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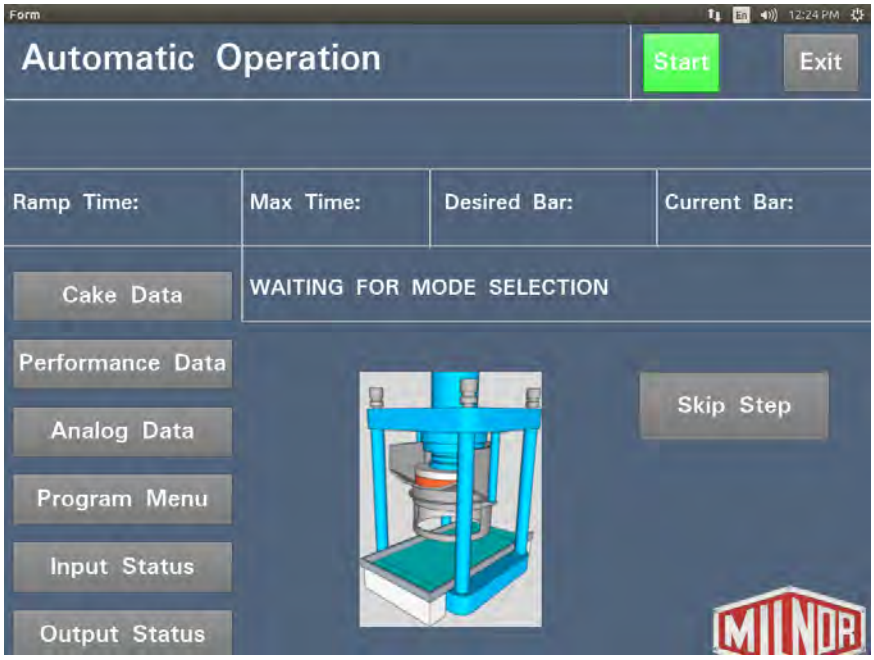
Controller Reference

MilTouch™ Single-Stage Press



PELLERIN MILNOR CORPORATION **Post Office Box 400, Kenner, Louisiana 70063–0400, U.S.A.**

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1 Preface

1.1 About the MilTouch™ Single Stage Press Controller

The Milnor® MilTouch™ single-stage press controller uses a touch-sensitive display screen to operate the machine. All the functions and information you need to configure, program, and run the machine appear on this screen.

CAUTION: **Excessive pressure** — can damage the display screen.

- Do not push hard on the glass.
- Use only a finger to touch the glass. Do not touch the screen with a tool.

Operators will use the MilTouch™ controller to operate the press. However, the MilTouch™ controller also has features that are accessible when the machine is idle. These features will interest specialists, such as service technicians who work with the machine. These features are the subject of this manual. Refer to the operator guide for operator instructions.

The MilTouch™ controller contains several displays organized into a hierarchy. Top-most is the **Main Menu** display (Figure 18: Press Main Menu Display, page 35). Each display contains buttons that access lower level displays.

The chapters in this manual are organized, not by display, but by types of specialist activity. Examples are given in the following table. For a hierarchal tour of the displays, see Section 1.1.1 : The MilTouch™ Press Hierarchy of Displays, page 6.

Table 1. Examples of Specialist Activity

Specialist	Type of Activity	Section & Page
Factory tester	Initial configuration	Section 2.1 : Machine Configuration, page 10
Textile processing specialist	Create and modify press codes.	Section 3.1 : Press Code Maintenance, page 24
	Transfer memory to/from the machine.	Section 7.1 : Memory Backup, page 84
	Closely monitor machine operation.	Section 4.3.1 : The Automatic Operation Display, page 36
Laundry management	View machine performance data.	Section 4.3.1.2 : Performance Analysis Tools (B), page 37

Table 1 Examples of Specialist Activity (cont'd.)

Specialist	Type of Activity	Section & Page
	Set a lockout password to prevent personnel from accessing certain functions.	Section 2.2.1 : Enable and Define a Lockout Password, page 22
Service technician	Troubleshoot error conditions.	Section 6.2 : Errors, page 70
	Change settings to accommodate newly added hardware such as a discharge conveyor (COINC).	Section 2.1 : Machine Configuration, page 10
	Monitor the status of inputs and outputs.	Section 6.1 : Troubleshooting Inputs and Outputs, page 59

1.1.1 The MilTouch™ Press Hierarchy of Displays

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In Table 2 :

- The **Main Menu** display is the default view. It appears when no other display has been accessed and when you back up to the **Main Menu** display with the **Exit** button.
- Access a display from the less-indented (parent) display above it.
- Display names in parentheses are implied; that is, the name does not appear on the display.

Table 2. The MilTouch™ Press Display Hierarchy

Display Name	Button Text	See
MilTouch™ Press Main Menu	N/A	Figure 18: Press Main Menu Display, page 35
Evening Shutdown	Evening Shutdown Procedure	Section 5.2 : Evening Shutdown, page 57
Operate Individual Functions	Operate Individual Functions	Section 4.4 : Manual Mode, page 43
Individual function control windows	Individual function buttons (Ex. Ram and Can UP/DOWN, Can UP/DOWN)	Section 4.4.1 : Manual Functions, page 44
Input Status	View Status of Inputs	Section 6.1.3.1 : Inputs, page 62
Automatic Operation	Automatic Mode	Section 4.3.1 : The Automatic Operation Display, page 36
Cake Data	Cake Data	Section 4.3.1.2.1 : Cake Data Display, page 37
Performance Data	Performance Data	Section 4.3.1.2.2 : Performance Data Display, page 38
Analog Data	Analog Data	Section 4.3.1.2.3 : Analog Data, page 39

Table 2 The MilTouch™ Press Display Hierarchy (cont'd.)

Display Name	Button Text	See
Program Menu	Program Menu	Section 2.1.1 : The Program Menu Display, page 11
Add/Change Press Code	Add/Change Press Code	Figure 10: Add/Change Press Code Display, page 24
Display Page (Modify Press Code)	Press code buttons (Ex. Formula 1)	Section 3.1.2 : To Change a Press Code, page 25
Copy Press Code	Copy Press Code	Section 3.1.5 : To Copy a Press Code, page 29
Configure Controls	Configure Controls	Section 2.1.1.1 : The Configure Controls Display, page 12
Configuration decision windows	Configuration decision buttons (Ex. A = Language, B = Machine Type)	Section 2.1.1.2.1 : The Configuration Decisions, page 14
Configure Gains	Configure Gains	Section 2.1.1.2.3 : Configure PID Gains, page 20
Gains value windows	Gains buttons (Ex. KP, KI)	Section 2.1.1.2.3 : Configure PID Gains, page 20
Memory Transfer	Memory Transfer/Update	Section 7.1 : Memory Backup, page 84
Clear Memory	Clear Memory	Section 7.1.5 : Clear Memory, page 86
Create Password	Enable Password	Section 2.2.1 : Enable and Define a Lockout Password, page 22
Input Status	Input Status	Section 6.1.1 : Digital Inputs, page 59
Output Status	Output Status	Section 6.1.2 : Digital Outputs, page 60

1.1.2 Manufacturer Data for Non-Milnor® Machine Components

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This machine uses some non-Milnor® components that have their own manual, such as the inverter. Although information about such components is not normally needed by the owner/operator of a Milnor® machine, you can usually find information about these components in the manufacturer's manual, which we include with the machine. You can also find related information in the technical knowledge base on the Milnor® website (`milnor.com/technical-knowledge-base/bulletins/maintenance-2/`) and on the manufacturers' websites.

1.1.3 How to Contact Milnor®

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Your authorized Milnor® dealer can assist you with your Milnor® machine and knows about the local conditions that may be pertinent to the installation, use, or maintenance of the machine. Contact your dealer first. For assistance from the Milnor® factory, refer to Table 3 for contact information.

Table 3. Pellerin Milnor® Corporation Contact Information

Purpose	Department	Telephone	FAX	E-mail/Web site
Order or ask about replacement parts	Parts	504–712–7775 or 800–299–1500	504–469–9777	parts@milnor.com
Get advice on installing, servicing, or using	Customer Service/ Technical Support	504–712–7780	504–469–9777	service@milnor.com www.milnor.com (Customer Service)
Learn about, request, or enroll in Milnor® service seminars	Training	504–712–7716	504–469–9777	training@milnor.com
Determine warranty eligibility or claim status	Warranty Administration	504–712–7735	504–469–9777	service@milnor.com (Attention: Warranty)
Ask about, comment on, or report an error in equipment manuals	Technical Publications	504–712–7636	504–469–1849	techpub@milnor.com
European contacts	Milnor® International	+ 32 2 720 5822	—	milnor@milnor.be
Ask about the shipping weight of your machine before it arrives at your facility	Logistics Department	504–712–7686	504–471–0273	—

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Pellerin Milnor Corporation
Post Office Box 400
Kenner, LA 70063-0400

Telephone: 504-467-9591
http://www.milnor.com
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1.2 Safety Alert for Owners/Managers and Maintenance Personnel: Using the Door Interlock Bypass Key Switch

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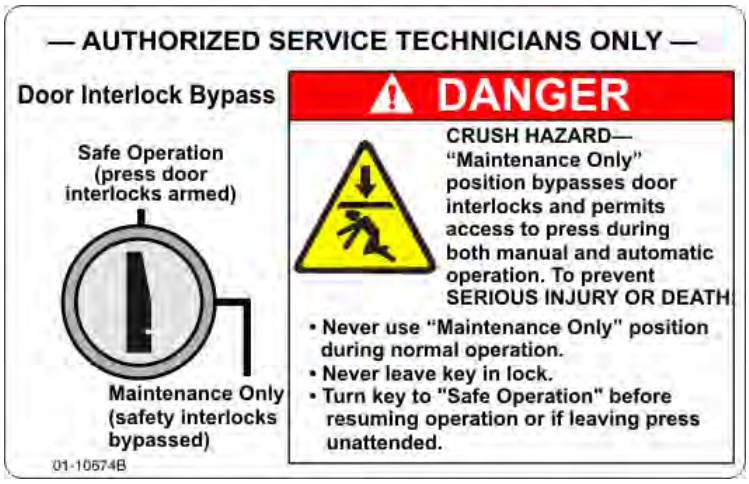
The hand-operated access doors on this machine are equipped with safety lockout switches that disable the machine if a door is opened. The Door Interlock Bypass key switch permits a qualified maintenance technician to bypass this safety feature during both manual and automatic operation. This key switch, located inside the low voltage control box, is shown in the following figure.

Figure 1. Door Interlock Bypass Key Switch and Safety Placard



Set the Door Interlock Bypass key switch to the “Maintenance Only” position during required maintenance procedures to allow access to certain moving parts.

DANGER: **Moving components under power while the Door Interlock Bypass key switch is in the “Maintenance Only” position —** can crush or injure you. To prevent serious injury or death, comply with, or ensure compliance with the following:

- Never use the machine for normal operation with this switch in the “Maintenance Only” position.
- Never use this switch to clear faults or for any operational function.
- Use this switch only if you are a trained, authorized service technician, and only when performing maintenance that requires immediate access to moving parts normally shielded by the doors.
- Always turn the switch to the “Safe Operation” position and remove the key before resuming normal operation or stepping away from the machine.
- Keep the Door Interlock Bypass key secured away from machine operators and all other personnel who do not fully understand the results of using it.
- Keep all electrical and control cabinets closed and securely latched. Keep control cabinet keys away from untrained employees.

2 Configuration

2.1 Machine Configuration

Your machine was configured at the factory with the optimum or required settings for your machine. You can use the following chart to make a copy of your machine configuration settings for future reference.

Configure Decision	User- or Hardware- Dependent	Setting	Description	Configure Decision	User- or Hardware- Dependent	Setting	Description
A	User		Language	Q	User		Receive Device Load Direction
B	Hardware		Machine Type	R	User		Receive Device Load Level
C	Hardware		Load Chute	S	User		Synchronize COINC Transfer
D	Hardware		Load Door	T	User		Compatibility
E	Hardware		Discharge Conveyor	U	User		Loading Time
F	User		Allied Receive	V	User		Belt Run Time
G	User		Allied Weight Inputs	W	User		Time to Block COINC Eye
H	User		Add 1 to Allied Input	X	User		Time to Clear COINC Eye
I	User		Allied Discharge	Y	User		COINC Run Time
J	User		Extra Data Pass	Z	User		Check for Ram at Low Position
K	User		Network String Length	AA	User		Maximum Pressure at Ram Low Position
L	User		Miltrac Address	BB	User		Can Valve Setting
M	User		Mildata Address	CC	User		Ram Valve Setting
N	User		Hold Receive Device	DD	Hardware		Pressure Sensor Zero Offset
O	User		Ignore Single Cake	EE	Hardware		Booster Pump
P	User		Goods Unit	FF	Hardware		Ram Command

Most configuration decisions are hardware-dependent. The only reason to modify hardware-dependent settings is to accommodate modifications to your machine's hardware.

CAUTION:

Careless modification of hardware-dependent settings — Is likely to degrade machine performance and may cause damage or malfunction.

- Do not make unauthorized changes to hardware-dependent configuration settings.
- Consult Milnor® Technical Support before you change hardware-dependent settings.

2.1.1 The Program Menu Display

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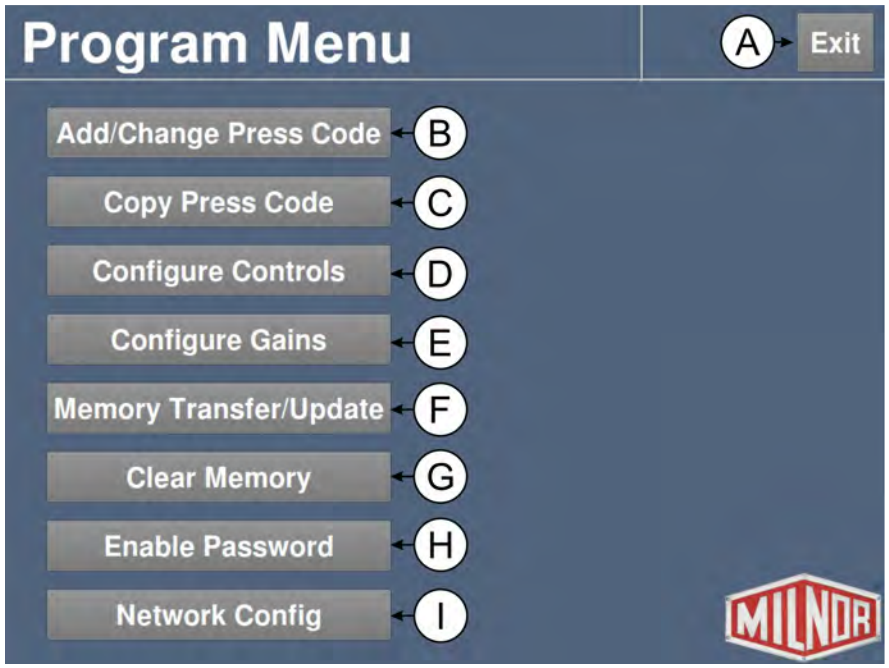
From the **Program Menu** display, you can access the displays needed to

1. configure your machine
2. program press codes
3. backup, restore, or erase the machine's memory
4. enable a lockout password

To access the **Program Menu** display:

1. From the **Main Menu** display, touch **Automatic Mode**. The **Automatic Operation** display appears.
2. On the **Automatic Operation** display, touch **Program Menu**. The **Program Menu** display appears, shown in the following figure.

Figure 2. Program Menu Display



Legend

A . . . Return to the **Automatic Operation** display (see Section 4.3.1 : The Automatic Operation Display, page 36)
B . . . Access the **Add/Change Press Code** display (see Section 3.1 :), page 24
C . . . Access the **Copy Press Code** display (see Section 3.1.5 : To Copy a Press Code, page 29)
D . . . Access the **Configure Controls** display (see Section 2.1.1.1 : The Configure Controls Display, page 12)
E . . . Access the **Configure Gains** display (see Section 2.1.1.2.3 : Configure PID Gains, page 20)
F . . . Access the **Memory Transfer** display (see Section 7.1 : Memory Backup, page 84)
G . . . Access the **Clear Memory** display (see Section 7.1.5 : Clear Memory, page 86)
H . . . Access the **Create Password** display (see Section 2.2.1 : Enable and Define a Lockout Password, page 22)
I . . . Access the **Network Configuration** display (see Section 2.1.1.2.4 : Network Configuration, page 21)

2.1.1.1 The Configure Controls Display

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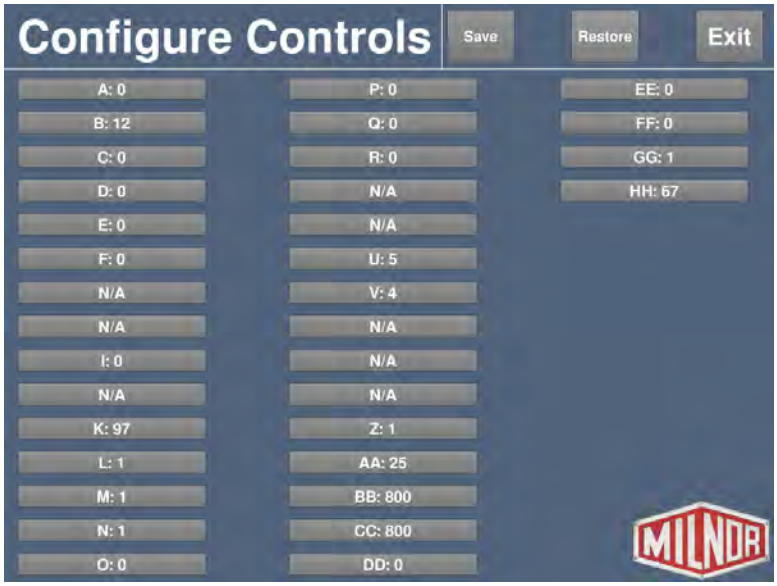
From the **Configure Controls** display, you can configure the MilTouch™ controller based on your machine's model, features, and capabilities.

To access the **Configure Controls** display, shown in the following figure, touch **Configure Controls** on the **Program Menu** display.

Figure 3. Configure Controls Display



Each decision button shows the letter code for the decision (see Section 2.1.1.2.1 : The Configuration Decisions, page 14) and the current value of the decision. Any configure decisions that are not used on your machine show "N/A."

2.1.1.2 How to Make Configuration Changes

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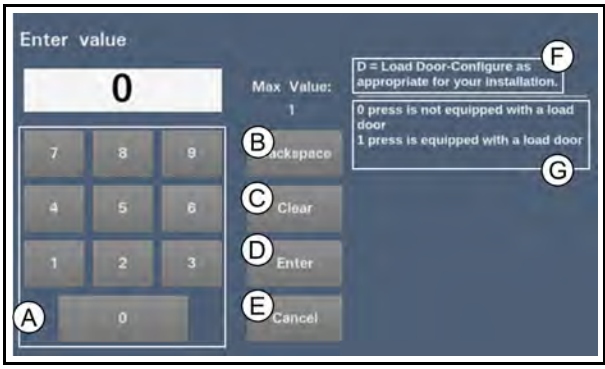
To make changes to your machine's configuration:

1. Touch the configuration decision you want to change. A configuration window similar to the one shown in the following figure appears.

Figure 4. Example Configuration Window



Legend

- **A . . .** Keypad
- **B . . .** Delete one character from the value in the text box
- **C . . .** Delete all the characters in the text box
- **D . . .** Save your changes and close the window
- **E . . .** Abandon the most recent changes and close the window
- **F . . .** Explanation of the configuration decision
- **G . . .** Numeric choices for this configuration decision

2. In the configuration window, use the keypad to enter a value in the text box above. The numbers can correspond to certain decisions (such as 0 = no and 1 = yes), or to a numerical value (such as 5 = 5 seconds). Use Section 2.1.1.2.1 : The Configuration Decisions, page 14 and the list of choices (G) on the configuration window to determine what value to enter.
3. Touch **Enter** (D) to enter your changes and close the window.
4. Save or abandon your changes.
   - Touch **Save Changes** to save all your changes and return to the **Program Menu** display.
   - Touch **Exit** to abandon your changes made during this session and return to the **Program Menu** display.

NOTE: You can touch **Restore Defaults** to restore the default settings.

2.1.1.2.1 The Configuration Decisions

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A = Language — This decision allows selection of English or the alternate language supplied in the software, if any.

0 all prompts appear in English
1 all prompts appear in the alternate language specified when the press was ordered

B = Machine Type — Select the machine type corresponding to the model number of your machine.

00 MP1601 (31 bar)
01 MP1602 (47 bar)
02 MP1603 (35 bar)
03 MP1604 (50 bar)
04 MP1A03 (40 bar)
05 MP1550 (50 bar)
06 MP1540 (40 bar)
07 MP1640 (40 bar)
08 MP1656 (56 bar)
09 MP1A50 (50 bar)
10 MP1556 (56 bar)
11 MP1A56 (56 bar)
12 MP1650 (50 bar)

C = Load Chute — No longer used on any single-stage presses. Leave this decision at 0 (the default setting).

NOTE: Here, the term “load chute” does not refer to either the receiving chute attached to the can, or the load chute scupper attached to the press frame.

D = Load Door — Configure as appropriate for your installation. Single-stage presses that are loaded by a wet goods shuttle/bucket conveyor (COBUC) are equipped with a load door.

0 press is not equipped with a load door (default setting)
1 press is equipped with a load door

E = Discharge Conveyor — Configure as appropriate for your installation.

0 press does not control a discharge/inclined conveyor (COINC)
1 press controls a discharge/inclined conveyor (COINC)

F = Allied Receive — Sets the system protocol for loading.

0 press receives from a Miltrac™ controlled device. This is the default value.

1 press receives from a non-Miltrac™ controller device (allied loading). For a more detailed explanation of Allied Interfaces, see manual MTPALI01 “Installation — Allied Interfaces for Milnor® Automated Laundering System Machines.”

G = Allied Weight Inputs — This decision is only available if the press receives from an allied device (configuration decision : F = Allied Receive, page 14 , is set to 1).

0 no allied weight inputs. This is the default value.
1 press receives weight information from a non-Miltrac™ controlled device via 12 allied weight inputs (see Section 6.1.3.1 : Inputs, page 62). It requires an additional 8/16 board (address = 04H).

H = Add 1 to Allied Input — This decision is only available if the press receives from an allied device (configuration decision : F = Allied Receive, page 14 , is set to 1), and only applies to customer code and goods code inputs. Set this value to 1 if the allied output from your loading device is offset by 1.

0 No; allied inputs will be processed as received
1 Yes; add one to the allied inputs values for goods code and customer code.

