

**BAUM**



**BAUM 26/BAUM 30**  
**1ST STATION FOLDER**  
**W/CONTINUOUS FEED**  
**INSTRUCTION MANUAL**

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**WARNING**

- Do not operate this machine without all guarding in place.
- Do not make adjustments or perform maintenance on this machine with power on.
- Keep the machine and the work area clean and free of spills to prevent accidents.
- Be sure to replace any safety decals that may have been detached for any reason.

Baumfolder Corporation reserves the right to make changes in design or to make additions or improvements in its products without imposing any obligation upon itself to install them on its previously manufactured products. It is recommended that modifications to this equipment not be made without the advice and express written consent of Baumfolder Corporation.

**FOLDER IDENTIFICATION**

MODEL NO: \_\_\_\_\_ SERIAL NO: \_\_\_\_\_

SALES AGENCY: \_\_\_\_\_

INSTALLED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

PHONE NO: \_\_\_\_\_

# CONTENTS

DESCRIPTION	PAGE
I) Safety .....	6
II) Warning Labels .....	9
III) Introduction Overview .....	10
IV) Transportation/Installation .....	10
V) Electrical Connections .....	11
1.0 . Wiring the Unit .....	11
1.1 . Pump & Blower Connections .....	11
VI) Feeder Operation .....	12
1.1 . Air and Vacuum Setting .....	13
1.2 . Sheet Separation and Suction Force .....	14
1.3 . Register Table and Double Sheet Detector .....	15
VII) Baumset Adjustment .....	16
1.0 . Adjusting Folding Rollers .....	16
VIII) Installing Fold Plates .....	17
IX) Operator Controls .....	17
1.0 . Setting Folding Speed .....	17
1.1 . Setting Stacker Belt Speed .....	17
1.2 . Emergency Stop Button .....	17
<b>1.0 Control Panel BAN-5 .....</b>	<b>18</b>
1.1 . Displays .....	18
1.2 . Machine Status Indicators .....	18
1.3 . Machine Control Pushbuttons .....	19
1.4 . Keypad Buttons with Selection Indicators .....	19
1.5 . Keypad Buttons for Selection Adjustments .....	19
<b>2.0 RUN MODE FUNCTIONS .....</b>	<b>20</b>
2.1 . Machine Setup and Diagnostic Mode .....	20
2.2 . Counter Setup Mode .....	26
2.3 . Learn Mode .....	27
2.4 . Make Ready Mode .....	28
2.5 . Network Job Mode .....	28
2.6 . Production Mode .....	29
<b>3.0 CONTROLLER INPUT DESCRIPTIONS .....</b>	<b>30</b>
<b>4.0 Process Variables .....</b>	<b>32</b>
4.1 . Total Input Count .....	32
4.2 . Total Output Count .....	32
4.3 . Batch Down Count .....	32
4.4 . Number of Batches .....	32
4.5 . Current Rate .....	32
4.6 . Main Drive Run Time .....	32
4.7 . Main Drive Velocity .....	32
4.8 . Waste Count .....	33
<b>5.0 COUNTER SETUP VARIABLES .....</b>	<b>33</b>
5.1 . Batch Preset .....	33
5.2 . Batch Output Type .....	33
5.3 . Batch Output Time .....	33
5.4 . Sheet Length .....	33
5.5 . Gap Length .....	33
5.6 . Suction Length .....	33
<b>6.0 SYSTEM MESSAGES AND RUN MESSAGES .....</b>	<b>34</b>
6.1 . Power-Up Fault Messages .....	34
6.2 . Run Time Fault Messages .....	35
6.3 . Machine Run Error Messages .....	36

# CONTENTS

DESCRIPTION	PAGE
<b>X.) Setting Fold Plates</b> .....	<b>38</b>
<b>XI.) Scoring/Slitting/Perforating</b> .....	<b>39</b>
1.0 . Slitter Shaft Removal .....	39
1.1 . Scoring .....	39
1.2 . Perforating .....	39
1.3 . Slitting .....	39
1.4 . Trimming Edges of Booklets .....	40
1.5 . Trimming a Strip from Center of Sheet .....	40
1.6 . Blade Installation .....	40
<b>XII.) Lubrication/Maintenance</b> .....	<b>42</b>
<b>XIII.) Technical Specifications &amp; Accessories</b> .....	<b>43</b>
<b>XIV.) Troubleshooting</b> .....	<b>44</b>
<b>XV.) Service</b> .....	<b>46</b>

# List of Tables

<b>DESCRIPTION</b>	<b>PAGE</b>
Table 1. Machine Setup Parameter List .....	20
Table 2. Statistics .....	21
Table 3. Machine Settings .....	22
Table 4. Machine Diagnostic Parameter List .....	23
Table 5. Safety Settings .....	24
Table 6. Machine Statistics .....	24
Table 7. Machine Operating Statistics .....	25
Table 8. Output Type Animations .....	26
Table 9. Count Source Selection .....	26
Table 10. Learn Mode Status .....	27
Table 11. Suction Mode Symbols .....	27
Table 12. Suction Length Function .....	28
Table 13. Determining the Large Display Contents .....	29
Table 14. Reset Mode Selection .....	29
Table 15. Inputs .....	30
Table 16. LED Status Indicators .....	32
Table 17. Output Delay and Duration .....	33
Table 18. Power Up Fault Messages .....	34
Table 19. Run Time Fault Messages .....	35
Table 20. Machine Run Error Messages .....	36

# **FUNDAMENTAL SAFETY INSTRUCTIONS!**

The diagrams and descriptions used in these instructions are not necessarily applicable to the specification of the machine supplied. Modifications, made for reasons of technical or operational improvement, are embodied without notice.

# FUNDAMENTAL SAFETY INSTRUCTIONS!

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

The instruction manual contains important information on how to operate the machine 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.

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, the generally recognized technical rules for safe and proper working must also be observed.

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

## Important



(refers to special information on how to use the machine/plant most efficiently)

## Attention



(refers to special information and/or orders and prohibitions directed towards preventing damage)

## Danger



(refers to orders and prohibitions designed prevent injury or extensive damage)

## 1.0 Basic operation and designated use of the machine/plant

### 1.0.1

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.

### 1.0.2

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.

### 1.0.3

The machine/installation is designed exclusively for paper finishing of minimum and maximum sheet sizes (see corresponding operating instructions). Using the machine/ installation for purposes other than those mentioned above is considered contrary to its designated use. The manufacturer/supplier cannot be held liable for any damage or injury arising from such misuse. The risk of such misuse lies entirely with the user.

Operating the machine within the limits of its designated use also involves observing the instructions set out in the operating manual and complying with the inspection and maintenance directives. The working temperature of the machine should range between 0° and 55° C.

## 1.1 Organizational measures

### 1.1.1

The operating instructions must always be at hand at the place of use of the machine/plant, e.g. by stowing them in the tool compartment or tool box provided for such purpose.

### 1.1.2

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 occasionally on the machine, e.g. during setting up or maintenance.

### 1.1.3

For reasons of security, long hair must be tied back or otherwise secured, garments must be close fitting and no jewelry, such as rings, may be worn. Injury may result from being caught up in the machinery or from rings catching on moving parts.

### 1.1.4

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

### 1.1.5

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

### 1.1.6

In the event of safety relevant modifications or changes in the behavior of the machine/plant during operation, stop the machine/plant immediately and report the malfunction to the competent authority/person.

### 1.1.7

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.

### **1.1.8**

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

### **1.1.9**

Report any accident that occurs due to a malfunction of the machine though all prescribed safety precautions were observed directly to our agency or to the Heidelberg service department (VFKD).

## **1.2 Selection and qualification of personnel - Basic responsibilities**

### **1.2.1**

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

### **1.2.2**

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

### **1.2.3**

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.

### **1.2.4**

Work on gas fueled equipment (gas consumers) may be carried out by specially trained personnel only.

## **1.3 Safety instructions governing specific operational phases**

### **1.3.1 Standard operation**

#### **1.3.1.1**

Avoid any operational mode that might be prejudicial to safety.

#### **1.3.1.2**

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

#### **1.3.1.3**

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 behavior) to the competent organization/person immediately. If necessary, stop the machine immediately and lock it.

### **1.3.1.4**

Before starting up or setting the machine/plant in motion, make sure that nobody is at risk.

### **1.3.2**

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

#### **1.3.2.1**

Always press the emergency (Not-Stop) button first, if you stop the machine for adjustments or maintenance work which must not be done while the machine is in operation.

#### **1.3.2.2**

For extensive maintenance or repair work, turn off the main power supply.

#### **1.3.2.3**

After making adjustments or after doing maintenance or repair work, always make sure that all tools or other objects are removed from the machine. Otherwise they might fall into the machine, causing severe damage or injuries.

#### **1.3.2.4**

Keep the floor around the entire machine clean. Immediately clean any oil, grease or paint spills up off the floor. Remove tools, cleaning cloths or paper scraps from all work areas.

#### **1.3.2.5**

Never operate a folding machine without buckle plates or deflectors since these are protective as well.

#### **1.3.2.6**

Never clean moving parts of the machine (rollers, shafts) or remove any test sheets, spoiled sheets or bits of paper in such areas.

#### **1.3.2.7**

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.

#### **1.3.2.8**

Brief operating personnel before beginning special operations and maintenance work, and appoint a person to supervise the activities.

#### **1.3.2.9**

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.

## 1.4.1 Electric energy

### 1.4.1.1

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

### 1.4.1.2

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.

### 1.4.1.3

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.

### 1.4.1.4

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.

### 1.4.1.5

Only unplug or plug in electrical connectors if the main switch has been disconnected.

### 1.4.1.6

Only connect the folding units and no machines of other brands to the existing connectors. Any electrical connection of STAHL folding machines with other brands needs our express consent.

### 1.4.1.7

For electrical connection, observe the prescribed admissible voltage and frequency.

### 1.4.1.8

Keep switch cabinets closed.

## 1.4.2

Oil, grease and other chemical substances

### 1.4.2.1

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

## 1.5 Description and definition of the safety labels and pictographs on the machine

Replace damaged pictographs with new ones. The corresponding reference numbers are indicated.



Warning!  
Folding rollers rotate in opposite directions.  
Keep hands away from rollers while the machine is running!



Warning!  
To avoid bruising, keep hands away when operating moving machine parts!



Warning!  
Do not reach into moving belts!



Warning!  
Be careful! Height adjustment devices might cause bruising!



Warning!  
Only operate machine when covers are closed.

## 1.6 Explanation of the pictographs used in the operating instructions



Warning!  
You might risk bruising when moving the machine.

## INTRODUCTION OVERVIEW

The 1st station (parallel) folder with continuous feeder contains the following main components (Figure 1):

1. Continuous Feeder
2. Register
3. 1st Station Folder (Parallel)
4. Fold Roller Baumset settings
5. Fold Plates
6. Slitter Shafts (not shown)
7. Delivery (Stacker, not shown)
8. Operator Controls
9. Double Sheet Detector (not shown)
10. Vacuum Pump (not shown)
11. Handwheel

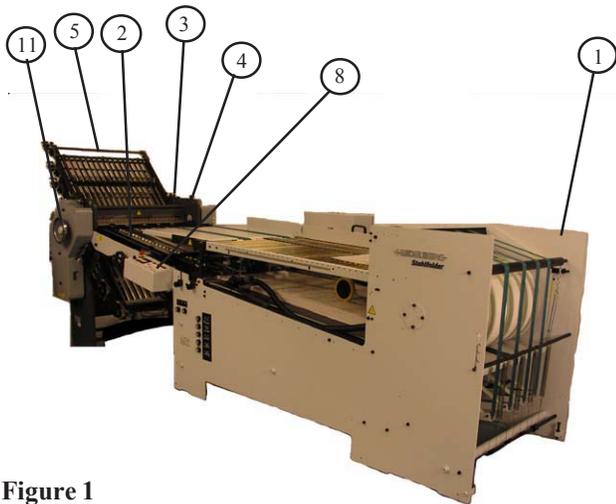
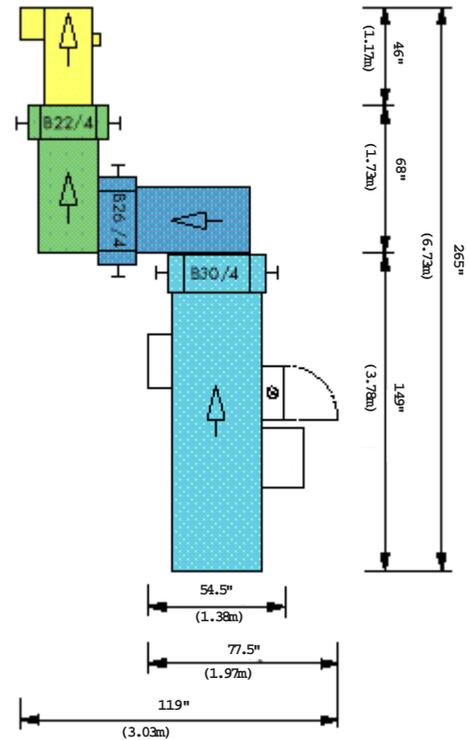


Figure 1

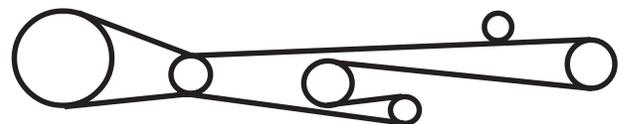


Remove the connecting bolts from the side frame at the front of the register. Move the feeder next to the properly aligned fold head and adjust it so that the holes in the register and in the side of the folder are at the same height.

