic operations.
They can be used to calculate cut sizes.
The calculation and the solution are always displayed in the input section.

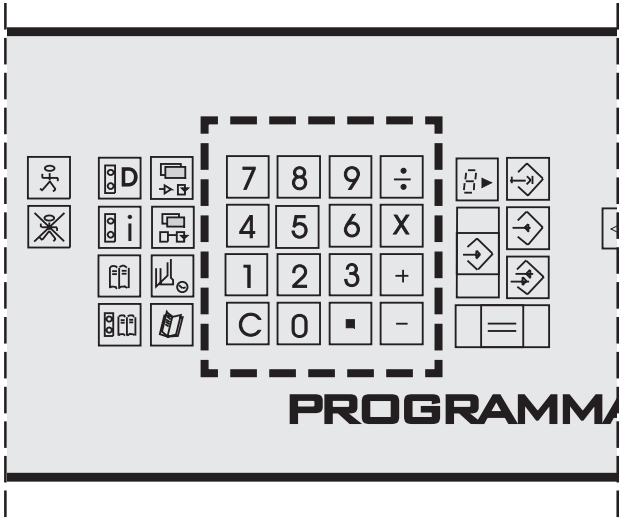
Note:
Pressing of keys **"+"**, **"-"**, **"x"** and **":"** will always result in the display of the last digital input of the previous calculation.
This will be deleted during the new input.

To set backgauge to a calculated size

Press key [=] twice shortly

To store this size:

Press key [ ] "Enter"



Overflow Indicator

If the solution of a calculation exceeds 999.999

< a beep will sound; mode display: **DIGIT OVERFLOW** >

Remedy: clear last input by pressing [C] twice;
enter new figure

Negative Sign

Negative result of a calculation

< minus (" - ") sign appears before number in input section >

If this result is a cutting size the negative sign needs to be deleted

Press key [C] *< minus sign disappears >*

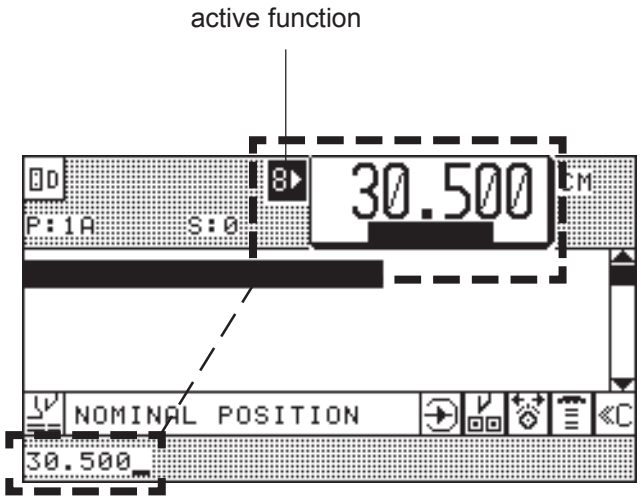
Using Backgauge Position of Calculations

If you have set the backgauge to a cut size on a printed sheet and you want to use this for further calculations:

Press key [8▸] *< actual size appears in input section >*

Switching the function off:

Press the same key again



Machine Functions and Additional Functions (Menu Keys)

Machine Functions

Machine functions are basic functions of the machine. They can be changed for the program sequence.
The machine functions can be selected by pressing one of the following push-buttons:

- Main Menu (Function Survey)  (page K5B - 2)
- Auxiliary Functions  (page K5D - 1)
- Machine Parameters  (page K5E - 1)

Additional Functions

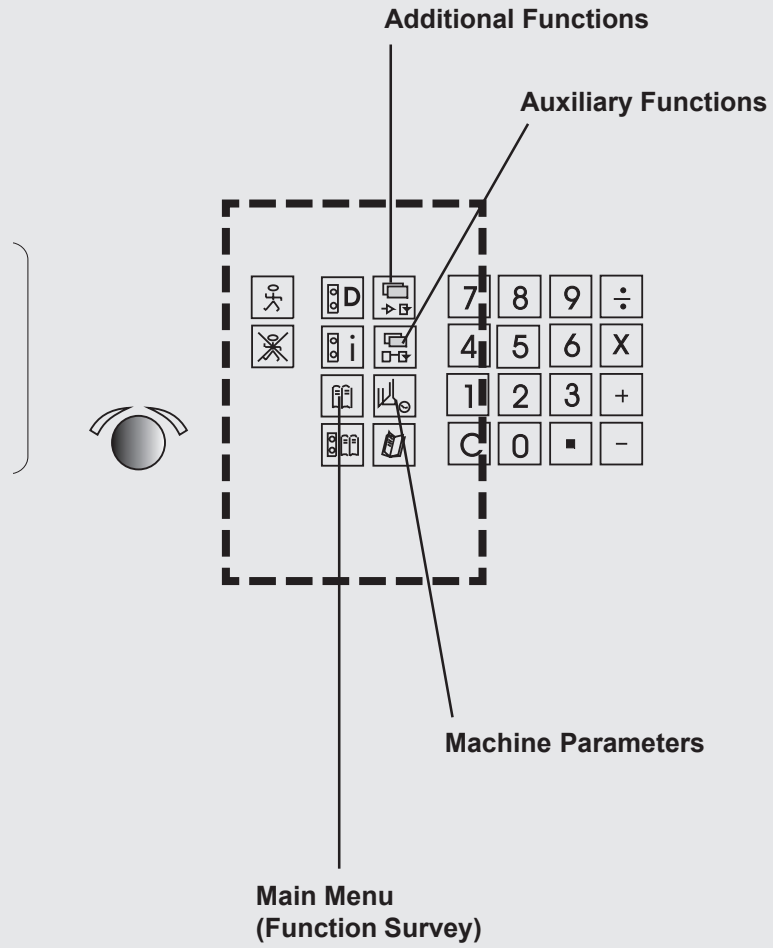
The running of cutting programs can be further automated by using additional functions.
For this purpose, a multi-function key is available to the user.

- Additional Functions  (page K5C - 1)

After any of the menu keys has been pressed a survey menu is opened which offers several functions.
The corresponding subfunctions of the menu keys are selected by choosing the respective identification number of the pictograph (symbol) and can be transferred into the currently selected program.

A special function stored will be indicated in the Program Data display as a pictograph (symbol) behind the cut size.
It is possible to store several additional functions into one step number.

Operating panel with menu keys:



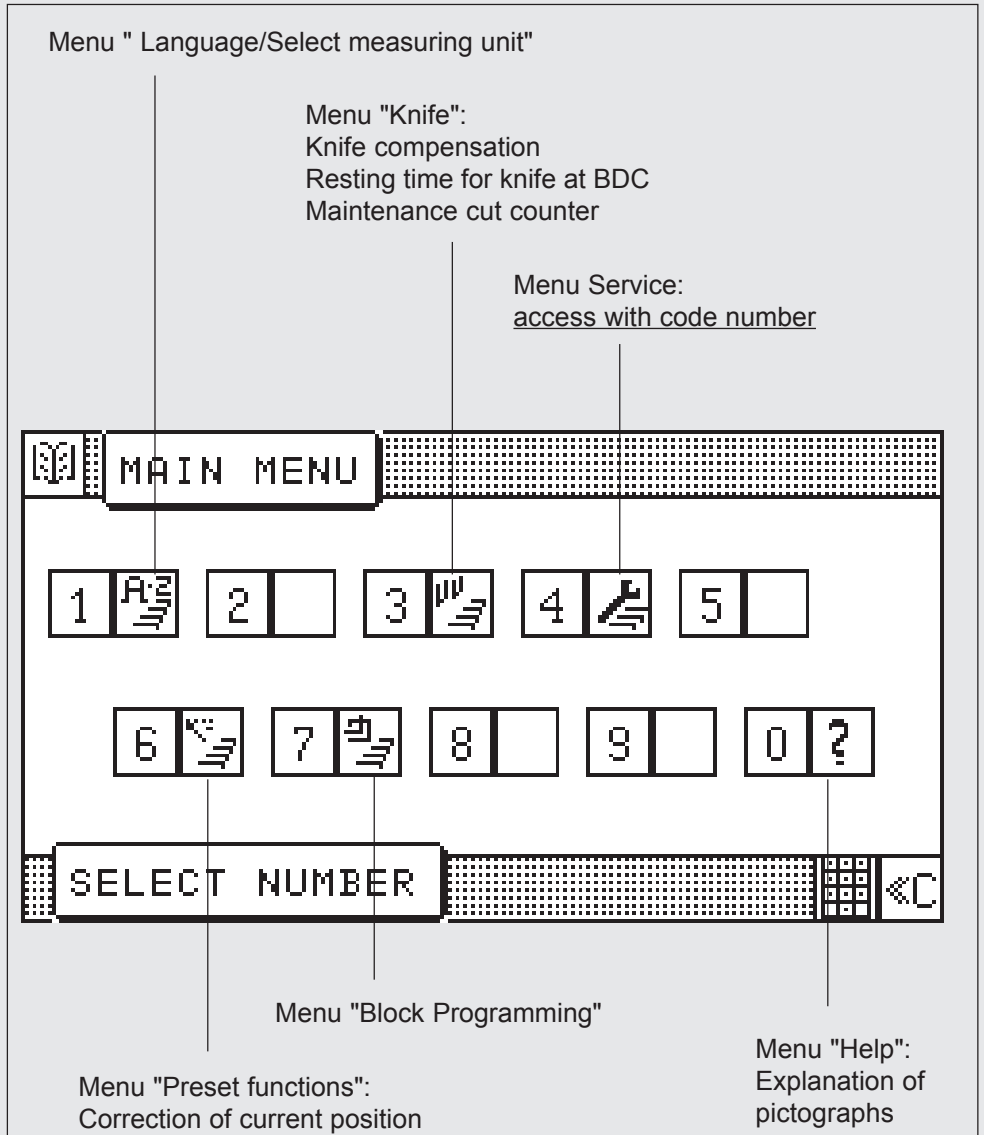
Machine Function: Main Menu (Function Survey)

Key "Main Menu" 

Key "Main Menu" includes the following functions*:

Select language
Select measuring unit
Knife compensation
Resting time for knife at BDC
Maintenance cut counter
Service
Preset functions
- Reference run/Auxiliary operation
- Correction of current position
- Adjust ment of display contrast

Block programming
Help



* Technical alterations reserved!

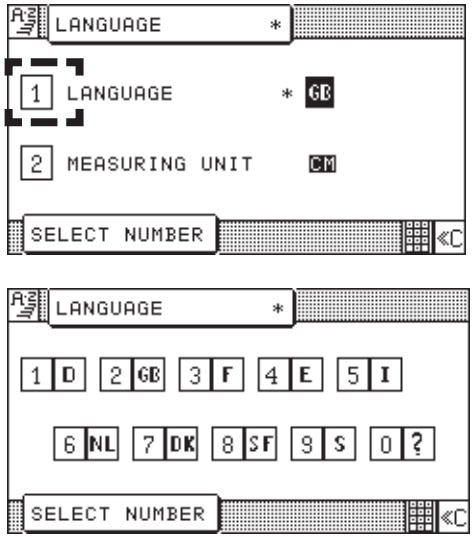
Select Language / Measuring Unit

Select "Main Menu" (Funtion survey)

Press key [1] < *menu appears* >

Select function (LANGUAGE or MEASURING UNIT):

1. Key input: [1] (language) or [2] (measuring unit)
2. Select language or measuring unit: Enter number



Service

After selection display of machine identification (electronical type plate) appears.

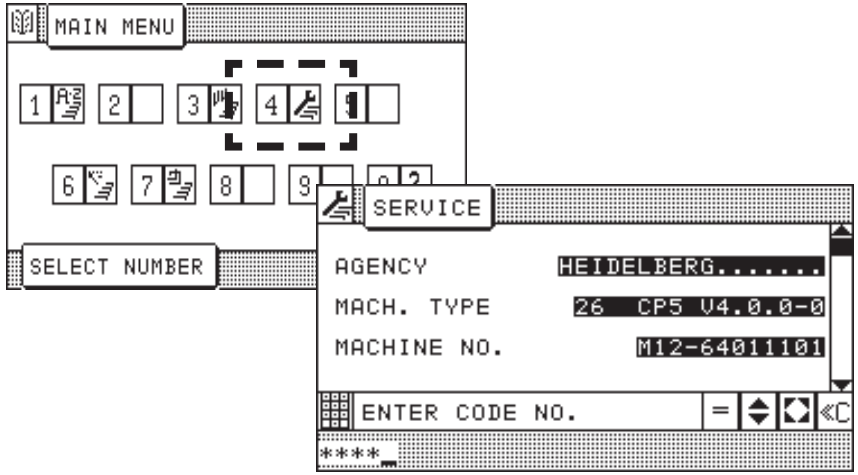
Possible inputs:
- Machine equipment
- BAUM safety check
- Name of inspector

You can jump to the next input line by pressing key [| = |].

You can move to the next pages with the help of the Cursor keys.

To store your entries: press key [⏎] "Enter".

The additional functions of the "Service menu" are only accessible to BAUM service or its agencies. Access only after entering a code number.