I = Allied Discharge — This decision sets the system protocol for discharging.

0 press discharges to a Miltrac™-controlled device. This is the default value.
1 press discharges to an allied (non-Miltrac™-controlled) device and sends batch data via allied data-pass outputs.

J = Extra Data Pass — This decision is only available if the press receives from an allied device or discharges to an allied device (configuration decision : F = Allied Receive, page 14 , and/or configuration decision : I = Allied Discharge, page 15 , is set to 1). Extra data pass requires an additional 8/16 board (address = 03H). This provides 6 inputs for goods code, 6 inputs for customer codes, 4 inputs for destination codes and 8 outputs for goods code.

0 No; extra data pass is not required
1 Yes; extra data pass is required

K = Network String Length — This decision (also known as Baud Rate, Bytes for Network, and Number for Network) applies only to devices in a Milnet or Miltrac™ network.

NOTE: If you change the network string length (baud rate) on this machine (MilTouch™ press), you must also change the network string length of the Miltrac™ (or Milnet) computer and every machine on the Miltrac™/Milnet link to the same value.

00 the system uses Miltrac™ software version 89100 or later, but before 21000
11, 13 enter one of these numbers for systems with Milnet versions between 86088 and 86095. If the device does not communicate with the Milnet controller at the first setting chosen, select the other one.
24 the system uses Miltrac™ software version 8624C and earlier
30 enter this number for systems with Miltrac™ versions 89001 to 89018.
96, 97, 98, 99 Enter 96, 97, 98, or 99 for Milnet or Miltrac™ software version 21000 and later. Differences in baud rate are a trade-off between communication speed, which can affect productivity, and protection against data corruption from electromagnetic interference, common

in industrial processing settings. A technician familiar with Miltrac™ device communication may need to experiment with the baud rate setting.

96 = 9.6 kb/s; slowest, but most reliable communication rate

97 = 19.2 kb/s; somewhat favors reliability over speed

98 = 38.4 kb/s; average speed and reliability (recommended starting value)

99 = 57.6 kb/s; somewhat favors speed over reliability

NOTE: If your machine or system performance is poor at all available baud rates, consult your dealer or a Milnor® technician using the information in Section 1.1.3 : How to Contact Milnor®, page 8.

L = Miltrac Address — If either configuration decision : F = Allied Receive, page 14 , or configuration decision : I = Allied Discharge, page 15 , is disabled (set to 0), the single stage press is a Miltrac™ device requiring an address. This address must be three digits and unique in the Miltrac™ system. Refer to the Miltrac™ manual for additional details.

000 lowest available address and default value
008 address 008 (example)
255 highest available address

M = Mildata Address — This display prompts for a single stage press address on the Mildata® system.

000 lowest available address and default value
016 address 016 (example)
255 highest available address

N = Hold Receive Device — This decision applies only if Miltrac™ discharge is enabled (configuration decision : I = Allied Discharge, page 15 , is set to 1). To determine the correct response to this decision, ask “Should the Device receiving goods from the single stage press wait for more than one load before moving?” For example, respond 1 if the receiving conveyor should wait for two or more loads before transferring to a multi-cake dryer. Refer to the Miltrac™ controller reference manual for more information.

0 No; multiple cake discharge is disabled. The press always ends the discharge sequence with the Miltrac™ state I'm Finished, Do Not Hold.
1 Yes; multiple cake discharge is enabled. The press continues receiving new batches and discharging them to the receiving device until it loads a single cake or receives the Miltrac™ command “You're Finished, Do Not Hold.”

O = Ignore Single Cake — This decision causes the press to ignore the single cake flag, and applies only if the press is configured to hold the receiving device (: N = Hold Receive Device, page 16). Correct operation of this decision requires that the Miltrac™ controller ignore single cake flags at the x-coordinate of the receiving device. Refer to the Miltrac™ controller reference manual for more information.

0 No; all single cake flags set the Miltrac™ state of the press to “I'm Finished, Do Not Hold.”
1 Yes; if the Miltrac™ controller is properly configured, the press controller will ignore the single cake flag.

P = Goods Unit — Configure as appropriate for your installation.

0 Goods tracked by weight
1 Goods tracked by pieces

Q = Receive Device Load Direction — This decision applies only if Miltrac™ discharge is enabled (configuration decision : I = Allied Discharge, page 15 , is set to 1).

0 the receive device runs forward when the single stage press discharges to it. This is the default.
1 the receive device runs in reverse when the single stage press discharges to it

R = Receive Device Load Level — This decision applies only if Miltrac™ discharge is enabled (configuration decision : I = Allied Discharge, page 15 , is set to 1). Enter the level at which an elevating device accepts a cake from the single stage press. The valid range is 0 to 7. Refer to the Miltrac™ controller manual.

NOTE: The term COINC in the following configure decisions refers to the inclined conveyor that the press discharges to and which is operated by the press controller.

S = Synchronize COINC Transfer — This decision is only available if the press is configured for a discharge conveyor (configuration decision : E = Discharge Conveyor, page 14 , is set to 1).

0 the COINC will prepare to transfer as soon as it receives a cake
1 the COINC will prepare to transfer (i.e., wait to display “Want to Transfer”) only when it has a cake and the main press is prepared to transfer. This allows the shuttle to take two cakes without waiting. If either the COINC cake or the main press cake is a single cake or the two cakes are incompatible (based on Compatibility decision), the press will display “Want to Transfer.”

T = Compatibility — This decision is only available if configuration decision : S = Synchronize COINC Transfer, page 17 , is enabled (set to 1). Enter either a 0 or 1 for each type of goods data, in the following order: formula, dry code, destination code, customer code, goods code.

0 compatibility is not required for this type of goods data
1 compatibility match is required for this type of goods data

You must enter all 5 digits as one value, then touch **Enter**. For example, if Formula= **1**, Dry code= **1**, Destination code= **1**, Customer code= **0**, and Goods code= **0**, enter **11100** in the box and then touch **Enter**.

U = Loading Time — Enter the amount of time (in seconds) that the press waits for loading before lowering the ram.

00 0 seconds (minimum time)
05 5 seconds (default value)
30 30 seconds (maximum time)

NOTE: Field experience indicates that the best value for this decision is about 4 seconds. This time usually allows the water to drain from the press load chute before the ram moves down. The reference manual for the Mentor® controller describes the interaction between this configure decision and the "Pause at Top Dead Center" rotation timer.

V = Belt Run Time After Discharge — Set this value to the time (in seconds) for the belt to run after the cake clears the eye. Belt runs for 2 seconds if this value is less than 2.

00 0 seconds (minimum and default time; belt runs 2 seconds)
20 20 seconds (default value)
99 99 seconds (maximum time)

W = Time for Cake to Block COINC Eye — This decision is only available if the press is configured for a discharge conveyor (configuration decision : E = Discharge Conveyor, page 14 , is set to 1). Set to maximum time (in seconds) for a cake discharged from the press to block the eye.

000 0 seconds (minimum and default time)
005 5 seconds (default value)
255 255 seconds (maximum time)

X = Time for Cake to Clear COINC Eye — This decision is only available if the press if configured for a discharge conveyor (configuration decision : E = Discharge Conveyor, page 14 , is set to 1). Set the maximum time (in seconds) for a cake discharged from the COINC to clear the eye.

00 0 seconds (minimum and default time)
05 5 seconds (default value)
99 99 seconds (maximum time)

Y = COINC Run Time After Discharge — This decision is only available if the press is configured for a discharge conveyor (configuration decision : E = Discharge Conveyor, page 14 , is set to 1). Set the time for the COINC to run after a cake clears the eye.

00 0 seconds (minimum and default time)
20 20 seconds (default value)
99 99 seconds (maximum time)

Z = Check for Ram at Low Position — This decision determines whether the controller monitors proximity switch PXSL to determine if the load in the can is a small load. The machine is set to monitor the proximity switch (set to 1) by default.

0 Ignore proximity switch PXSL. All press codes will be executed as programmed.
1 Monitor proximity switch PXSL and restrict the maximum diaphragm pressure to the value configured in : AA = Maximum Pressure at Ram Low Position, page 19 , if the load is determined to be a small load (if PXSL is cleared during the press cycle).

AA = Maximum Pressure at Ram Low Position — This decision is only available if configuration decision : Z = Check for Ram at Low Position, page 18 , is enabled (set to 1). Set a maximum diaphragm pressure which the controller will not exceed if a small load is detected.

00 Minimum value; goods will not be pressed
20 Example; do not allow diaphragm pressure to exceed 20 bar if proximity switch PXSL is cleared during the press cycle (if this is a small load). This is the default setting. See Section 2.1.1.2.2 : Small Load Detection, page 20.
30 Maximum value; do not allow diaphragm pressure to exceed 30 bar if this is a small load.

BB = Can Valve Setting — Enter a value to determine how much to open the proportional valve when moving the can. This value must open the valve enough to raise the can but not so much that the relief valve trips or the oil over-heats if the can must stay up for several minutes during a cycle.

0000 fully closed
0600 Example. See the Note below
4095 fully open

NOTE: The factory setting for BB = Can Valve Setting and CC = Ram Valve Setting is as follows:

MP1540_ (13” ram) = 800
MP1556_, MP1640_ (14” ram)= 800
MP1656_ (16” ram) = 800
MP1A56_ (18.5” ram) = 600

CC = Ram Valve Setting — Enter a value to determine how much to open the proportional valve when moving the ram. This value must open the valve enough to raise the ram but not so much that the relief valve trips or the oil over-heats if the ram must stay up for several minutes during a cycle.

0000 fully closed
0600 Example. See the Note above.
4095 fully open

DD = Pressure Sensor Zero Offset — This decision can be used to compensate for certain pressure transducers whose minimum output value is non-zero. This value is preset at the factory so that the display reads zero at zero pressure.

0000 Minimum and default value. Enter this value for use with pressure transducers that provide a 0-5 VDC output.
0070 Enter this value for use with pressure transducers that provide a 0.1-5.1 VDC output.

EE = Booster Pump — Configure as appropriate for your installation. Booster pumps are equipped on certain presses to enable them to reach 56 bar.

0 press is not equipped with a booster pump
1 press is equipped with a booster pump

FF = Ram Command — Configure as appropriate for your installation. The RAM Command™ feature (also known as Soft Squeeze) is used to slow the ram down as it descends, to prevent certain goods from bursting. See Section 3.1.2.3 : About the Optional RAM Command™ (Soft Squeeze) Feature, page 28 for more information.

0 press is not equipped for the RAM Command™ feature
1 press is equipped for the RAM Command™ feature

GG = Steam Disinfect — Configure as appropriate for your installation. The steam disinfect feature uses steam to disinfect the water inside the reuse tank. See Section 4.3.2 : About the Optional Steam Disinfect Feature, page 41 for more information.

0 reuse tank is not equipped for steam disinfect
1 reuse tank is equipped for steam disinfect

HH = Steam Disinfect Temperature — This decision is only available if the press is configured for steam disinfect (configuration decision : GG = Steam Disinfect, page 20 , is set to 1). Enter the desired temperature, in Fahrenheit, for steam disinfect. The maximum allowed steam disinfect temperature is 210 degrees Fahrenheit.

2.1.1.2.2 Small Load Detection

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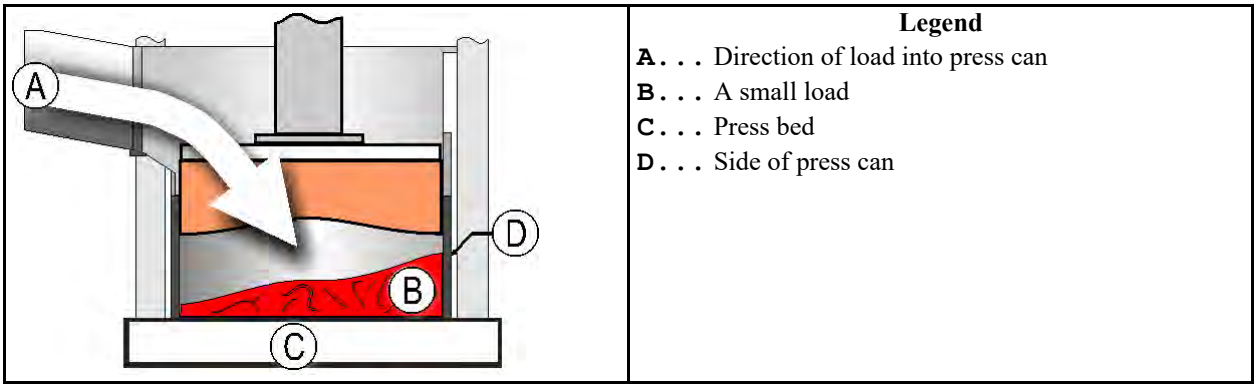
Small (eccentric) loads can cause damage to the diaphragm due to uneven pressure distribution. Configure decisions Z (: Z = Check for Ram at Low Position, page 18) and AA (: AA = Maximum Pressure at Ram Low Position, page 19) are used to prevent the diaphragm from being damaged by small loads under high pressure.

Figure 5. Typical Small (Eccentric) Load which Can Require a Lower Press Pressure



2.1.1.2.3 Configure PID Gains

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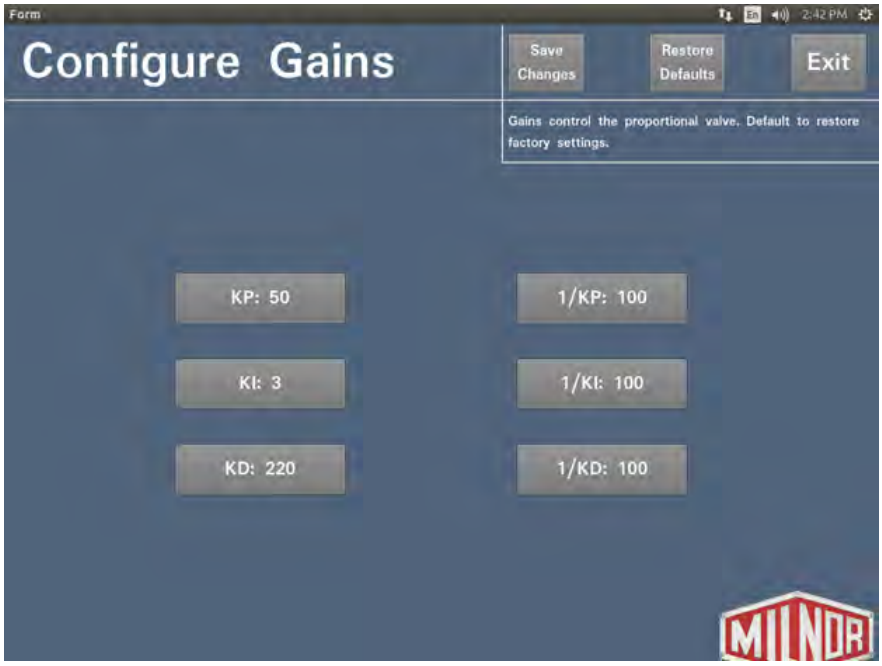
The PID gains are used to control the proportional valves in the press. The proportional valves ensure that the two cylinders apply the same amount of pressure to the can. Optimum values were determined at the factory and are shown here. These values are automatically inserted when memory is cleared or when gains are defaulted. Use this option to modify these values in consultation with the Milnor® factory.

Touch **Configure Gains** on the **Program Menu** display (Figure 2) to access the **Configure Gains** display, shown in the following figure.

Figure 6. Configure Gains Display



2.1.1.2.4 Network Configuration

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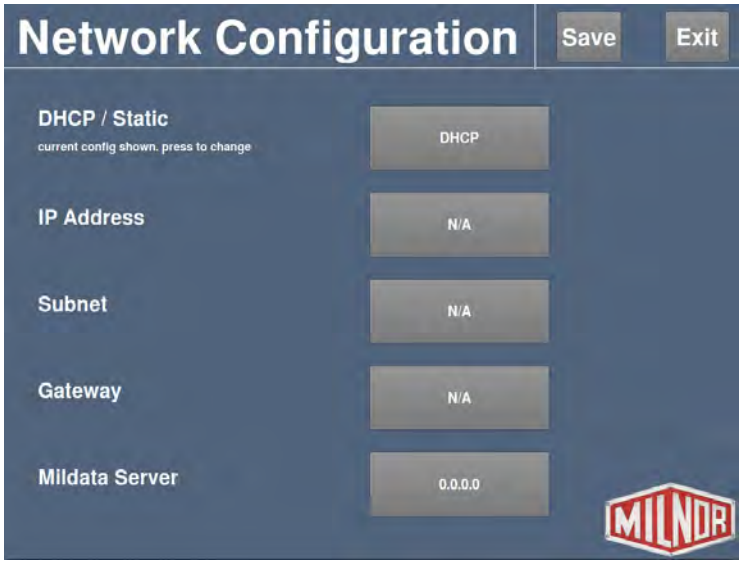
If your MilTouch™ press is part of a Mildata® network, the MilTouch™ controller must be connected to the Mildata® computer via RJ45 connector cable and you must enable this connection in order for the MilTouch™ press to send data to the Mildata® computer.

To enable the connection, touch the button labelled **DHCP / Static** on the **Network Configuration** display (shown in the following figure) so that it displays **DHCP** to enable DHCP or displays **Static** to disable DHCP (enable Static connection).

- Enable DHCP and the server will automatically assign an IP address to your machine .
- Disable DHCP to manually assign a static IP address to your machine (which includes the Subnet, Gateway, and Mildata® Server information).
  - If the Mildata® network is tied to your wireless network, your network administrator must provide the static IP information.
  - If the Mildata® network is isolated to your Milnor® equipment, a Milnor® technician must provide the static IP information.

Figure 7. Network Configuration Display



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2.2 Lockout Password

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Laundry management personnel may want to deny operators access to sensitive press data and functions, such as machine configuration settings, press codes, and machine memory. When a lockout password is enabled, the lockout password will be necessary to access the **Program Menu** display and all of its lower-level displays.

2.2.1 Enable and Define a Lockout Password

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1. On the **Program Menu** display, touch **Enable Password**. The **Create Password** window, shown in the following figure, appears.

Figure 8. Create Password Window

2. Touch a box to begin typing inside it.
3. Enter the same password in both boxes. The lockout passwords are case-sensitive.
4. Touch **Accept** to save the password.

2.2.2 Change or Disable the Lockout Password

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1. Enter the **Program Menu** display. You will need to enter the current password to access the **Program Menu** display. See Section 2.2.3 : Recover a Lost Password, page 23 if you lost or forgot the current password.
2. On the **Program Menu** display, touch **Enable Password**. The **Create Password** window appears.
3. Change or disable the lockout password:
   - To change the lockout password, enter the new password in both boxes.
   - To disable the lockout password, delete the passwords from both boxes.
4. Touch **Accept** to save your changes.

2.2.3 Recover a Lost Password

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Figure 9. Password Recovery Key

To recover a lost password, contact Milnor® Customer Service/ Technical Support using the contact information in Section 1.1.3 : How to Contact Milnor®, page 8. Call or e-mail during normal business hours and provide the password recovery key in the bottom left corner of the screen (example shown in Figure 9). The Milnor® staff can decode the password for you.

3 Press Codes and Press Code Maintenance

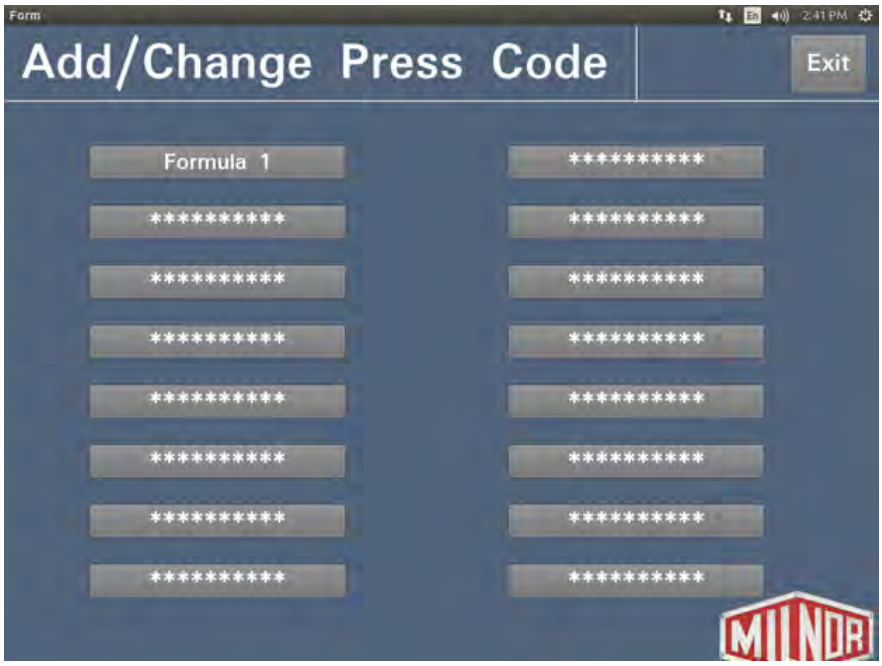
3.1 Press Code Maintenance

Press codes describe how the press will process each batch of goods in automatic mode. The controller can hold up to 16 press codes.

You can add, delete, and change press codes from the **Add/Change Press Code** display. To access the **Add/Change Press Code** display:

1. From the **Main Menu** display, touch **Automatic Mode**. The **Automatic Operation** display appears.
2. On the **Automatic Operation** display, touch **Program Menu**. The **Program Menu** display appears.
3. On the **Program Menu** display, touch **Add/Change Press Code**. The **Add/Change Press Code** display appears, shown in the following figure.

Figure 10. Add/Change Press Code Display



3.1.1 To Add a Press Code

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Press codes without names (titled "**********") have not been programmed. To add a new press code:

1. Touch an unnamed press code to select it.
2. Enter data as explained in Section 3.1.2 : To Change a Press Code, page 25.
3. Give the press code a title as explained in Section 3.1.3 : To Enter or Change the Name of a Press Code, page 29.
4. Touch the **Save** button to save your changes.

3.1.2 To Change a Press Code

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Change the press code decisions or the number of steps in the press code.

1. Touch a press code to select it. The **Modify Press Code** display, shown in the following figure, appears.

Figure 11. Modify Press Code Display

2. Touch a field to change the corresponding decision. A keypad appears.

   There are five decisions in each column— Bar, Ramp, Tamp, Max, and End. See Section 3.1.2.1 : The Press Code Decisions, page 26 for a description of the five decisions.
3. Use the keypad to enter a value in the field.
4. Repeat steps 2–3 for each column.