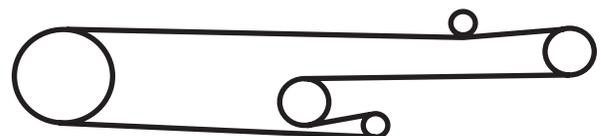


Remove the transport supports after you align the feeder.

Install the drive belts on the folding unit and check their tension.(Figure 3)



BAUM 26



BAUM 30

Figure 3

## TRANSPORTATION/INSTALLATION

As soon as you receive your new folder, and before removing the machine from the skid, check carefully for any damage to the shipments. If any damage is found, promptly contact your Baumfolder sales representative.

To lift the folder from the skid, place the fork lift rails under the crossmembers as shown in Figure 2. Note that the fork lift must have at least a 1500 lb. capacity.

Remove all rust protection coating after unpacking the folder.



Figure 2

## ELECTRICAL CONNECTIONS

### 1.0 Wiring the Unit (3 phase)



*All repair or disassembly work must be performed by qualified personnel. Before inspecting the electrical system, always turn the main power switch OFF before opening the door of the circuit cabinet.*

Check that your power supply meets the requirements given in the machine specifications. Use an allen wrench to unlock the circuit cabinet door and open it.

Feed the power supply cable from your distribution panel through the side of the circuit cabinet. Connect the customer's supply conductors to the main disconnect at L1, L2 & L3. Connect the earth ground conductor to the adjacent ground terminal block.

Before operating the folder for the first time, measure the line to line voltage to determine where to set the transformer tap. Turn off the main disconnect and move the 7L3 tap of the transformer to the appropriate voltage tap of the transformer.

Turn the main power switch to the "ON" position. Switch the pumps on momentarily and check for proper pump rotation as indicated by the rotation arrow on the respective pumps. Immediately turn off the pumps if the rotation is wrong. If both motors are turning in the wrong direction, switch any two wires at the main disconnect switch. If only one rotation is incorrect, interchange any two of the three wires #1, #2, or #3 at their appropriate terminal block connection point.

### 1.1 Pump & Blower Connections

Once the pump and blower rotational directions have been checked and verified, connect the vacuum hose and the blower hose to their appropriate tubes and secure them with hose clamps.

# CONTINUOUS FEEDER OPERATION

## 1.0 Loading the Continuous Feeder

Before loading the sheets, use the knobs (Figure 4-1) of the side guide to set the side for the correct folding format according to the scale on the feeder. Make certain that you always maintain the required 8-12 mm gap between the incoming sheets and the alignment ruler.

The bottom table is equipped with a conveyor belt that is wide enough to stretch across all usable formats. When you change sheet formats, you must also adjust the lower side rails.



Figure 4

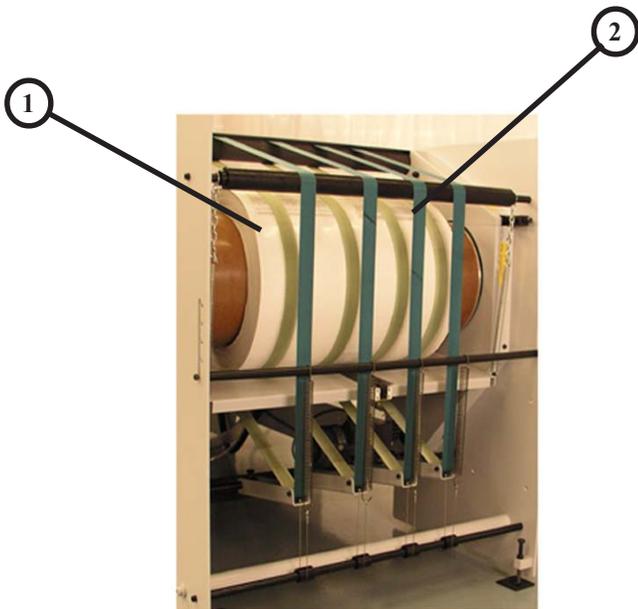
The deflector belts (5-1) that are wrapped around the reversing drum operate independently of the loading and outfeed tables. It will rarely be necessary to change the belt position. Make certain that the belts are not placed on the sheet edge (5-2). With the feeder running, use the lever to move the deflector belts to their proper position.

When loading the feeder, make certain that the paper stack does not exceed the maximum height of 3.00" or 8cm.

*When feeding a new sheet stack, e.g. when changing to a new sheet size, help the first sheet along until it is taken up between the reversing drum and the deflection belts. This is done by pressing the stack down on the middle conveyor belt while pushing the stack forward at the same time until it is securely held by the reversing drum and the deflection belts.*



*The suction plate blower can be moved or unscrewed for more convenient sheet removal.*



A movable feeder sensor switch (6-1) is located under the sucker wheel (6-2). This tab is activated by the leading edge of the sheet stream, thus providing fully automated control of the sheet stack feed.

The position of the leading sheet edge at the switch tab determines the speed at which the stack is advanced; therefore, the stack speed is automatically adjusted to any production speed.

Figure 5



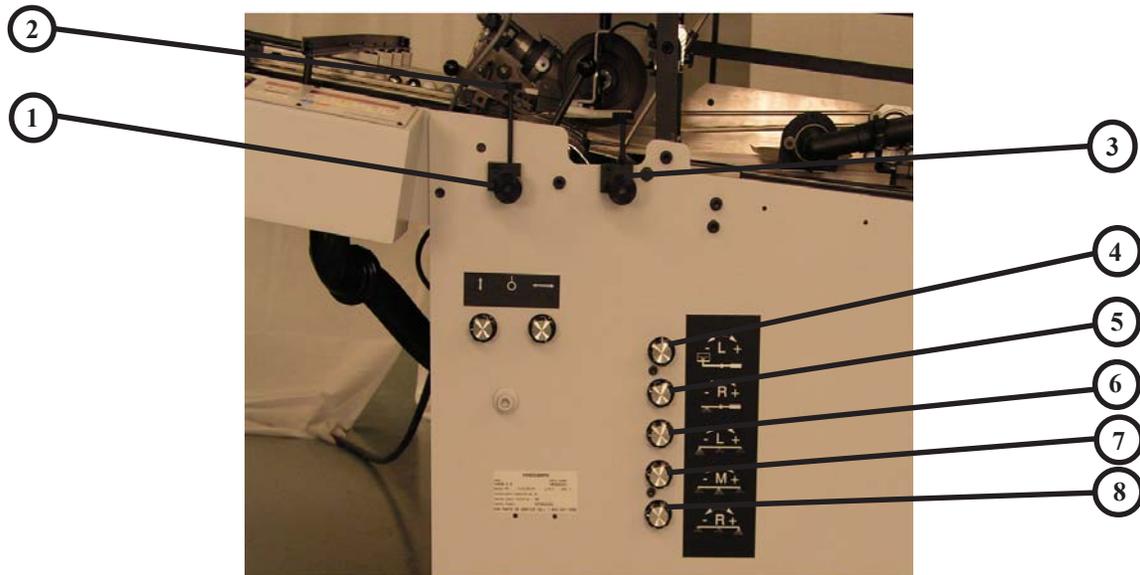


Figure 8

## 1.2 Sheet Separation and Suction Force

The holddowns (9-1) on the two sides of the sucker wheel (9-2) should always be positioned slightly lower than the sucker wheel. This causes the sheet which is sucked against the wheel to arch up slightly allowing the top sheet to be peeled away from a second sheet which may be clinging to it. With stiff and heavy paper, the holddowns must be set so that the suction wheel can still pick up the sheet.

The suction wheel is controlled by a solenoid valve (9-3). The normal setting is indicated with a red mark.

The point at which the suction is applied can be adjusted by swinging the suction point forward or backward with the knob (9-4).

It may be necessary to move the suction point back if the leading edge is curled down, or forward if the leading edge is curled up. This adjustment can be further assisted by raising or lowering the bridge with the knob.

The solenoid valve can be quickly and easily removed by releasing the clamps (9-5) to allow dry cleaning of the inner piston. To clean the piston cavity, unscrew and remove the back cover (9-6) on the solenoid block and pull a soft cloth through from the threaded side of the hole. Do not use any solvent, lubricating agents or air blasts.

**!** Be careful not to damage the piston or it's bushing.

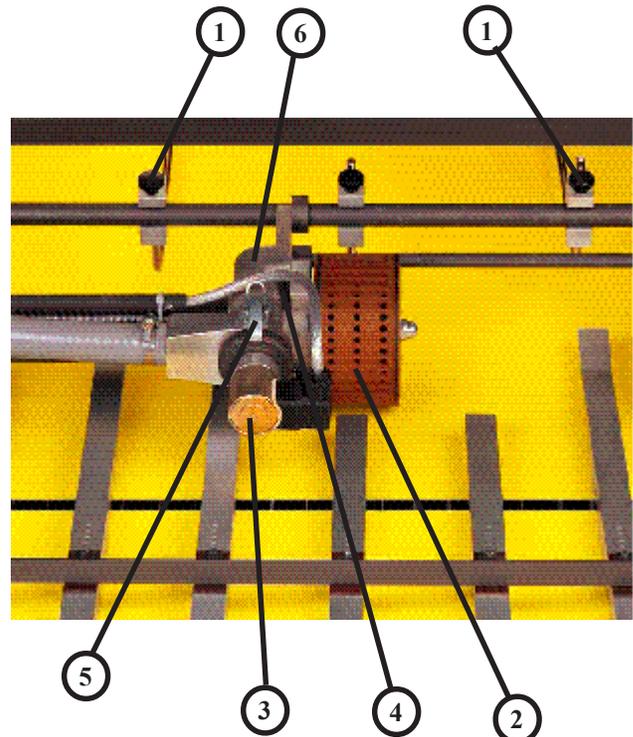


Figure 9

Adjust the front blowers in such a way that the sheet stack is fanned across the entire sheet width.

!

*Use less air for thin paper so that the sheets are not pushed back. The sheets must not arch because it may cause them to stick together.*

The lateral blowers (suction plate blowers figure 10) must be positioned so that the blowers rest on the sheet stack at a slight angle.

The balance is adjusted at the rear counter weight. The swing span can be adjusted by restricting the lift range. The suction plate blower is positioned with the front most third of the blower opposite the guidestop .

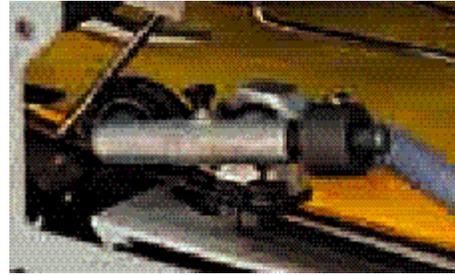


Figure 10

### 1.3 Register Table and Double Sheet Detector

Access to the feed register is provided by the pivoting of the upper feed table.