Knife Compensation

Calibration to compensate for knifes of different thickness

Select menu "Knife" with key [3]

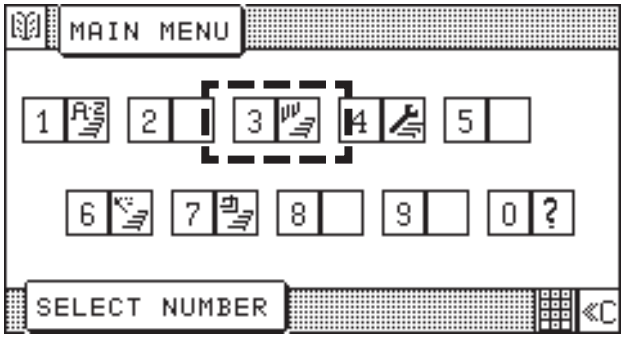
Select function:

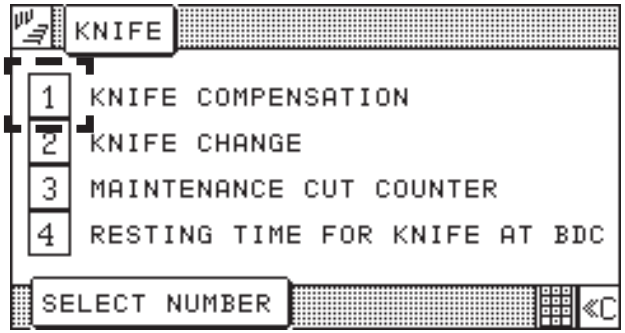
Select "Knife compensation": [1]

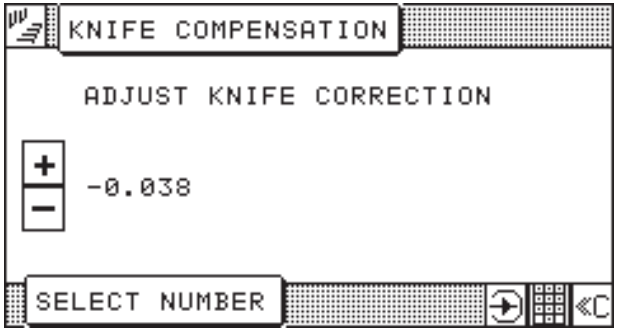
Enter correction with keys [+] or [−]; store with [→]

Knife change

- see chapter "6.0 Knife Change"







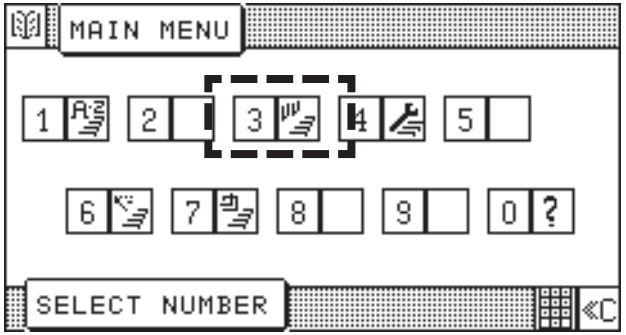
Resting Time for Knife at BDC

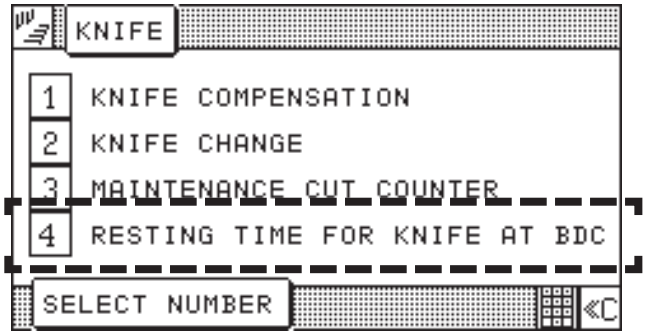
Adjustment of the time knife remains in its **b**ottom **d**ead **c**enter (BDC).

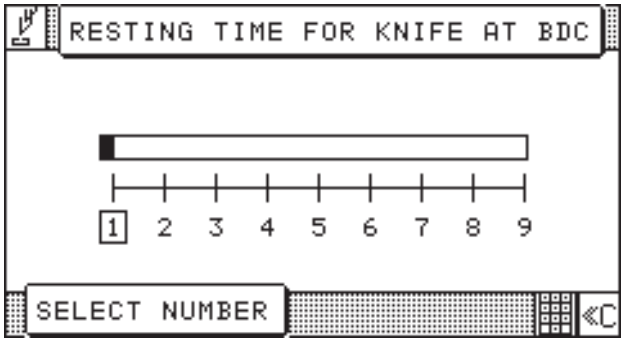
Adjust time:

1. Select menu "Knife" with key [3]
2. Select "Resting time for knife at BDC" with key [4]
3. Enter desired grade (1 - 9) by numerical keyboard

Abortion of menu press key [C]







Maintenance Cut Counter

Operation: Shows maintenance intervals.

Has been set to 100.000 cuts by manufacturer.

Counter starts at "0" or other preset amount and counts upward. After reaching 100.000, at every start-up, the operation display will read

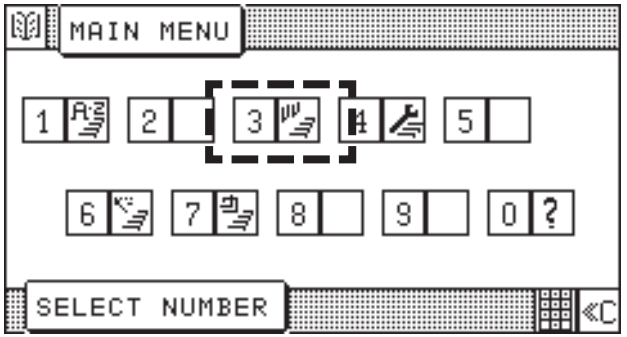
OBSERVE MAINTENANCE SCHEDULE

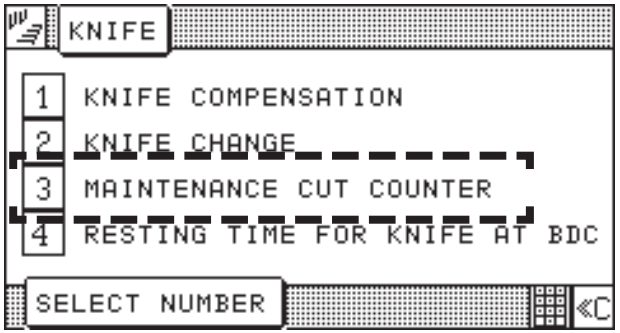
Select maintenance cut counter [3]

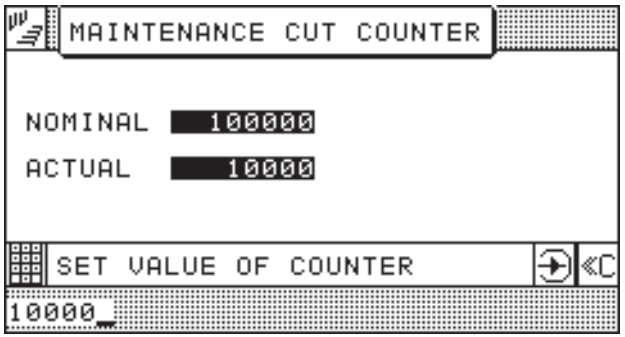
Set counter:

1. Enter number of cuts via keyboard
2. Press key [⏎] "Enter"

< automatic change of image back to selection image >







Preset Functions

Selection of "Main Menu": 6

Correction of Current Position

Basic measurement = distance between backgauge rake and knife

This menu allows the inspection and correction of the basic position (actual position) of the machine.

If the basic measurement indicated corresponds to the actual backgauge position:

Select "Current Position OK“ 1 .

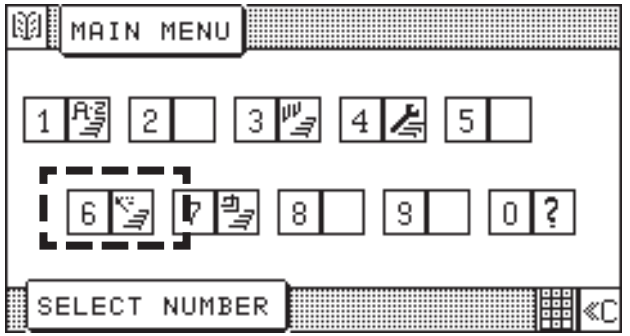
If the basic measurement indicated does not correspond to the actual backgauge position:

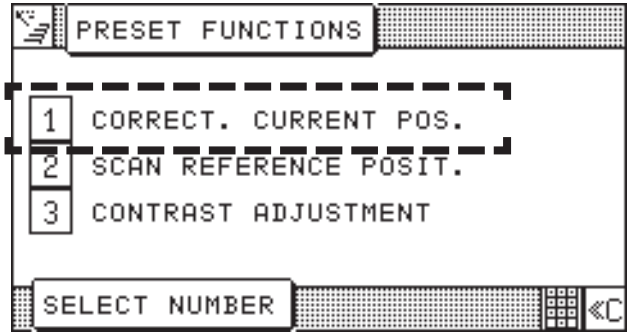
Select "Correct. current pos.": 2

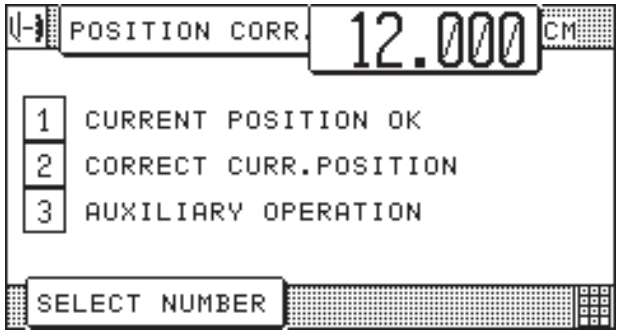
Calculate basic position:

1. Position backgauge at any position (e.g.: 10.5 cm)
2. Feed paper and cut it
3. Place backgauge at smaller size (e.g. 10 cm)
4. Turn paper by 180° and cut again
5. Determine actual paper length of the part by sliding caliper (e.g. 10.2 cm)
6. Enter and store measured size.

From this display you can activate the Auxiliary Operation - see also chapter "7.0 Malfunctions/Breakdowns".







Continuing: Preset Functions

Select function "Preset functions": 6

Scan Reference Positionj

In the case of a machine malfunction the reference point can be newly scanned with this function.

Procedure:

1. Select "Scan reference position" 2 < *display change* >
2. Confirm "Clear table surface" 1 < *display change* >
3. Start backgauge run: Actuate electronical handweel in forward or reverse operation

Abortion of reference run:

Press key C

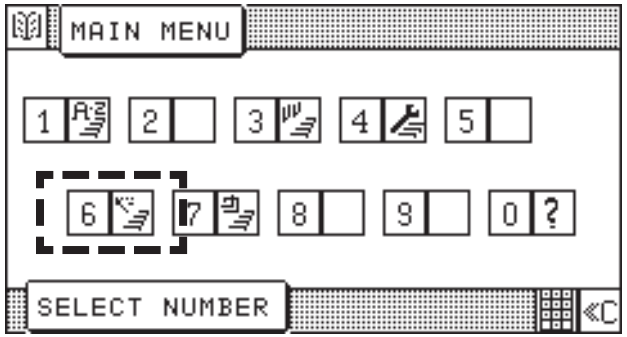
As soon as the reference run has been terminated, the menu "Correct. current position" is displayed.
The displayed basic measurement must be confirmed (see page K5B - 7).
After this procedure the Program Data display will automatically be indicated.

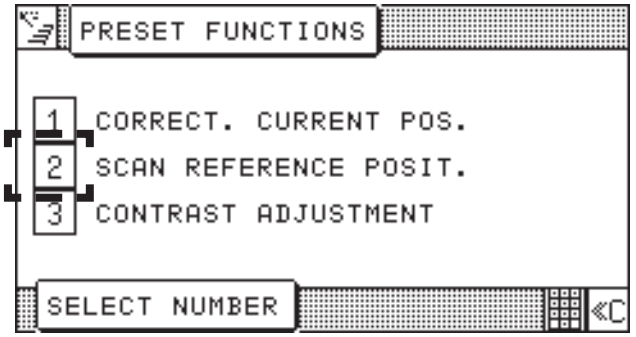
Auxiliary operation

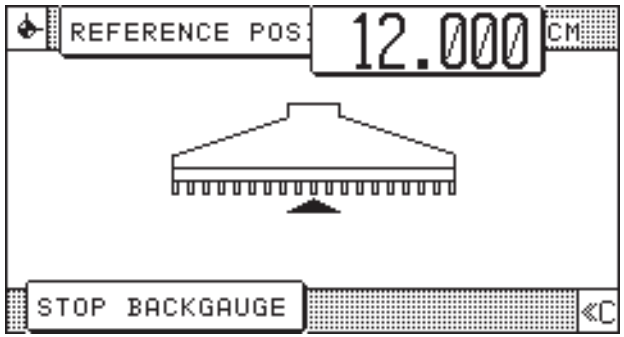
If no reference point is found during the reference run an auxiliary mode must be activated (see page K7 - 3)

Possible funtions in Auxiliary mode:

- cutting
- manual displacement of backgauge by means of of electronic handwheel







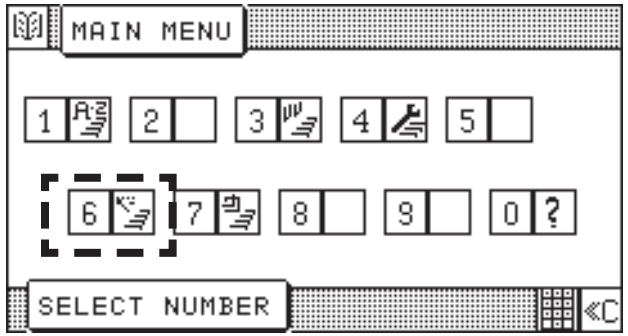
Adjustment of Display Contrast

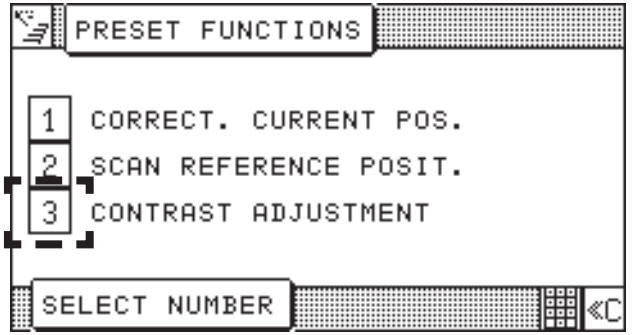
In this menu image the display contrast can be adjusted in four steps.