   The decisions under column S-01 correspond to step 1, column S-02 to step 2, etc. A press code can have a maximum of 10 steps.

3.1.2.1 The Press Code Decisions

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TIP: Use Figure 28: Parts of the Press, page 43 to familiarize yourself with the parts of the press referred to in this chapter. This manual also refers to hydraulic components, such as the proportional valves and the poppet valves, for maintenance technicians. For more information on hydraulic components, refer to the hydraulic schematic in the service manual.

Bar — The diaphragm pressure you want to achieve, in bar.

If the **Bar** decision is configured to a value less than the maximum pressure for the press, then the pressure increases linearly over the time configured in the **Ramp** decision, below. If the **Bar** decision is set at the maximum pressure for the press, the modulating valve immediately opens to the maximum valve position.

00 to 40 pressure range for MP1A03 press models (example)

NOTE: One bar equals: 0.9872 atmosphere, 1 x 10^5 N/m^2, 14.504 PSI

Ramp — This decision determines how quickly the ram pressurizes. Set the amount of time it will take the press to achieve the desired pressure on the goods. Enter this value in seconds.

000 to 999 ramp time range for all press models, in seconds

Tamp — The desired tamping procedure.

0 Do not raise the ram. When the tamp code is 0, the press proceeds to the next step without raising the ram.

1 Raise the ram between steps. The ram presses to the desired pressure for programmed press time, releases pressure and raises to the ram-in-can position, then moves down to begin the next step.

Max — Enter the desired maximum time for this step in seconds. The step ends after this time expires, regardless of whether or not the desired pressure has been achieved.

001 to 999 maximum step time range for all press models, in seconds

End — End of press code. Enter 1 or 2 if this is the last step in the press code. See Section 3.1.2.2 : About the End Codes, page 27 for more information.

0 Another step follows this one.

1 This is the last step in the press code for goods that form solid cakes but might stick to the diaphragm.

2 This is the last step in the press code for goods that discharge cleanly but form cakes which might fall apart, resulting in press or conveyor faults.

3.1.2.2 About the End Codes

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The controller provides two end-of-press-cycle procedures, described below. Choose the appropriate end code according to the goods you process with each press code.

End Code 1 Use End Code 1 for goods that tend to stick in the press and do not discharge cleanly. These goods, such as terry towels and thermal blankets, usually form solid cakes, but may stick to the press diaphragm or the inside of the can after the cycle ends. Press faults result when these goods later fall out of the can. This end code reduces press faults by using the ram to push the goods cake out of the can.

The End Code 1 end-of-press-cycle procedure performs the following sequence of actions:

1. At the end of the press cycle, the ram moves quickly up to the unload proximity switch, then stops.
2. The can begins to rise. The stationary ram pushes any goods that are stuck inside the can onto the belt.
3. When the can reaches the can fully up proximity switch, the ram rises to the full up position.
4. The discharge sequence begins:
    a. The discharge door opens.
    b. The belt runs forward until the discharge-end photoeye is blocked and cleared.
    c. The belt runs for the duration of the configured **Belt Run Time After Discharge** value (or two seconds if the configured value is less than two seconds), which indicates that the cake is discharged.
    d. The discharge door closes.
    e. The can is lowered to the fully down position.
5. The press is ready for the next load when the can is fully down and the ram is fully up.

End Code 2 Use End Code 2 for goods like poly-cotton sheets or patient gowns that usually remain on the press belt as the can and ram are lifted. These cakes are more likely to fall apart if they are handled roughly when the press cycle ends, so this end code is designed to maintain the integrity of the cake.

The End Code 2 end-of-press-cycle procedure performs the following sequence of actions:

1. At the end of the press cycle, the ram rises slowly off the cake (with the pre-fill valve closed).
2. The ram begins to rise. After three seconds, the can begins to rise off the press bed.
3. When the can reaches the full-up proximity switch, the pre-fill valve opens to allow the ram to rise quickly to its full-up position. The ram stops at its unload position if the can is not at the full-up position.
4. The discharge sequence begins when the ram is at or above the unload position:
    a. The discharge door opens.
    b. The belt runs forward until the discharge end photoeye is blocked and cleared.

c. The belt runs for the duration of the configured **Belt Run Time After Discharge** value (or two seconds if the configured value is less than two seconds), which indicates that the cake is discharged.

d. The discharge door closes.

e. The can is lowered to the fully down position.

5. The press is ready for the next load when the can is fully down and the ram is fully up.

3.1.2.3 About the Optional RAM Command™ (Soft Squeeze) Feature

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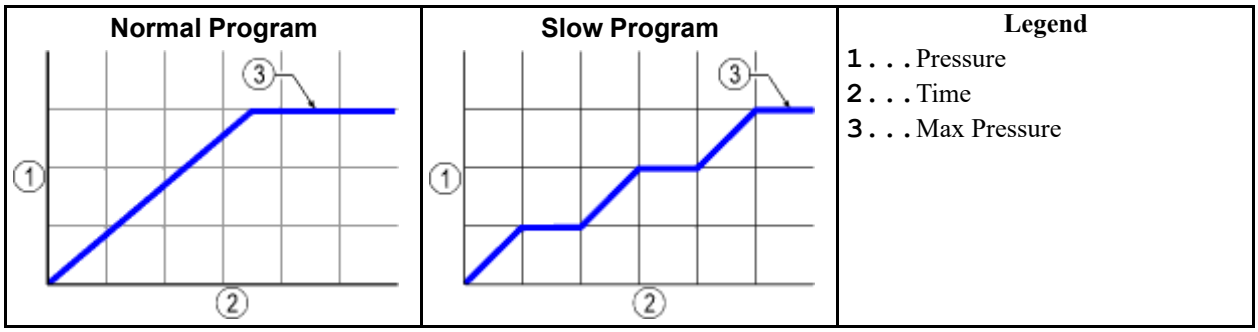
The normal, single-step press program steadily increases pressure until the desired pressure is achieved, then maintains pressure until the ramp time expires. Alternatively, you can use the RAM Command™ (Soft Squeeze) feature to steadily increase the pressure of the ram and hold it for the desired time in a series of steps which gradually increase. See the figure below for charts of pressure versus time.

Figure 12. Comparison of Normal and Slow Programs



This slower program allows water to pass through without damaging goods that are prone to microbursting (e.g., barrier materials and high thread-count sheets). If your machine has the RAM Command™ feature and you enable it on the **Configure Controls** display (see Section 2.1.1.2.1 : The Configuration Decisions, page 14), the RAM Command™ options will appear at the bottom left of the **Modify Press Code** display, as shown in the following figure.

Figure 13. RAM Command™ Options

For each press code, the MilTouch™ controller uses the values programmed in the RAM Command™ options to reduce quick increases in pressure on the goods while the ram descends.

Timer A— Set the value here for the ON-time duration of the 100 PSI output. The valid range is 000 to 999 seconds. When the ram begins to descend into the can with both poppet valves

closed, the ram is forced down with 100 PSI additional pressure for the duration of Timer A. Enter 000 to disable the output for this press formula.

Timer B— Set the value here for the ON-time duration of the 250 PSI output. The valid range is 000 to 999 seconds. When Timer A expires (with both poppet valves closed), the ram is forced down with 250 PSI additional pressure for the duration of Timer B. Enter 000 to disable the output for this press formula.

Timer C— Set the value here for the ON-time duration of the flow control output. The valid range is 000 to 999 seconds. When Timer B expires (with both poppet valves closed), the ram is forced down with the standby pressure of the pump for the duration of Timer C. Enter 000 to disable the output for this press formula.

After Timer A, Timer B, and Timer C expire, the two poppet valves open to begin pressurizing the ram cylinder.

3.1.3 To Enter or Change the Name of a Press Code

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For each press code in the machine, you can program a name up to 10 characters long.

1. Touch a press code to select it.
2. Touch the text box at the top of the display that displays “Enter press code name here (10 characters max).”
3. Use the keypad to enter a name for the press code.
4. Touch the **Save** button to save your changes and return to the **Add/Change Press Code** display.

NOTE: The MilTouch™ controller will not allow you to save an unnamed press code.

3.1.4 To Delete a Press Code

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To delete a press code, you must delete the title and revert all of the press code decisions to 0.

1. Touch a press code to select it.
2. Touch the **Clear Values** button (between the **Save** button and the **Cancel** button).
3. Touch the **Save** button to save your changes (delete the press code).

3.1.5 To Copy a Press Code

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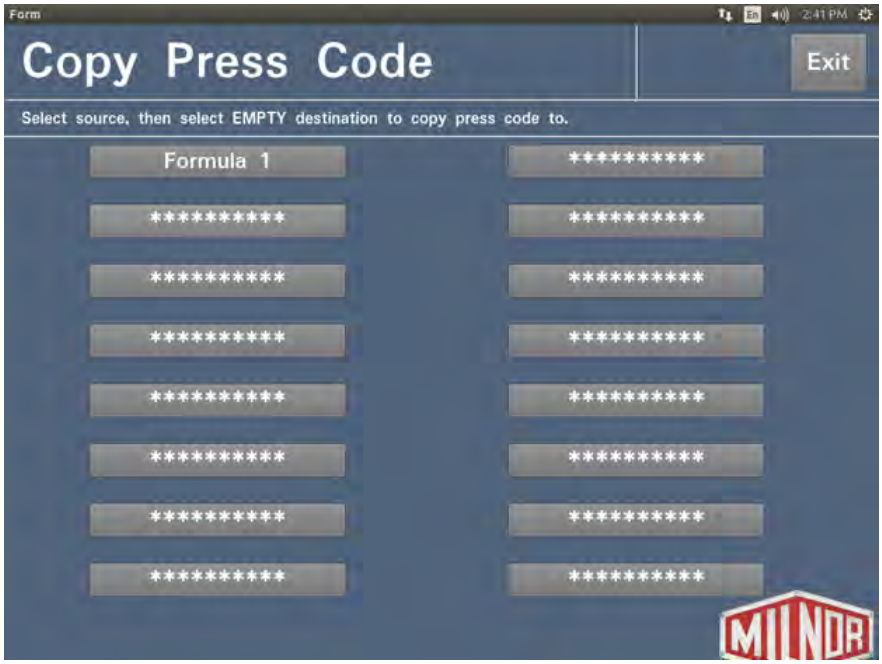
You can copy a press code to a new press code number from the **Copy Press Code** display. To access the **Copy Press Code** display:

1. From the **Main Menu** display, touch **Automatic Mode**. The **Automatic Operation** display appears.
2. On the **Automatic Operation** display, touch **Program Menu**. The **Program Menu** display appears.

3. On the **Program Menu** display, touch **Copy Press Code**. The **Copy Press Code** display appears, shown in the following figure.

Figure 14. Copy Press Code Display



4. Touch the press code you want to copy (the source press code), to select it.
5. Touch an unnamed press code. Press codes without names (titled "**********") have not been programmed.

The controller copies the source press code to the empty position you chose.

NOTE: You cannot copy a press code to position that is not empty. If you want to replace one press code with another, you must first delete the target press code, then copy the source code to that position.

3.1.6 Typical Goods and Press Code Values

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Some typical goods and corresponding press code values are given in the following tables:

Table 4. Typical Press Code for Walk-Off Mats

	S-01	S-02	S-03	S-04
Bar	7	10	15	20
Ramp	10	10	10	30
Tamp	0	0	0	0
Max	10	10	10	40
End	0	0	0	1

Table 5. Typical Press Codes for Towels and Uniforms

	Cotton Towels		Cotton/Polyester Uniforms
	S-01		S-01
Bar	40		25
Ramp	40		40
Tamp	0		1
Max	50		50
End	1		1

4 Operation

4.1 Physical Controls

Various control panel configurations are used throughout the family of MilTouch™ press models. These configurations vary depending on the machine's equipment, such as a reuse pump (press return pump). The control panel shown in the following figure contains all of the physical controls you might find on your machine.

Figure 15. Typical MilTouch™ Press Control Panel

Legend

A . . . Touchscreen for MilTouch™ controller
B . . . Master power switch
C . . . Operator signal lamp
D . . . Start button
E . . . Stop button
F . . . Press is loaded button
G . . . Fault recovery button
H . . . Pump Off/Automatic switch
I . . . Pump Running lamp
J . . . Pump Disabled lamp

Main Controls — The controls in this section occur on all MilTouch™ presses.

Touchscreen for MilTouch™ controller — This is a touch-sensitive display screen that you use for most machine functions. See BPB in wiring diagrams.

Master power switch (⊘ / ⊙) — This switch controls power to the machine control circuit. When the **master power** switch is off, the entire control circuit is disabled, i.e., the microprocessor controller is not powered. The ⊘ symbol represents the OFF position and the ⊙ symbol represents the ON position. See SHSMA in wiring diagrams.

Operator Signal lamp () — This lamp illuminates when the press needs the attention of an operator. The lamp may be accompanied by a flashing beacon near the top of the press and an audible horn. See ELSG (lamp), ELSGF (beacon), EBSG (horn) in wiring diagrams.

Start button (①) — When power is enabled through the **master power** switch and all safety conditions are met for the machine to run, this button allows machine operation. Pressing this button closes contacts in relay CRS+, which remain closed until the **Stop** button is pressed or an unsafe condition is detected. The CRS+ circuit is referred to as the three-wire or safety circuit. See CRS+, SHS+ (start button), and SHS+R (remote start button) in wiring diagrams.

Stop button (⓪) — This button de-energizes relay CRS+ (opens the safety/three-wire circuit) and stops operation, but does not remove power from the control system. This is the same function as the **emergency stop** switch (Section 4.2 : Emergency Stop Switch (locking push button), page 34), but the **stop** button resets immediately when the button is released. See SHSO in wiring diagrams.

Fault recovery button () — This button , when pressed, sends a signal to the microprocessor controller to indicate that the cause of the previous fault has been cleared. This signal also notifies the microprocessor controller that it is safe to resume operating when the operator presses the **start** button (①). See SHRF in wiring diagrams.

Press-is-loaded button () — This button, when pressed, sends a signal to the microprocessor controller to indicate that the press contains a load and should prompt the operator for cake data. See SHPL in wiring diagrams.

Reuse Pump (Press Return Pump) Controls — The reuse pump (press return pump) controls occur on presses with the optional reuse pump.

The reuse pump sends water extracted by the press back to the CBW®washer, where the water is used to flush goods down the receiving chute and to fill the first module of the CBW® washer. The press microprocessor control turns this pump on and off as necessary to move the water and minimize the time the pump runs dry. The two-position switch allows a person to disable the pump, and the two indicator lamps help determine if the pump is running, or not running when it should run.

Pump Off/Automatic switch (⓪ / ⇄) — The **pump off/automatic** switch allows the operator to disable the reuse pump, primarily for maintenance. The ⓪ symbol represents the OFF —or disabled—switch position. The ⇄ symbol represents the automatic operation switch position. In the automatic operation position, the controlled component operates under the control of the microprocessor. See SHPRP in wiring diagrams.

Pump Running lamp (**)** — This lamp is illuminated when the reuse pump is running. See ELPRP in wiring diagrams.

Pump Disabled lamp (**)** — This lamp is illuminated when the reuse pump did not run after operation was commanded, which is an error condition. The most common cause of this error is a tripped reuse pump motor overload. See ELPTT in wiring diagrams.

Additional Controls

Lamp Test button — Certain equipment standards require a **lamp test** button, shown in the following figure. When this button is pressed, all indicator lamps on the switch panel illuminate, which allows the operator to check for malfunctioning bulbs. When it is provided, this button is mounted near the main switch panel. See 09N405PB11 in wiring diagrams.

Figure 16. Lamp Test Button

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4.2 Emergency Stop Switch (locking push button)

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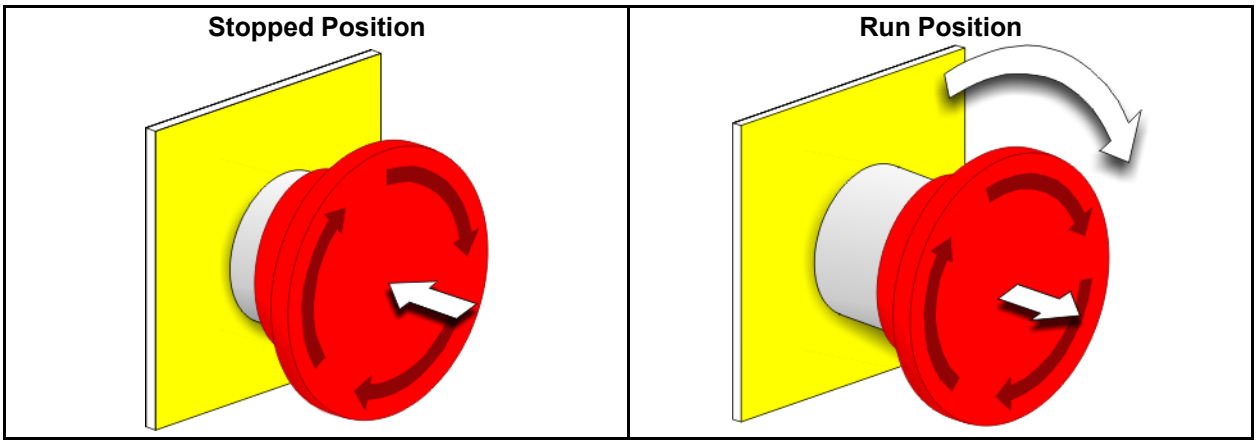
One or more **emergency stop** switches (pictured below) may be provided on the device. When pressed, any **emergency stop** switch removes power from the machine controls, stops the machine, and locks in the depressed (switch actuated, machine stopped) position. When safe to do so, turn the button clockwise to unlock the switch. To resume operation, perform the device's normal startup procedure.

Figure 17. Emergency Stop Switch



NOTICE: Press the **emergency stop** switch immediately in an emergency situation.

Display or Action	Explanation
	This symbol represents the **emergency stop** switch in Milnor® documents other than electrical wiring diagrams.

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4.3 Automatic Mode

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Automatic mode is the press' main mode of operation. In the normal automatic operating mode, the operator only needs to monitor the press for load errors and ensure that the desired pressure is achieved.

From the **Main Menu** display (shown in the following figure), touch **Automatic Mode** to activate Automatic Mode.

Figure 18. Press Main Menu Display

Legend

A . . . Initiate the Evening Shutdown Procedure steps. See Section 5.2 : Evening Shutdown, page 57.

B . . . Operate the press manually. See Section 4.4 : Manual Mode, page 43.

C . . . Access the **Input Status** displays (Figure 31: Page 2 of the Input Status Displays, page 60).

D . . . Access the **Automatic Operation** display (Figure 19: Automatic Operation Display, page 36).

4.3.1 The Automatic Operation Display

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The **Automatic Operation** display, shown in the following figure, appears when you activate **Automatic Mode**.

From the **Automatic Operation** display, you can monitor the press code progress and the machine status. Five types of information are given on the **Automatic Operation** display. These types are grouped into five areas of the display, as shown in the following figure.

Figure 19. Automatic Operation Display

Legend

A . . . Names and Progress area
B . . . Performance Analysis tools
C . . . Diagnostic tools
D . . . Machine Status area

4.3.1.1 Names and Progress Area (A)

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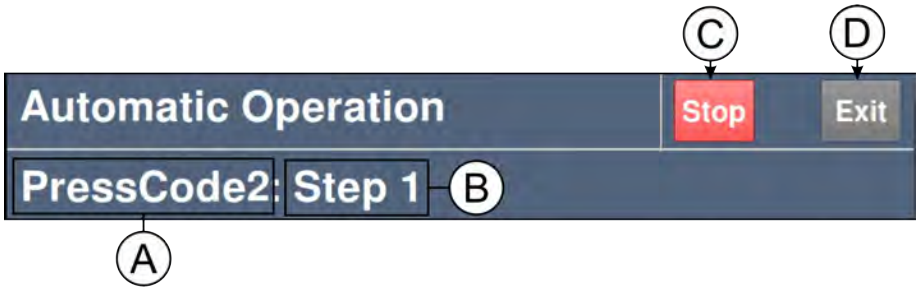
Figure 20. Names and Progress Area



Legend

A . . . The active press code

B . . . The current step number. The step number increments at the beginning of each step.

C . . . Touch **Start** to start automatic operations. If the controller is unable to determine if goods are present in the press or conveyor, the **Cake Data** window will appear (see Section 4.3.1.2.1 : Cake Data Display, page 37). If automatic operation is already in progress, this button becomes the **Stop** button, which cancels the press code and stops automatic operation.

D . . . Return to the **Main Menu** display. If you touch this button while a press code is running, the controller cancels the press code and stops automatic operation. If you return to the **Automatic Operation** display and resume the press code, the press code will start over from Step 1.

4.3.1.2 Performance Analysis Tools (B)

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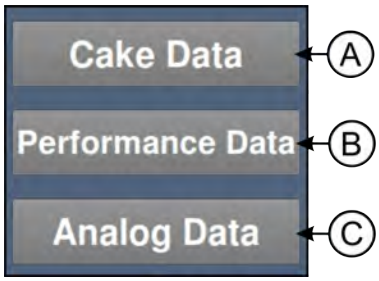
Figure 21. Performance Analysis Tools



Legend

A . . . Enter or check the cake data (see Section 4.3.1.2.1 : Cake Data Display, page 37)

B . . . Monitor the press's performance (see Section 4.3.1.2.2 : Performance Data Display, page 38)

C . . . Analyze the analog data (see Section 4.3.1.2.3 : Analog Data, page 39)

4.3.1.2.1 Cake Data Display

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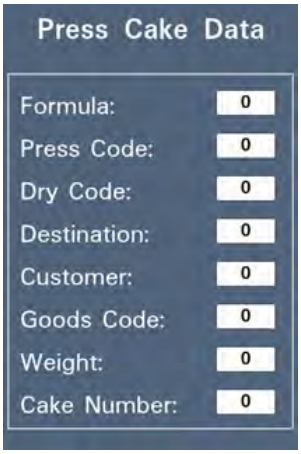
When the press receives a batch, the loading device passes a press code number to the press, along with other batch data, either through Miltrac™ or allied data inputs. In normal operation, the press executes the press code that corresponds to the press code number it receives from the loading device. If the press prompts for goods data at startup, this information is entered by the operator.

The data you enter on this display is used for two purposes:

- instructing the press and other equipment (such as drying or conditioning equipment) how to process the goods
- accounting and record-keeping

Figure 22. Cake Data Display



Formula identifies the wash formula used in the tunnel. Although in some systems, the wash formula may affect post-wash processing, formula codes are passed to post-wash devices primarily for accounting and record-keeping purposes.