1. Turn the lead screw adjustment handle to set the register drive straight edge to the desired sheet size.
2. The first hole of the marble holder must always have a plastic ball installed. The other holes can be fitted with either steel or plastic balls. It is suggested that one uses as many light weight balls as possible for optimum sheet alignment. Use at least 1 to 2 steel balls in the last two holes nearest the fold rolls to hold the sheet edge in place during folding.
3. Holddown bars (11-1) are positioned above the register table to prevent the sheets from rising up as they are transported along the register. Slide these bars along the stop rails (11-2) to adjust the holddowns according to the sheet size.
4. A scale (12-1) indicates when the register straight edge is positioned at right angles to the fold rolls. The knurled wheel (12-2) is used to to fine adjust the guide edge if perforations or folds are skewed. This fine adjustment can be made while the folder is running.
5. The double sheet detector (13-1) is set by raising the arm (13-2) and inserting two strips of the paper (13-3) being ran between the block (13-4) and the arm. When doing this, be certain that the paper strips are slid under the arm of the retainer spring (13-5) so that they will not fall out when the arm is raised.

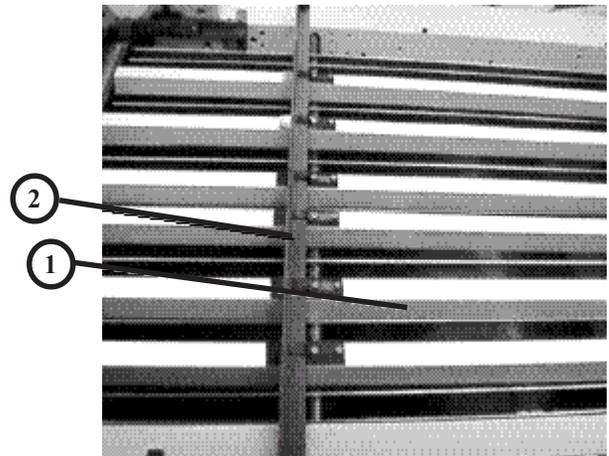


Figure 11

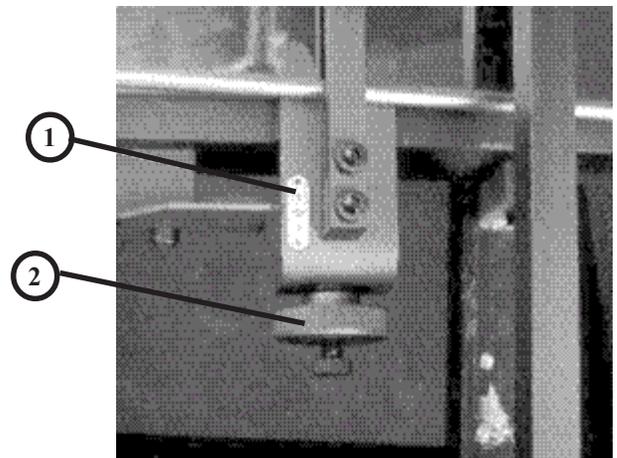


Figure 12

When a single sheet passes through, the scanner element (13-6) stays in the off-position. When a double sheet is fed, the scanner is activated and drawn into the microswitch (13-7) and the double is stopped. Only the sheet feed is switched off. To remove the double sheet, raise the arm. After fault removal, reset the "sheet-feed" start switch.

For thin paper, loosen the knurled screw and reset the lever spring tension. Afterwards retighten the knurled screw.

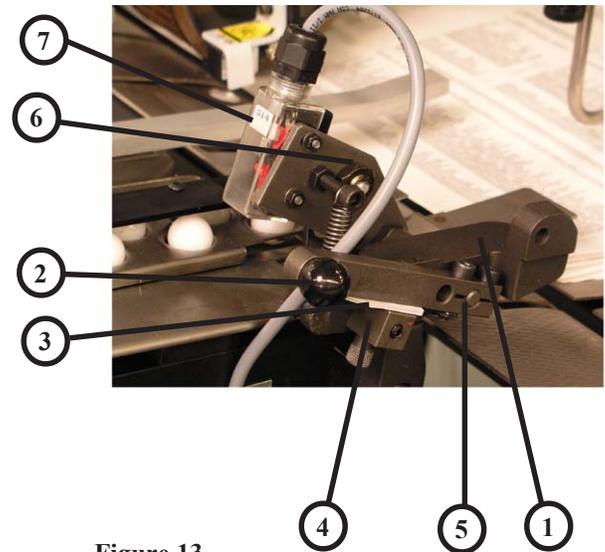


Figure 13

## BAUMSET ADJUSTMENT

### 1.0 Adjustment of Folding Rollers

Folding accuracy is determined largely by precise adjustment of the folding rollers.

Using the Baumset precision adjustment device, the correct setting of the rollers can be made simply by inserting the appropriate paper thickness between the adjustment plates. (See Figure 14)

With multiple thicknesses, insert single strips of the paper being folded equal to the number of sheets passing through that roller combination..

Since the adjustment spindle acts directly on the folding rollers, clearance settings are exact.

Another method for setting the folding rollers is to insert paper strips between them by touch and adjusting the pressure by turning the knurled screw.

The numbers on the Baumset adjustment knobs correspond to the buckle-plate numbers into which the sheet is fed. All upper buckle plates have odd numbers while the plates below are even.

The Baumset adjustment device is correctly zeroed at the factory. If any adjustment is necessary, strips of single paper thickness should be placed under every adjustment plate. The folding rollers are then reset by drawing strips of uniform thickness through the appropriate pair of rollers as far as possible to the other side.

At the same time, the knurled screws are adjusted so that the strips can be withdrawn when medium drag is felt. When this operation is complete, the dial rings are reset to zero.



Figure 14

## INSTALLING FOLD PLATES

Install the fold plates into the folder. Lock the fold plates in position with the clamping levers (15-1). See "Fold Pan" section for fold plate setting procedure.

Plug the stacker power cable into the corresponding outlet on the main control enclosure on the continuous feeder.

Pull the handwheel (Figure 1-11) to manually turn the fold rollers to be sure that they are operating smoothly. Check for any foreign material, and be sure that the deflectors do not touch the fold rollers.



Figure 15

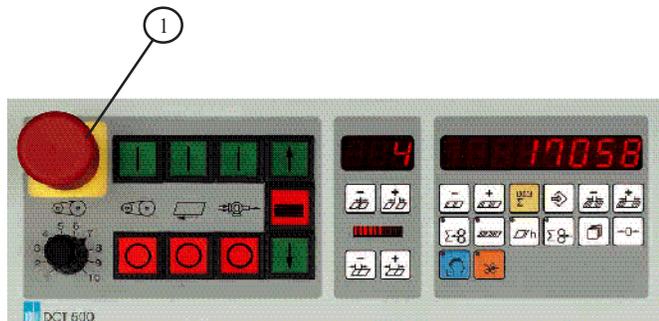


Figure 16

## OPERATOR CONTROLS

The main operator control panel (Figure 16) is located on the right side of the register. See the "Control Panel" section for a detailed description of all the buttons.

### 1.0 Setting Folding Speed

The speed of the fold rollers may be set while the folder is running! This is done by adjusting the speed control potentiometer located on the top left side of the main control panel. Clockwise rotation speeds the folder up; counter-clockwise rotation slows the folder down.

### 1.1 Setting Stacker Belt Speed

An infinite speed range between high and low is set by turning the control knob (Figure 17-1).

### 1.2 Emergency Stop Button

When an emergency stop button (16-1 & 17-2) is pressed, the result is:

- Sheet feed - stop
- Folder drive - stop

The pressure/vacuum pump continues to operate. The emergency stop button must be pulled to release before the machine can be restarted. An error message "Stop" will appear on the readout.

The emergency stop buttons are found at the main operator control panel (16-1) and the delivery control (17-2).

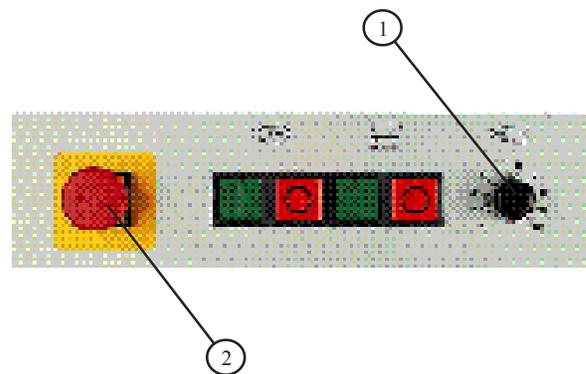


Figure 17

# 1.DCT500 Control Panel BAN-5

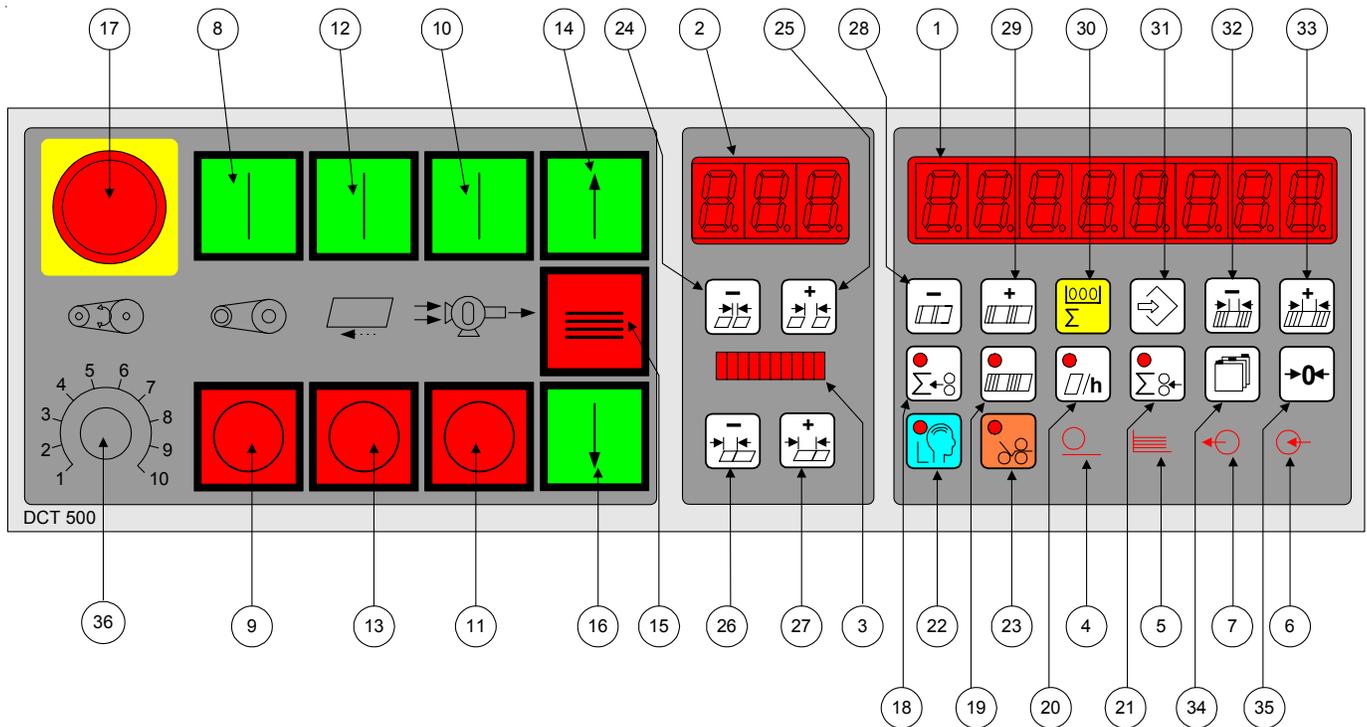


Figure 1. DCT500 Control Panel.

## Displays

- 01) Large Display  
Eight digit multi use display composed of 7-segment LED's.
- 02) Small Display  
Three digit multi use display composed of 7-segment LED's.
- 03) Ten segment bar graph display  
The suction length display is a used to display the Suction Length as a percentage of Sheet Length. This allows a range from 5% to 50%.