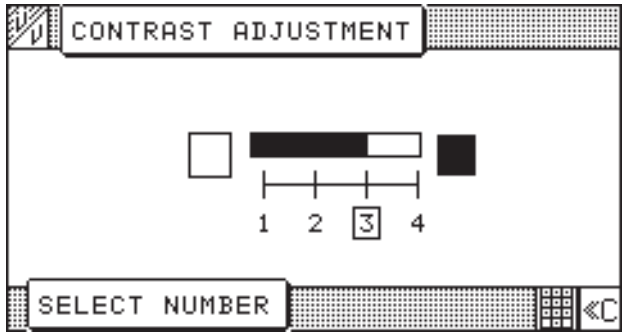
Procedure:

Enter step number of desired contrast (1-4) via keyboard.

End of input with key C







Block Programming

Selection of Block Programming with key 7

Block Programming = automatic programming

Blcok Programming is fitted with graphic operator prompting for the automatic generation of a cutting program for printed and unprinted sheets.
The required cutting sizes and remarks are automatically stored in a free program.

There are 3 variations of Block Programming with up to 8 available block programming modes. The selection of a variation is done by cursor keys.

Variation 1: Size cut with edge trim entry

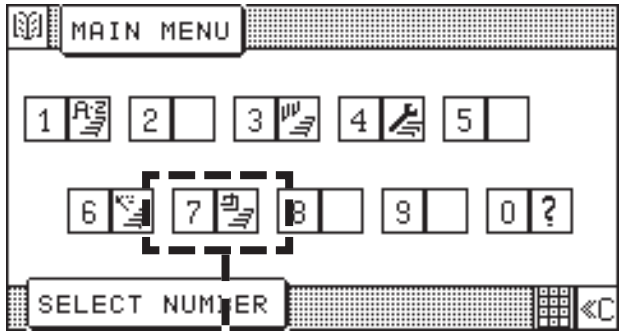
Consisting of:
1 Angular cut
2 Four edge trim
3 Four edge trim with labels

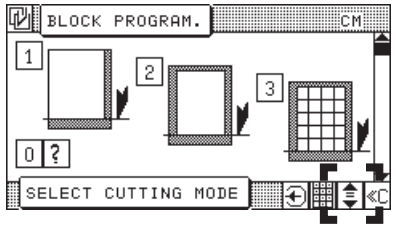
Variation 2: Size cut with final size entry without edge trim entry (with the possibility of edge trim preadjusting)

Consisting of:
1 Final size angular cut
2 Final size four edge trim
3 Final size trim with labels

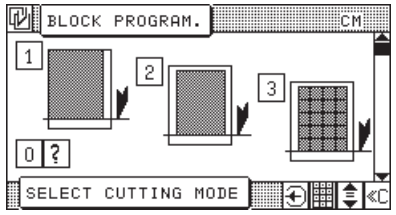
Variation 3: Size cut with optimisation of final size trim with labels without edge trim entry (with the possibility of edge trim preadjusting)

Consisting of:
1 Final size optimisation
2 Four-size trim with labels and trim cuts

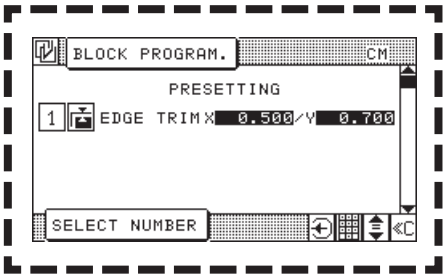




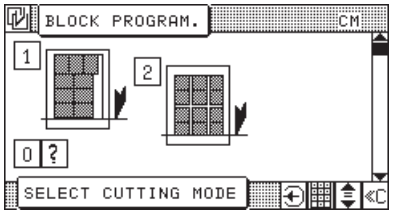
Variation 1



Variation 2



(with edge trim preadjusting)



Variation 3

Block Programming

Setting up a Block Programming

Example: Variation 1, selection: 1 Angular cut

1. Select cutting mode [1] "Angular cut"

2. Menu: 1 Orig. sheet size
   2 Sheet size tables
   3 Lay guide lft / ri

With this menu it is able to enter the original sheet size manually or to select a sheet size from a sheet size table.

3. **Selection:** Enter orig. sheet size [1]

4. Enter "Original sheet size X", confirm with key [| = |]

5. Enter "Original sheet size Y", confirm with key [| = |]

   or

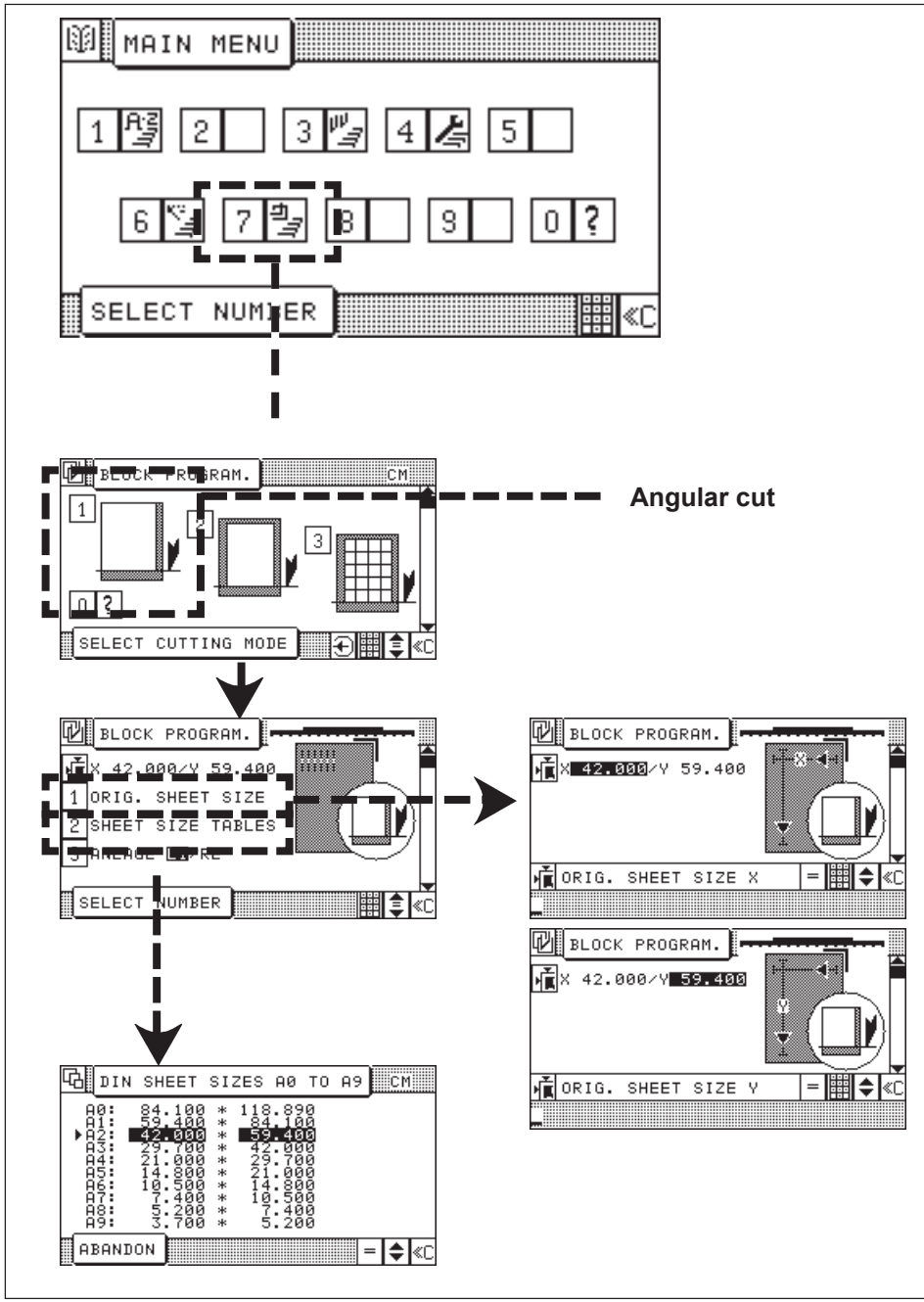
6. **Selection:** Sheet size tables [2]

7. Select left-hand lay guide (=default) or right-hand lay guide:

   Example: Select right-hand lay guide by means of key [3]

8. Select desired sheet size by means of the cursor keys and confirm with key [| = |]

To be continued with next page!



Block Programming

Confirm the sheet orientation or turn sheet orientation (observe paper grain)

Menu: 1 Sheet orient. OK
2 Turn sheet

8. e.g.: "Sheet orient. OK" [1]

Enter Edge trim

9. Enter "Edge trim width X", confirm with key [| = |]

10. Enter "Edge trim width Y", confirm with key [| = |]

11. Finish entry with key [⏎] "Enter"

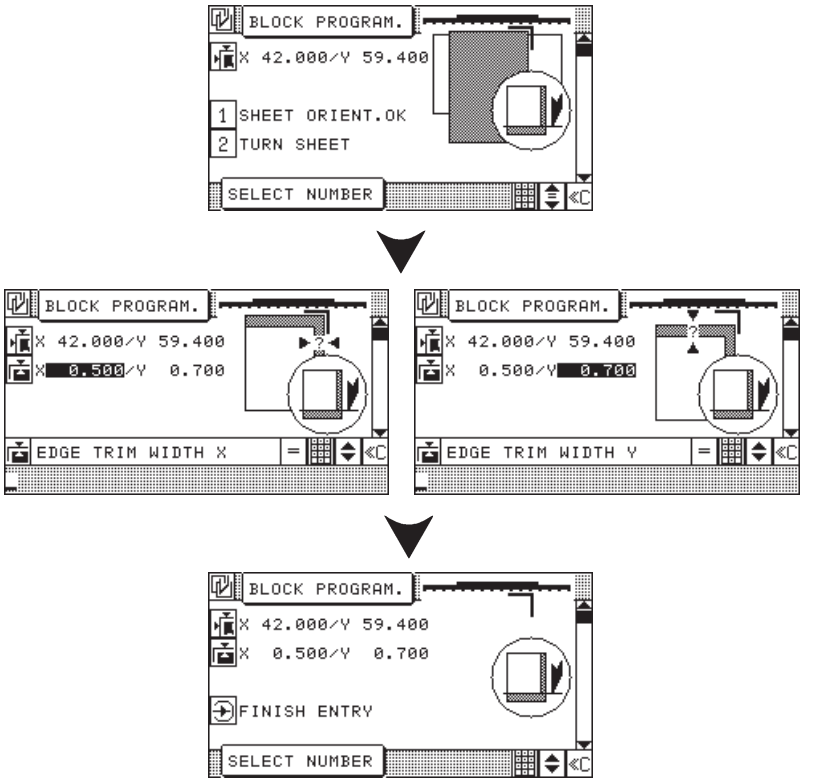
< Program data display appears with a graphic window of the current Block Programming variation (visible sheet orientation with order start), see also page K5D - 3 "Graphics OFF" >

Selection of an input parameter with Block Programming

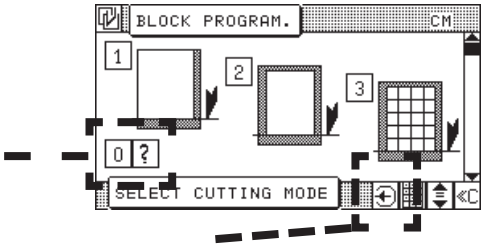
Actuate cursor keys (browse) until desired parameter appears

Correction of an input parameter with Block Programming

1. Select parameter with cursor keys
2. Enter new parameter (old parameter is erased)
3. Press key [| = |]



Attention!
Function "Help":
Explanation of pictographs and description of functions



Deletion of an input parameter with Block Programming

1. Enter Block Programming (initial fig.)
2. Press key [⏎] "Delete"

Block Programming

Example: Variation 1, selection: Four trim cut

1. Select [2] "Four trim cut"

2. Menu: 1 Orig. sheet size
   2 Sheet size tables
   3 Lay guide lft / ri

With this menu it is able to enter the original sheet size manually or to select a sheet size from a sheet size table.