NOTE: Although formula code and extract code are technically different things, they can be thought of as the same by programming the Milnor® centrifugal extractor or single stage press so that the proper extract formula is invoked by a formula code of the same number. For example, program extract code 05 so that it is the proper extraction process for batches processed with formula code 05. Then simply pass the formula code to the extractor or single stage press as the extract code.

Press Code identifies the press formula (code) to be used in the press

Dry Code identifies the drying formula to be used in the drying or conditioning equipment

Destination identifies a storage location within the laundry to send the load.

Customer identifies the customer (commercial laundry) or department (institutional laundry) the batch belongs to.

Goods Code identifies a subset of a general class of goods. All batches conforming to the general class are processed using the same wash formula. Each specific goods code within a general class of goods causes variations in processing, essentially extending the range of available wash formulas. Although in some systems the goods code may affect post-wash processing, goods codes are passed to postwash devices primarily for accounting and record-keeping purposes.

Weight the dry, soiled weight of a batch, as measured by a weighing device, such as a weighing type load conveyor. Although in some systems, weight may affect post-wash processing, weights are passed to post-wash devices primarily for accounting and record-keeping purposes.

Cake Number an identification number associated with each batch. The rail system or CBW® automatically assigns a number between 000 to 255. This code is used solely for accounting and record-keeping purposes. Allied signals are not currently available on any machine for passing this code.

4.3.1.2.2 Performance Data Display

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From this display, you can monitor the production and performance of your press.

Figure 23. Performance Data Display

Loads Run The number of cakes processed since the last time the press was powered-up

Run Time The total amount of time taken to process the cakes (run the press codes) since the last time the press was powered-up

Hold Time The total amount of time the press has held cakes, which delays the start time of the next press code

4.3.1.2.3 Analog Data

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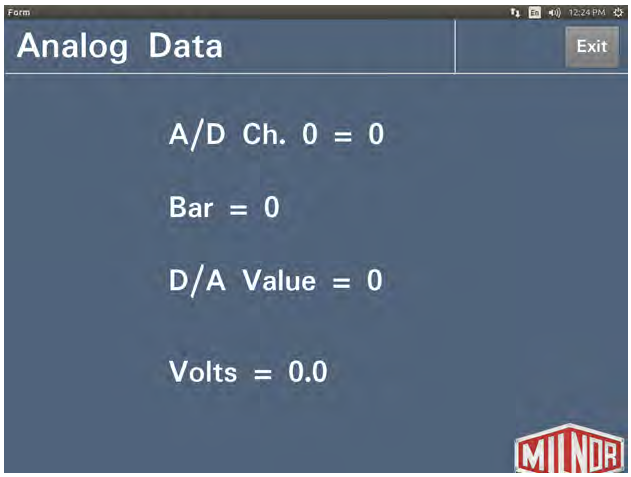
This display shows the digital readings of the analog input and analog output boards corresponding to the input from the hydraulic pressure transducer and the output to the proportional card. The Analog Data comprises both the digital counts and the corresponding computed values for input channels 0, 1, and 2 on the analog-to-digital (A/D) board, as well as the digital-to-analog (D/A) board output.

Figure 24. Analog Data



A/D Channel 0 digital counts related to the analog input from the pump pressure transducer. This input provides an indirect measurement of diaphragm pressure in bar, based on the applied pump pressure.

Bar approximate pressure in bar at the diaphragm as calculated from the analog-to-digital channel 0 counts.

D/A Value digital counts related to the analog output to the proportional card. This output provides an analog signal in volts to regulate the proportional valve.

Volts approximate analog output in volts calculated from the digital-to-analog value.

4.3.1.3 Diagnostics Tools (C)

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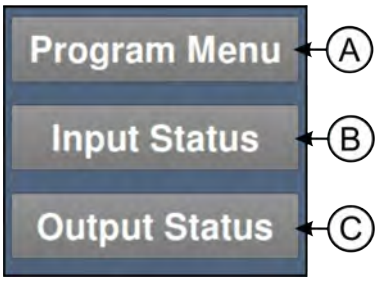
Figure 25. Diagnostic Tools



Legend

A . . . You can program press codes, change machine configuration, and perform other tasks from the **Program Menu** display (see Section 2.1.1 : The Program Menu Display, page 11). If you touch this button while a press code is running, the controller cancels the press code and stops automatic operation. If you return to the **Automatic Operation** display and resume the press code, the press code will start over from Step 1.

B . . . Accesses the input status display (see Section 6.1.1 : Digital Inputs, page 59)

C . . . Accesses the output status display (see Section 6.1.2 : Digital Outputs, page 60)

4.3.1.4 Machine Status Area (D)

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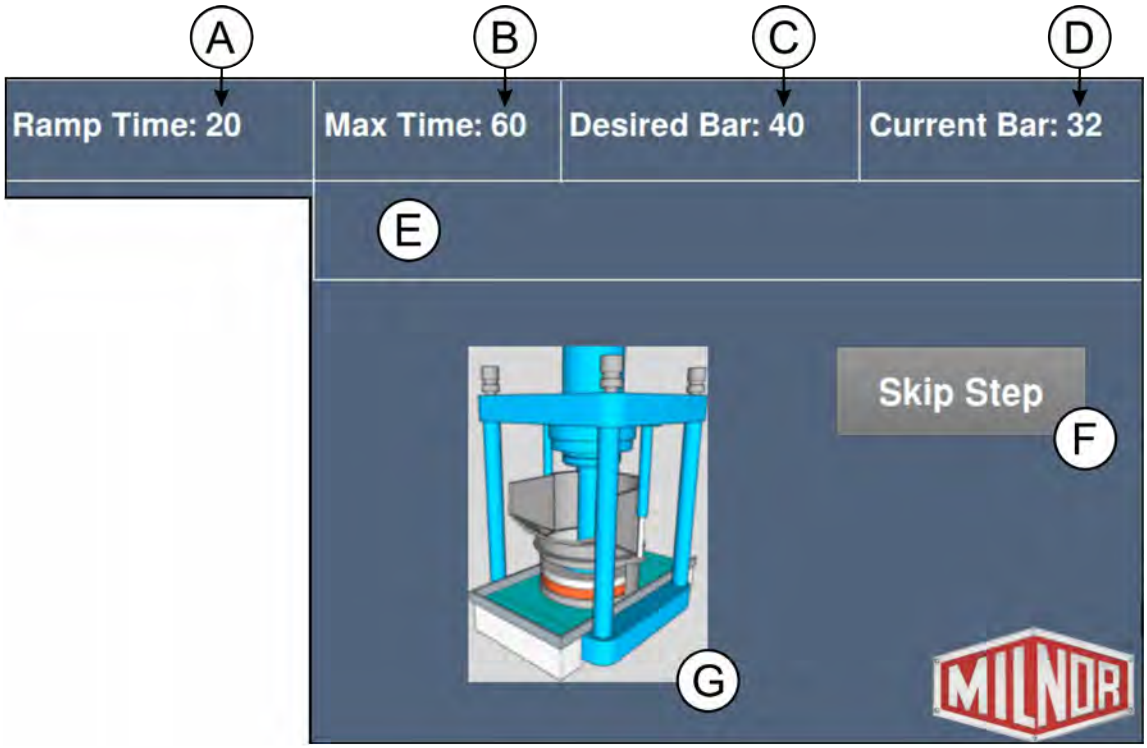
Figure 26. Machine Status Area



Legend

A . . . The time that remains until the desired pressure is achieved for the current step (see : Ramp, page 26). The timer resets at the beginning of each step and starts counting down when diaphragm pressurization starts.

B . . . The time that remains in current step (see : Max, page 26). The timer begins counting down when diaphragm pressurization begins. The step ends when this timer expires, even if the desired pressure has not been achieved.

C . . . The desired diaphragm pressure in bar for the current step (see : Bar, page 26).

D . . . The current diaphragm pressure in bar for the current step.

E . . . The message region, which shows messages describing the current operational state of the press during normal operation. See Section 4.5.4 : Other Press States, page 51 for explanations of all the press state messages. If the machine encounters an error while it runs a press code, an error message will appear in this region. See Section 6.2.1.1 : Mechanical and Processing Faults, page 71 for explanations of all the error messages.

F . . . Skip to the next step in a press code (even if the desired pressure has not been achieved for the current step). This button becomes **Signal Cancel** (which silences the operator signal) when the machine encounters an error.

G . . . Animation that shows current ram and can positions.

4.3.2 About the Optional Steam Disinfect Feature

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The optional steam disinfect feature uses steam to disinfect the water inside the reuse tank before the reuse pump sends the water back to the CBW® tunnel washer. The steam disinfection process automatically begins every time the press discharges a cake and waits for a new load.

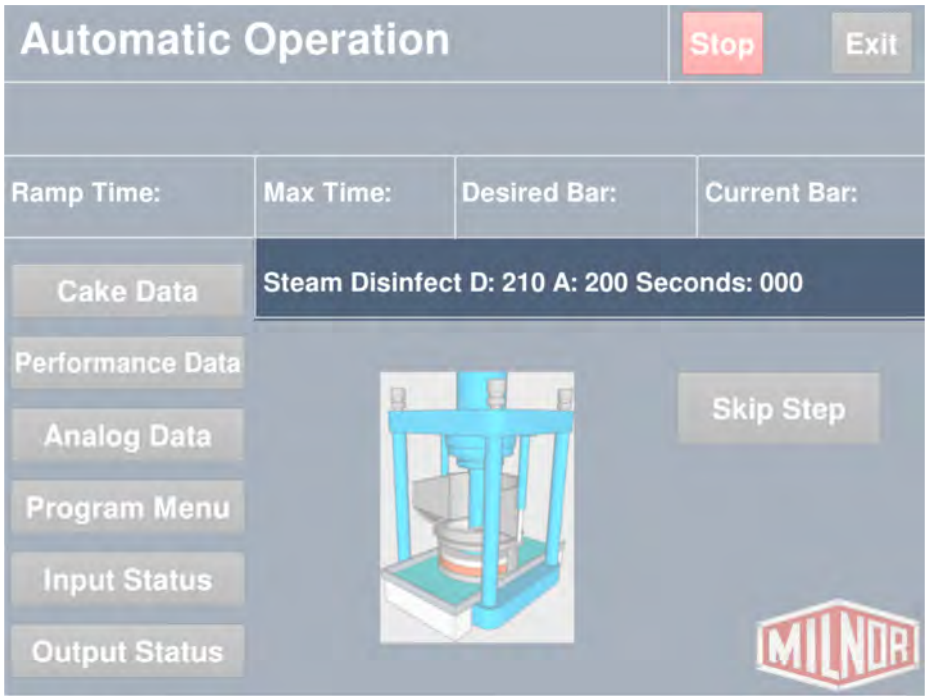
If your machine is equipped to use the steam disinfect feature and you enable it on the **Configure Controls** display (see Section 2.1.1.2.1 : The Configuration Decisions, page 14), the press performs the following sequence of actions while it waits for a load:

1. The controller asks for steam and makes the “Disinfect Active” input (5MTA4-7). Refer to press schematic W6PM1SSD for a diagram of this circuit.
2. The controller opens the fresh water valve to fill the reuse tank and closes the valve when the water level reaches the configured high level.

   NOTE: If the water level in the reuse tank drops below the configured low level during the steam disinfection process, an error occurs.

3. The steam valve opens and the steam disinfection process begins. The message region of the **Automatic Operation** display indicates that the press is in steam disinfect mode, as shown in the following figure. The display shows the desired steam disinfect temperature in degrees Fahrenheit (D), the actual temperature (A), and the time remaining (seconds).

Figure 27. Steam Disinfect Mode



4. Steam disinfect time is fixed at 180 seconds. The timer starts when the desired temperature inside the reuse tank (set on the **Configure Controls** display) is achieved.
   - If the temperature inside the reuse tank exceeds the desired temperature, the steam valve closes.
   - If the temperature inside the reuse tank drops below the desired temperature, the steam valve opens again.
   - If the temperature inside the reuse tank drops five degrees below the desired temperature, the steam valve opens and the steam disinfect timer resets. The timer starts again when the desired temperature is achieved.

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4.4 Manual Mode

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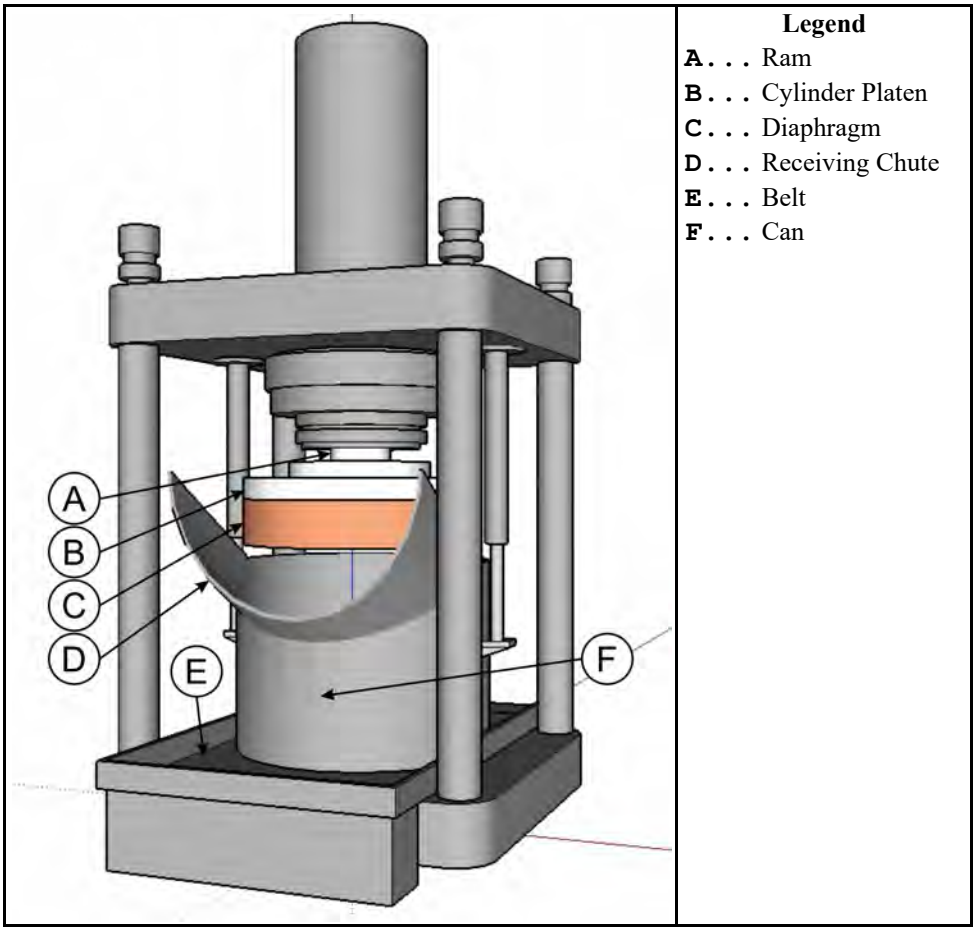
Operate the press manually to troubleshoot error conditions or perform maintenance tasks according to the service and maintenance manual. From the **Main Menu** display, touch **Operate Individual Functions** to activate Manual Mode.

Most of the press components that you can manually operate are identified in the following figure.

Figure 28. Parts of the Press



NOTICE: You can safely operate machine components for testing and maintenance provided you do not attempt to enter any part of the machine. See Section 1.2 : Safety Alert for Owners/Managers and Maintenance Personnel: Using the Door Interlock Bypass Key Switch, page 9.

4.4.1 Manual Functions

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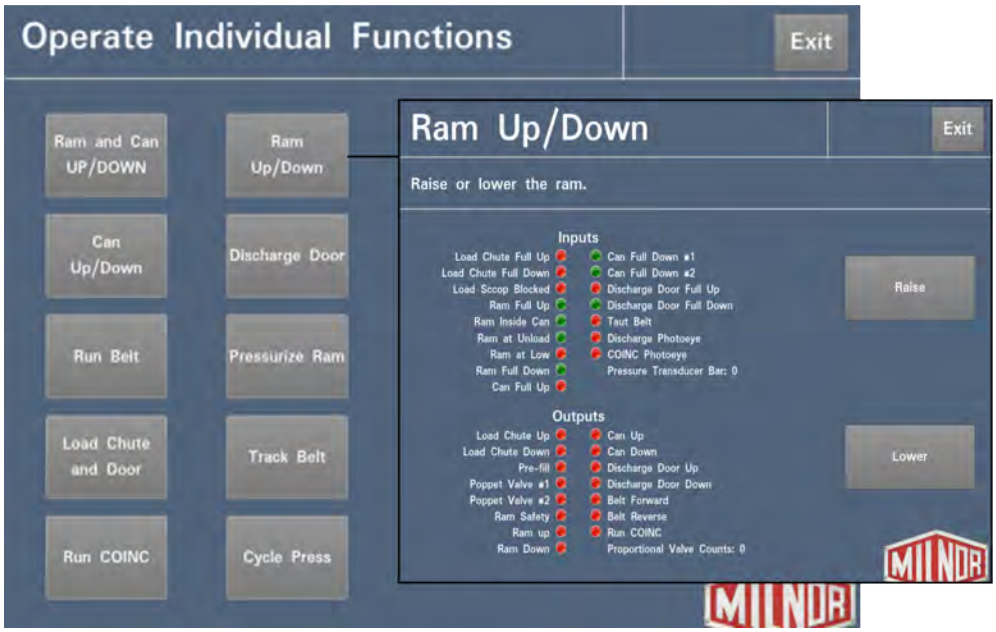
Touch a button to view the control window for the function named on that button. For example, the **Ram Up/Down** control window appears when you touch **Ram Up/Down**, as shown in the following figure.

Figure 29. Operate Individual Functions



The indicated actions on the buttons occur while the button is held. For example, to raise the ram, touch and hold the **Raise** button on the **Ram Up/Down** control window. The **Start** button, however (used on the : Track Belt, page 46 and : Cycle Press, page 46 control windows), will start the indicated action when it is touched and released and does not need to be held.

Ram and Can Up/Down — This function raises or lowers the ram while forcing the can down. The belt and the receiving chute must both be clear of goods when you lower the ram. Pump pressure is not allowed to exceed 1500 psi while lowering the ram.

NOTE: The controller requires a delay of four seconds after you command the ram down before you can command the ram up.

Raise Raises the ram while driving the can down. The controller displays “Ram Full Up” when the “Ram Full Up” input is actuated

Lower Lowers the ram while driving the can down. The controller displays “Ram Full Down” when the “Ram Full Down” input is actuated.

Can Up/Down — This function raises and lowers the can. The belt must be clear of goods when you move the can down, and the receiving chute must be clear of goods when you move the can up.

Raise Raises the can by actuating the “Can Up” output if all safety conditions are met. The controller displays “Can Full Up” when the “Can Full Up” input is actuated.

Lower Lowers the can by actuating the “Can Down” output if all safety conditions are met. The controller displays “Can Full Down” when the “Can Full Down” inputs are actuated.

CAUTION: **Moving the ram through the bottom of the can —** will cause the diaphragm to forcefully rub against the can, possibly causing damage.

- If you must raise the can above the ram (for maintenance purposes): 1) lower the can onto the press bed, 2) lower the diaphragm onto the press bed, 3) raise the can.
- If goods become jammed between the ram and can, withdraw the ram through the top of the can, not through the bottom of the can.

Run Belt — This function opens the discharge door and runs the main belt forward and backward. The ram must be above the “Ram Inside Can” position, and the can must be fully raised. The COINC (inclined conveyor that the press discharges to) runs when the belt is commanded to run forward if the COINC eye is not blocked.

Forward Automatically raises the discharge door and runs the main belt forward by actuating the “Belt Forward” output if all safety conditions are met. If present, the discharge conveyor belt also runs forward.

Reverse Automatically raises the discharge door and runs the main belt backward by actuating the “Belt Reverse” output if all safety conditions are met. The discharge conveyor belt, if present, does not run when the main belt runs in reverse.

Load Chute and Door — If your machine is equipped with a load door, this function raises and lowers the load door. If your machine is not equipped with a load door, this function does nothing.

NOTE: The load chute that this function was originally named for is no longer used on any single-stage presses.

Raise Raises the load door by actuating the “Load Chute Up” output. The controller displays “Load Chute Full Up” when the “Load Chute Full Up” input is actuated.

Lower Lowers the load door by actuating the “Load Chute Down” output. The controller displays “Load Chute Full Down” when the “Load Chute Full Down” input is actuated.

Run COINC — This function runs the inclined discharge conveyor belt in the forward direction only. This belt will not run in the reverse direction.

Forward Runs the discharge conveyor belt forward by actuating the Run COINC output.

Ram Up/Down — This function raises and lowers the ram. The belt and the receiving chute must both be clear of goods to lower the ram. Pump pressure is not allowed to exceed 1500 psi while lowering the ram. See the Note and Hazard Statement in : Can Up/Down, page 44 about moving the ram through the bottom of the can.

Raise Raises the ram by actuating the “Ram Up” output if all safety conditions are met. The controller displays “Ram Full Up” when the “Ram Full Up” input is actuated.

Lower Lowers the ram by actuating the “Ram Down” output if all safety conditions are met. The controller displays “Ram Full Down” when the “Ram Full Down” input is actuated.

Discharge Door — This function opens and closes the discharge door.

Open Raises the discharge door by actuating the "Discharge Door Up" output. The controller displays "Discharge Door Full Up" when the "Discharge Door Full Up" input is actuated.

Close Lowers the discharge door by actuating the "Discharge Door Down" output. The controller displays "Discharge Door Full Down" when the "Discharge Door Full Down" input is actuated.

Pressurize Ram — This function pressurizes the ram. The receiving chute must be clear of goods and the can must be fully down. Pump pressure is not allowed to exceed 1500 psi if the ram is above the "Ram Inside Can" position. The pressure transducer bar is displayed under the inputs and the proportional valve counts are displayed under the outputs.

- Pressure Transducer PSI: The hydraulic pump pressure in pounds per square inch.
- Proportional Valve Counts: The counts representing the opening of the proportional valve. This value is 4095 while the ram is pressurizing, which indicates that the proportional valve is fully open.

Down Drives the ram and the can down.

Track Belt — This function runs the belt forward to facilitate belt tracking adjustment by a qualified technician and/or manual cake discharge. This function starts only if the "Can Full Up" input is actuated.

1. The controller raises the ram to the full up position.
2. The discharge door begins opening when the "Ram Inside Can" input is actuated.
3. The belt begins running when the "Ram Full Up" input is actuated.

WARNING: Moving parts inside — can pull in and mutilate body parts.

- Do not operate unless all guards and covers are in place.
- Do not put hands/fingers beyond a guard/cover.