## Machine Status Indicators

- 04) Suction Indicator  
The suction indicator will track the suction output. The LED will turn on when the suction output turns on.
- 05) Pile indicator  
The indicator is lit when the feeder is in automatic feed mode. The indicator will flash if the feeder is in reverse mode (Continuous Feeder) or moving down (Pile feeder).
- 06) Input Indicator  
The input indicator shows the status of a user selected photo eye.

- 07) Output Indicator  
The output indicator lights when the Batch Preset PV is reached and the user has selected a batching option. The output indicator is lit during the time the batching option is active. Batching options are Feed interruption, Marking table, Speed up table or Kicker.

### **Machine Control Pushbuttons**

- 08) Main Drive Start
- 09) Main Drive Stop
- 10) Pump Start
- 11) Pump Stop
- 12) Feeder Start
- 13) Feeder Stop
- 14) Pile Feeder Up, Continuous Feeder Start
- 15) Pile Feeder Stop, Continuous Feeder Stop
- 16) Pile Feeder Down, Continuous Feeder Reverse
- 17) Emergency Stop

### **Keypad Buttons for Selection Adjustments**

- 18) Show Output Count
- 19) Show Batch Count and Number of Batches
- 20) Show Current Rate
- 21) Show Input Count
- 22) Learn Mode
- 23) Make Ready Mode

### **Keypad Buttons with Selection Indicators**

- 24) Gap Minus
- 25) Gap Plus
- 26) Suction Length Minus
- 27) Suction Length Plus
- 28) Batch Preset Minus
- 29) Batch Preset Plus
- 30) Counter Setup Mode
- 31) Machine Setup Mode
- 32) Batching Time Minus
- 33) Batching Time Plus
- 34) Network Job Mode
- 35) Reset
- 36) Potentiometer Speed Adjust

## 2. Run Mode Functions

When the folder is started with the RUN/MAINT jumper in the RUN position, the system is enabled for the user to make machine setups and to fold paper. The counter will start up in production mode, the normal operating mode of the counter. In this mode, various job parameters can be displayed on the large display (1), and the small display (2) shows the gap length. The suction length display (3) is active in this mode and shows the suction length as a percentage of sheet length.

The DCT500 mode select keys perform the same function in all modes, except Counter Setup. This allows a user to quickly switch between the operating modes on the counter. Select Make Ready is not a mode unto itself, but rather is a modifier to all modes.

### 2.1 Machine Setup and Diagnostic Mode

Pushing this key puts the controller in machine setup mode.



Machine setup mode provides a method to view and optionally change operating parameters for the controller. The decimal points in the large display (1) will move from side to side to indicate that a parameter may be changed. In this mode, the small display gives the selected parameter number, while the large display (1) shows a parameter value. The suction length display (3) is disabled.

Parameter Selection



The plus (25) and minus (24) keys are used to move through the list of available parameters.

Selected Parameter Adjustment



If the large display (1) decimal points are moving, the set of minus and plus buttons will move through the set of values for the selected parameter, see table 3 and 4.

#### 2.1.1 Machine Setup Parameters

**Table 1. DCT 500 Machine Setup Parameter List**

#	Function	Type	Variable Displayed
P00	Input Counter	Setup Variables	adjustable 1-24 - Std setting 1
P01	Output Counter	Setup Variables	adjustable 1 to Input Factor SV Standard setting 1
P02	Tremat	Setup Variables	adjustable Standard: none 0 Tremat available 1
P03	Knife	Setup Variables	adjustable Standard: none 0 Knife available 1
P04	Ergonomic pile	Setup Variables	adjustable Standard: none 0 Ergo. available 1
P05	Kicker	Setup Variables	adjustable Standard: none 0 Kicker available 1

**P00: Input Counter**

The number of sheets sensed by the sheet count sensor is multiplied by the factor number displayed, but does not effect the Batch Down Count, Number of Batches and the Rate.

The Factor can range from 1 to 24. If the Input Factor is changed, it also changes the value of the Output Counter to the same setting.

**P01: Output Counter**

This number is added to the Total Output Count but does not effect the Batch Down Count, Number of Batches and the Rate.

The Factor can range from 1 to Input Counter setting.

**P02: Tremat**

This selection allows pile feeder machines to switch the tremat function on (1) and off(0)

**P03: Knife**

The operator must indicate to the machine whether a single cross-fold or several cross-folds are in use in the machine network. This is done by entering either "1" (Cross fold) or "0" (No cross fold).

Entering "1" (Cross fold) automatically sets the sheet spacing to 10 cm after a single learned sheet. If "0" (No cross fold) is entered, the sheet spacing is automatically set to 4 cm after a single learned sheet.

**P04: Ergonomic stacking**

Select "1" to activate the Ergonomic stacking function. "0" indicates that the Ergonomic stacking function is disabled or not available.

Note: This parameter is only displayed on machines configured with a horizontal pile feeder.

**P05: Kicker**

Select this parameter to activate/deactivate the kicker function.

0 = Kicker disabled (not available), 1 = Kicker enabled.

**2.1.2 DCT 500 Diagnostic Parameters**

#	Function	Type		Variable Displayed
P10	Machine Speed	Statistics Values	Display only	Meters per minute
P11	Production time	Statistics Values	Reset to zero	Time in Hours (decimals)
P12	Production stoppage time	Statistics Values	Reset to zero	Time in Hours (decimals)
P13	Setup time	Statistics Values	Reset to zero	Time in Hours (decimals)
P14	Pause	Statistics Values	Reset to zero	Time in Hours (decimals)
P15	Curent Job No.			Disabled
P16	Personnel No.			Disabled

Table 2 Statistics

**P10: Machine Speed**

Select this parameter to view the current machine speed expressed in meters per minute (m/min)

**P11: Production Time**

Select this parameter to view the length of time for which the machine drive is activated - shown in hours (decimals).

### P12: Production stoppage time

Select this parameter to view the time during which the machine is not operating. The Pause function and Sheet feed are disabled. The time is shown in hours (decimals) and reset to zero for a new job.

### P13: Setup Time

Select this parameter to view the Setup time in hours (decimals). The time indicator is reset to zero for a new job.

### P14: Pause Time

Select this parameter to view the time during which the machine is held by the Pause function (P23 enabled). The time is shown in hours (decimals) and reset to zero when new operating data is entered.

### P15: Current Job No.

Note: This parameter is only displayed when the network is activated in Service mode. Not available in Software Version 100.300.

### P16: Personnel No.

This parameter is only displayed when the network is activated in Service mode. Not available in Software Version 100.

#	Function	Operation	Key Combin.	Variable Displayed
P20	Units	Adjustable with		Standard Inches Meters
P21	Language	Adjustable with		Standard English German Codes
P22	Network address	Adjustable with		Function not enabled
P23	Pause Time On/Off	Adjustable with		Standard - Disabled 0 Release 1 Activated
P24	Network	Adjustable with		Deactivated
P25	Easy Mode	Adjustable with		Function not enabled Default setting 0 only on C-2020, P-2020
P26	Software Version	Automatic from RAM	Fixed	e.g. dCt 3.0.1
P27	Machine Type	In Service mode	Fixed	e.g. P-36
P28	Serial Port type	In Service mode	Fixed	e.g. off Large contr. display dsP Network net

Table 3 Machine settings

### P20: Units

Use this parameter to select the unit of measurement (meters or inches) for the values which appear in Displays 01 and 02.

### P21: Language

Use this parameter to select the language (English, German or code) for the Display (01) messages.

### P22: Network Address

Only indicated when the "Network" option is selected and enabled in the Service menu. Not available in Software Version 100.300.

### P23: Pause

This function is used to activate/deactivate a Pause counter. Select this parameter to display the period of time for which the pause function was last engaged. It is not possible to feed in sheets when the Pause function is activated.

### P24: Network

Network is only displayed when "Network" is selected and enabled in the Service menu. Not available in Software Version 100.300.

### P25: Easy Mode

This function can only be used on machine types P-b20, C-b20, C-2020 and P-2020.

### P26: Hardware and Firmware Version

Select this parameter to display the software installed in Service mode. The logic board type appears in the left of the display. DCT displays a DCT 500 logic board.

### P27: Machine Type

Select this parameter to view the Machine type specified in Service mode.

### P28: Serial Port

Parameter setting in Service mode is displayed: dSp, nEt, Off

P30	<b>Status Input Port 1</b>							
	P30.1	P30.2	P30.3	P30.4	P30.5	P30.6	P30.7	P30.8
	Pile Motor Energized	Function Control K1	Pile Down Button	Pile Stop Button	Pile Up Button	Compress. Stop Button	Compress. Start Button	Drive Start Relay K3
P31	<b>Status Input Port 2</b>							
	P31.1	P31.2	P31.3	P31.4	P31.5	P31.6	P31.7	P31.8
	Pile Sensor	Double Sheet Fault	Pile Down Limit	Sheet Start Button	Sheet Stop Button	Thermal Fault	Wrong Sheet Fault	Emerg.Stop Drive Stop Button
P32	<b>Status Input Port 3</b>							
	P32.1	P32.2	P32.3	P32.4	P32.5	P32.6	P32.7	P32.8
	Ergonomic Pile Load Eye	Jam on Knife 3	Knife in Manual Mode	Jam on Knife 2	Jam on Knife 1	Suction Controller fail	Delivery Count Input	Count sensor Suction Wheel
P33	<b>Status Input Port 4</b>							
	P33.1 N	P33.2	P33.3	P33.4	P33.5	P33.6	P33.7	P33.8
	Board select	Board select	Not used	Not used	Not used	Not used	Not used	Not used
P34	<b>Status Input Port 5</b>							
	A34.1	A34.2	A34.3	A34.4	A34.5	A34.6	A34.7	A34.8
	External Mis-feed sht.	Setup Station 2	LT folding station delivery	External device	K2 Checkback signal protection	Emerg. stop station	Emerg. stop guard open	Machine Emerg. stop activated
P35	<b>Status Output Port 1</b>							
	P35.1	P35.2	P35.3	P35.4	P35.5	P35.6	P35.7	P35.8
	Not used	Controller drive release	Relief valve/Tremat ON (K6)	Not used	Pile down active	Pile up is active	Drive Stop function Relay (K5)	Pump start (K4)

**Table 4 Machine diagnostic mode parameters**

### P30: Port 1 Inputs

P30 indicates Port 1 input status.

### P31: Port 2 Inputs

P31 indicates Port 2 input status

### P32: Port 3 Inputs

P32 indicates Port 3 input status

### P33: Port 4 Inputs

P33 indicates Port 4 input status

### P34:Port 5 Inputs

P34 indicates Port 5 input status

### P35: Port 1 Outputs

P35 indicates Port 1 output status

#	Function	Operation	Key Combin.	Variable Displayed
P60	Drive start key delay	Adjustable with		0 - 13 secs.
P61	K2 release time	Adjustable mit RP2	Adjuster- (large display)	K2 Delayed release (sec)

Table 5 Safety settings

### P60: Drive Start Delay period (only when A02=0)

Entering the Drive Start Delay period for Station 1 (Settings: 0 to 13.0 sec.) ensures that the paper runs smoothly after starting if there is any paper still inside the machine. (Station 1: approx. 0.6 sec.)

### P61: Display of delayed release for the K2 guard (only when A02=0)

Adjuster for setting the K2 delayed release (Measuring time = 0 to 10 sec.). Adjust with the RP2 poti on the SGM-3 board. Default setting = approx. 2.5 sec.

#	Function	Type		Variable Displayed
P40	Mon. time for Knife 1	Variable function	Input X26/1, P32.5	Time in milliseconds
P41	Mon. time for Knife 2	Variable function	Input X26/2, P32.4	Time in milliseconds
P42	Folding station delivery	Variable function	Input X30/5, P34.3	Time in milliseconds
P43	Counting input	Variable function	Input X25/5, P32.7	Time in milliseconds
P44	Knife 1 strokes	Variable function	Input X26/2, P32.4	Time in milliseconds
P45	Knife 2 strokes	Variable function	Input X26/5, P32.2	Time in milliseconds

Table 6 Machine statistics

### P40: Time: Knife 1

Knife 1: Light sensor cover time in milliseconds.

### P41: Time: Knife 2

Knife 2: Light sensor cover time in milliseconds.

### P42: Folding station delivery

Display of the time registered by the photoelectric barrier on the folding station delivery.