3. **e.g.:** Enter Orig. sheet size [1]
4. Enter Original sheet size X, confirm with key [| = |]
5. Enter Original sheet size Y, confirm with key [| = |]
6. **or e.g.**: Sheet size tables [2]
7. Select left-hand lay side (=default) or right-hand lay side:

   Example: Select right-hand lay side by means of key [3]
8. Select desired sheet size by means of the cursor keys and confirm with key [| = |]

Confirm the **sheet orientation** or turn sheet orientation (observe paper grain)

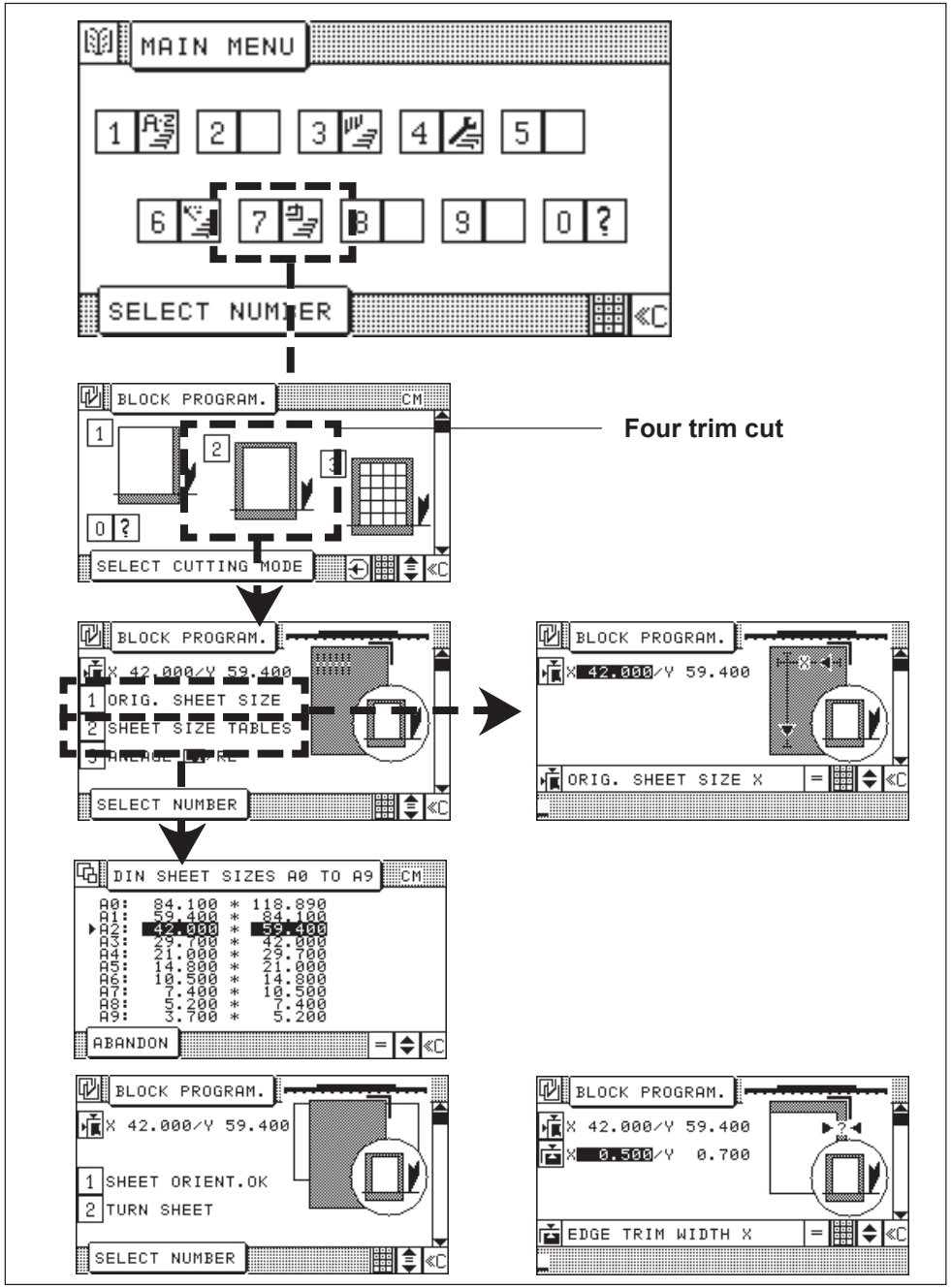
Menu: 1 Sheet orient. OK
2 Turn sheet

8. e.g.: Sheet orient. OK [1]

Enter Edge trim

9. Enter "Edge trim width X", confirm with key [| = |]
10. Enter "Edge trim width Y", confirm with key [| = |]
11. Finish entry with key [⏎] "Enter"

< Program data display appears with a graphic window of the current Block Programming variation (visible sheet orientation with order start), see also page K5D - 3 "Graphics OFF">



Block Programming

Example: Variation 3, selection : **3 Four trim cut with labels**

1. Select [3] "Four trim cut with labels"

2. Menu: 1 Orig. sheet size
   2 Sheet size tables
   3 Lay guide lft / ri

With this menu it is able to enter the original sheet size manually or to select a sheet size from a sheet size table.

3. **e.g.:** Enter Orig. sheet size [1]

4. Enter Original sheet size X, confirm with key [| = |]

5. Enter Original sheet size Y, confirm with key [| = |]

   or

6. **e.g.:** Sheet size tables [2]

7. Select left-hand lay side (=default) or right-hand lay side:

   Example: Select right-hand lay side by means of key [3]

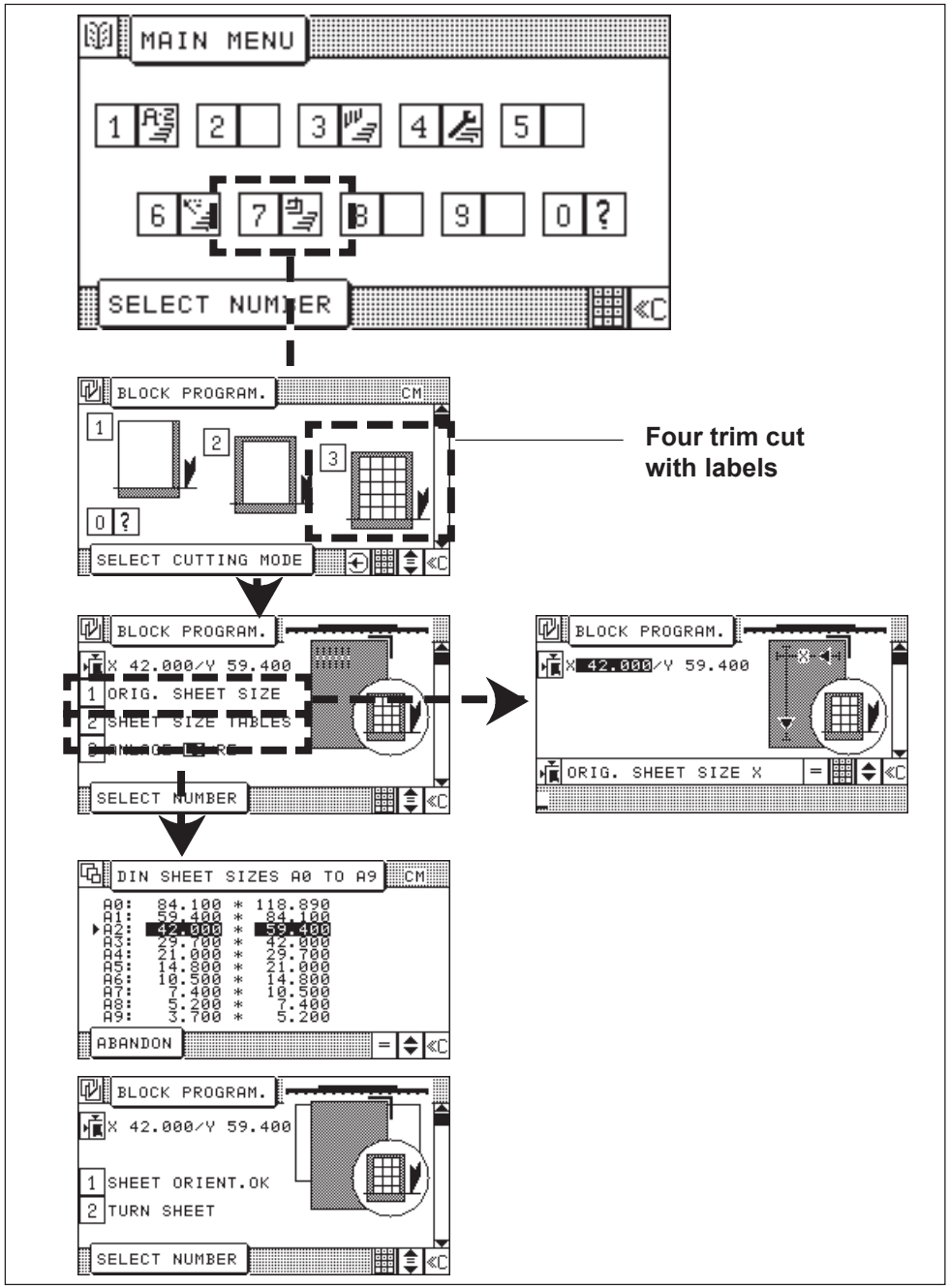
8. Select desired sheet size by means of the cursor keys and confirm with key [| = |]

Confirm the sheet orientation or turn sheet orientation (observe paper grain)

Menu: 1 Sheet orientation OK
2 Turn sheet

9. e.g.: Sheet orientation OK: [1]

To be continued with next page!



Block Programming

Enter Edge trim

10. Enter "Edge trim width X", confirm with key [| = |]

11. Enter "Edge trim width Y", confirm with key [| = |]

12. Menu 1 Final size entry

    2 Sheet size tables

13. **e.g.:** "Enter final size" [1]

14. Enter "Final size X", confirm with key [| = |]

15. Enter "Final size Y", confirm with key [| = |]

    or

16. **e.g.:** "Sheet size tables" [2]

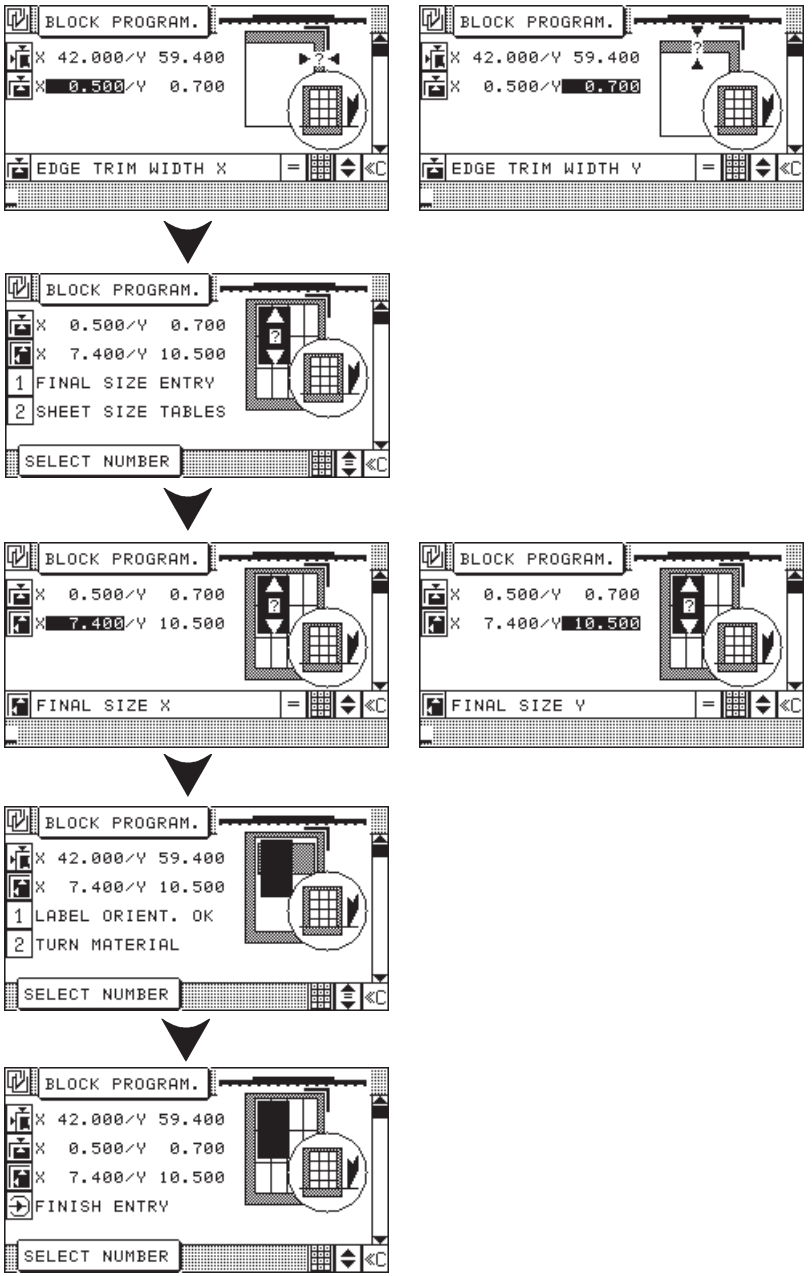
17. Select desired sheet size by means of the cursor keys and confirm with key [| = |]

Menu 1 Label orient. OK
2 Turn material

18. Make selection

19. Finish entry with key [⏎] "Enter"

    < Program data display appears with a graphic window of the current Block Programming variation (visible sheet orientation with order start), see also page K5D - 3 "Graphics OFF"



Block Programming

Example: Concerning variant 3, selection: **2 four-side trim with labels and trim cuts**

1. Select [2] "four-side trim with labels and trim cuts"
2. Selection menu: 1 initial sheet size
   2 Table of sizes
   3 Lay guide lft / ri

In this menu, a selection can be made between:
- the manual input of the initial sheet size and label size
- the selection of an initial sheet size and label size from a table of sizes with trimouts upon label cutting.