Start The belt runs until commanded to stop.
Stop The belt stops.

Cycle Press — This function operates the press through a complete pressing cycle. Before the cycle begins, the two "Can Full Down" inputs must be actuated and the receiving chute must be clear of goods.

NOTICE: This is a maintenance tool intended as a temporary measure to address the issue of the ram sticking. Only use these features in consultation with the Milnor® factory or when advised by the Milnor® factory.

CAUTION: **Operating the press without a load —** can cause unnecessary wear on the machine components.

▶ Do not pressurize the ram without a load in the press unless necessary for troubleshooting.

Start Starts the press cycle, as described in Section 4.4.1.1 : The Press Cycle Summarized, page 47, and repeats the cycle until **Stop** is pressed.

Stop Stops the press cycle.

Enable Ram Break-in Delays the time before the controller opens the prefill valve during automatic operation, which causes the ram to come down under greater hydraulic force than it otherwise would. Enable Ram Break-in is effective during Automatic Operation (see note below).

Enable Power-down Limits the use of the proportional valves to pressurize the ram (see : CC = Ram Valve Setting, page 19), which causes the ram to come down under greater hydraulic force than it otherwise would. Enable Power-down is only effective during the manual Cycle Press function and is disabled when you exit the **Cycle Press** function.

NOTE: If ram break-in is enabled, the user is prompted to re-enable ram break-in every time the press control starts a new press code (returns to automatic operation). This prompt does not appear if ram break-in is disabled. Ram break-in is automatically disabled when press power is turned off.

4.4.1.1 The Press Cycle Summarized

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NOTE: More detailed information on the press cycle can be found in the document titled “How the Single Stage Press Hydraulic System Works” in service manual MTPPMM03.

1. The ram descends past the “Ram at Unload” position (see PXSU in the schematic manual), where it begins to pressurize.

NOTE: In normal operation, the prefill valve is enabled 1 second after the press controller commands the ram down. When ram break-in is enabled, this delay is extended to 20 seconds.

2. The pump and proportional valves operate to pressurize the ram to the maximum pressure based on the machine model.
3. Pressure is released.
4. The ram is raised until the “Ram Full Up” input is actuated.
5. The cycle repeats.

4.4.1.2 Monitor Inputs and Outputs Related to Manual Functions

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You can monitor the status of these inputs and outputs, as well as the pressure transducer PSI and the proportional valve counts from the various control windows in Manual Mode, as shown in the figure below. Actuated inputs and outputs display a green status light.

Figure 30. Manual Functions Input and Output Status

For a full list of inputs and outputs, see Section 6.1 : Troubleshooting Inputs and Outputs, page 59.

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4.5 Press State Messages

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During normal operation, the press controller displays status messages to keep the operator informed about what the press is doing. These messages do not necessarily indicate that an error occurred, but rather that the controller issued a command that can not be completed immediately.

For example, it may take the press ram two or more seconds to move from the bottom of its travel to the unload position. The controller displays “Waiting for Ram at Unload Position” while the ram is rising. When the ram reaches the unload position, another status message appears.

4.5.1 Press Receiving a Load

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Clear Belt Eye Before Proceeding — This message indicates that the discharge end photoeye (Figure 36: Discharge End Photoeye, page 83) was blocked while the press was checking for a load on the belt. Clear the photoeye and press or to continue.

Loading — The press is receiving a load.

Waiting for Can Full Down — The press can is descending to the press bed. This position is achieved when both proximity switches PXCB1 and PXCB2 see the target at the bottom of the can (Figure 33: Ram and Can Proximity Switches, page 82), actuating the “Can Full Down #1” input on 1MTA4-5 and the “Can Full Down #2” input on 2MTA4-6. Both inputs are required to declare the can full-down.

Waiting for Load — The following conditions have been achieved, and the press is ready to accept a batch:

- The ram is fully up, indicated by the presence of the “Ram Full Up” input on 5MTA4-11.
- The can is fully down, indicated by the presence of the “Can Full Down #1” input on 1MTA4-5 and the “Can Full Down #2” input on 2MTA4-6.

Waiting for Load Door Full Up — This press state message only occurs if your machine is equipped with a load door. The load door is ascending to the full-up position so that the press can accept a load from the COBUC. This position is achieved when the "Load Chute Full Up" input on 5MTA4-1 is actuated.

Waiting for Ram Full Up — The press ram is rising to the full-up position, the top of travel. This position is achieved when proximity switch PXST (Figure 33: Ram and Can Proximity Switches, page 82) sees the guide rod, which actuates the "Ram Full Up" input on 5MTA4-11.

4.5.2 Press Discharging

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Checking for Load on Belt — The press control monitors the input from the discharge end photoeye (Figure 36: Discharge End Photoeye, page 83) while running the belt forward for 15 seconds (belt clear time).

Discharging: Wait for Eye Blocked — The press control looks for the discharge end photo-eye input (1MTA4-6) to be actuated during discharging when the cake initially blocks the photo-eye. If the photoeye input is not actuated before the 15 seconds of belt clear time expires, the control displays "Eye Did Not Block." See Section 6.2.1.1 : Mechanical and Processing Faults, page 71.

Discharging: Wait for Eye Clear — The press control looks for the discharge end photoeye input (1MTA4-6) to clear (when the cake is no longer blocking the discharge end photoeye). If the discharge end photoeye input does not clear before the 15 seconds of belt clear time expires, the control displays "Eye Blocked—Press Fault Recovery." See Section 6.2.1.1 : Mechanical and Processing Faults, page 71. Clear the photoeye and press or to continue.

Ready to Discharge — The press can and ram are up, the discharge door is open, and the press is waiting for the signal to start the discharge sequence.

Waiting to Discharge — The press formula is finished and the press is waiting to discharge to the receiving device.

Discharging — The press is discharging a load.

Waiting for Can Up/Full Up — The press can is rising to the full-up position, the top of travel. This position is achieved when proximity switch PXCT sees the target at the top of the can (Figure 33: Ram and Can Proximity Switches, page 82), which actuates the "Can Full Up" input on 1MTA4-4.

Waiting for Ram at Unload Position — The press ram is rising to the unload position in preparation to discharge. The unload position is achieved when proximity switch PXSU sees the guide rod (Figure 33: Ram and Can Proximity Switches, page 82), which actuates the "Ram at Unload" input on 2MTA4-5.

Waiting for Belt to Finish Discharging — This message appears for two seconds during discharge, while the belt is running after the cake clears the discharge-end photoeye (Figure 36: Discharge End Photoeye, page 83), which deactuates the "Discharge Photoeye" input on 1MTA4-6.

Waiting for Discharge Door Full Up — The discharge door is ascending to the full-up (open) position. This position is achieved when the PXDDU proximity switch is actuated by the proximity switch target, which actuates the "Discharge Door Full Up" input on 1MTA4-7 when the door is at the top of its travel. The belt under the can will not run until the discharge door is fully open.

4.5.3 Operation

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Decompression Delay — Please Wait — The press control provides a decompression delay of less than 10 seconds after closing the proportional valve after pressurization.

Waiting for Mode Selection — This message indicates that the press is idle and waiting for the operator to press **Start** to initiate Automatic Mode.

Waiting for Ram Half Up — The ram is ascending or descending to the half-up position. This position is achieved when the "Ram Inside Can" input on 1MTA4-2 is actuated.

Waiting for Discharge Door Down — The belt has discharged the cake and stopped running, and the discharge door is descending to the full-down (closed) position. This position is achieved when the proximity switch PXDDD sees the door is at the bottom of its travel, which actuates the "Discharge Door Full Down" input on 1MTA4-8. The can will not descend until the discharge door is fully closed.

Waiting for Load Door Down — The load door is descending to the closed position. This position is achieved when the "Load Chute Full Down" input on 5MTA4-2 is actuated.

4.5.4 Other Press States

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Error-Related

Press [Fault Recovery] to Lower Door — This message appears with either of two additional messages: "Load Door Not Fully Closed" and "Discharge Door Not Fully Closed." See Section 6.2.1.1 : Mechanical and Processing Faults, page 71.

Press [Fault Recovery] to Lower Ram — This message appears with either of two additional messages: "Ram Not Down" and "Scoop Blocked." See Section 6.2.1.1 : Mechanical and Processing Faults, page 71.

Evening Shutdown-Related

Waiting for Ram Down — The ram is moving to the fully-down position as part of the evening shutdown procedure. This position is achieved when proximity switch PXSB sees the target at the bottom of the ram, which actuates the “Ram Full Down” input on 1MTA4-3.

Shutdown Procedure Complete — This messages appears when the Evening Shutdown Procedure is completed to indicate it is safe to power-down the machine.

Deprecated

Waiting for Load Chute Full Down — The load chute that this input was originally for is no longer used on any single-stage presses. This press state message should not appear.

5 Initialization and Shutdown

5.1 Initialization

The normal operating mode of this machine is fully automatic. After the machine is set for automatic operation, a new load and corresponding batch codes pass from the loading device to the press each time the loading device (usually a CBW® tunnel washer) is ready to discharge and the press is ready to receive. Before a new load is received, the cake of processed goods is discharged to a storage belt or the receiving shuttle, freeing the machine for the next load.

WARNING: **Careless use —** can cause death or serious injury and property damage.

- Read the machine manuals before you install, operate, service, or clean the machine.

CAUTION: **Contact with electric power —** can kill or seriously injure you. Electric power is present inside the cabinetry unless the main machine power disconnect is off.

- Do not unlock or open electric box doors.
- Know the location of the main machine disconnect and use it in an emergency to remove all electric power from the machine.
- Do not service the machine unless qualified and authorized. You must clearly understand the hazards and how to avoid them.

5.1.1 Power Loss or Safety (Three-Wire) Circuit Disabled Condition

If the press loses power or the safety (three-wire) circuit (CRS+) is disabled (e.g., an emergency stop switch is pressed), the press stops immediately. Some manual intervention may be required to return the press to normal operation again, depending on the state of the press at the time of power loss.

If the press was discharging when power was lost, use Manual Mode to remove the cake from the belt to allow the press to return to automatic operation.

- If the press is equipped with a COINC conveyor, use **Run Belt** (see : Run Belt , page 45) to move the cake from the press to the COINC conveyor. The COINC belt stops when the cake blocks the COINC photoeye.

- If the press is not equipped with a COINC conveyor, use **Track Belt** (see : Track Belt, page 46) to move the cake from the press to the receiving device.

When the belt is clear, exit Manual Mode. The press will begin the initialization sequence described in Section 5.1.2 : Press Initialization Steps, page 54, then prompt the operator for cake data for any goods which may be in the press or on the COINC belt, as described in Section 5.1.3 : When Cake Data Must be Confirmed, page 56. The press returns to automatic operation after cake data entry is complete.

5.1.2 Press Initialization Steps

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When you first power-on the machine for morning startup (after a power loss, after a safety circuit error, etc.) the machine performs the following sequence of actions:

1. The press checks if it is configured for a COINC (discharge) conveyor.
   - If YES: Continue to the next step.
   - If NO: Skip to 3.: Step 3, page 54 .
2. The controller runs the COINC conveyor.
3. The press checks if it is configured for a load door.
   - If YES: Continue to the next step.
   - If NO: Skip to 6.: Step 6, page 54 .
4. The press checks if the “Load Chute Full Down” input is actuated.
   - If YES: Skip to 6.: Step 6, page 54 .
   - If NO: Continue to the next step.
5. The controller lowers the load door.

   The display shows “Waiting for Load Door Down.”
6. The press checks if the “Can Full Down #1” and “Can Full Down #2” inputs are actuated.
   - If YES: Continue to the next step.
   - If NO: Skip to 1.: Step 1, “Goods on Belt” Steps, page 55 .
7. The press checks if the “Discharge Door Full Down” input is actuated.
   - If YES: Skip to 9.: Step 9, page 54 .
   - If NO: Continue to the next step.
8. The controller lowers the discharge door.

   The display shows “Waiting for Discharge Door Down.”
9. The press checks if the “Ram Full Up” input is actuated.
   - If YES: Skip to 11.: Step 11, page 55 .
   - If NO: Continue to the next step.
10. The controller raises the ram.

The display shows “Waiting for Ram Full Up.”

11. The press checks if it is configured for a COINC conveyor.
    - If YES: Continue to the next step.
    - If NO: Go to Section 5.1.3.1 : Cake Data Confirmation Procedure, page 56.
12. The controller stops the COINC conveyor if it is not stopped by the photoeye.

    The COINC conveyor, which started to run in Step 3, runs for the configured **Time for Cake to Block COINC Eye**, the duration of initialization, or a minimum of 10 seconds.
13. Go to Section 5.1.3.1 : Cake Data Confirmation Procedure, page 56.

5.1.2.1 “Goods on Belt” Steps

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This sequence only occurs if there are goods on the belt when the operator initializes the press (Press Initialization Process) or initiates the Evening Shutdown Process.

1. The press checks if the “Ram at Unload” input is actuated.
    - If YES: Skip to 3.: Step 3, page 55 .
    - If NO: Continue to the next step.
2. The controller raises the ram until the input is actuated.

    The display shows “Waiting for Ram at Unload Position.”
3. The press checks if the “Can Full Up” input is actuated.
    - If YES: Skip to 5.: Step 5, page 55 .
    - If NO: Continue to the next step.
4. The controller raises the can.

    The displays shows “Waiting for Can Full Up.”
5. The press checks if the “Discharge Door Full Up” input is actuated.
    - If YES: Skip to 7.: Step 7, page 55 .
    - If NO: Continue to the next step.
6. The controller raises the discharge door.

    The display shows “Waiting for Discharge Door Full Up.”
7. The controller runs the belt for 15 seconds or until the photoeye is blocked.

    The display shows “Checking for Load on Belt.”
8. The press checks if the “Discharge Photoeye” input is actuated (if the eye is blocked).
    - If YES: The controller issues an error.

    The display shows “Clear Belt Eye Before Proceeding.” The operator presses **Signal Cancel** to clear the error.
    - If NO: Continue to the next step.
9. The controller lowers the discharge door.

The display shows “Waiting for Discharge Door Down.”

10. The controller lowers the can.

    The display shows “Waiting for Can Full Down.”

11. Return to the previous sequence.

    - If this procedure began during the Evening Shutdown Process, return to 7.: Step 7, page 58 .
    - If this procedure began during the Press Initializing Process, return to 9.: Step 10, page 54 .

5.1.3 When Cake Data Must be Confirmed

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When you first power-on the machine for morning startup or after manual intervention, a power loss, or a safety (three-wire) circuit (CRS+) error, etc, the controller cannot determine if goods are present in the press or conveyor. Therefore, the controller considers the batch codes for these locations unreliable and prompts the user for information in the following process.

5.1.3.1 Cake Data Confirmation Procedure

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From “The Press Initialization Procedure”...

1. The press checks if it is configured for a load door.
    - If YES: Continue to the next step.
    - If NO: Skip to 4.: Step 4, page 56 .
2. The controller prompts: “Open the load door?” Operator selects...

    Opening the door permits the operator to look into the press to determine if a cake is present
    - YES: Continue to the next step.
    - NO: Skip to 4.: Step 4, page 56 .
3. The controller raises the load door until the “Load Chute Full Up” input is actuated.

    The display shows “Waiting for Load Door Full Up.”
4. The controller prompts: “Does press have a cake?” Operator selects...
    - YES: Continue to the next step.
    - NO: Skip to 6.: Step 6, page 56 .
5. Operator enters cake data at prompts.
6. The press checks if it is configured for a COINC conveyor.
    - If YES: Continue to the next step.
    - If NO: Skip to 9.: Step 9, page 57 .
7. The controller prompts: “Does COINC have a cake?” Operator selects...
    - YES: Continue to the next step

- NO: Skip to 9.: Step 9, page 57 .

8. Operator enters cake data at prompts.
9. The press checks if it is configured for a load door.
   - If YES: Continue to the next step.
   - If NO: Skip to 12.: Step 12, page 57 .
10. The press checks if the “Load Chute Full Down” input is actuated.
    - YES: Skip to 12.: Step 12, page 57 .
    - NO: Continue to the next step.
11. The controller lowers the load door.

    The display shows “Waiting for Load Door Down.”
12. The press checks if there is a cake on the belt.
    - If YES: Continue to the next step.
    - If NO: Return to Automatic Operation.
13. The controller prompts: “Discharge cake in can?” Operator selects...
    - YES: Continue to the next step.
    - NO: Return to Automatic Operation.
14. The controller lowers the ram until the ram clears the unload position.

    The display shows “Waiting for Ram Down.”
15. Return to Automatic Operation.

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5.2 Evening Shutdown

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The Evening Shutdown procedure prepares the press for the operator to turn off power. Touch **Evening Shutdown Procedure** on the **Main Menu** display to initiate the shutdown steps.

This procedure is fully automatic. The operator only needs to monitor the press for shutdown procedure errors.

5.2.1 Evening Shutdown Procedure

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After you initiate the **Evening Shutdown Procedure** from the **Main Menu** display, the press will perform the following sequence of actions:

1. The press checks if it is configured for a load door.
   - If YES: Continue to the next step.
   - If NO: Skip to 4.: Step 4, page 58 .
2. The press checks if the “Load Chute Full Down” input is actuated.

- If YES: Skip to 4.: Step 4, page 58 .
- If NO: Continue to the next step.

3. The controller lowers the load door.

   The display shows “Waiting for Load Door Down.”
4. The press checks if the “Can Full Down #1” and “Can Full Down #2” inputs are actuated.
   - If YES: Continue to the next step.
   - If NO: Skip to 1.: Step 1, “Goods on Belt” Steps, page 55 .
5. The press checks if the “Discharge Door Full Down” input is actuated.
   - If YES: Skip to 7.: Step 7, page 58 .
   - If NO: Continue to the next step.
6. The controller lowers the discharge door.

   The display shows “Waiting for Discharge Door Down.”
7. The press checks if the “Ram Full Down” input is actuated.
   - If YES: Skip to 9.: Step 9, page 58 .
   - If NO: Continue to the next step.
8. The controller lowers the ram.

   The display shows “Waiting for Ram Down.”
9. Turn the master switch to the OFF position () to power-down the press.

   The display shows “Shutdown Procedure Complete.”

6 Troubleshooting

6.1 Troubleshooting Inputs and Outputs

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WARNING: **High voltage —** Is present in the electric boxes even when power switches on the machine are off.

- ▶ Qualified technicians only.

Use the **Input/Output Status** displays to monitor inputs and outputs from the MilTouch™ controller, resolve errors, and correct abnormal machine behavior.

6.1.1 Digital Inputs

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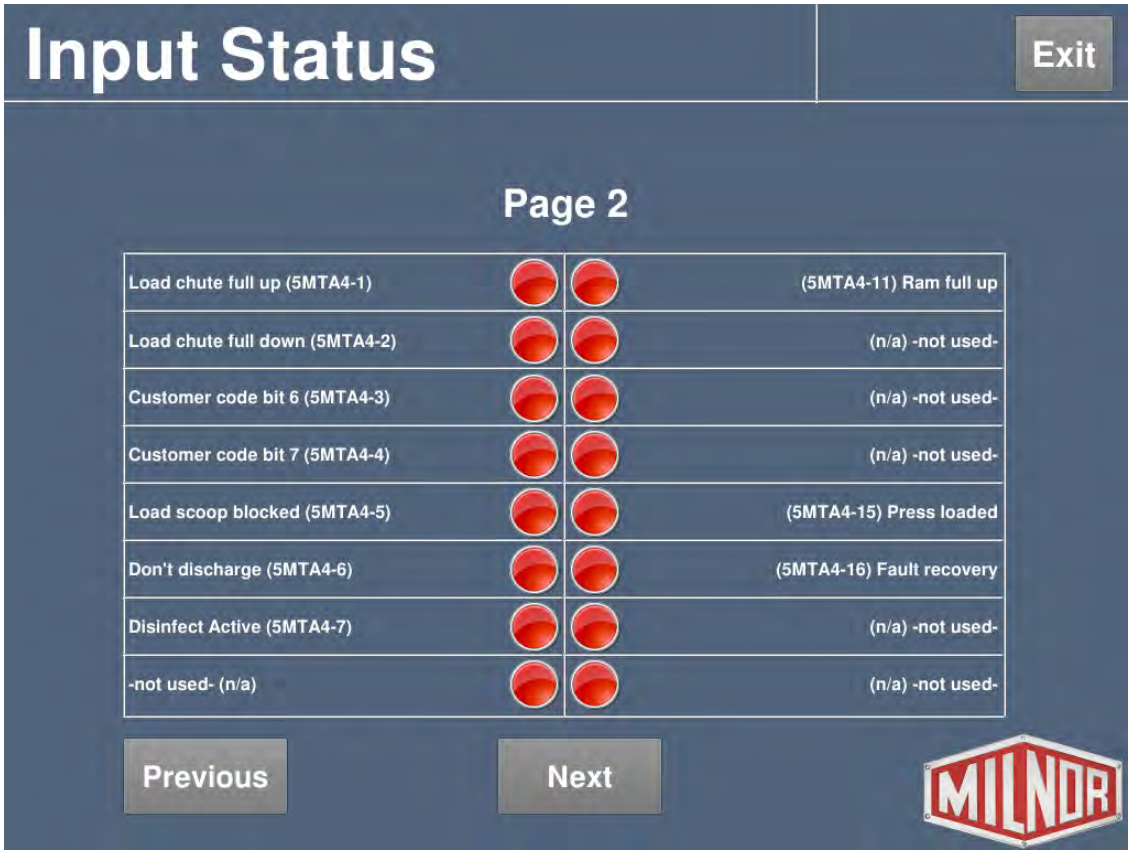
Touch **Input Status** on the **Automatic Operation** display to access the **Input Status** displays (shown in the following figure). Touch **Next** and **Previous** to cycle between all the inputs. There are 5 pages of inputs, labelled 0–4.

Each input has a digital LED next to it that corresponds with a real LED light on the board.

- When an input is not actuated, the digital LED illuminates red.
- When an input actuates, the digital LED illuminates green.

From these displays, you can view digital inputs in real time. For example, you can use this display to verify that the belt photoeyes are seeing goods or that the proper switches are actuated when the ram is down.