### P43: Counting input

Display of the time registered by the photoelectric barrier on the counting input.

#### Important:

The counting input is not monitored when Kicker batching is selected.

If the counting input is removed when the machine is activated, error message S-C 5 /B-C 5/STOP 13 is displayed once and the drive is shut down. The error message is cancelled when the machine and the sheet feed are restarted. The machine is reactivated by the rear edge at the counting input.

### P44: Knife 1 strokes

Select this parameter to view the total number of strokes (in 1000s) for Knife 1.

### P45: Knife 2 strokes

Select this parameter to view the total number of strokes (in 1000s) for Knife 2.

#	Function	Type		Variable Displayed
P50	Main time switch ON	Machine status	Main switch ON	Time in hours (decimals)
P51	Machine operating time	Machine status	Drive Start	Time in hours (decimals)
P52	Total sheet feed	Machine status	Input X14/4, P31.1	Display x 1000 sheets

**Table 7 Machine operating statistics**

### P50: Main time switch ON

Can only be reset in Service mode.

### P51: Machine operating time

Can only be reset in Service mode.

### P52: Total sheet feed

Select to view the total number of sheets fed in (in 1000s).  
The total is reset to zero when new operating data is entered.

Exit Machine Setup Mode



Pressing any of these keys will cause the controller to change to a new mode.

## 2.2 Counter Setup Mode



Pushing this key puts the counter in counter setup mode.

Counter setup mode is used to prepare the controller to run a job. The large display (1) shows the batch preset on the left-hand side and the batching output time on the right-hand side. The decimal points in the large display (1) will move from side to side to indicate that a parameter may be changed. The small display (2) shows the batching type. The suction length display (3) is active.

### Change Batching Type



The minus and plus buttons move through a list of four output devices. The chosen Type is then activated when the batch countdown goes to zero. Feed interruption stops the feeding of sheets for the batching time setting. The speed up table output activates the marking table output for the batching time duration. The MKE mode delivers a 100 ms pulse on the MKE output after awaiting the batching time. The last, kicker, causes a 20 ms pulse on the kicker output after the batching time expires. The kicker output may only be selected if the Count Source is set to delivery. The output types are represented by animated symbols. The sequence of frames for the animations is shown in table 5.

	Feed Interruption	Speed Up Table	MKE Table	Kicker
Frame 1				
Frame 2				
Frame 3				
Frame 4				
Frame 5				
Frame 6				
Frame 7				
Frame 8				

**Table 8. Output Type Animations**

### Suction Length Adjustment



This is the same as in run mode.

### Batch Preset Adjustment



These buttons cause the batch preset to be incremented or decremented. The preset will be reloaded after the user leaves the setup mode only if the value has been changed.

### Batching Time Adjustment



The batching time adjustments allow the user to select the time duration associated with the currently selected output type. The DCT500 mode supports four output types and times.

1. Feed interrupt has a range of 0.0 to 9.9 seconds.
2. Speed up Table has a range of 0.00 to 5.00 seconds.
3. MKE Table has a range of 0.000 to 1.000 seconds.
4. Kicker has a range of 0.000 to 1.000 seconds.

### Select Count Source



The Input Count and Output Count keys select between count at the feeder and delivery, respectively. One key LED will always be lit in Counter Setup to show the current count source, see table 6. If the output key is pushed when it's LED is on, the Batching Type is kicker, then the DCT500 will activate chasing LEDs in the small display signifying the start of kicker setup mode. The next sheet fed through the kicker will be timed from leading edge to the trailing edge and the kicker delay time will be set to one half the sheet time. Please note, this must be redone if the delivery speed is changed.

	The batching count source will be the feeder photoeye.
	The batching count source will be whatever is connected as the delivery photoeye.

**Table 9. Count Source Selection**

### Exit Counter Setup Mode



Pressing any of these keys will cause the counter to change to a new mode.

## 2.3 Learn Mode



This key places the counter in learn mode. Learn mode can only be activated if the folder is idle.

The learn mode allows the user to setup the suction valve controller. Both manual and automatic setup is accomplished in this mode. The large display (1) shows two separate data items. On the left is the suction mode and the right shows sheet length. The small display (2) shows the current gap length. The suction length display is active. During Learn Mode, the Learn Mode key LED indicates whether a valid sheet has been learned. See table 15.

	No valid sheet has been read yet, the system is in Single Sheet mode.
	A valid sheet has been read and the DCT500 has been setup to run. Single Sheet mode is off.

**Table 10. Learn Mode Status**

When the LED is on, pushing the sheet start button will feed a single sheet of paper. If the sheet is fed properly, the indicator LED will go off. The suction mode will be set to automatic. The length of the sheet will be set as the current sheet length. The suction length will be set based on table 9 and the gap length will be set to 1.5 inches/4 cm if P06 is set to 0 (no knife is active); the gap length will be 4.0 inches/10 cm if P06 is set to 1 (knives are active).

### Gap Length Adjustment



The minus and plus keys adjust the gap length. The gap length range is 0.2” to 98.0” (0.5cm to 250cm).

### Suction Length Adjustment



The suction length adjustment keys allow the user to change the amount of suction applied to the current sheet length. The display shows the percentage in 5% steps. All of the bars must be totaled to get the value. The range of adjustment is 5% to 50% of the current sheet length. If the suction length is manually adjusted while the Learn Mode LED is on, the suction length will no longer be the Single Sheet suction length of 6.0 inches. The new suction length will be based on the current sheet length and suction setting.

### Select Suction Mode



These keys toggle between automatic control and cycle mode. In the cycle mode, the suction valve will be on for the suction length and off for the remainder of the sheet length plus the gap length. No adjustments are made for slipped sheets or process changes. The automatic mode corrects for process changes and controls the timing of the suction valve to maintain the user selected gap. If the gap is less than 2” (50 mm), the right hand decimal point of the small display (2) will flash and the Leading edge control will be active. If the gap is greater than or equal to 2.0” (50 mm), full Leading and Trailing edge control is maintained. Refer to table 8 for suction mode symbol definitions.

	TWT-180 Mode
	Leading Edge Control
	Leading and Trailing Edge Control

**Table 11. Suction Mode Symbols**

### Sheet Length Adjustment



The sheet length adjustment keys allow the user to override the automatic Learn Mode. When the user changes the sheet length, the suction length will be adjusted according to table 9. If a different suction length is desired, the value may be overridden with the suction length adjustment keys. The sheet length range is 4 inches/10 cm to 98.5 inches/250 cm.

### Sheet Length Setting

- Greater than or equal to 30 cm.
- Less than 30 cm., and greater than or equal to 27 cm.
- Less than 27 cm., and greater than or equal to 24 cm.
- Less than 24 cm., and greater than or equal to 21 cm.
- Less than 21 cm.

### Resultant Suction Length Percentage.

- 30% of Sheet Length
- 25% of Sheet Length
- 20% of Sheet Length
- 15% of Sheet Length
- 10% of Sheet Length.

**Table 12. Suction Length Function**

### Exit Learn Mode



Pressing any of these keys will cause the controller to change to a new mode.

## 2.4 Make Ready Mode



When this button is pushed, its LED toggles. When the LED is on, the folder will only feed single sheets and a batching output is issued for every two sheets fed. This allows the operator to easily set up the batching time. Make ready is deactivated when learn mode is started.

Pressing any of these keys will exit Make Ready Mode.



## 2.5 Network Job Mode



Pushing this key puts the counter in network job mode

This mode is only available if a STA-NET adapter is installed and activated through maintenance mode. In this mode the small display (2) always shows the word 'Job'. The large display (1) shows either 'Pause' or a job number which can be read from the network. The suction length display is disabled.

### Select Job Number



This set of plus and minus keys step the large display (1) through pause mode and a list of available job numbers. While in network job mode, the folder is considered to be paused.

### Load Job and Return to Run Mode



When this button is pushed, the selected job will be loaded into the counter and the counter will return to run mode. If the large display (1) was showing the message 'Pause', the network job mode will end, but no job will be loaded.

### Exit Network Job Mode



Pressing any of these keys will cause the counter to change to a new mode.

## 2.6 Production Mode

Enter Run Mode and Select Large Display Content



These keys do not operate as mode select keys in counter setup. In all other modes, the keys both select the large display (1) contents and place the counter into run mode. Pushing one of the buttons will light the button's associated LED and cause the parameter to be displayed. If both the input and output count keys are pressed simultaneously, then both LEDs go on and the waste count is displayed.

<b>Large Display Contents</b>				
				Output Count
				Batch Count Down Number of Batches
				Current Rate
				Input Count
				Waste Count

Table 13. Determining the Large Display Contents



When the folder is started with the RUN/MAINT jumper in the RUN position, the system is enabled to fold paper. The counter will start up in run mode, the normal operating mode of the counter. In this mode, various job parameters can be displayed on the large display (1), and the small display (2) shows the gap length. The suction length display (3) is active in this mode and shows the suction length as a percentage of sheet length.

Gap Length Adjustment



The gap length adjustment keys allow the user to change the current gap length. The range of adjustment is 0.2 inches to 98.0 inches (0.5cm to 250mm).

Suction Length Adjustment



The suction length adjustment keys allow the user to change the amount of suction applied to the current sheet length. The display shows the percentage in 5% steps. All of the bars must be totaled to get the value. The range of adjustment is 5% to 50% of the current sheet length.

Reset Function



Pressing and holding this key will result in a reset function being activated after a 5 second countdown. The function is based on the current large display selection, see table 11. The large display (1) will show countdown to reset in this manner. When the button is pressed the message 'CLr In 5' will show on the large display (1). At one second intervals the display will progress through 'CLr In 4', 'CLr In 3', 'CLr In 2', 'CLr In 1', and finally will show 'CLEARed' when the reset action is complete.

	Reset while showing Output Count will reset all job variables.
	Reset while showing batch data will reset Number of Batches and reload the Batch Down Count.

Table 14. Reset mode Selection

Exit Run Mode



Pressing any of these keys will cause the counter to change to a new mode.

### 3. Controller Input Description

#### 3.1 Table Inputs

Input	Type	Connector Point	Indicator	Name
DCI-1	NPN 24VDC	X14/2	P31.1	Pile Sensor
DCI-2	NPN 24VDC	X14/5	P14.8	Photoeye Suction Wheel
DCI-3	PNP 24VDC	X25/5	P32.7	Delivery Count Input
DCI-4	NPN 24VDC	X15/2	LED 1	Encoder
DCI-5	NPN 24VDC	X26/1	P32.5	Sheet Control Knife 1
DCI-6	NPN 24VDC	X26/2	P32.4	Sheet Control Knife 2
DCI-7	NPN 24VDC	X26/4	P32.3	Knife Manual
DCI-9	PNP 24VDC	X26/8	P32.1	Ergonomic Pile Make Ready
DCI-10	24VDC	X30/5	P34.3	Light sensor - Folding station del.
DCI-11	24VDC	X30/11	P34.2	Folding station - Make Ready
ACI-1	24VAC	X21/1, X21/2, X23/3	P30.8	Drive is on
ACI-2	24VAC	X11/3, X22/2, X23/4	P31.8	Emergency Stop/Drive Stop
ACI-3	24VAC	X22/3	P31.7	Jammed Sheet
ACI-4	24VAC	X22/4	P31.6	Drive Thermal Fault
ACI-5	24VAC	X21/5, X23/9	P31.5	Sheet Stop Button
ACI-6	24VAC	X21/6, X23/11	P31.4	Sheet Start Button
ACI-7	24VAC	X11/2	P31.3	Pile is down
ACI-8	24VAC	X11/6	P31.2	Double Sheet Fault
ACI-9	24VAC	X23/5	P30.7	Compressor Start Button
ACI-10	24VAC	X23/6	P30.6	Compressor Stop Button
ACI-11	24VAC	X23/10	P30.4	Pile Stop Button
ACI-12	24VAC	X23/12	P30.3	Pile Down (backward) Button
ACI-13	24VAC	X23/14	P30.5	Pile Up (forward) Button
ACI-14	220VAC	Internal	P30.2	Function Control K1
ACI-15	220VAC	Internal	P30.1	Function Control Pile
ACI-16	24VAC	X29/5	P34.5	K2 protective relay monitor
ACI-17	24VAC	X29/7	P34.4	External device monitor
ACI-18	24VAC	X29/1	P34.8	Emergency stop - control panel
ACI-19	24VAC	X29/2	P34.7	Emergency stop - guard
ACI-20	24VAC	X29/3	P34.6	Emergency stop - next stations
ACI-24	24VAC	X19/2	P34.1	External mis-fed sheet

Table 15. Inputs

#### 3.2 24VAC Inputs

Several mechanical switches are used to indicate machine faults. These faults are described here. If these faults occur when the machine is not running, they will display the associated fault message until the fault is cleared. The only exception is the Safety fault. The Safety fault always requires removal of power before the machine can be used again. If a fault occurs while the machine is running, the method used to clear the fault varies from fault to fault.