3. **Example:** "Enter initial sheet size": [1]
4. Enter initial sheet size "X" confitm with button [| = |]
5. Enter initial sheet size "Y" confirm with button [| = |]

   or
6. **Example:** "Table of size": [2]

   Select desired size with cursor keys and confirm with button [| = |]

   (format measurements are transferred block program)
7. Select left-hand lay side (=default) or right-hand lay side:

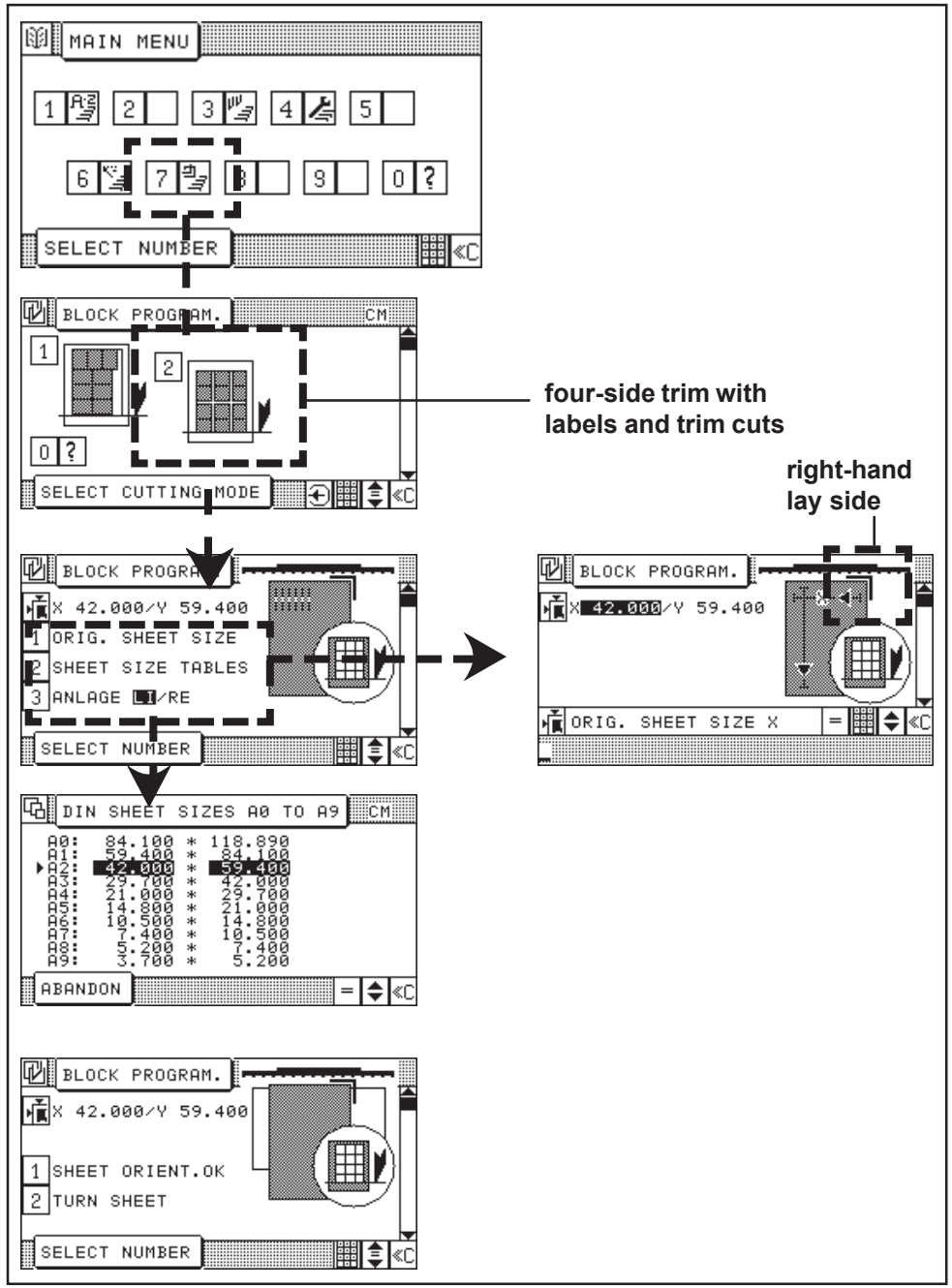
   Example: Select right-hand lay side by means of key [3]

Confirm or change the sheet position (observe feeding direction of paper)

Selection menu: 1 Sheet positionOK
2 Turn the sheet

8. **Example:** "Sheet position OK": [1]

To be continued with next page!



Block Programming

Enter outside trim

9. Enter outside trim "X" confirm with button [| = |]

10. Enter outside trim "Y" confirm with button [| = |]

11. Selection menu: 1 Input of final size
2 Format tables

12. **Example:** "Input of final size": [1]

13. Enter final sheet size "X" confirm with button [| = |]

14. Enter final sheet size "Y" confirm with button [| = |]

or

15. **Example:** "Table of sizes": [2]

16. Select desired format via cursor keys and press key [| = |] (format measurements are transferred into block program)

Selection menu: 1 label position OK
2 Turn label

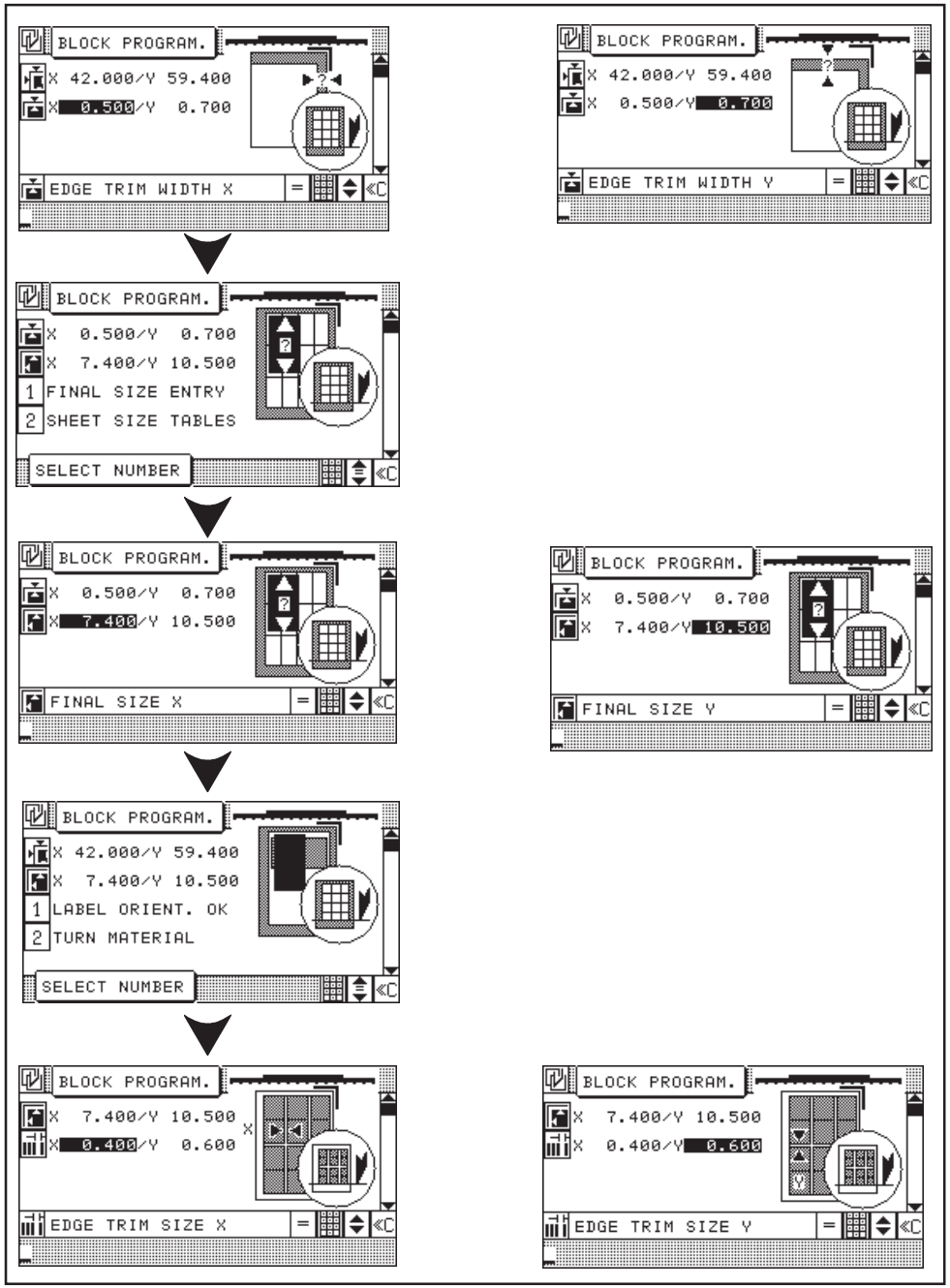
17. Example: "Label position OK": [1]

Enter **trimout measurement**

18. Enter trimout measurement "X" confirm with button [| = |]

19. Enter trimout measurement "Y" confirm with button [| = |]

To be continued with next page!



Block Programming

20. Enter label sequence "X" confirm with button [| = |]

21. Enter label sequence "Y" confirm with button [| = |]

Explanation: *X: 1 / 1 = 1 Label + 1 trimout in X-direction*
Y: 2 / 1 = 2 Labels + 1 trimout in Y-direction

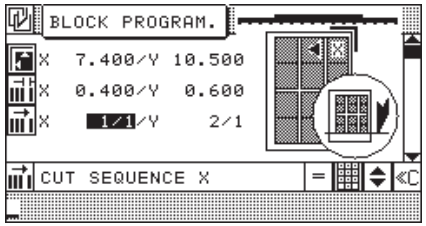
22. Selection menu: 1 Finish input
2 Select cutting sequence

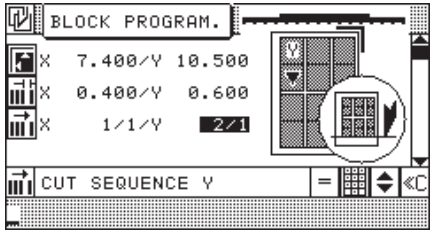
23. **Example:** "Sel (ect) cutting sequence": [1]

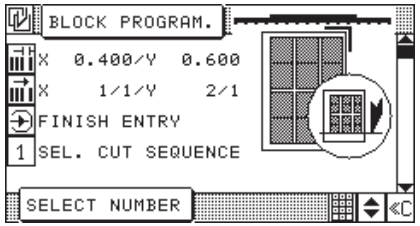
24. Select desired cutting sequence, such as e. g. "cutting sequence crosswise: [2]

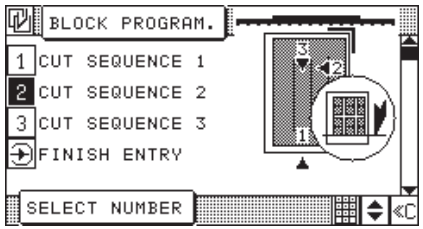
25. Close input with "Enter" key [↵]

< Program Data Image is displayed with graphic display of block program variant 1, 2, or 3 (= visual position of sheet upon start of job), please refer to page K5D - 3 "disconnect graphics" >









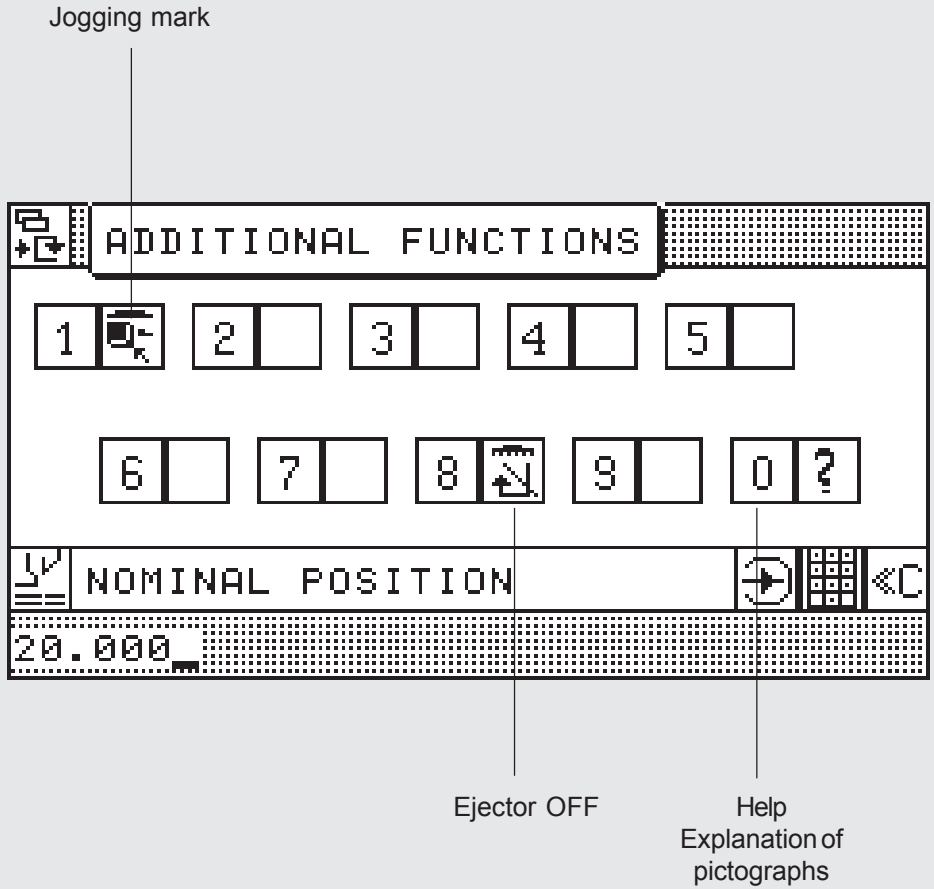
Menu Key: Additional Functions

Key "Additional Functions" 

Key "Additional Functions" includes the following operations*:

Jogging mark
Ejector OFF
Help

The running of cutting programs can be further automated by using Additional Functions.
The Additional Function can be selected on the operating panel under menu key "Additional Functions"
It is possible to store several Additional Functions into one step number.

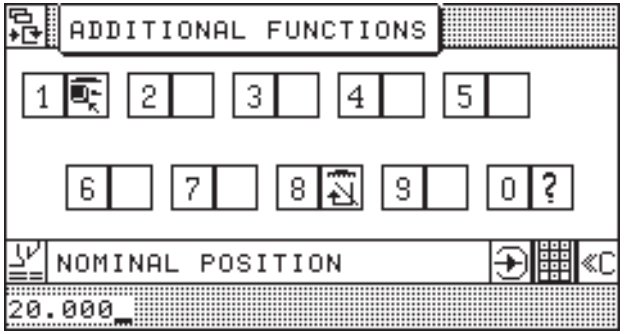


* Technical alterations reserved!