Figure 31. Page 2 of the Input Status Displays



6.1.2 Digital Outputs

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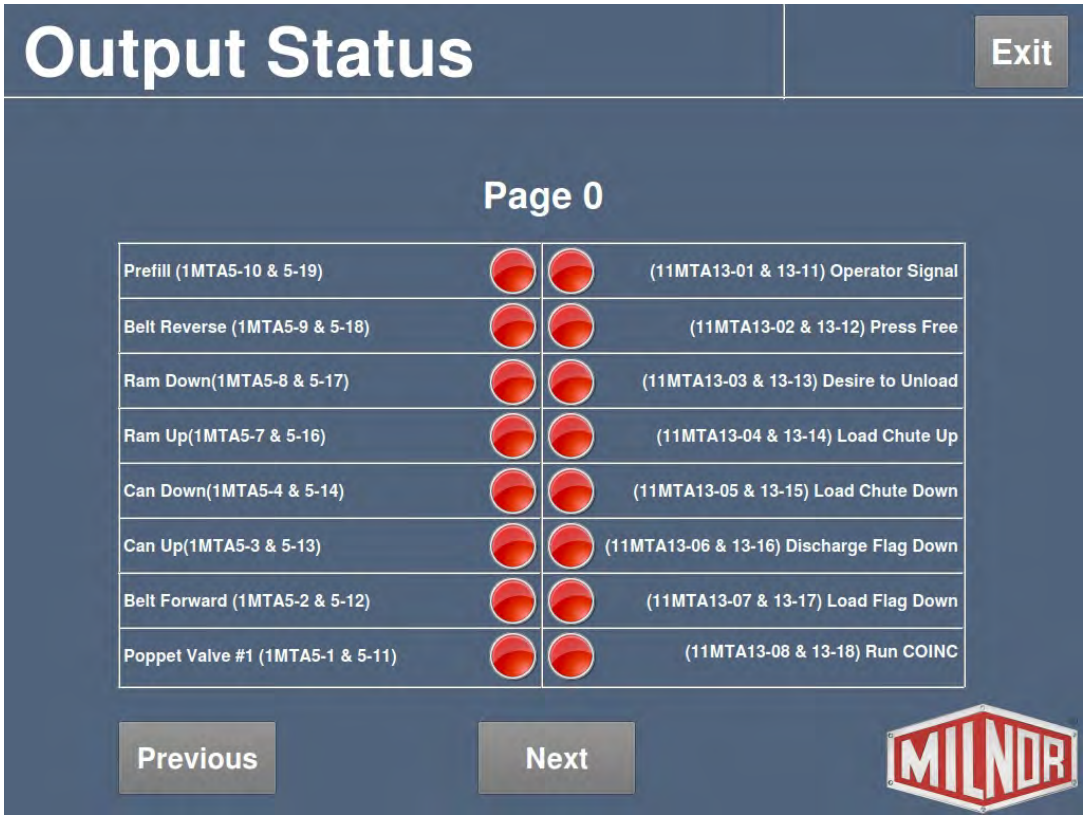
Touch **Output Status** on the **Automatic Operation** display to access the **Output Status** displays (shown in the following figure). Touch **Next** and **Previous** to cycle between all the outputs. There are 4 pages of outputs, labelled 0–3.

Each output has a digital LED next to it that corresponds with a real LED light on the board.

- When an output is not actuated, the digital LED illuminates red.
- When an output actuates, the digital LED illuminates green.

From these displays, you can view the status of outputs in real time as the machine runs a press code.

Figure 32. Page 0 of the Output Status Displays



6.1.3 Lists of Inputs and Outputs

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The inputs and outputs are listed in the following tables, along with descriptions of their functions and additional information about the electrical connection points on the board.

The proximity switches, photoeyes, and other components mentioned in the following tables are identified by codes such as PXSM, PXCB1, and CPCBL. These codes are abbreviations of their functions and are assigned in the Component Parts List in the electrical schematic manual (ME6PM1S1AE).

- Inputs and outputs marked with an asterisk (*) are also displayed on the **Operate Individual Functions** display in Manual Mode. See Section 4.4.1.2 : Monitor Inputs and Outputs Related to Manual Functions, page 48.
- Inputs and outputs marked with two asterisks (**) are used to pass operational signals in allied (non-Miltrac™) transfers. See manual MTPALI01 “Installation — Allied Interfaces for Milnor® Automated Laundering System Machines” for more information on operational signals and allied interfaces.

6.1.3.1 Inputs

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Table 6. Page 0 — Standard Inputs (I/O Board #1)

Connector-Pin	Input Name	Comments
1MTA4-1	Three-wire enabled	This circuit closes when you press the **Start** button (①), which closes contacts in relay CRS+ (closes the safety/three-wire circuit) and allows machine operation.
1MTA4-2	*Ram inside can	Also known as ram half up. This circuit closes when the ram actuates proximity switch PXSM.
1MTA4-3	*Ram full down	This circuit closes when the ram actuates proximity switch PXSB (when the ram reaches the bottom of travel).
1MTA4-4	*Can full up	This circuit closes when the can actuates proximity switch PXCT (when the can reaches the top of travel). The can must be fully up for discharging.
1MTA4-5	*Can full down #1	This circuit closes when the can actuates proximity switch PXCB1 (one of two inputs actuated when the can reaches the bottom of travel). The can must be fully down for loading.
1MTA4-6	*Discharge photoeye	This circuit closes when goods actuate photoeye CPGCR/S (when they reach the end of the belt).
1MTA4-7	*Discharge door full up	This circuit closes when the discharge door actuates proximity switch PXDDU (when the discharge door reaches the top of travel).
1MTA4-8	*Discharge door full down	This circuit closes when the discharge door actuates proximity switch PXDDD (when the discharge door reaches the bottom of travel).
1MTA4-11	**New customer + New formula	This input signals a change in the customer, formula, or goods code between the current load and the previous load in an allied (non-Miltrac™) transfer.
1MTA4-12	**Allied Device Can Receive Load	This input signals the press to start the discharge process when the receiving device is ready to receive a load in an allied (non-Miltrac™) transfer.
1MTA4-13	Hydraulic tank pressure high	This circuit closes when the pressure in the hydraulic tank exceeds a preset threshold, which triggers the “Pressure High in Hydraulic Tank” error (see : Pressure High in Hydraulic Tank: Check Filter, page 81). This error indicates the filter needs to be replaced.
1MTA4-14	**Single cake	Allied data input (flag) used in an allied (non-Miltrac™) transfer to identify a load as a single cake to be processed individually. This flag is passed to all downstream devices like most batch data.

Table 6 Page 0 — Standard Inputs (I/O Board #1) (cont'd.)

Connector-Pin	Input Name	Comments
1MTA4-15	**Pass empty (no goods transferred)	Allied data input (flag) used in an allied (non-Miltrac™) transfer to identify a load as an empty pocket.
1MTA4-16	Dry code bit 0	Dry code bits received from an adjacent allied (non-Miltrac™) machine for the load entering the press.
1MTA4-17	Dry code bit 1	
1MTA4-18	Dry code bit 2	

Table 7. Page 1 — Standard Inputs (I/O Board #2)

Connector-Pin	Input Name	Comments
2MTA4-1	Press code bit 0	Press code bits received from an adjacent allied (non-Miltrac™) machine for the load entering the press.
2MTA4-2	Press code bit 1	
2MTA4-3	Press code bit 2	
2MTA4-4	Press code bit 3	
2MTA4-5	*Ram at unload	This circuit closes when the ram actuates proximity switch PXSU (when the ram reaches the unload position). This is the ram's starting position during automatic operation.
2MTA4-6	*Can full down #2	This circuit closes when the can actuates proximity switch PXCB2 (one of two inputs actuated when the can reaches the bottom of travel). The can must be fully down for loading.
2MTA4-7	Dry code bit 3	Dry code received from an adjacent allied (non-Miltrac™) machine for the load entering the press.
2MTA4-8	*COINC photoeye	This circuit closes when goods actuate photoeye CPCBL (when goods block the photoeye on the COINC).
2MTA4-11	Reuse tank high level	This circuit closes when the reuse tank is almost full, which causes water extracted from the goods to be diverted to the sewer.
2MTA4-12	Reuse tank low level	This circuit closes when the reuse tank is almost empty, which causes water extracted from the goods to be sent to the reuse tank.
2MTA4-13	*Taut belt	This circuit closes when the SMBTL/R switch is actuated (when the taut belt error occurs). See : Taut Belt: Check Belt Rollers, page 80 .
2MTA4-14	*Ram at low	This circuit closes when the ram actuates proximity switch PXSL (when the ram reaches the position just above "ram full down"). The ram will not pressurize fully in this position.

Table 7 Page 1 — Standard Inputs (I/O Board #2) (cont'd.)

Connector-Pin	Input Name	Comments
2MTA4-15	Main filter dirty	This circuit closes when the filter-pressure gauge for the hydraulic tank triggers the “Main Filter Dirty” error. See : Main Filter Dirty, page 81 .
2MTA4-16	Oil too hot	This circuit closes when the oil temperature gauge triggers the “Oil Temperature High” error. See : Oil Temperature High, page 81 .
2MTA4-17	Oil level low	This circuit closes when the oil level gauge triggers the “Oil Level Low” error. See : Oil Level Low, page 81 .
2MTA4-18	Recirc filter dirty	This circuit closes when the filter-pressure gauge for the recirculation tank triggers the “Recirc Filter Dirty” error. See : Recirc Filter Dirty, page 81 .

Table 8. Page 2 — Standard Inputs (Q7 Processor Board)

Connector-Pin	Input Name	Comments
5MTA4-1	*Load chute full up	If your machine is equipped with a load door, this circuit closes when the load door actuates proximity switch PXLCU (when it is fully raised). The load chute that this input was originally for is no longer used on any single-stage presses.
5MTA4-2	*Load chute full down	If your machine is equipped with a load door, this circuit closes when the load door actuates proximity switch PXLCD (when it is fully lowered). The load chute that this input was originally for is no longer used on any single-stage presses.
5MTA4-3	Customer Code Bit 6	Customer codes received from an adjacent allied (non-Miltrac™) machine for the load entering the press. Allied data inputs used to pass customer codes to non-Miltrac™ machines.
5MTA4-4	Customer Code Bit 7	
5MTA4-5	Load scoop blocked	This circuit closes when the sensors on the load scoop are triggered, which indicates the press detects goods. The “Scoop Blocked” error results if this input occurs during the loading process. See : Scoop Blocked. Press Fault Recovery, page 73 .
5MTA4-6	**Don't discharge	This is a user-supplied input that can be used to override the press discharge status, which disables the press from discharging in a Miltrac™-controlled system.

Table 8 Page 2 — Standard Inputs (Q7 Processor Board) (cont'd.)

Connector-Pin	Input Name	Comments
5MTA4-7	Disinfect Active	With the press waiting for a load, the controller asks for steam disinfect by energizing latch relay CLDSDS, which makes this input and turns on valve VEDSDF for recirculation.
N/A	not used	N/A
5MTA4-11	*Ram full up	This circuit closes when the ram actuates proximity switch PXST (when the ram reaches the top of travel). The ram must be fully up for loading.
N/A	not used	N/A
MTA38-1	Signal Cancel	This circuit closes when the operator presses the **Signal Cancel** button. This silences the operator alarm if it is pressed after the error or other press state that caused the alarm is resolved.
N/A	not used	N/A
5MTA4-15	**Press loaded	This circuit closes when the operator presses the **press-is-loaded** button (), which indicates to the controller that the press contains a load and should prompt the operator for cake data. This button is used in allied (non-Milnor®) transfers to indicate the transfer is complete.
5MTA4-16	Fault recovery	This circuit closes when the operator presses the **fault recovery** button (), which indicates to the controller that the cause of the previous fault has been cleared. This input also notifies the microprocessor controller that it is safe to resume operation.
N/A	not used	N/A
N/A	not used	N/A

Table 9. Page 3 — Extra Data Pass Inputs (I/O Board #3)

Connector-Pin	Input Name	Comments
3MTA4-1	Goods Code Bit 0	Goods codes received from an adjacent allied (non-Miltrac™) machine for the load entering the press.
3MTA4-2	Goods Code Bit 1	
3MTA4-3	Goods Code Bit 2	
3MTA4-4	Goods Code Bit 3	
3MTA4-5	Goods Code Bit 4	
3MTA4-6	Goods Code Bit 5	
3MTA4-7	Destination Code Bit 0	Destination codes received from an adjacent allied (non-Miltrac™) machine for the load entering the press.
3MTA4-8	Destination Code Bit 1	

Table 9 Page 3 — Extra Data Pass Inputs (I/O Board #3) (cont'd.)

Connector-Pin	Input Name	Comments
3MTA4-11	Customer Code Bit 0	Customer codes received from an adjacent allied (non-Miltrac™) machine for the load entering the press.
3MTA4-12	Customer Code Bit 1	
3MTA4-13	Customer Code Bit 2	
3MTA4-14	Customer Code Bit 3	
3MTA4-15	Customer Code Bit 4	
3MTA4-16	Customer Code Bit 5	
3MTA4-17	Destination Code Bit 2	Destination codes received from an adjacent allied (non-Miltrac™) machine for the load entering the press.
3MTA4-18	Destination Code Bit 3	

Table 10. Page 4 — Allied Weight Inputs (I/O Board #4)

Connector-Pin	Input Name	Comments
4MTA4-1	Allied Weight Bit 0	Allied weight bits received from an adjacent allied (non- Miltrac™) machine for the load entering the press.
4MTA4-2	Allied Weight Bit 1	
4MTA4-3	Allied Weight Bit 2	
4MTA4-4	Allied Weight Bit 3	
4MTA4-5	Allied Weight Bit 4	
4MTA4-6	Allied Weight Bit 5	
4MTA4-7	Allied Weight Bit 6	
4MTA4-8	Allied Weight Bit 7	
4MTA4-11	Allied Weight Bit 8	
4MTA4-12	Allied Weight Bit 9	
4MTA4-13	Allied Weight Bit 10	
4MTA4-14	Allied Weight Bit 11	
4MTA4-15	Goods Code Bit 6	Goods codes received from an adjacent allied (non-Miltrac™) machine for the load entering the press.
4MTA4-16	Goods Code Bit 7	
4MTA4-17	not used	N/A
4MTA4-18	not used	N/A

6.1.3.2 Outputs

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Table 11. Page 0 — Standard Outputs (I/O Board #1)

Connector-Pins	Output Name	Comments
1MTA5-10& 5-19	*Pre-fill	Opens the pre-fill valve. In normal automatic operation, the prefill valve opens 1 second after the press controller commands the ram down.
1MTA5-9& 5-18	*Belt Reverse	Runs the main belt backward if all safety conditions are met.
1MTA5-8& 5-17	*Ram Down	Lowers the ram if all safety conditions are met.
1MTA5-7& 5-16	*Ram Up	Raises the ram if all safety conditions are met.
1MTA5-4& 5-14	*Can Down	Lowers the can if all safety conditions are met.
1MTA5-3& 5-13	*Can Up	Raises the can if all safety conditions are met.
1MTA5-2& 5-12	*Belt Forward	Runs the main belt forward if all safety conditions are met.
1MTA5-1& 5-11	*Poppet Valve #1	Automatically actuates when the ram is commanded down to control the free-fall speed of the ram.
11MTA13-01& 13-11	Operator Signal	Actuates the operator signal when an error or other press state that requires the operator's attention occurs.
11MTA13-02& 13-12	**Press Free	This output signals the allied (non-Miltrac™) device loading the press that the press is ready to receive.
11MTA13-03& 13-13	**Desire to Unload	This output signals an allied (non-Miltrac™) device unloading the press that the press is ready to discharge.
11MTA13-04& 13-14	*Load Chute Up	Raises the load door if all safety conditions are met. The load chute that this output was originally for is no longer used on any single-stage presses.
11MTA13-05& 13-15	*Load Chute Down	Lowers the load door if all safety conditions are met. The load chute that this output was originally for is no longer used on any single-stage presses.
11MTA13-06& 13-16	Discharge Flag Down	If the press discharged to a shuttle, this output actuates a mechanism on the rail that signals the shuttle to stop aligned with the press.
11MTA13-07& 13-17	Load Flag Down	If the press is loaded by a traversing COBUC, this output actuates a mechanism on the rail that signals the COBUC to stop aligned with the press.
11MTA13-08& 13-18	*Run COINC	Runs the inclined discharge conveyor belt (COINC) forward if all safety conditions are met. This belt will not run in the reverse direction.

Table 12. Page 1 — Standard Outputs (I/O Board #2)

Connector-Pins	Output Name	Comments
11MTA13-09& 13-19	Press Return Pump	Also known as Reuse Pump. Automatically actuates to send water extracted by the press back to the washer when the **pump off/automatic** switch (Ⓞ / ⟲) is set to automatic (⟲).
11MTA13-10& 14-01	*Poppet Valve #2	Automatically actuates when the ram is commanded down to control the free-fall speed of the ram.
11MTA14-11& 14-02	*Discharge Door Up	Opens (raises) the discharge door if all safety conditions are met.
11MTA14-12& 14-03	*Discharge Door Down	Closes (lowers) the discharge door if all safety conditions are met.
11MTA14-04& 14-13	Hold Shuttle	This output is used to hold an allied (non-Miltrac™) shuttle in place when receiving a cake from the press.
11MTA14-4& 14-14	*Ram Safety	This output actuates when the ram bypass valve closes to allow the ram to pressurize when the ram is inside the can. When the ram is not inside the can, the ram bypass valve opens as a safety relief to prevent the ram from pressurizing.
11MTA14-10& 14-05	not used	N/A
11MTA14-10& 14-15	not used	N/A
11MTA14-10& 14-06	Customer Code Bit 0	Customer codes passed to an adjacent allied (non-Miltrac™) machine for the load exiting the press.
11MTA14-10& 14-16	Customer Code Bit 1	
11MTA14-10& 14-07	Customer Code Bit 2	
11MTA14-10& 14-17	Customer Code Bit 3	
11MTA14-10& 14-08	Customer Code Bit 4	
11MTA14-10& 14-18	Customer Code Bit 5	
11MTA14-10& 14-09	Customer Code Bit 6	
11MTA14-10& 14-19	Customer Code Bit 7	

Table 13. Page 2 — Standard and Extra Data Pass Outputs (I/O Board #3)

Connector-Pins	Output Name	Comments
2MTA5-10& 5-19	Destination Code Bit 0	Destination codes passed to an adjacent allied (non-Miltrac™) machine for the load exiting the press.
2MTA5-9& 5-18	Destination Code Bit 1	
2MTA5-8& 5-17	Destination Code Bit 2	
2MTA5-7& 5-16	Destination Code Bit 3	
2MTA5-4& 5-14	Dry Code Bit 0	Dry codes passed to an adjacent allied (non-Miltrac™) machine for the load exiting the press.
2MTA5-3& 5-13	Dry Code Bit 1	
2MTA5-2& 5-12	Dry Code Bit 2	
2MTA5-1& 5-11	Dry Code Bit 3	
3MTA5-10& 5-19	Goods Code Bit 0	Goods codes passed to an adjacent allied (non-Miltrac™) machine for the load exiting the press.
3MTA5-9& 5-18	Goods Code Bit 1	
3MTA5-8& 5-17	Goods Code Bit 2	
3MTA5-7& 5-16	Goods Code Bit 3	
3MTA5-4& 5-14	Goods Code Bit 4	
3MTA5-3& 5-13	Goods Code Bit 5	
3MTA5-2& 5-12	Goods Code Bit 6	
3MTA5-1& 5-11	Goods Code Bit 7	

Table 14. Page 3 — Allied Weight Inputs and Additional Outputs (I/O Board #4)

Connector-Pins	Output Name	Comments
4MTA5-10& 5-19	not used	N/A
4MTA5-9& 5-18	not used	N/A
4MTA5-8& 5-17	not used	N/A
4MTA5-7& 5-16	not used	N/A
4MTA5-4& 5-14	not used	N/A
4MTA5-3& 5-13	not used	N/A
4MTA5-2& 5-12	Reuse Tank Steam	This output actuates to energize steam valve VEDSDS for steam disinfect when the water level in the reuse tank is at high level. This output turns off when the temperature inside the reuse tank exceeds the desired temperature, and turns on again when temperature drops below desired.
4MTA5-1& 5-11	Reuse Tank Fill	This output actuates to energize fresh water valve VEDSDL to fill the reuse tank and turns off when high level is achieved.
5MTA5-10& 5-19	Booster Pump	These outputs are used on machines equipped with a booster pump to achieve a higher ram pressure

Table 14 Page 3 — Allied Weight Inputs and Additional Outputs (I/O Board #4) (cont'd.)

Connector-Pins	Output Name	Comments
5MTA5-9& 5-18	Bleed Valve	(typically 56 bar) than the main hydraulic pump can provide.
5MTA5-8& 5-17	Isolation Valve	
5MTA5-7& 5-16	PSI 100	Automatically actuates to pressurize the ram during RAM Command™ (soft squeeze). Controlled by Timer A.
5MTA5-4& 5-14	PSI 250	Automatically actuates to pressurize the ram during RAM Command™ (soft squeeze). Controlled by Timer B.
5MTA5-3& 5-13	Flow Control	Automatically actuates to pressurize the ram during RAM Command™ (soft squeeze). Controlled by Timer C.
5MTA5-2& 5-12	not used	N/A
5MTA5-1& 5-11	not used	N/A

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6.2 Errors

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Error faults are caused by mechanical or electrical malfunctions that either actuate inputs that should not occur, or don't actuate inputs that should occur during press operation. When an error occurs, an error message appears in the message/error region of the **Automatic Operation** display, the operator signal may sound, and the beacon near the top of the press may flash.

NOTICE: Some errors can be cleared using the functions on the press controller— for example, by running the belt in Manual Mode or pressing the **Fault Recovery** button. If the error cannot be cleared using the press controller, a qualified maintenance technician must perform the necessary corrective action.

DANGER: **Descending press ram —** will strike and/or crush anyone under it. Ram can descend with power **on** or **off**.

- Ensure personnel are clear of the press before operating it in manual or automatic mode. The ram may move automatically when certain controls are used, such as when **Start** is pressed or cake data is entered.
- Know how to use factory-supplied emergency stop switches and where they are located.
- Lock out/tag out power, lock ram up, and secure factory-supplied safety supports in place before crawling or reaching under the ram.
- Use the gaff hook supplied with your machine to remove obstructions in the path of the ram or can.

DANGER: **Contact with high voltage electricity —** will kill or seriously injure you. High voltage electricity is present in electrical devices on this machine whenever external power is supplied, even if power switches are off.

- Lock out/tag out power at wall disconnect before opening any electrical control box or accessing any other electrical component.
- Always employ the services of a licensed, qualified electrician when troubleshooting the electrical system.

WARNING: **Devices in and above the press —** move without warning and can entangle, crush or sever limbs on contact.

- Do not reach or lean into the press frame during operation.
- Lock out/tag out power before touching or reaching into assemblies in or above press frame during service or maintenance.
- Ensure personnel are clear of the press and receiving conveyor before operating either machine.
- Know how to operate factory-supplied emergency stop switches and where they are located.
- Close all press side doors and install guards before operating the press.
- Do not climb on press unless press power is locked out/tagged out.