##### Double Sheet

The Double Sheet switch is used to sense multiple sheets being fed into the machine at the same time. If this fault occurs, the message “2 Sheet” will be displayed and sheet feeding will stop. The Drive and Compressor outputs will continue unaffected. Once the fault has been cleared the machine can start feeding sheets again by pressing the Sheet Start switch.

### 3.3 24VDC Inputs

#### **Thermal**

The Thermal input indicates that a motor is overheating. If this fault occurs, the message “overload” will be displayed, sheet feeding will stop, the Drive and Pile outputs will be turned off. Once the fault has been cleared, the machine can start feeding sheets again by pressing the Drive Start switch followed by the Sheet Start switch.

#### **Wrong Sheet**

The Wrong Sheet switch is used to sense a jam in the output register. If this fault occurs, the message “Wrng Sht” will be displayed, sheet feeding will stop, the Drive, Pile outputs, and RLY1 will be turned off. Once the fault has been cleared, the machine can start feeding sheets again by pressing the Drive Start switch followed by the Sheet Start switch.

#### **Count**

The DCT500 can have two Count inputs. The Count Inputs are referred to as Feeder (FED) and Delivery (DEL). The Feeder input is used to increment the Total Input Count. The Delivery input is used to increment the Total Output Count. Some machines will only use the Feeder input. Machines that use both count inputs use a sensor at the input of the machine (Feeder) to sense sheets feeding into the machine and a sensor at the output of the machine (Delivery) to sense actual completed sheet output. The difference between the two counts is called the Waste Count.

#### **Tachometer**

The Tachometer input is a high speed input that is used to sense rotation of the Fold Roll. This input allows the unit to calculate the speed of the machine, and allow the unit to determine the length of a sheet being fed through the machine by counting the number of Tachometer pulses received. Each tachometer pulse represents a certain distance, see Table 1 Machine Types. The actual distance is dependent on the machine type selected. The Tachometer Input starts when the Drive Start switch is pressed. If the tachometer reading is outside the range of 10 to 230 meters per minute, the unit will display the message “NO TACH”, and prevent further operation of the machine. To restore operation, the Drive Start switch must be pressed.

Four additional 24VDC inputs are provided on the DCT500. One input is for the Tremat unit and two inputs are for the knife-folding unit. The remaining input is for the ergonomic pile load sensor.

#### **Ergonomic Pile Load Sensor**

The Ergonomic Pile Load Sensor is an optional sensor that is installed for special paper loading applications. If the input is active and the Down Pile switch is pressed, the Pile Down output will turn on. Once the Ergonomic Pile Load input changes to the inactive state, the Down output will turn off. At this time the operator will load paper onto the pile. Five seconds after the Ergonomic Pile Load input senses the Pile, the Pile Down output will turn on. This process will continue until the operator presses the Pile Stop switch.

#### **Knife unit in manual mode**

If this input is active, the unit will operate in manual mode, where only a single sheet will be fed into the machine each time the Sheet Start switch is pressed. If this input is active, the LED in the make ready key is blinking.

#### **Paper under knife eye (1 to 3)**

This input is the photo-eye for the knife unit. If the photo-eye is covered for more than 1.5 times the last saved knife photo-eye time, the message ‘KnIFE #’ appears on the large display (1) and the machine stops.

Reference Designator	Name	Description
LED1	Encoder Indicator	Encoder input
LED2	Batching Output	Batching device pulse output activated. LED illuminated
LED3	Suction cycle valve	Suction cycle valve activated, LED illuminated
LED4	K1	Illuminated when K1 relay is activated
LED5	Pile Down	Output Down activated. LED illuminated
LED6	Pile Up	Output Up activated. LED illuminated
LED7	Pile Controller	Pile outputs Up/Down or Forward/Reverse activated, LED illuminated.
LED8	+5VDC Power Supply	Power ON, LED illuminated
LED9	+5VDC Supply, grounded	Power ON, LED illuminated
LED10	+24VDC Supply, grounded	Power ON, LED illuminated
LED11	Kicker	Kicker output activated, LED illuminated.
LED12	Regulator release	Activated when regulator release is active.

**Table 16. LED Status Indicators**

## 4. Process Variables

### 4.1 Total Input Count

Total Input Count PV increments by the factor setting each time an input is received at the Input Count input. Total Input Count can range from 0 to 99,999,999.

This process variable is stored in memory in case of a power outage.

Reset job will clear this process variable to zero.

### 4.2 Total Output Count

Total Output Count increments by the factor setting each time an input is received at the Output Count input.

Total Output Count can range from 0 to 99,999,999.

This process variable is stored in memory in case of a power outage.

Reset job will clear this process variable to zero.

### 4.3 Batch Down Count

The Batch Down Count is the number of remaining inputs necessary to trigger a batch output. As input counts are received, this value counts down to zero. Each input decrements the Batch Count Down by one. The factor is not used. When zero is reached, the Batch Down Count resets to the Batch Preset. The Count input that is used by the Batch Down Count is determined by the Batching Selection in Machine Setup. If Feeder is the Batching Selection, the Batch Down Count will be affected by the Input Count Input. If Delivery is the Batching Selection, the Batch Down Count will be affected by the Output Count Input. Batch Down Count can range from 1 to 999.

This process variable is stored in memory in case of a power outage.

Reset job will clear this process variable to zero.

Reset batch will load this process variable with the batch preset.

### 4.4 Number of Batches

The Number of Batches is the number of times the Batch Down Count has reached zero.

Number of Batches can range from 0 to 9999.

This process variable is stored in memory in case of a power outage.

Reset job will clear this process variable to zero.

Reset batch will clear this process variable to zero.

### 4.5 Current Rate

The Current Rate is based on the number of Input Count inputs received during the sample period.

The Current Rate is calculated every second.

The Current Rate is shown as rate per hour.

The Current Rate is rounded to the nearest hundreds.

Current Rate can range from 0 to 99,999,900.

This process variable is not stored in memory.

### 4.6 Main Drive Run Time

The Main Drive Run Time is the amount of time the Drive output has been on since the last Clear All Memory Reset in Maintenance Mode.

This value is displayed in the format HHHHHH.HH.

Main Drive Run Time can range from 0.00 to 999,999.99.

This process variable is stored in memory in case of a power outage.

Reset ALL in maintenance mode will clear this process variable to zero.

### 4.7 Main Drive Velocity

The Main Drive Velocity is the speed of the Tachometer input.

This value is displayed in meters per minute.

This value is calculated every 300 milliseconds.

This process variable is not stored in memory.

## 4.8 Waste Count

The Waste Count is the difference between the Total Input Count and the Total Output Count.

Waste Count is accessible by pressing and holding the Total Count button followed by pressing the Total Output Count button.

Waste Count can range from 0 to 99,999,999.

This process variable is not stored in memory.

Reset job will clear this process variable to zero.

## 5. Counter Setup Variables

### 5.1 Batch Preset

This parameter is accessible only in Counter Setup mode for the DCT500.

This parameter specifies the batch count that will be used by the Batch Count Down. Zero is the default setting.

This value can range from 0 to 999.

### 5.2 Batch Output Type

This parameter is accessible only in Counter Setup mode for the DCT500.

This parameter specifies the batch output type that will be used when the Batch Count Down reaches zero.

Available choices are Feed (FED), Delivery (DEL), Speed (SPD), and Table (TBL).

### 5.3 Batch Output Time

This parameter is accessible only in Counter Setup mode for the DCT500.

This parameter specifies the output duration or delay that will be used when the Batch Count Down reaches zero.

Available ranges are determined by the Batch Output Type selected. The Table below shows the ranges for each output type.

### 5.4 Sheet Length

This parameter is accessible in the Learn mode for the DCT500.

This parameter specifies the length of the paper that will be fed into the machine.

Available range is 6.0 inches to 59.0 inches. 6.0 inches is the default selection.

### 5.5 Gap Length

For the DCT500, this parameter is accessible in Run mode and Learn mode.

This parameter specifies the length of gap to use between sheets of paper that are fed into the machine.

Available range is 0.2 inches to 98.0 inches. 2.0 inches is the default selection.

### 5.6 Suction Length

For the DCT500, this parameter is accessible in Run mode and Learn mode.

This parameter specifies the suction length used on a sheet of paper that is fed into the machine.

Available range is 5% to 50% in 5% increments. 30% is the default.

Output Type	Delay		Duration	
	Min. Time	Max. Time	Min. Time	Max. Time
Feed	Not applicable		0.0 Sec.	9.9 Sec.
Table	0.000 Sec.	1.000 Sec.	100 ms	
Delivery	0.000 Sec.	1.000 Sec.	25 ms	
Speed	Not applicable		0.00 Sec.	5.55 Sec.

Table 17. Output Delay and Duration

## 6. System Messages and Run Messages

### 6.1 Power-Up Fault Messages

Messages that are displayed during power on self-test.

If PLC System Errors are shown in the display, call service.

English	German	Codes	TYPE	DESCRIPTION
88888	88888	88888	Information	The controller is performing its lamp test.
MEM TEST	MEM TEST	MEM TEST	Information	The controller is performing its RAM test.
all blank	all blank	all blank	PLC System Error	The display board is not functioning. Action: Cycle power. If error persists, call service.
ID Fail	ID Fail	ID Fail	PLC System Error	System cannot recognize the controller board. Action: Cycle Power, if error persists, call service.
Error 1	Error 1	Error 1	PLC System Error	The RAM test has found a bad memory location. Action: Cycle Power, if error persists, call service.
Error 2	Error 2	Error 2	PLC System Error	The Pile Safety Relay is stuck on or there is no power supply to the pile circuits. Action: Check the condition of Relay 1 K1, Fuses F1 and F2, and X18. Cycle Power, if error persists, call service.
Error 3	Error 3	Error 3	PLC System Error	There is power in the Pile Drive when it is off. Action: Check the condition of Relay 1 K1, Fuses F1 and F2, and X18. Cycle Power, if error persists, call service.
Error 4	Error 4	Error 4	PLC System Error	The 24VAC inputs have current before the Watchdog relay has been activated. Action: Check for stuck push buttons, faulty sensors, or loose connectors. Cycle Power, if error persists, call service.
Error 5	Error 5	Error 5	PLC System Error	The membrane switch panel has a key pressed during the power on self-test. Action: Cycle Power, if error persists, call service.
Error 6	Error 6	Error 6	PLC System Error	The Watchdog sense circuit indicates Watchdog timer operational before it has been started. Action: Cycle Power, if error persists, call service.
Error6.1	Error6.1	Error6.1	PLC System Error	Incorrect software in Eprom. Check Eprom type and files.

**Table 18. Power Up Fault Messages**

## 6.2 Run Time Fault Messages

Run time fault messages are only displayed when the unit is in Run mode. Fault errors can still occur, but the corresponding fault message will not be displayed until the unit is switched to Run mode. Run time fault messages are PLC System Errors or errors in the whole electric system. It is necessary to call a technician or service.