Storage of Additional Functions with Cut Size

1. Enter cut size
2. Press key  < *additional function menu is opened* >
3. Enter number of desired Additional Function
4. Press key 

   < for identifying the stored Additional Function the symbol is displayed behind the step number >



Subsequent Storing of Additional Functions

1. Select program < *program data display appears* >
2. Select step number
3. Press key  "Correction"
4. Press key  < *add. function menu is displayed* >
5. Enter number of desired Additional Function

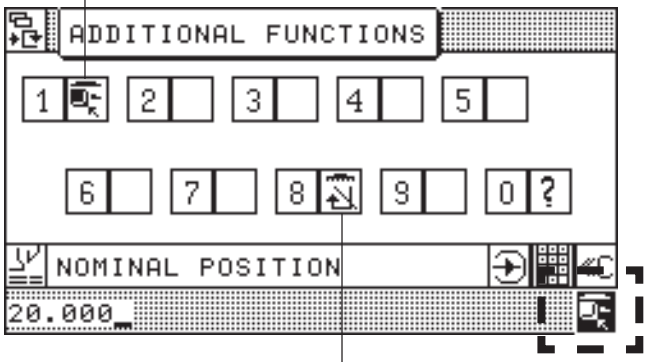
   < *symbol is displayed in input section* >
6. Press key  "Enter"

   < *additional function is stored; symbol is displayed behind the step number* >

Erase Additional Function:
Repeat above procedure

Additional functions:

Jogging mark



Ejector OFF

List of Additional Functions

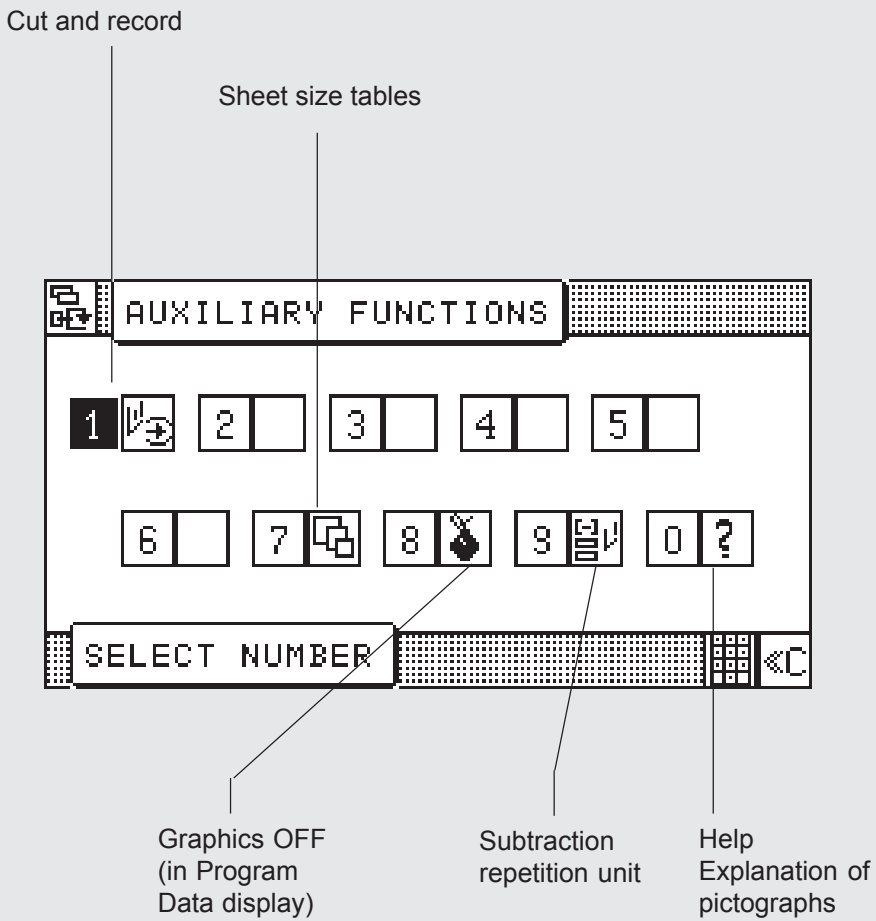
Additional function:	**Operation:**
Jogging mark 	Knife block: A stored jogging mark for exact line up against backgauge and side guides will block the cut at this position. When pressing the cut buttons a beep sounds and operation mode shows "Jogging mark"
Ejector OFF 	Prior to backgauge reverse **no automatic ejector**

Menu Key: Auxiliary Functions

Key "Auxiliary Functions"

Key "Auxiliary Functions" includes the following functions*:

Cut and record
Sheet size tables
Graphics OFF
Subtraction repetition unit
Help



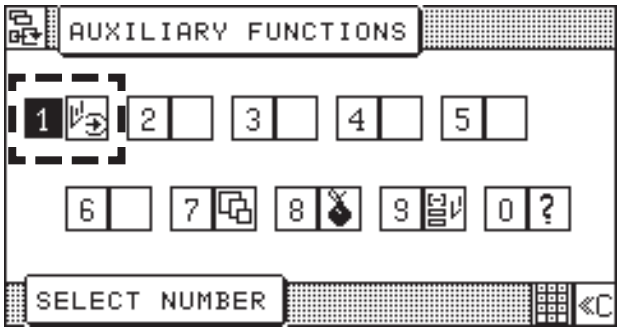
* Technical alterations reserved!

Cut and Record

1. Select free program
2. Press key  "Auxiliary Functions"
3. Select  "Cut and record"
4. Make cut < actual size is stored upon every cut >

After program generation:

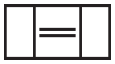
Switch function off by selecting it again (when program is changed or "Automatic On" is activated function is switched off automatically!)



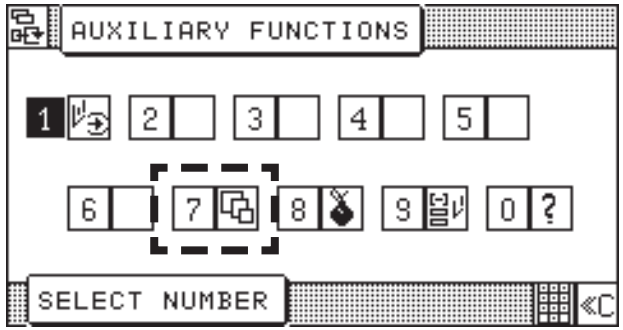
Sheet Size Tables

List of DIN sizes A0 - A9.
The corresponding sizes (lengths or widths) can be selected by cursor and transferred to the input section.

Procedure:

1. Press key 
2. Select desired size (length or width) using cursor keys
3. Press key 

   < Value is transferred to the input section >



Subtraction Repetition Unit

Fast and easy programming of a sequence of equal cut sizes.

Procedure:

1. Move backgauge to desired initial position
2. Select "Auxiliary Functions" with key
3. Select 9 "Subtraction Repetition Unit"
4. Enter label size (e.g.: 2 cm)
5. Make cut

After each cut backgauge moves forward 2cm until backgauge reaches the front limit position.

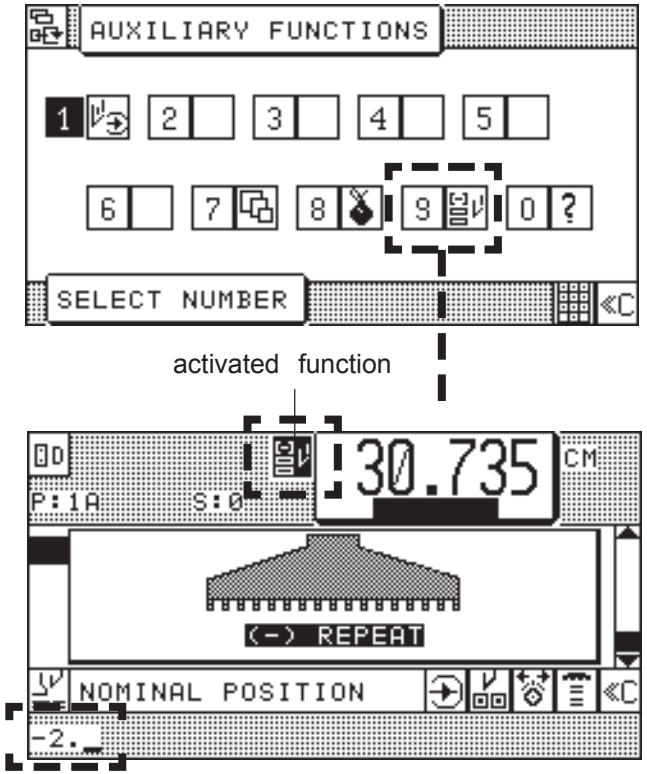
Note:
The label size can be changed during this process.
After backgauge has reached the front limit position, backgauge moves back to the initial position.

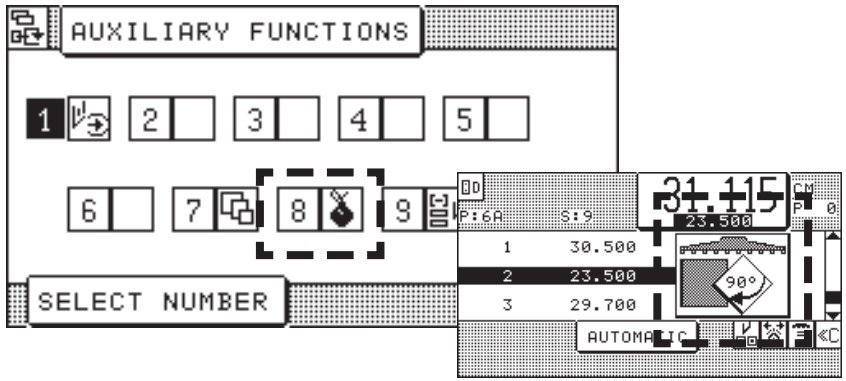
Quitt the function

Quitt the function by selecting the function once more or by pressing key "Automatic ON"

Graphics OFF

Switching OFF the graphic window 8 of a Block Program shown in the Program Data display.



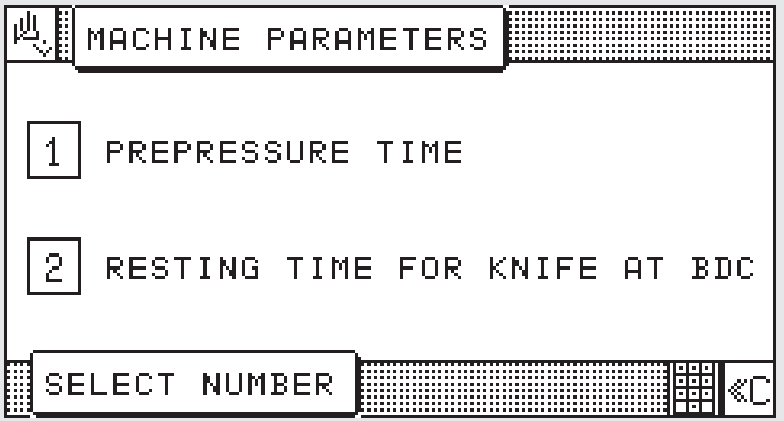


Menu Key: Machine Parameters

Key "Machine Parameters" 

Key "Machine Parameters" includes the following functions*:

Prepressure time
Resting time for knife at BDC (**b**ottom **d**ead **c**enter)



* Technical alterations reserved!

Prepressure Time

With spongy or soft stock it is recommended to increase the clamping time before the actual cut.
The adjusted pre-pressing time is the period between start of clamping and initiation of cut. For this purpose, 9 pre-clamping grades are available.

Make selection:

Select prepressing time: [1] < selection display is shown >

Adjustment of pre-pressure time:

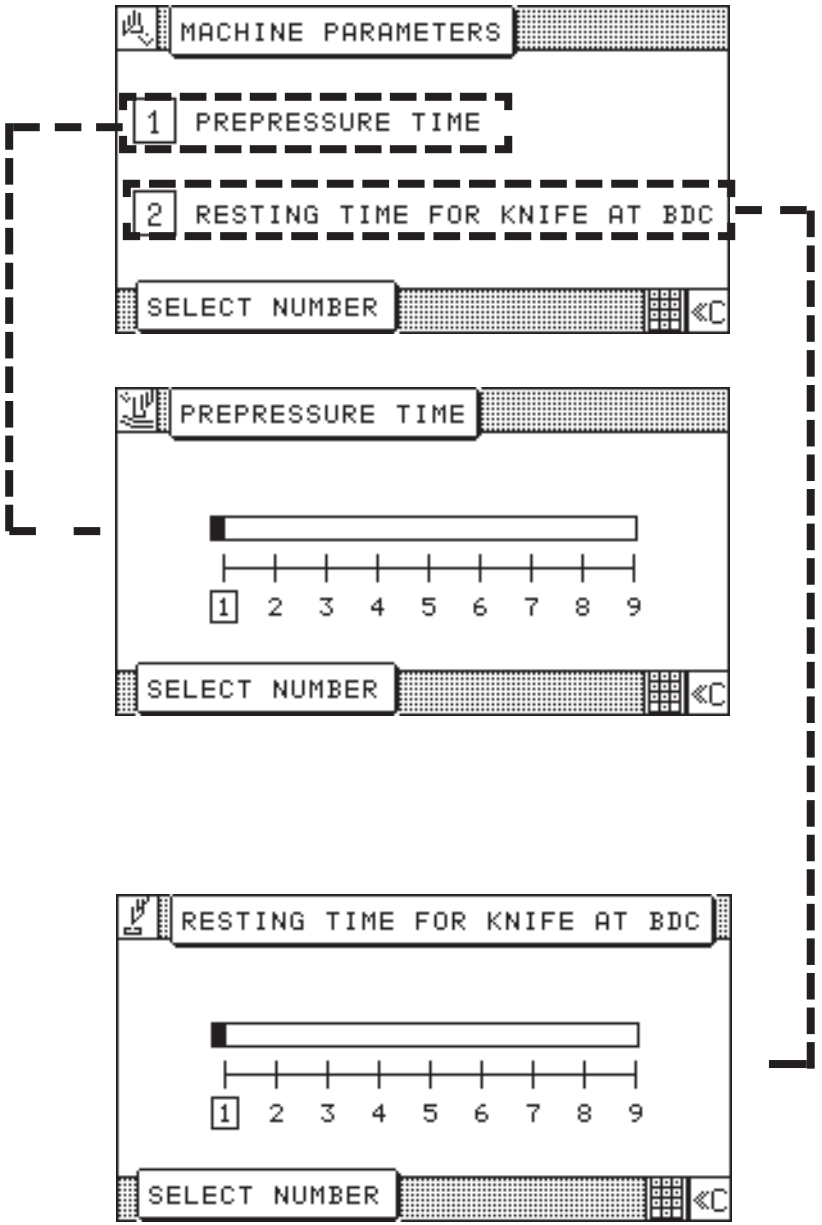
Select desired prepressing time grade by entering the clamping grade number
< *after seletion the Program Data display appears* >

Resting time for knife at BDC

By means of this function the time period "knife in **b**ottom **d**ead **c**enter (BDC)" can be adjusted.