6.2.1 Error Messages and Corrective Actions

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Errors may be caused by failed input devices or failed output relays on an input/output board or output board. You can use the displays explained in Section 6.1 : Troubleshooting Inputs and Outputs, page 59 to determine if the appropriate inputs or outputs are being actuated. For a full list of inputs and outputs see Section 6.1.3 : Lists of Inputs and Outputs, page 61.

If you are unable to correct an error or determine the cause of the error from the information in this section, call your dealer service technician or the Milnor® factory for assistance using the information in Section 1.1.3 : How to Contact Milnor®, page 8.

The following are error messages the controller can issue, explanations, and possible solutions. Operation stops and cannot be resumed until the cause of the error is corrected. This can require a maintenance or goods processing technician.

6.2.1.1 Mechanical and Processing Faults

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These errors are most likely caused by an obstruction, such as a piece of goods that prevents the ram or can from descending, but may be caused by a malfunctioning switch..

Can Not Fully Raised — Indicates the can is not completely up. The error clears automatically if the “Can Full Up” input is actuated. The “Can Full Up” switch may be malfunctioning or out of adjustment.

Solutions:

- Ensure correct actuation of the switch(es).

- Adjust or replace the switch(es), if necessary.

Can Not Fully Down — Indicates the can is not all the way down. The error clears automatically if both "Can Full Down" inputs are actuated.

This error may be caused by the following conditions:

- Goods are under the can edge.
- Either or both can full down switches are malfunctioning or are out of adjustment.

Solutions:

- Manually raise the can, remove press power, and use the gaff hook to remove the goods or other obstruction from under the can.
- Ensure the can is down.
- Ensure correct actuation of the switch(es).
- Adjust or replace the switch(es), if necessary.

Ram Not Fully Raised — Indicates the ram is not all the way up. The error clears automatically if the "Ram Full Up" input is actuated.

This error may be caused by the following conditions:

- Hydraulic oil pressure is low.
- Ram at unload switch is malfunctioning or is out of adjustment.

Solutions:

- Check oil lines for leaks and repair or replace as needed.
- Verify that the hydraulic pump is working. Repair or replace as needed.
- Ensure correct actuation of the switch(es).
- Adjust or replace the switch(es), if necessary.

Ram Not Down. Press Fault Recovery — Indicates the ram did not clear the "Ram Inside Can" proximity switch, suggesting that the ram did not move down. Press the **Fault Recovery** button on the control panel () once to raise the ram. Press  again to lower the ram. If the press does not return to automatic operation, this error may be caused by the following conditions:

- A double or especially large load is in the can.
- The "Ram Inside Can" switch (ram half-up input) is malfunctioning or is out of adjustment.

Solutions:

- Remove some of the goods from under the ram using the gaff hook supplied by the factory.
- Ensure the ram is below the "Ram Inside Can" position.
- Ensure correct actuation of the switch(es).
- Adjust or replace the switch(es), if necessary.

Eye Blocked. Press Fault Recovery — Indicates that the discharge photoeye is blocked, which suggests that there are goods on the belt. The press cannot bring the can down until this eye is cleared. Press . If the press does not return to automatic operation, this error may be caused by the following conditions:

- There are goods on the end of the belt.
- The photoeye (belt eye input) is malfunctioning or is out of adjustment.

Solutions:

- Use the gaff hook to clear the goods from the belt.
- Ensure proper actuation of the photoeye.
- Adjust or replace the photoeye if necessary.

Receive Fault. Press Fault Recovery — This error applies to Miltrac™ loading only. Indicates Miltrac™ transfer was aborted by the loading device. This usually occurs when the operator removes power from the tunnel after it has committed to transfer, but before the transfer has taken place. Press or to clear the error and put the press in manual mode.

Transfer Fault. Press Fault Recovery — This error applies to Miltrac™ discharge only. Indicates the receiving device aborted the transfer. This can happen if the receiving device loses the safety (three-wire) circuit (CRS+) during operation (i.e., a safety plate is kicked, ⓪ is pressed, power failure, etc).

Solution:

1. Use the manual controls to move the shuttle back to the receive position.
2. Press or to clear the error and put the press in manual mode.
3. Manually discharge goods from the press.
4. Return to automatic mode.
5. Verify cake data when prompted.

Scoop Blocked. Press Fault Recovery — Indicates goods are laying on the receiving chute (scoop). This can occur if the goods are not wet enough to slide down the chute. Use the gaff hook to clear the chute and press to return to automatic operation.

No Goods in Can. Press Fault Recovery — Indicates the ram cleared the "Ram Full Down" proximity switch, which suggests there is no load in the can when the press expected one (the loading device did not indicate an empty pocket). Press to clear the error and put the press in manual mode.

This error may be caused by the following conditions:

- The tunnel transferred an empty pocket that was not properly coded.
- The cake is undersized.
- The "Ram Full Down" switch is malfunctioning or is out of adjustment.

- Batches have ceased to exit the tunnel.

Solutions:

- If batches have ceased to exit the tunnel, notify supervisory or maintenance personnel immediately for tunnel corrective action.
- Ensure correct actuation of the switch(es).
- Adjust or replace the switch(es), if necessary.

Ram Not at Unload Position — Indicates the ram did not pass the unload point when the press attempted to raise the ram. The error clears automatically if the "Ram at Unload" input is actuated.

This error may be caused by the following conditions:

- Hydraulic oil pressure is low.
- The "Ram at Unload" switch is malfunctioning or is out of adjustment.

Solutions:

- Check oil lines for leaks. Repair or replace as needed.
- Verify that the hydraulic pump is working. Repair or replace as needed.
- Ensure correct actuation of the switch(es).
- Adjust or replace the switch(es), if necessary.

Load Door Not Fully Open — Applies only to machines equipped with a load door. Indicates the load door was not fully open after the press attempted to raise the load door. After correcting the problem, press  to return to automatic operation.

This error may be caused by the following conditions:

- There is a load door obstruction.
- The "Load Chute Full Up" switch is malfunctioning or is out of adjustment.

Solutions:

- Remove the obstruction and restart the press.
- Ensure correct actuation of the switch(es).
- Adjust or replace the switch(es), if necessary.

Load Door Not Fully Closed — Applies only to machines equipped with a load door. Indicates the load door was not fully closed after the press attempted to lower the load door. After you correct the problem, press  to lower the door and return to automatic operation.

This error may be caused by the following conditions:

- There is a load door obstruction.
- The "Load Chute Full Down" switch is malfunctioning or is out of adjustment.

Solutions:

- Remove the obstruction and restart the press.
- Ensure correct actuation of the switch(es).
- Adjust or replace the switch(es), if necessary.

Eye Did Not Block — Indicates the cake did not block the photoeye when the press attempted to discharge. The error clears automatically if the "Discharge Photoeye" input is actuated.

This error may be caused by the following conditions:

- The cake is missing or stuck in the can.
- The belt is slipping or failed to run.
- The discharge photoeye is malfunctioning or is out of adjustment.

Solutions:

- Inspect the belt. Repair or replace as needed.
- Ensure correct actuation of the switch(es).
- Adjust or replace the switch(es), if necessary.

Discharge Door Not Fully Open — Indicates the discharge door did not fully open when the press attempted to raise the door. The error clears automatically if the "Discharge Door Full Up" input is actuated.

This error may be caused by the following conditions:

- There is a discharge door obstruction.
- The "Discharge Door Full Up" switch is malfunctioning or is out of adjustment.

Solutions:

- Remove the obstruction and restart the press.
- Ensure correct actuation of the switch(es).
- Adjust or replace the switch(es), if necessary.

Discharge Door Not Fully Closed — Indicates the discharge door did not fully close when the press attempted to lower the door. Press  once to raise the discharge door. Press  again to lower the door and return to automatic mode. The error also clears automatically if the "Discharge Door Full Down" input is actuated.

This error may be caused by the following conditions:

- There is a discharge door obstruction.
- The "Discharge Door Full Down" switch is malfunctioning or is out of adjustment.

Solutions:

- Remove the obstruction and restart the press.
- Ensure correct actuation of the switch(es).
- Adjust or replace the switch(es), if necessary.

Water Sensor Did Not Sense Goods — Indicates the water sensor ("Load Scoop Blocked") input was not actuated (the press did not detect goods) during loading when the press expected a load (the load was not an empty pocket). Press  . If the press does not return to automatic operation, this error may be caused by the following conditions:

- The tunnel transferred an empty pocket that was not properly coded.
- The "Load Scoop Blocked" switch is malfunctioning or is out of adjustment.
- Batches have ceased to exit the tunnel.

Solutions:

- If batches have ceased to exit the tunnel, notify supervisory or maintenance personnel immediately for tunnel corrective action.
- Ensure correct actuation of the switch(es).
- Adjust or replace the switch(es), if necessary.

Press Code is Invalid — Indicates the press received a non-existent press code from the loading device. This is usually due to a data entry error.

Solution:

1. Press  to clear the error and put the press in manual mode.
2. Return to automatic mode
3. Verify the cake data when prompted, and enter a valid press code.

Press Should be Empty — Indicates the ram did not clear (deactuate) the "Ram Full Down" proximity switch, which suggests that there is a load in the can when the press does not expect it (loading device indicated an empty pocket). Press  to clear the error and put the press in manual mode.

This error may be caused by the following conditions:

- The tunnel transferred a cake which was improperly coded as an empty pocket.
- The "Ram Full Down" switch is malfunctioning or is out of adjustment.

Solutions:

- Check empty pocket programming in the tunnel and make the necessary corrections.
- Ensure correct actuation of the switch(es).
- Adjust or replace the switch(es), if necessary.

COINC Eye Blocked — Applies only to machines equipped with a COINC (inclined conveyor). Indicates the COINC photoeye did not clear during discharge. This error is enabled only when the configuration decision **X = Time for Cake to Clear COINC Eye** (: X = Time for Cake to Clear COINC Eye, page 18) is set to a non-zero value. Press  to clear the error and put the press in manual mode.

This error may be caused by the following conditions:

- There are goods on the end of the COINC belt blocking the photoeye.
- The COINC belt is slipping or failed to run.
- The COINC photoeye (COINC loaded input) is malfunctioning or is out of adjustment.

Solutions:

- Clear the goods from the belt and restart the press.
- Inspect and repair the belt as necessary.
- Ensure proper actuation of the photoeye.
- Adjust or replace the photoeye if necessary.

Ram Not Fully in Can — Indicates the ram failed to clear the "Ram at Unload" proximity switch when the press attempted to lower the ram, which suggests that the ram is not fully in the can. The press makes two attempts to lower the ram before it signals the error. Press  to clear the error and put the press in manual mode.

This error may be caused by the following conditions:

- A double or oversized load is in the can.
- The "Ram at Unload" switch is malfunctioning or is out of adjustment.

Solutions:

- Remove some of the goods from under the ram using the gaff hook supplied by the factory.
- Ensure the ram is below the unload point.
- Ensure correct actuation of the switch(es).
- Adjust or replace the switch(es), if necessary.

Can Stuck Down. Press Fault Recovery — Indicates one or both of the "Can Full Down" switches was still actuated after the press attempted to raise the can. Press  to clear the error and put the press in manual mode.

This error may be caused by the following conditions:

- The can cannot move up because goods are stuck in it.
- One or both of the can full down switches are malfunctioning or out of adjustment.

Solutions:

- Remove the goods from the can using the gaff hook supplied by the factory.
- Ensure the can is down.
- Ensure correct actuation of the switch(es).
- Adjust or replace the switch(es), if necessary.

Unexpected Pressure in Ram — Indicates the press detected pressure in the ram before the ram cleared the "Ram Inside Can" proximity switch. Press to clear the error and put the press in manual mode.

This error may be caused by the following conditions:

- The ram encountered an obstruction while moving down.
- The pre-fill valve is malfunctioning.
- The pressure transducer is malfunctioning.
- The ram inside can switch (ram half up input) is malfunctioning or is out of adjustment.

Solutions:

- Clear any obstructions in the ram's path.
- Check the pre-fill valve for proper operation. Repair or replace as necessary.
- Check the transducer. Repair or replace as necessary.
- Check that the ram is above the "ram inside can" position.
- Ensure correct actuation of the switch(es).
- Adjust or replace the switch(es), if necessary.

Ram Not Fully Down — Applies only to empty pocket formulas. Indicates that the ram did not clear the "Ram Full Down" proximity switch within 20 seconds of passing the "Ram at Unload" proximity switch. This error may also occur if the ram doesn't clear the "Ram Full Down" switch before any programmed **Max Press Time** expires.

This error may be caused by the following conditions:

- The tunnel transferred a cake which was improperly coded as an empty pocket.
- Goods are jammed between the ram and can.
- The "Ram Full Down" switch is malfunctioning or is out of adjustment.

Solutions:

- Check empty pocket programming in the tunnel and make the necessary corrections.
- Remove the goods from the can using the gaff hook supplied by the factory. Press to clear the error and command the ram down.
- Ensure correct actuation of the switch(es).
- Adjust or replace the switch(es), if necessary.

Three-Wire Disabled — Indicates the safety circuit (three-wire circuit) was disabled (the relay CRS+ was de-energized).

This error may be caused by the following conditions:

- The operator attempted to run the press in Manual or Automatic mode but did not energize the press with the **start** button (①).

- One of the several safety devices, such as an emergency stop switch or a motor disconnect switch, disabled the safety (three-wire) circuit (CRS+).

Solution:

- Press the **start** button (①) to energize the press.
- If a safety device disabled the safety (three-wire) circuit (CRS+), this error condition requires electrical troubleshooting. See the electrical schematic. Contact your Milnor® dealer for further assistance (see Section 1.1.3 : How to Contact Milnor®, page 8).

6.2.1.2 Switch Faults

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The ram, can, and discharge door each have limit (full-up and full-down) proximity switches at both ends of travel. If the limit switches on opposite ends of travel are actuated at the same time, the microprocessor stops automatic operation and displays a switch fault error message.

The error is usually caused by a switch that was damaged when a moving device exerted too much force on the switch plunger. Usually, the malfunctioning switch is opposite the current position of the moving device.

- Ensure correct actuation of the switch(es).
- Adjust or replace the switch(es), if necessary.

Once the error condition is corrected, press the **Fault Recovery** button on the control panel () to clear the error message.

Can Up and Down — The “Can Full Up” and one of the “Can Full Down” inputs were actuated at the same time.

Ram at Unload & Not Full Down — The “Ram at Unload” input was actuated while the “Ram Full Down” was not actuated. The “Ram at Unload” input implies that the “Ram Full Down” input should also be actuated.

Ram Half-Up & Not Ram at Unload — The “Ram Inside Can” input was actuated while the “Ram at Unload” input was not actuated. The “Ram Half Up” input implies that the “Ram at Unload” input should also be actuated.

Ram Full Up & Not Ram Half Up — The “Ram Full Up” input was actuated while the “Ram Inside Can” input was not actuated. The “Ram Full Up” input implies that the “Ram Half Up” input should also be actuated.

Discharge Door Up and Down — The “Discharge Door Full Up” and “Discharge Door Full Down” inputs were actuated at the same time.

6.2.1.3 Miscellaneous Faults

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Board failure — Indicates a peripheral board is not communicating with the controller. This error can indicate an I/O board, output board, D/A board, or A/D board failure.

This error may be caused by the following conditions:

- The machine is incorrectly configured.
- The identified board is addressed improperly (see schematic).
- There is one or more loose wire connection to or from the board.

Solutions:

- Verify that configure decision values match the equipment.
- Verify that the switches on the board referenced on the display are set to the correct address.
- Check the wires to and from the board.
- If the error persists, replace the board.

Taut Belt: Check Belt Rollers — Goods are wrapped around the drive, tension, and/or tracking roller, between the roller and the underside of the belt. This results in an increased effective roller diameter and increased belt tension. Unless corrected, the increased belt tension can damage the belt or the bearings on either end of the roller.

Observing all safety precautions, remove the wrapped goods from the roller(s) as described in the service manual (see document BIPPMM12 “Clearing Taut Belt Errors”).

Main Filter Dirty — The main oil filter is dirty and needs to be replaced. Replace the filter and return the press to normal operation.

Recirc Filter Dirty — The recirculation oil filter is dirty and needs to be replaced. Replace the filter and return the press to normal operation.

Oil Temperature High — The hydraulic oil is too hot. This error shuts down the press. Wait for the oil to cool and press  to return the press to normal operation.

Oil Level Low — The hydraulic oil level has dropped too low. This error shuts down the press. Press  to clear the error display. Add just enough oil to prevent the error. Start the press and raise the ram. Check oil level with the ram raised and add more oil as necessary.

Pressure High in Hydraulic Tank: Check Filter — The hyraulic tank pressure has exceeded a certain (preset) threshold, which indicates the filter needs to be replaced.

Discharge Fault. Shuttle Left Too Soon — The condition that caused this error no longer occurs. If the error appears, consult your dealer or the Milnor® factory using the information in Section 1.1.3 : How to Contact Milnor®, page 8.

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6.3 Identification and Location of Switches, Sensors, and Photoeyes

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You can use the following figures to identify and troubleshoot the various mechanical components on the machine, including proximity switches, sensors, and photoeyes.

6.3.1 Proximity Switches

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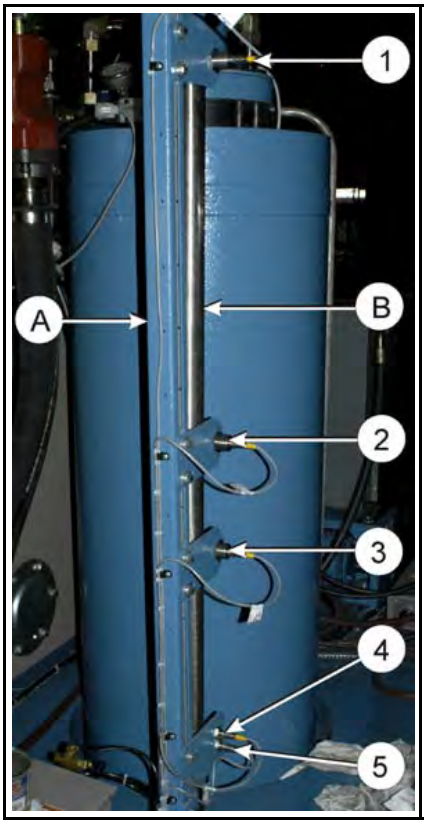
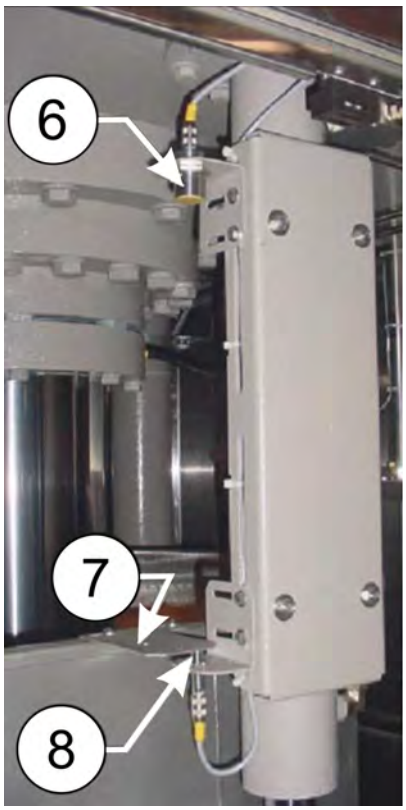
Figure 33. Ram and Can Proximity Switches

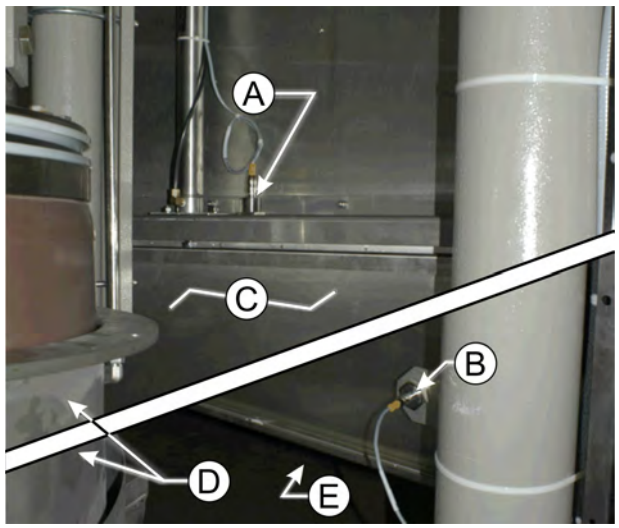




Legend

A . . . Proximity switch mounting post
B . . . Ram guide rod
1 . . . PXST—Ram full up
2 . . . PXSM—Ram inside can
3 . . . PXSU—Ram at unload
4 . . . PXSL—Ram at low
5 . . . PXSB—Ram full down
6 . . . PXCT—Can at top
7 . . . Proximity switch target
8 . . . PXCB1 (PXCB2 similar)—Can at bottom

Figure 34. Discharge Door Proximity Switches



Legend

A . . . PXDDU—Discharge door up
B . . . PXDDD—Discharge door down
C . . . Discharge door
D . . . Press can
E . . . Discharge direction

6.3.2 Water Probe Sensors

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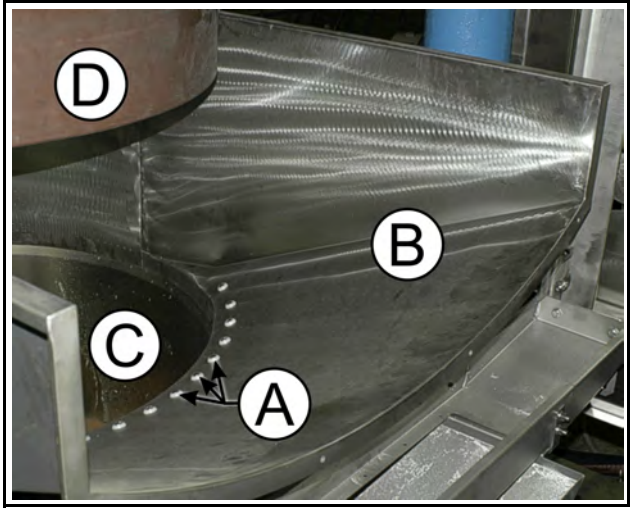
Figure 35. Load Chute Water Probe Sensors



Legend

A . . . Water probe sensors (MTA39-7)
B . . . Load chute
C . . . Press can
D . . . Press ram

6.3.3 Photoeyes

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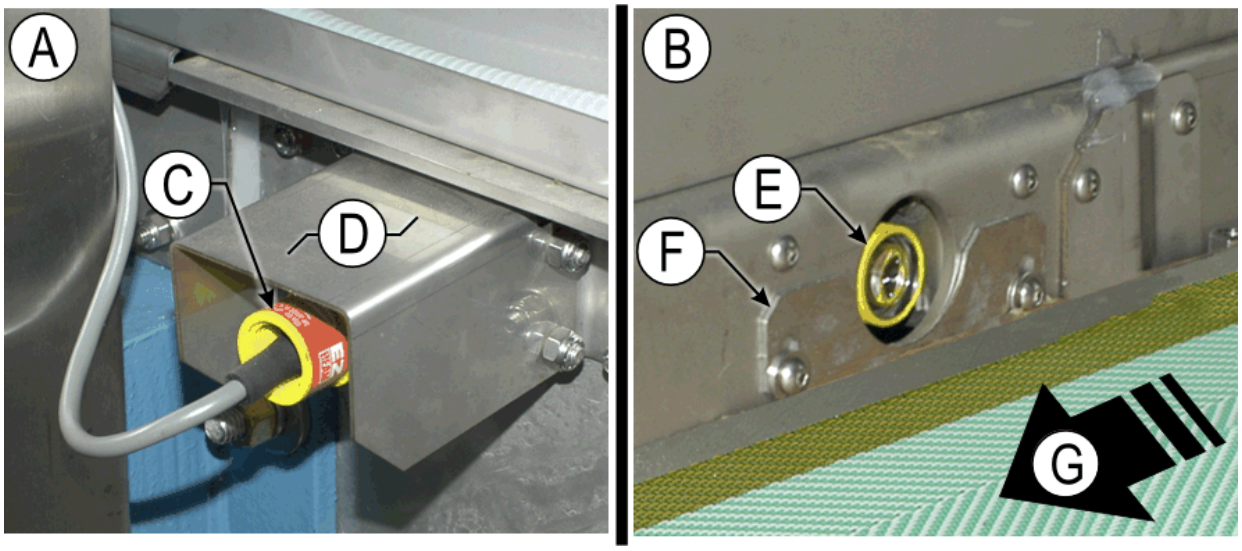
Figure 36. Discharge End Photoeye



Legend

A . . . View from outside conveyor side extension
B . . . View from inside conveyor side extension
C . . . Photoeye, cable end
D . . . Protective guard
E . . . Photoeye, sensing end
F . . . Photoeye filler plate
G . . . Discharge conveyor belt and discharge direction

7 Data Transfer

7.1 Memory Backup

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Your machine's press codes and configuration settings can be lost due to data corruption (perhaps a lightning strike), unauthorized changes, tampering, or controller hardware failure. If backup files were correctly maintained, you can restore the data and return the machine to production quickly.