English	German	Codes	TYPE	DESCRIPTION
DCT X.X.X	DCT X.X.X	DCT X.X.X	Information	This is the Software-Version(X.X.X) Note:do not push any buttons until this message has been cleared from the display
K5 Relay	K5 Relay	Error 7	PLC System Error	The drive stop relay, K5, is not responding to the controller. Action: Call service.
Button	Taste	Error 8	Electric System Error	A push button is in the wrong state during the version message display. Action: Check Buttons & Cycle Power. If error persists call service
Watchdog	Watchdog	Error 9	PLC System Error	The Watchdog Timer has elapsed without being serviced. Action: Cycle Power. If error persists call service
No Tach	Impuls	Error10	Electric System Error	The Machine Tachometer is reading a velocity outside of the range 10 – 230 meters per minute, while the main drive should be running. Action: Check the electric. If error persists call service.
Overload	Überlast	Error11	Electric System Error	A Thermal Overload has been tripped. Action: Check the electric. If error persists call service
Pile Err	Spg. Über	Error12	Electric System Error	The Pile Safety Relay is stuck on or there is no power supply to the pile circuits. Action: Check the condition of Relay 1 K1, Fuses F1 and F2, and X18, then cycle Power. If error persists call service
Overrun	Überlauf	Error13	Electric System Error	The Pile Table has moved past its safety stops. Action: Check the limit switches, pile table, and wiring. If error persists call service
2nd Stat	2Station	Error14	Electric System Error	The Emergency Stop, Wrong Sheet, and Thermal Overload sense circuits are all indicating failure. Likely cause is Second Station connector problems. Action: Check the Second Station Connector, connector X22, and each individual circuit. If error persists call service
Suction	Saugtakt	Error15	Electric System Error	Short circuit on Suction controller. Action: Check the electric. If error persists call service
CLR Stop	CLR Stop	Error16	Electric System Error	Emergency Stop activated during power-up sequence
ERROR17	ERROR17	Error17	Electric System Error	Incorrect check-back signal received from K2 protective relay. Power-up sequence (Check-back contact)
ERROR18	ERROR18	Error18	Electric System Error	Incorrect check-back signal received from K2 protective relay. Shutdown sequence (Check-back contact)

**Table 19. Run Time Fault Messages**

### 6.3 Machine Run Error Messages

Machine Run Error Messages help the operator to indicate a production problem.

<b>English</b>	<b>German</b>	<b>Codes</b>	<b>TYPE</b>	<b>DESCRIPTION</b>
Stop	Stop1	Stop1	Information	One of the stop buttons is depressed. ACTION: Make sure all stop buttons are cleared and connectors X21, and X22 are seated.
Jam	Fehlerbg	Stop2	Operating Error	The Wrong Sheet Detector has been tripped. ACTION: Clear the fault. NOTE: If the main drive was running the error condition will remain latched until the Drive START is pressed.
2 Sheet	Doppelbg	Stop3	Operating Error	The Double Sheet Detector has been tripped. ACTION: Clear the fault and check X22. NOTE: If sheet feed was active the error condition will remain latched until the Sheet Start is pressed.
No Feed	Bog. Fehl	Stop4	Operating Error	No paper detected within 40 cm of suction valve actuation, while running in an automatic feed mode. ACTION: Check misfeed, connector X14, and the condition of the count eye.
Feeder	Sensor	Stop5	Operating Error	Photoeye at suction valve is covered before sheet start is active.
Long Sht	Bg. Lang	Stop6	Operating Error	The count eye has been covered for more than 150% of the user set sheet length distance. ACTION: Check misfeed, connector X14, and the condition of the count eye.
S-C 1	B-C 1	Stop7	Operating Error	Sheet monitor at Knife 1 activated. Folding problem. Re-learn sheet if necessary, or check light sensor.
S-C 2	B-C 2	Stop 8	Operating Error	Sheet monitor at Knife 2 activated. Folding problem. Check 1 x 4 connector and light sensor if necessary.
S-C 4	B-C 4	Stop 9	Operating Error	Sheet monitor at Folding station 1 activated
Snsor DN	Stpl Ab	Stop 10	Operating Error	The Pile has been moving down for more than 2.5 seconds while the unit is feeding paper. ACTION: Check Pile Sensor.
Snsor Up	Stpl Auf	Stop 11	Operating Error	The Pile has been moving up for more than 1.5 seconds while the unit is feeding paper. ACTION: Check Pile Sensor.

Stop 12	Stop 12	Stop12	Operating Error	External device error, e.g. Blind sheet monitor - Stop sheet
S-C 5	B - C 5	Stop13	Operating Error	Delivery/Kicker sheet monitor activated. Folding problem. Check 1x 12 connector and light sensor.
Stop 1-1	Stop 1-1	Stop 1-1	Machine Run Error	Emergency Stop key on machine control panel activated.
Stop 1-2	Stop 1-2	Stop 1-2	Machine Run Error	Guard open.
Stop 1-3	Stop 1-3	Stop 1-3	Machine Run Error	Emergency Stop key at next station activated.
Stop 1-4	Stop 1-4	Stop 1-4	Machine Run Error	External error. Wrinkled sheet switch on next station activated.

**Table 20. Machine Run Error Messages**

## SETTING OF FOLD PLATES

Be sure that the adjustment screw (18-2) is in contact with the support rail on both sides.

Clamp the fold plates with the clamping levers (18-3).

The sheet-stop (18-4) should be moved to the desired fold length according to the scale (18-5) by loosening the clamping screw (18-6) and then turning the adjustment wheel (18-7).

The sheet stop can be set at an angle for sheets that are not cut square by loosening the clamping screw (18-6) and turning the front adjustment wheel. The clamping levers (18-3) must be tightened for this adjustment.

For the fitting of a fold plate, both sides of the stop (18-1) must have the fold plate so that the adjustment screw contacts the support rail.

Equal adjustments at both ends are needed to prevent oblique folds or perforations.

### CAUTION:

If the buckle space is reduced, be sure that the fold plate does not rub against the folding rollers. If this occurs, the rollers will be damaged. Check for rubbing by manually turning the handwheel on the folder before turning the power on.

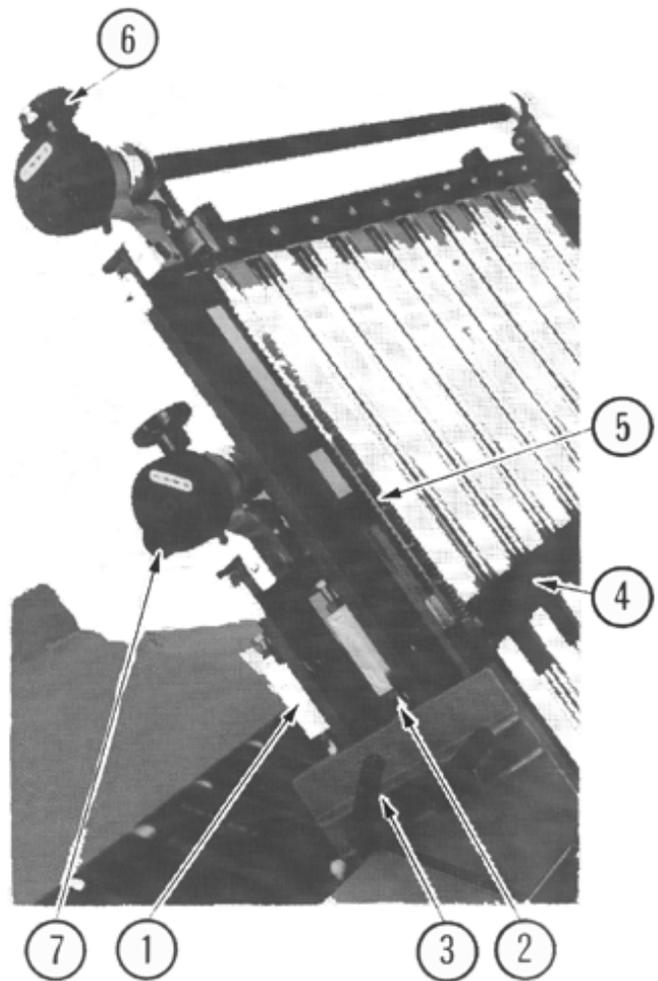


Figure 18



Figure 19

## SETTING OF SHEET DEFLECTORS

Fold plates that are not required for folding can be closed off when their combination deflectors are fully forward (Figure 19).

## SCORING/SLITTING/PERFORATING

Your new folder is capable of many different applications that compliment the folding performance and provide for greater productivity.

The folder is equipped with slitter shafts that are quickly set up for the required operation. These shafts accommodate the mounting of the standard and optional accessories available that perform scoring, slitting and perforating functions.

### 1.0 Slitter Shaft Accessories Removal

Removal of the slitter shafts is accomplished via noncorrosive linchpins (20). Add or remove the parts needed for the current job using the wrench provided with the machine. See the following pages for more information on perfing, scoring, and slitting. Reinstall slitter by reversing the above procedure.



Figure 20

### 1.1 Scoring

The folder can be used to score a sheet and deliver it flat, or to score a sheet after a fold or folds have been made.

To ensure accuracy in making right angle folds, always score the sheet where the fold or folds are to be made. This applies in all instances when a perforator cannot be used.

Various weights of stock with few or numerous folds require a different type of score. Some jobs require a narrow, sharp score, usually when the folds are few, and a fuller, more rounded score when the job becomes bulky.

The scoring blade is normally mounted on the upper slitter shaft. Scoring is accomplished by running the score blade in two rounded scoring collars. The sharpness and depth of score is controlled by the groove between these collars. The wider groove produces a wider, more rounded score; while the narrower groove produces a sharper, tighter score.

The pullout tires are used to control and support the sheet as it passes through the slitter shafts.

### 1.2 Perforating

The folder may be used for perforating either the heads of booklets (to allow the air to escape in making right-angle folds) or to slot perforated sheets delivered flat, using blades and strippers best adapted for a particular job.

Perforating blades are normally mounted on the upper shaft and ran in a grooved steel collar on the lower shaft with the flat side of the blade just touching a side of the groove.

A stripper must be used with each perforation. The forked spring steel stripper requires a little more care in mounting and is most often used when perforating only, as there is less tendency for the perforated sheet to break apart.

### 1.3 Slitting (Cutting) Sheets

Folders may be used to cut folded or flat sheets apart. Two or more cuts may be made if duplicate sets of slitters are used.

Be careful when mounting slitter blades to collars in order to avoid ragged edges which can be caused by two conditions:

- 1) Nicks or burrs on the collars or blades. Remove carefully by filing or using a fine piece of emery cloth.
- 2) Incorrect mounting of blades. Too much gap between slitting blades will result in a ragged cut

Space the pull out tires evenly to support the sheet.

## 1.4 Trimming Edges of Booklets

Cutting blades and strippers for trimming edges of booklets or outer edges of circulars running two or more up, are attached to blade holder collars so that the bevel of the blades on the upper shaft are directed toward the strip being trimmed and the bevel of the blades on the lower shaft are directed away from the strip. Blades mounted in this manner tend to turn trimmed edges down which helps guide them to the floor. Blade holder collars are turned out to allow a set of pull-out tires to be placed close to the cutting blades, preventing the sheet from buckling or twisting at the point where the cut is being made.

Use as many additional pull-out tires in the center of the sheet as necessary.

Set the collar, with blade attached, in the proper position on the upper shaft. Then move the collar/blade on the lower shaft so that the flat sides of both blades press snugly together. Too much space between the blades will cause a ragged edge on the finished booklet.

Do not attempt to trim less than one-eighth of an inch. On bulky or heavy sheets a wider trim is necessary.

The strippers used for this work are mounted on the square bar directly above the shafts. Note that one is right, and the other left. Place them accordingly. It may be necessary to bend the strippers slightly to avoid rubbing on the cross carrier or stacker. Strippers are adjustable for up and down movement.

## 1.5 Trimming a Strip from Center of Sheet

A quarter inch trim out of the center of a sheet may be made. Two or more trims may be made as long as duplicate sets of cutters and strippers are used and this setup adhered to.

To remove the trim, place the appropriate center stripper between two of the cutting blades attached to a collar.

Attaching blades to collars is very important and should be done with care. The bevel of the cutting blades on the top shaft should always be directed toward the strip to be trimmed.

Before the cutting blades are tightened to the blade holder collars, slide both the collar and attached blade on the end of the shaft so that they are accurately aligned. Place cutting blades on the upper shaft to the proper position where the cut is to be made. Then place collars on the lower shaft so that the flat sides are pressed snugly together. Too much space between the blades will give a ragged edge. Always examine blades for dullness and nicks which will cause the same condition.