Adjustment of BDC time

Select desired time grade by entering the time grade number (1 - 9) with the numerical keyboard
< *after selection the Program Data display appears* >



6.0 Knife Change

Knife change may only be carried out by especially authorized employees!

Knife change

The knife change should only be carried out by specially trained personnel

Tools required: **1 Knife wrench**
1 Knife guard
2 Knife holders

Removing the knife

1. Select display "Main menu" (Function survey) with key  .
   Make selection "3 Knife".
   Select "2 Knife change"

2. Bring turning knob (i), located beneath the front table, to position "Knife change"

3. Press both cut buttons and keep them pressed until knife bar stops automatically at the lower position

4. Remove knife screw at the very left-hand side; turn knob (i) to "0 - position" < *knife bars moves upward* >

5. Loosen both knife screws (a) at the two knife bar slots (b).
   Screw both handles of the knife guard (c) into the now accessible bolt holes

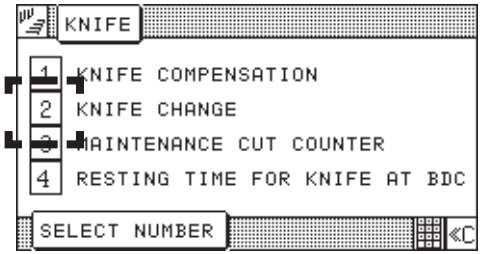
6. Remove the remaining knife screws (knife is fixed to the knife bar by the two handles)

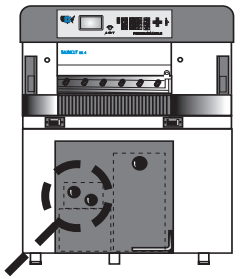
7. Pull knife guard forward by means of the two handles (de-activate clamping) and pull the knife downward, out of the knife bar.

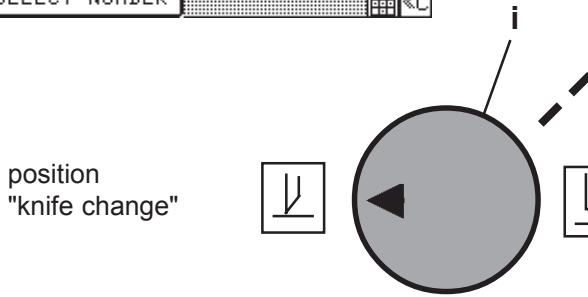
8. **Deposit knife in knife box!!**

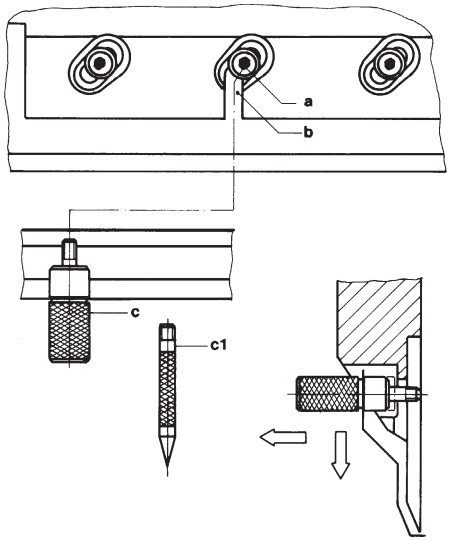
   Remove knife guard*

* **HANDLE THE KNIFE WITH UTMOST CARE! WHEN TRANSPORTING THE KNIFE WITHOUT KNIFE BOX, USE ALWAYS THE KNIFE GUARD.**









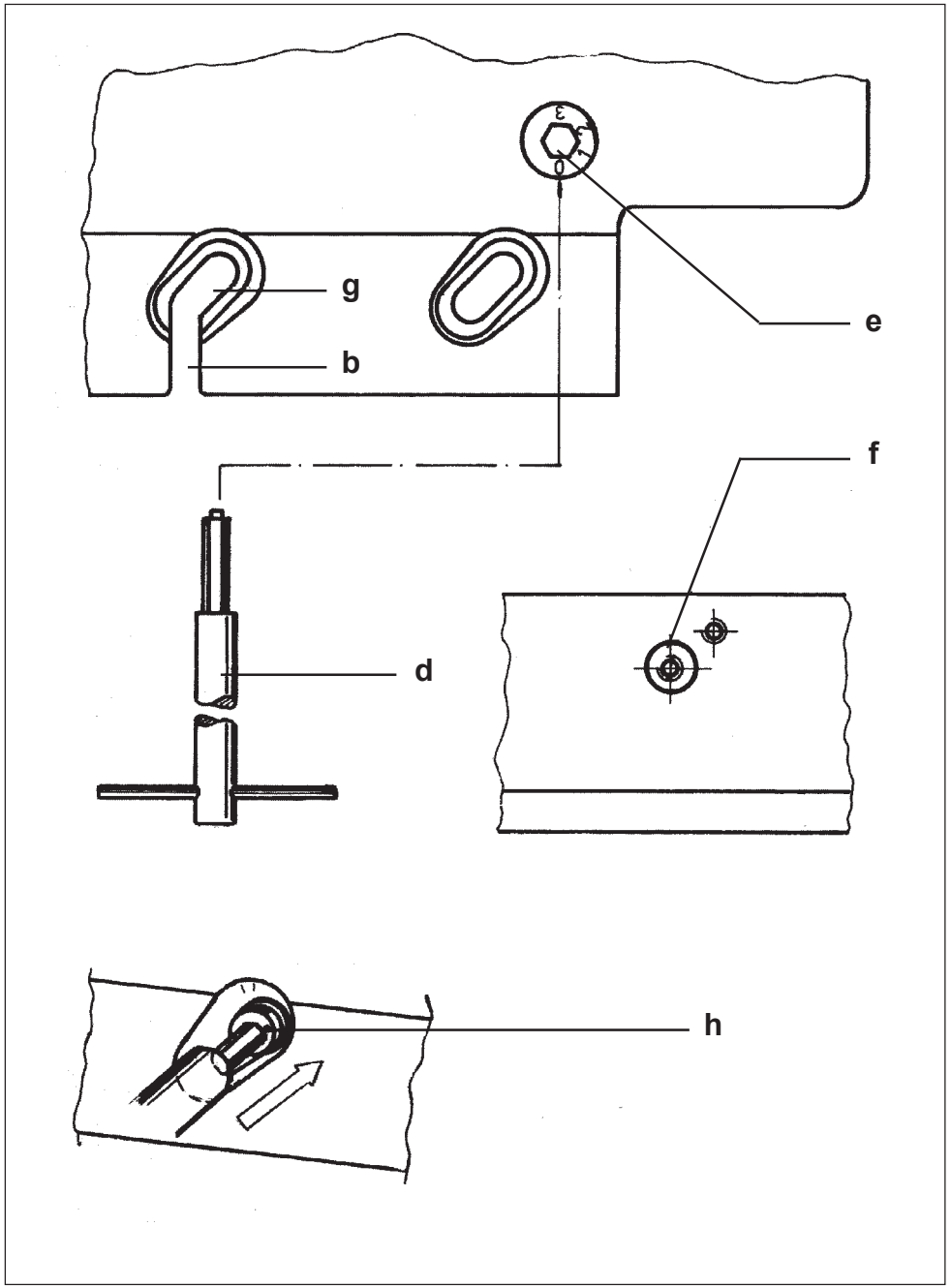
Knife Change

Mounting the knife

1. Replace cutting stick or turn same over (see page K6 - 5)
2. Turn adjusting cam (e) to the "0 - position" by means of the knife wrench
3. Screw knife handles (c1) into the black bordered bolt holes (f) of the new knife
4. Take knife out of the knife box
5. Remove knife handles (c1) and mount knife guard (c)
6. Insert the knife into the knife bar slots (b) and lift it up into the elongated holes (g; Attention! Mind the clamping resistance of the knife guard)
7. Release knife guard (knife is clamped to knife bar)
8. Screw all knife screws (except screw at the very right-hand side!) slightly into the lower bolt holes*; **do not fasten them!**
9. Remove knife guard
10. Slightly screw-in the remaining screws, **but do not fasten them!**
11. Push the knife at the center screw (h) up to its topmost position by means of the knife wrench and fasten it

Continuation next page

* See also "Knife Adjustment", page K6 - 4, item 3



Knife Change

Knife adjustment

1. Bring turning knob (i), located beneath the front table, to position "Knife change".

2. Press both cut buttons and keep them pressed until knife bar stops automatically at the lower position.

3. Loosen center knife bolt (knife should now drop down to the cutting stick. If necessary use the knife wrench to push down the knife against the cutting stick).
   Attention!
   In case the knife does not reach the cutting stick:
   Screw the knife bolts in the **upper** bore-holes of the knife.

4. Screw-in knife screw at the very left-hand side.

5. **Tighten up all knife bolts!**

6. Bring turning knob (i) back to "0 - position" (knife bar should return automatically to upper resting position).

7. Insert knife screw at the very right-hand side and tighten it.

8. Move adjusting can (e) to position 1.

9. Finish knife change by pressing key 1.

Adjustment of knife pre-tension

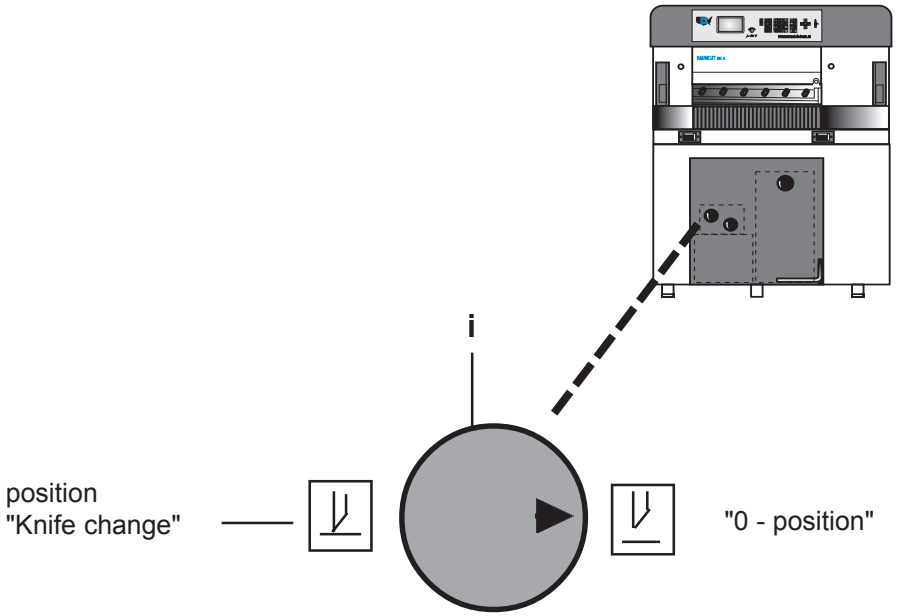
If hard material is to be cut (such as cardboard) it may be necessary to increase the pre-tension of the knife if the bottom sheet has not been cut through.

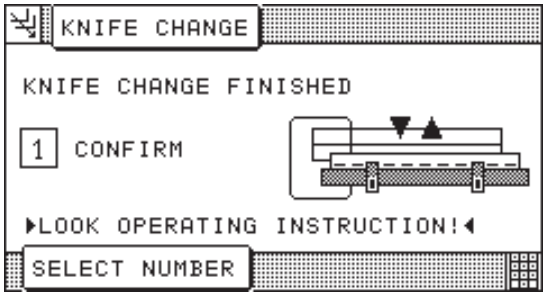
Adjusting the knife:

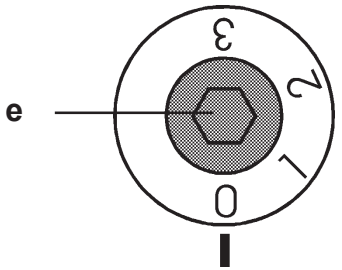
Tool needed: Knife wrench.

Move adjusting cam (e) on the knife bar to position 1 - 3* .

* required position depending on the material to be cut should be found by test cuts.







Changing of cutting stick

The BAUM sinus cutting stick is made of high resistance plastic material. Due to the unusual wavy design a tight fitting in the table grove is assured without the need for glue or screw.

Each cutting stick is useable 4 times as they are turned around.

Removing of cutting stick

Tool needed: normal screw driver

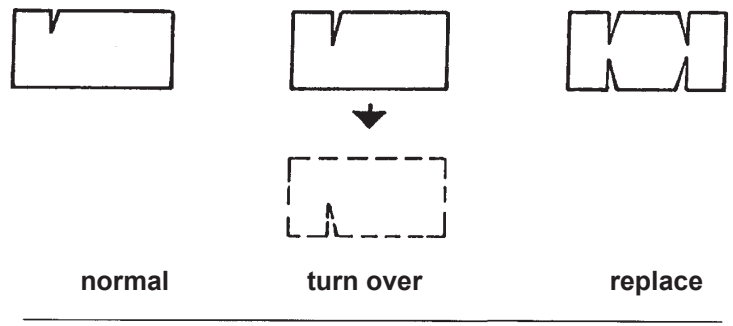
1. Lift cutting stick slightly on the left side cutting stick stop

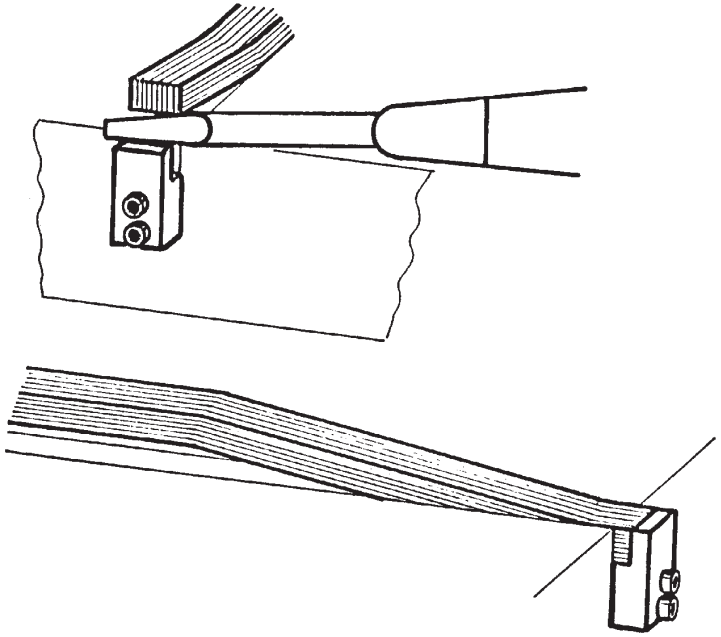
2. Prey out cutting stick carefully from left toward the right.
   Clean cutting stick table grove!