The MilTouch™ controller allows you to save data to, and restore data from, a USB flash drive. Every time press codes and/or configuration settings are changed and finalized, transfer a backup copy of this data to a USB drive. Use only a blank flash drive or a flash drive you previously set aside for data backup (see Section 7.1.1 : The USB Flash Drive Formatting Requirement, page 84). A USB drive of good quality is more important than one with a large memory size.

7.1.1 The USB Flash Drive Formatting Requirement

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CAUTION: **An unreliable USB flash drive —** Can prevent data restoration.

- Use only good quality USB hardware.
- Dedicate a USB flash drive to a specific machine or group of machines.

Before you attach a USB flash drive to your MilTouch™ controller for the first time, format the drive to make it compatible with the MilTouch™ controller software. To format your USB flash drive, use the procedure in Section 8.1.1 : Format your USB Flash Drive, page 88.

7.1.2 How to Save Data to a USB Flash Drive for Backup

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1. From the **Main Menu** display, touch **Automatic Mode**. The **Automatic Operation** display appears.
2. From the **Automatic Operation** display, touch **Program Menu**. The **Program Menu** display appears.
3. From the **Program Menu** display, touch **Memory Transfer/Update**. The **Memory Transfer** display appears, as shown in the following figure.

Figure 37. Memory Transfer Display

4. Insert a blank flash drive into the USB port on the controller.
5. Wait for the red status light to turn green, which indicates the controller recognizes a connected USB device.
6. Touch **Backup to USB**. The controller immediately begins the data transfer procedure.
   - If the transfer was successful, the controller displays "Configuration saved. Remove USB drive!"
   - If the transfer was not successful, the control displays “ERROR: Configuration not saved.” See Section 6.2 : Errors, page 70 for more information.
7. Remove the flash drive from the controller.
8. Wait for the green status light to turn red, which indicates the controller no longer recognizes a connected USB device. The controller displays "Thank you, please exit this screen."
9. Touch **Exit** to return to the **Automatic Operation** display.

7.1.3 How to Restore Backup Data to the Controller from a USB Flash Drive

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1. From the **Memory Transfer** display, shown in Figure 37 , insert the flash drive that contains the backup data into the USB port on the controller.
2. Wait for the red status light to turn green, which indicates the controller recognizes a connected USB device.
3. Touch **Restore from USB**. The controller immediately begins the data transfer procedure.

- If the transfer was successful, the controller displays "Configuration restored. Remove USB drive!"
- If the transfer was not successful, the control displays “ERROR: Configuration not restored.” See Section 6.2 : Errors, page 70 for more information.

4. Remove the flash drive from the controller.
5. Wait for the green status light to turn red, which indicates the controller no longer recognizes a connected USB device. The controller displays "Thank you, please exit this screen."
6. Touch **Exit** to return to the **Automatic Operation** display.

7.1.4 Data Sharing

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If you own two or more MilTouch™ presses, it is possible to save the backup data from one press to a USB flash drive and import that data into one or multiple other presses using the procedure in Section 7.1.3 . Hence you can share press codes among a group of MilTouch™ presses without repeating the development process on each press.

However, when you import backup data from one press to another, you also transfer the configuration data to the receiving press, so you must only transfer memory between machines with identical models and configuration settings (hardware). A press’s hardware has a major effect on how it processes goods. For example, the maximum batch size, nominal cake diameter, minimum cycle time, and maximum pressure are all determined by the hardware of the press.

CAUTION: **Incorrect press code and configuration data —** can cause machine malfunctions, damage to goods, or press code errors.

▶ Only transfer memory between machines with identical models and equipment.

You can compare the configuration settings of the two presses using the machine configuration chart you filled out in Section 2.1 : Machine Configuration, page 10.

7.1.5 Clear Memory

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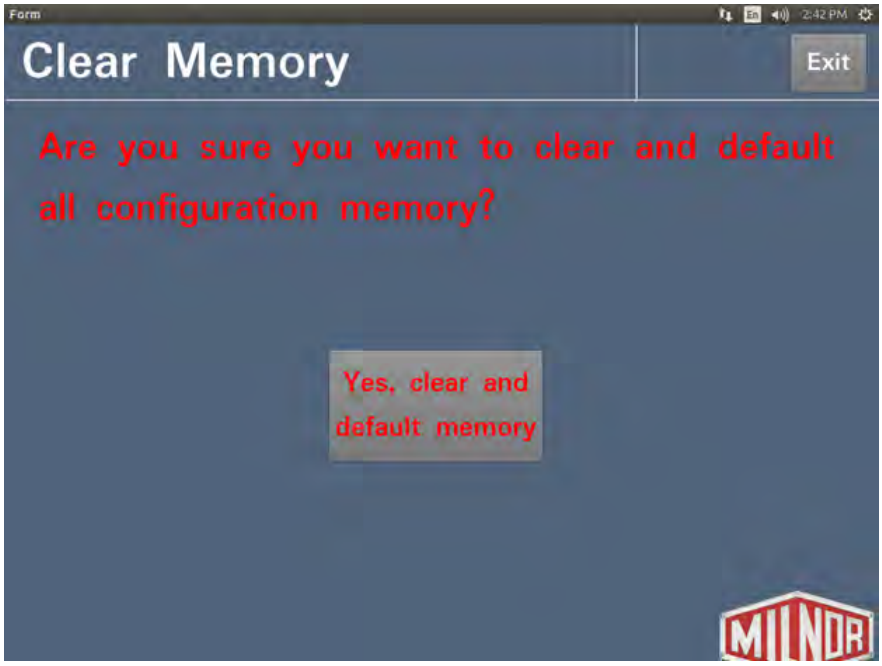
You can erase the controller’s memory from the **Clear Memory** window. Touch **Clear Memory** on the **Program Menu** display (Figure 2: Program Menu Display, page 12) to access the **Clear Memory** window, shown in the following figure.

Figure 38. Clear Memory Window



Touch the button on the window to voluntarily clear all press codes from the machine controller and set all configuration decisions to their default values.

8 Supplemental Information

8.1 Software Update Procedure

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The Milnor® factory occasionally makes changes to MilTouch™ software. In some cases, we recommend that the change is applied to all machines. For these updates, we notify dealers of the change in an e-mail, and provide the software update file as an attachment so that dealer technicians can install the update on any MilTouch™ machines in their territory. This document is for the technician who will install the update. In this procedure, the technician will save an update file to a computer, copy it to a USB flash drive, and apply the update to the machine controller.

NOTE: If a software update will affect formula programming, configuration decisions, or customer procedures, there will be an explanation in the update e-mail.

8.1.1 Format your USB Flash Drive

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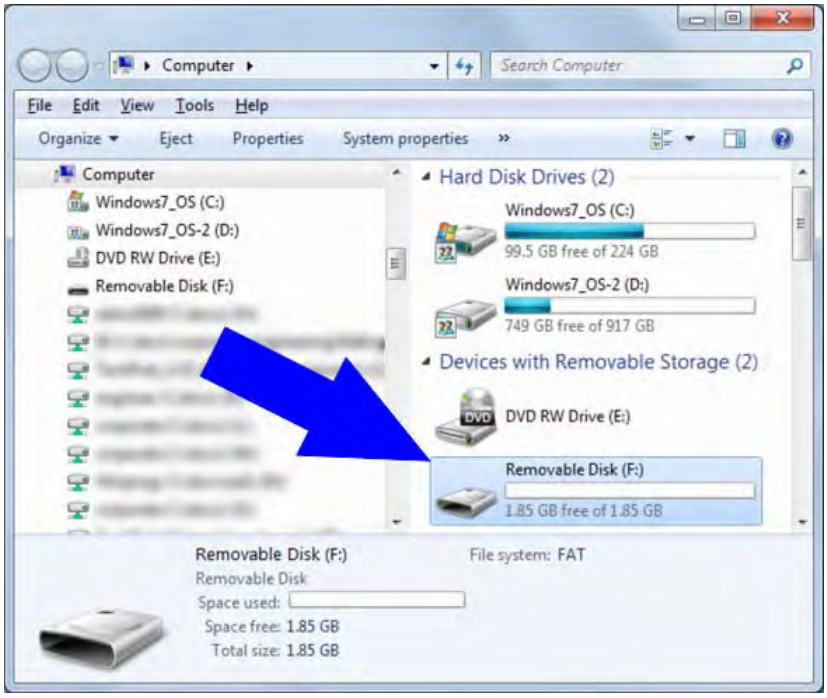
Format your USB flash drive to make it compatible with the MilTouch™ controller software. To complete this procedure, you must have a Windows™ computer with an available USB port and a blank USB flash drive with a capacity of at least 1 gigabyte (GB).

CAUTION: **Formatting —** removes all data from the USB device.

▶ Verify that the USB device you have selected to format is either unformatted or contains no data.

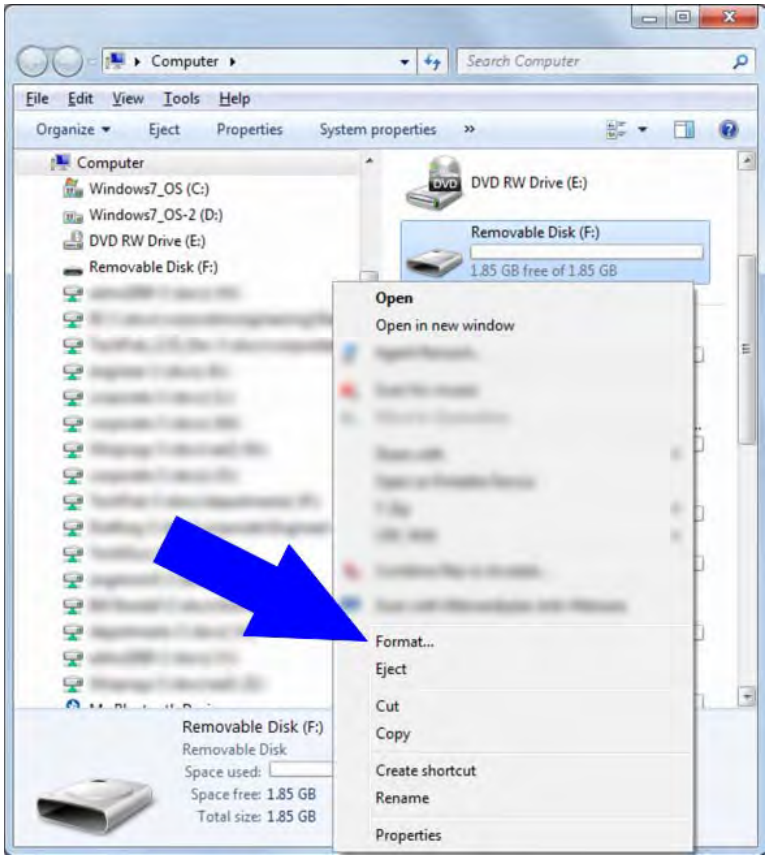
1. Insert the USB flash drive into an available USB port on your Windows™ computer.
2. Open File Explorer.

Figure 39. Typical View of USB Flash Drive in File Explorer



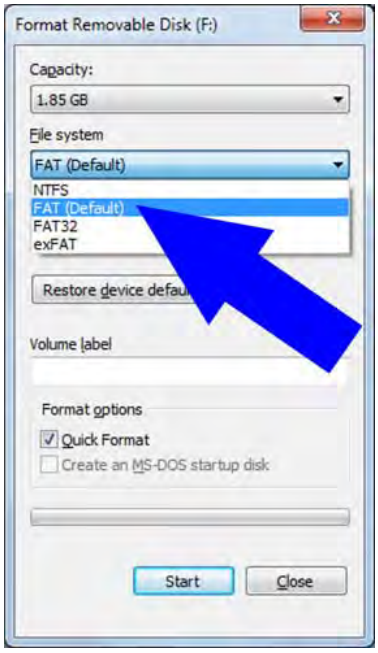
3. In Explorer, right-click on the USB flash drive to display the context menu.
4. Left-click on **Format...** in the context menu.

Figure 40. Typical File Explorer Context Menu



5. The **Format Removable Disk** window appears (shown in the figure below). In the **Format Removable Disk** window:

Figure 41. Format Removable Disk Main Window



a. Set the **File system** to **FAT** or **FAT32**

b. Click **Start** to format the device.

6. A confirmation window appears (not shown), which warns that the next action will erase all data on the device. Click **OK** to continue with the procedure.
7. When the computer formats the device, a confirmation window (not shown) will appear. Click **OK** to dismiss the window.
8. Click **Close** to close the **Format Removable Disk** window and return to File Explorer.

8.1.2 Save and Copy the Update File to the USB Flash Drive

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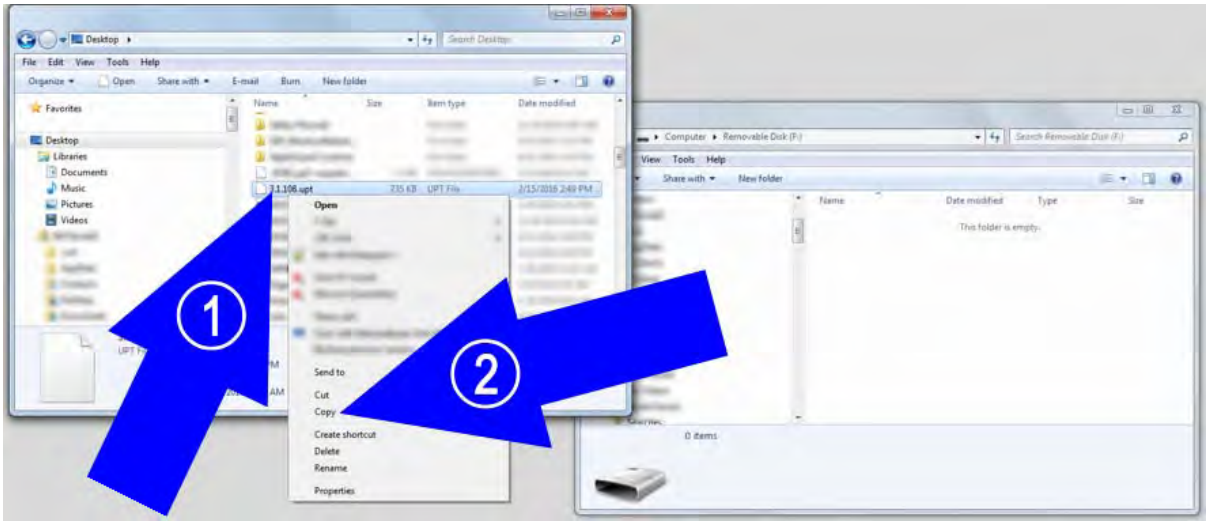
To save and copy the update file to the USB flash drive, you must have a Windows™ computer with an available USB port and the blank, formatted USB flash drive (as described in Section 8.1.1) with a capacity of at least 1 gigabyte (GB).

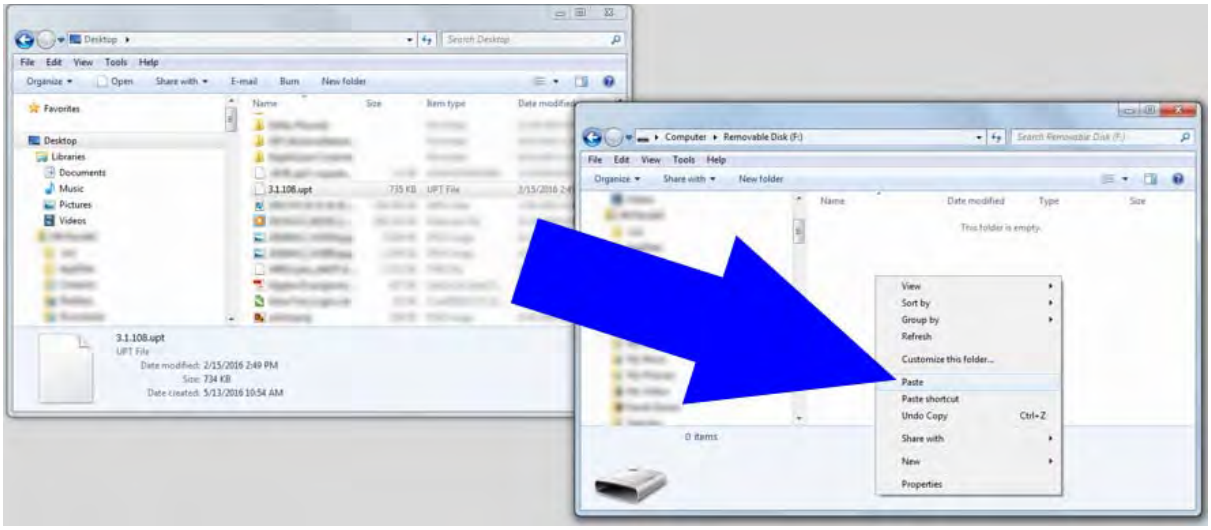
1. Identify and save the software update file to your computer.
2. Open File Explorer.
3. Locate and right-click on the saved update file on your computer (similar to Item 1 in the following figure). A context menu appears.

Figure 42. File Explorer Context Menu, Copy Command Indicated



4. In the context menu that appears, click on **Copy** (Item 2 in the previous figure).
5. Open a second File Explorer window and navigate to the USB flash drive.
6. Right click in the blank USB flash drive window to open the context menu.
7. In the context menu that appears, click on **Paste** (indicated by the arrow in the following figure). The update file will appear in the USB flash drive window.

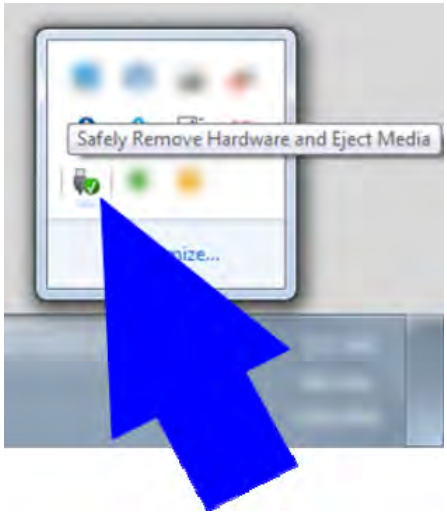
Figure 43. USB Flash Drive in File Explorer



NOTE: Make sure that you save the update file in the root of the USB flash drive (not inside of a folder on the USB drive).

8. Close the File Explorer windows.
9. In the Windows status area (bottom right of your screen), click the **Safely Remove Hardware** icon (shown in the following figure) to command the computer to release the USB flash drive.

Figure 44. Safely Remove Hardware Icon



10. Your computer notifies you when you can safely remove the USB flash drive. Remove the USB flash drive from the Windows computer.

8.1.3 Apply the Update File to the Machine Controller

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To apply the software update to your MilTouch™ machine controller, you must have a USB flash drive prepared as described in Section 8.1.1 and Section 8.1.2 . On the MilTouch™ Press **Main Menu** display:

1. Touch **Automatic Mode**. The **Automatic Operation** display appears.
2. On the **Automatic Operation** display, touch **Program Menu**. The **Program Menu** display appears.
3. On the **Program Menu** display, touch **Memory Transfer/Update** to access the **Memory Transfer** display.
4. Insert the flash drive that contains the update file into the USB port on the MilTouch™ controller.
5. Wait for the red status light to turn green, which indicates the controller recognizes a connected USB device.
6. Touch **Update Press**. The update procedure will begin immediately. It typically takes the controller less than 5 seconds to update.
   - If the update was successful, the controller displays "Backend updated. Remove USB drive!"
   - If the update was not successful, the control displays “ERROR: Backend not updated.” See Section 6.2 : Errors, page 70 for more information.

CAUTION: Interrupting the Update Process — can corrupt data.

▶ Do not press any key or turn off power to the machine while the machine is updating.

7. When the update procedure is complete, the machine controller resets itself.
8. The **Main Menu** display appears, which indicates that the press updated successfully and is ready for operation.
9. Remove the flash drive from the controller.