When blades are in the proper position, mount the stripper. Be sure the stripper does not touch the sides of the cutting blades.

With this setup, the trimmed out section automatically goes between the blades on the lower shaft, where it is carried down and around and guided to the floor by the stripper wire.

## 1.6 Blade Installation

### **WARNING!!!**

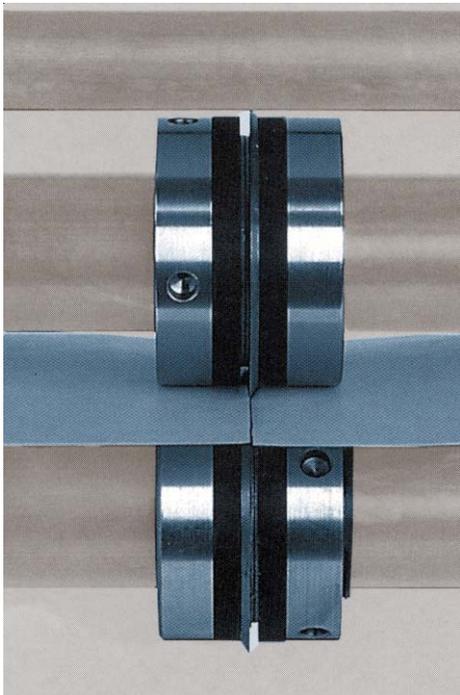
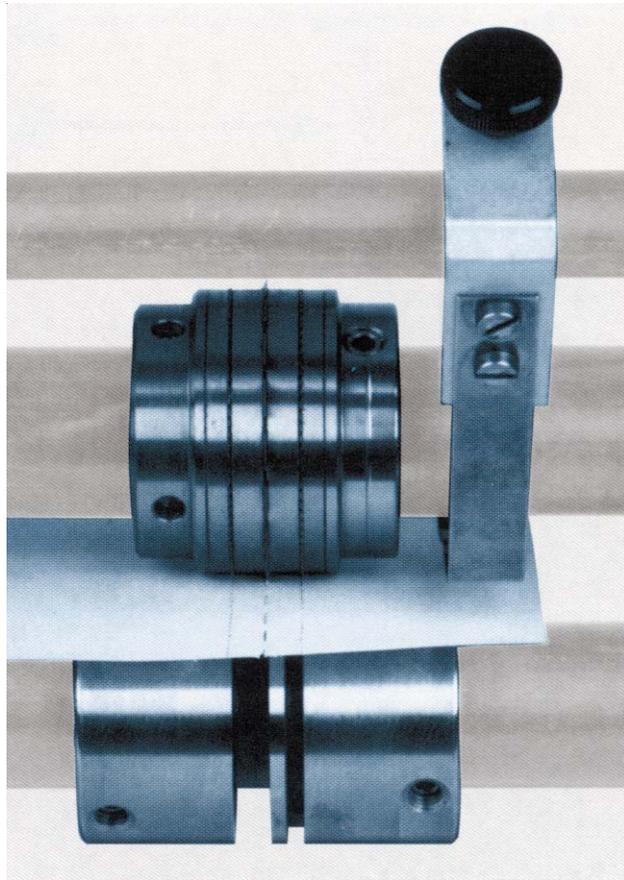
**EXTREME CARE MUST BE TAKEN IN THE REMOVAL AND INSTALLATION OF ALL SLITTING, PERFORATING, AND SCORING BLADES. EXCESSIVE FORCE AND/OR MISUSE CAN CAUSE PERSONAL INJURY, BREAKAGE, EQUIPMENT AND MACHINE DAMAGE**

All blade attachments are performed in the same manner. The locking collar of the blade holder is removed using the provided spanner wrench.

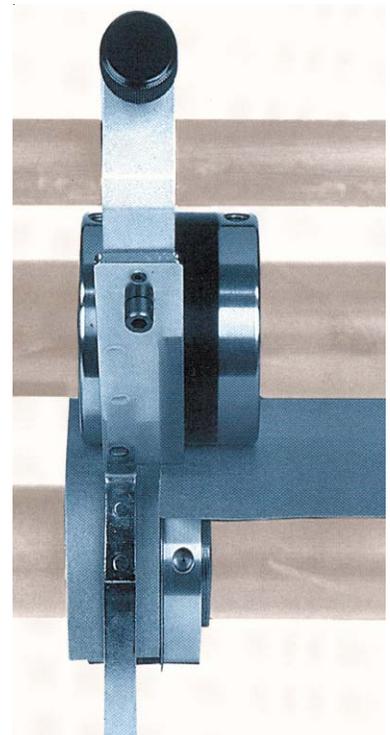
The blade to be changed is moved far enough along the slitter shaft to permit the blade to be twisted open and slipped from the shaft via the slit in the blade.

Install the new blade in the reverse order. Twist the blade so that the slit opens. Slip the blade onto the slitter shaft, and replace and tighten the locking collar with the furnished spanner wrench.

**Common  
Perforating,  
Scoring  
Setup**



**Common  
Slitting (Cutting)  
Setup**



**Common  
Edge Trimming  
Setup**

# LUBRICATION/MAINTENANCE

## Feeder

Vacuum Solenoid Valve

The vacuum at the suction wheel is controlled by a solenoid valve. This can be quickly and easily removed to clean the piston by loosening the clamping springs. Be careful not to damage the piston and cylinder.

O-Rings (on vacuum wheel)

Vacuum Pump

Loss of vacuum and blow can be caused by clogged filters. Check periodically. Check vanes for wear after 15,000 hours of service. Refer to parts manual for ordering parts.

## Register

Flat Belt Drive Shaft (hex shape)

Check for wear periodically. Lubricate with Baum Lubricant "W" lithium based grease, or equivalent, periodically.

Support Bars

Lubricate the three support bars on which the register guide slides periodically using Lithium based grease.

## Folder

Handwheel

Lubricate bi-annually with commercial grade lubricating oil.

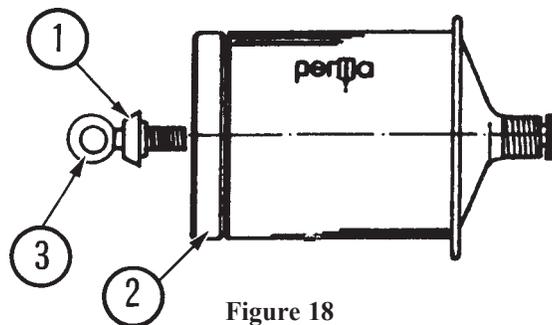
Fold Rolls

**WARNING:** Never clean fold rolls while the machine is running.

With the folder turned off, rub down the fold rolls with a cloth dampened with "Surewash". Never immerse fold rolls into the washing solvent. After cleaning, they should be rubbed down with a clean dry cloth.

Gear Drive

The helical gear drive is lubricated by an automatic grease dispenser located inside the LH guard. Use the label on the LH guard to record lubrication change date [It should be changed every 9 months]. To activate the dispenser, screw the eye bolt (18-1) into the lid (18-2) of the dispenser until ring (18-3) comes off. Shake the cannister when installing to insure that it rattles, signifying that it has been activated. See parts manual for replacement dispensers.



Pullout Tires

**WARNING:** Never open grease dispenser. Even when empty, container remains under pressure. If damaged, caustic liquid may leak out. If contact is made with skin, flush repeatedly with water.

Check periodically for wear. Uneven tires can cause the sheet to twist.

## TECHNICAL SPECIFICATIONS

### 1526

Maximum sheet size	26" x 44" [66 x 111.7cm]
Minimum sheet size	5.5" x 7.25" [13.9 x 18.4cm]
Maximum folder speed	9000 ipm [230m/min]
Maximum stack height	3" [8cm]
Minimum fold length	2.25" [5.7cm]
Maximum fold length	27" [68.6cm] (parallel folder)
Slitter shaft diameter	1.375" [3.49cm]
Electrical	220 Volt, 3 phase, 60 Hz, 19 Amperes
	See serial plate on folder

### 1530

Maximum sheet size	30" x 50" [76.2 x 127cm]
Minimum sheet size	5.5" x 7.25" [13.9 x 18.4cm]
Maximum folder speed	9000 ipm [230m/min]
Maximum stack height	3" [8cm]
Minimum fold length	2.25" [5.7cm]
Maximum fold length	27" [68.6cm] (parallel folder)
Slitter shaft diameter	1.375" [3.49cm]
Electrical	220 Volt, 3 phase, 60 Hz, 19 Amperes
	See serial plate on folder

## ACCESSORIES

In addition to the various folding, slitting, perforating and scoring functions, the Baum 26/Baum 30 can perform even more productive functions using the following accessories:

- Remote Control
- Static Eliminator
- Sound Guards
- Gluing Fold Plates
- Gatefold Plate

Contact your local Baumfolder Dealer sales representative for further information.

## TROUBLESHOOTING

<b>PROBLEM</b>	<b>CAUSE</b>	<b>REMEDY</b>
Sheets stick together particularly along sides.	Inadequate ink drying, cut with blunt guillotine blade.	Fan out thoroughly when piling. Increase air blow.
Suction wheel picks up double sheets. Sheets stick together	Excessive suction. Air blow improperly set	Reduce vacuum setting. Increase air blow
Double sheet stop reacts to single sheets.	Set only to single paper thickness.	Correct to double paper thickness. Tighten lock nut.
Sheet twists after suction wheel finishes feed-in.	Side Guide on register set too far back.  Too few marbles at start of side gage.  Suction gap too short.	Bring guide plate forward.  Increase number of marbles if necessary.  Increase gap setting.
Sheet leading edge buckles on register or lower sheets are being pushed forward.	If the leading edge of the sheet is being buckled, the holder tongue below the suction wheel is too high; if too low, sheets are pushed forward.  Dirty valve piston sticking.	Adjust holder tongue accordingly.  Clean.
Sheets fail to run into the buckle plate.	Only at 1st buckle plate: A curl in the sheet can cause the leading edge to bend up or down thus missing the upper or lower buckle throat.  On all buckle plates: sheet missing the buckle plate underlips.	Fit sheet deflector to 1st buckle and fold in 3rd buckle plate.  Advance lower buckle plate lips accordingly.
Sheets fail to re-emerge from buckle plate.	Sheet unable to buckle as buckle space too small.  Folding rollers blunt or clogged with ink.  Inadequate inside clearance in buckle plate.	Set lower buckle plate lip further back.  Wash off rollers with the type of rubberised-cloth cleaning agent used in offset work.  Increase clearance as necessary.

## TROUBLESHOOTING - continued

<b>PROBLEM</b>	<b>CAUSE</b>	<b>REMEDY</b>
Sheets fail to re-emerge from buckle plate.	Product too thick for folding.  Not enough roll pressure.	Consult Baumfolder Rep.  Check gapset settings.
Sheet remains lying on the roller table of the 2nd station or fails to run into the 1st buckle plate of the 2nd folding station.	Electrostatic charge in product caused by friction with rollers and deflectors and also relatively low humidity.  Damping rods and sheet holder set too low.	Fit discharge unit at the exit to the 1st station or arrange for appropriate humidity on the premises.  Raise as necessary.
Wrinkling after the 1st fold, either across or parallel.	Register guide not at right angles to the folding rollers.  Sheet drawn too sharply against the register guide causing a wave to form.  Buckle plate feed stop not parallel to the incoming sheet edge.  Folding rollers set too tight.	Set angle correctly.  Insert fewer balls or use lighter ones.  Correct buckle plate stop setting.  Slacken roller setting.
Crooked perforation after 1st fold.	Register guide and buckle plate stop not at right angles to each other.  Faulty setting of folding rollers and slitter shaft.  Lower buckle plate lip crooked.	Reset.  Check and reset as necessary.  Set to zero position.
Sheet corners buckled up or down after the 1st fold.	Sheet deflector set too low.	If the corners are buckled upwards, set the upper sheet deflectors back evenly; if the corners are buckled downwards, the lower deflectors must similarly be set back evenly by underlaying pieces of card. Under no circumstances alter the basic setting of the deflectors.

Baumfolder has authorized dealers located throughout the United States.

Call toll free, **1-800/543-6107** for parts or the number of your nearest authorized dealer.

**BAUMFOLDER**  
**CORPORATION**

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