Inserting of cutting stick

1. Rest cutting stick end against the right stop and work into the grove

2. Follow the wavy form of the cutting stick when pressing into the table grove. Press down hard to assure total seating of stick.





7.0	Malfunctions / Breakdowns

Electrical Malfunctions/Breakdowns

Electrical malfunctions of the machine will appear in the status display in plain text and with an error number.
The operator is warned by a beep sound.

In that case, the operator has to decide whether it is an

- **operation error,**
- **programming error,**
- **malfunction of the machine.**

Remedy for operating error (programming error):

- check program data or input, resp.
- correct any mistakes

Remedy for machine malfunctions:

- turn machine off and on again

if error message has disappeared:

- resumen function

if error message appears again:

- call service technician, indicate the error message

Start - Up Breakdown: Scan Reference Point/Auxiliary Mode

Malfunction: **After machine has been started, display shows**

"SCAN REFERENCE POINT"

Cause: **Machine was shut off during backgauge movement**

Remedy: **Scan reference point**

1. Select "(1) Reference position scan"
   < prompt appears: clear the table >

2. Select "(1) Confirm when table empty"
   < prompt appears: go to reference position >

3. Activate electronic handwheel
   < backgauge moves to reference point >

   Reference run can be interrupted by pressing key [C]

If reference point is found:

< menu display "Correction of basic position" >

4. Check basic position and confirm (see page K5B - 7)
   < program data display appears >

Auxiliary mode

If the reference point scanning fails:

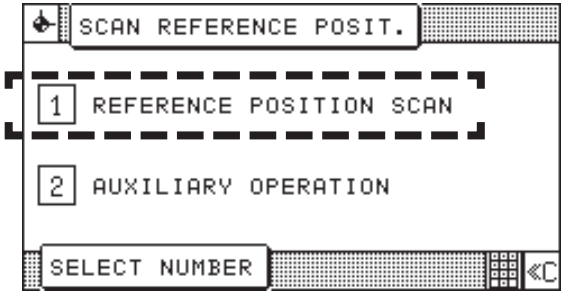
1. Turn machine off and on again *< menu "Scan reference position" appears >*

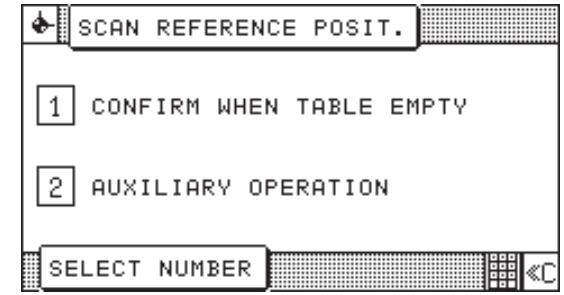
2. Select "Auxiliary Mode"

3. Select machine type; confirm with [⏎]

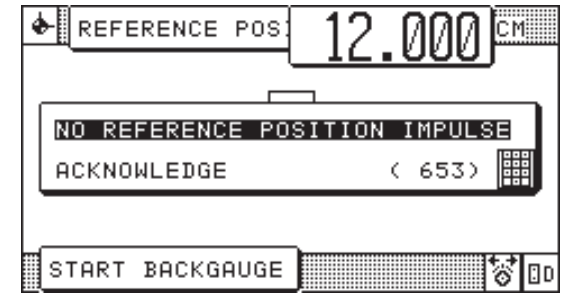
Machine functions possible in Auxiliary Mode:
- cutting
- backgauge movement with handwheel or backgauge movement keys

after turning off the machine:





if reference point scanning fails:



Mechanical Breakdown: Rupture of a Knife Bar / Clamp Recuperating Spring

Breakdown: Knife bar stops beneath the upper dead centre

Cause: **Rupture of a knife bar recuperating spring**

Remedy: **Switch machine off immediately and call the service technician! Do not access the machine! Guard the knife zone against manual access by operator!**

Type of malfunction:
When one of the two recuperating springs of the knife bar has broken the knife bar is lifted by the second spring, but stops shortly beneath the top dead centre (OT). No more cuts can be triggered. Malfunction display: **Knife not in top dead centre!**
Attention!
The machine is in a dangerous condition, because the cutting edge of the knife is no longer completely covered by the clamp.
Any access to the machine may cause severe injury at that time.

Breakdown: Clamp stops beneath the upper dead centre

Cause: **Rupture of a clamp recuperating spring**

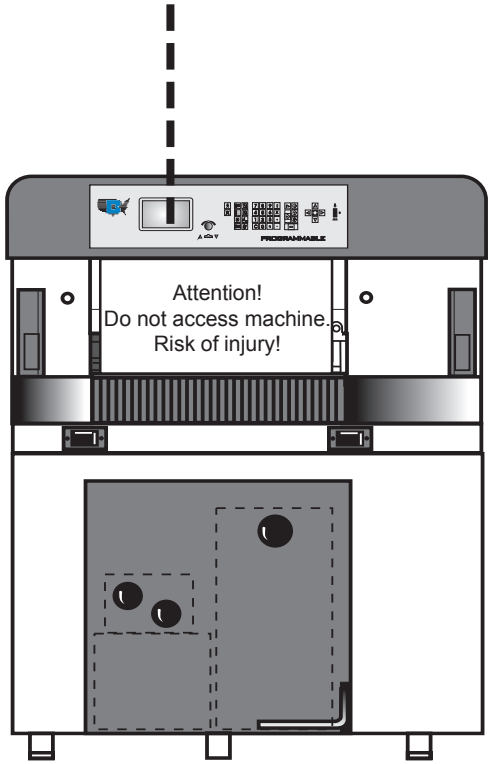
Remedy: **Switch machine off immediately and call the service technician. Do not access the machine! Guard the clamp zone against any manual access by operator!**

Type of malfunction:
When one of the two recuperating springs of the clamp has broken the clamp is lifted by the second spring, but stops shortly beneath the top dead centre. Backgauge movement is locked. No more operations can be performed! When the electronic hand wheel is actuated the following message is displayed: **Clamp not in top dead centre!**

Example for protecting the machine in the case of a rupture of a knife bar / clamp recuperating spring:

Message displayed:

Knife bar or clamp not in top dead centre!



8.0 Maintenance

Prior to any maintenance work, cut off machine and disconnect power supply.

Caution!

All the cables marked with the symbol  are still alive (mains voltage) even if the main switch is shut off.

Basic information about servicing and maintenance work

- **Always turn off the machine and disconnect the power supply before undertaking any maintenance work.**

  Warning!

  All cables designated ⚠ , and all cables with orange cladding will remain live even after turning off at the main switch!

- **Once the plant is turned off, prevent it from being turned back on again by blocking the relevant main switch. If necessary, warning signs should also be put up at the main switches to alert others to maintenance work in progress.**

- **Due to the need for special tools, we recommend that maintenance and lubrication work be carried out by the POLAR After-Sales Service.**

- **The product recommendations contained in these operating instructions, e.g. for oils and greases, may be regarded as up-to-date at the time of going to press.**
  We cannot guarantee either the correctness or completeness of these instructions. The user is responsible for ensuring compliance with all the applicable laws and regulations before using these products. To ensure this, the relevant technical and safety data sheets should be obtained from the appropriate manufacturers before use. The user is advised to meet his obligations in respect of product observation, and to exercise due care when using the products.
  Polar will not be held responsible for any kind of damage or injury due to failure to comply with the descriptions provided by the various manufacturers, or due to the risks associated with the nature of the product

- **Compliance must be assured with the legislation on electrical plants or systems, hydraulic and/or pneumatic equipment as applicable in the country of use.**

- **In the event of defective safety equipment, e.g. safety light barriers, protective covers, etc., the machine/system must be taken out of operation and repaired immediately.**

- **All safety signs on the machine/system must be in impeccable and easily identifiable condition. Replace safety signs if this is not the case.**

- **Proceed as follows if maintenance work necessitates stepping onto individual system components, e.g. lubrication of gripper components on the**
  cutting machine rear table or conveyor lines:

  Before stepping onto conveyor units, pallets or cutting machine rear table:
  Cover surfaces to be stepped on with cardboard and secure cardboard in place with adhesive tape.
  Warning! Slippery underfooting: Risk of slipping!
  After finishing the works:
  Totally remove cardboard and adhesive tape as well as any remains of adhesive tape from the surfaces.

- **For lubrication dismantle any guards at the guide units. Assemble the guards immediately after the maintenance work has been performed (Safety!).**

- **After lubrication:**
  Use a rag to remove any excessive lubricant (greases, oils) completely which seeps out, especially above the table surfaces that contact the material to be cut.

- **The specified maintenance intervals are based on an operating time of 8 hours / day. For multi-shift operation the maintanance intervals need to be adapted correspondingly.**

HYDRAULIC

We recommend to have oil changed and unit checked by BAUM and/or authorized personnel.

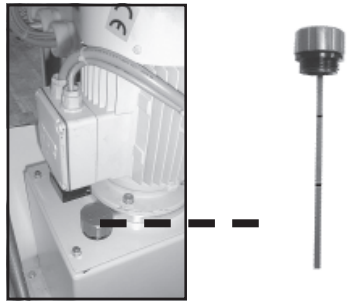
Attention when bleeding hot oil - danger of burning!

Oil change: approx. every 6000 hrs.

Fill in oil up to middle of oil level indicator!
Quantity (liters): 22,5

Usable oil brands (DIN 51524, in alphabetical order):

ARAL Vitam GF 46
AGIP Oso 46
BP Energol HLP-HM 46
CASTROL Hyspin SP 46
DEA Astron HLP 46
ESSO Nuto H 46
ELF Elfolna 46
FINA Hydran AF 46
FUCHS Renolin B, rot
KLÜBER Lamora HLP 46
MOBIL DTE 25
OPTIMOL Hydo 46 or Hydo MV 32
SHELL Tellus C 46
TOTAL Azolla ZS 467



BACKGAUGE DRIVE (grease lubrication)

Lubrication by grease gun!

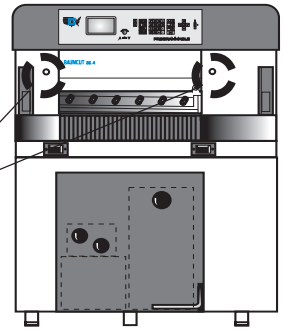
1. Move backgauge to position 42 cm (16,5 inches)!
2. Remove lid (C) at backgauge drive guard
3. Grease spindle via lubricating nipple

2 - 3 strokes with the grease gun are sufficient.

Lubrication intervals: monthly

Usable grease brands (DIN 51825, in alphabetical order):

ARAL Radlagerfett
AGIP Autol Top 2000 or
Longtime Grease 2
BP Energrease LS 2
DEA Paragon EP 2
ESSO Unirex N2 or Essonorva 275
FINA Pluton AX 2
KLÜBER Centoplex 2 EP
MOBIL Mobilgrease XHP 222
OPTIMOL Longtime PD 2
SHELL Retinax LX 2
TOTAL Multis EP 2



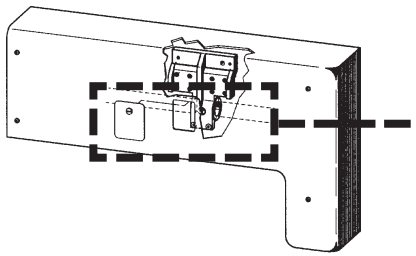
GUIDINGS FOR KNIFE AND CLAMP (grease lubrication)

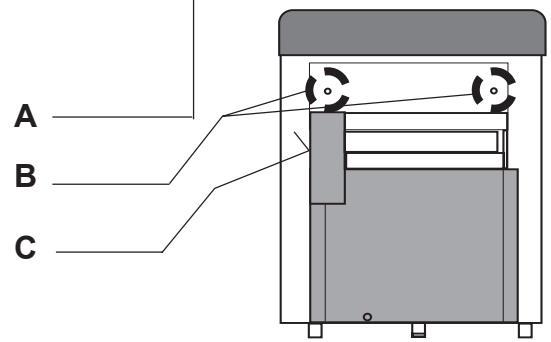
Lubrication by grease gun!

1. Lubricate guidings for knife bar (A) from the front side:
   2 lubricating nipples at the front plate
2. Lubricate clamp guidings from the rear side (B):
   2 lubricating nipples

2 - 3 strokes with the grease gun are sufficient.

Lubrication intervals: weekly





BATTERIES FOR DATA STORAGE

To be replaced only by BAUM service or agencies.

Batteries inside machine are used for data storage.
Replacing after approx. 5 years

CLEANING OF DISPLAY

1. Turn off machine
2. Use glass cleaner and soft lint-free rag.

MAINTENANCE INTERVALS

Maintenance should only be carried out by BAUM Service exclusively!

Please call for maintenance or service ahead of due date!
The address of the representation can be read from the plate on the machine.

5 hrs. per day equal:

6.000 = 5 years (hydraulics/batteries for data storage)

Service:_____

_____

Mr./Mrs.:_____

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Printed in USA
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11/76/PD/76D1133 (V1.2.0)