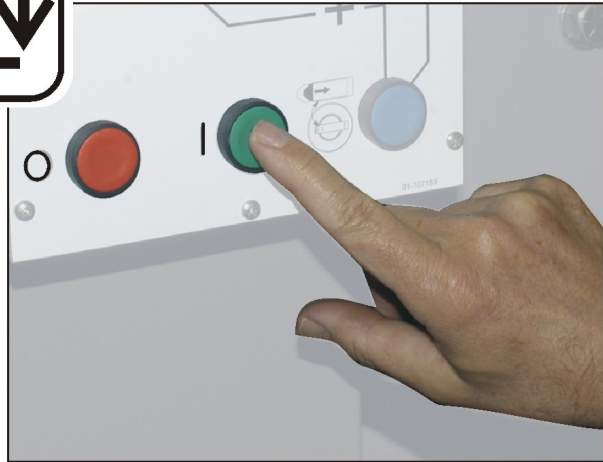
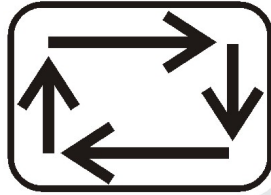


Published Manual Number/ECN: MQCLFO01U1/2016084A

- Publishing System: TPAS2
- Access date: 02/17/2016
- Document ECNs: Latest



48040H7K & 68036H5K + Dryell



PELLERIN MILNOR CORPORATION POST OFFICE BOX 400, KENNER, LOUISIANA 70063-0400, U.S.A.

MQCLFO01U1/16084A

1
3

1. English

Operator Guide—MilTouch-EX™ Control with Automated
Loading and Discharge

MQCLFO01EN/20160210

English

1

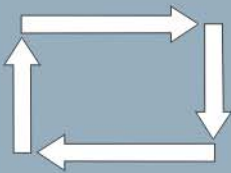


Published Manual Number: MQCLFO01EN

- Specified Date: 20160210
- As-of Date: 20160210
- Access Date: 20160210
- Depth: Detail
- Custom: n/a
- Applicability: CLF
- Language Code: ENG01, Purpose: publication, Format: 1colA

Operator Guide—

MilTouch-EX™ Control with Automated Loading and Discharge



**Read the
separate
safety
manual
before
installing,
operating,
or servicing**

PELLERIN MILNOR CORPORATION POST OFFICE BOX 400, KENNER, LOUISIANA 70063 - 0400, U.S.A.

Applicable Milnor® products by model number:

48040H7K 48040H7N 68036H5K 68036H5N

Table of Contents

Sections	Figures, Tables, and Supplements
Chapter 1. How to Use the MilTouch-EX Washer-Extractor Control	
1.1. Using the MilTouch™ EX Control (Document BICLWO01)	Supplement 1: MilTouch Simulator for Windows PCs
1.1.1. The <i>Home</i> Display	Figure 1: The <i>Home</i> Display
1.1.1.1. The <i>Wash Formula Maintenance</i> Display	Figure 2: The <i>Wash Formula Maintenance</i> Display
1.1.1.1.1. To Change an Existing Wash Formula	Figure 3: The Steps in a Wash Formula
1.1.1.1.2. To Add a New Wash Formula	Figure 4: The <i>Step Choices</i> Display
1.1.1.1.3. To Erase a Wash Formula	Supplement 2: About the Steam Codes
1.1.1.2. The <i>Data Transfer</i> Display	Figure 5: The Data Transfer Display on the Controller
1.1.1.3. Data Transfer with the MilTouch Programmer Software	Figure 6: The Data Transfer Display on the Programmer Software
1.1.1.3.1. How to Mount a USB Flash Drive to the Machine Controller	
1.1.1.3.2. How to Save Machine Configuration Files	
1.1.1.3.3. How to Transfer Machine Configuration Files to a MilTouch Machine	
1.1.1.3.4. How to Save and Transfer Wash Formulas	
1.1.1.4. The Data Log Displays	Figure 7: Date Selection Display
1.1.1.4.1. The Date Selection Display	Figure 8: Production Display
1.1.1.4.2. The Production Display	Figure 9: Configuration and Programming Display
1.1.1.4.3. The Configuration and Programming Display	Figure 10: Errors Display
1.1.1.4.4. The Errors Display	Figure 11: The Outputs Display
1.1.1.5. The Inputs and Outputs Displays	Figure 12: The Inputs Display
	Figure 13: The Analog-Digital Values Display
	Figure 14: The Spray Down Display
	Figure 15: The Zones of the <i>Run</i> Display
1.1.2. The <i>Run</i> Display (Document BICLJO01)	Figure 16: The Names and the Timers
1.1.2.1. The Names and Timers on the <i>Run</i> Display	Figure 17: The Machine Status Data
1.1.2.2. The Machine Status Data	Figure 18: The Machine Operations
1.1.2.3. The Machine Operations	

Sections	Figures, Tables, and Supplements
1.1.2.4. The Standard and Pop-up Controls on the Run Display	Figure 19: Standard Controls Figure 20: Pop-up Controls for Water Valves Figure 21: Pop-up Controls for Steam and Cooldown Valves Figure 22: Pop-up Controls for Drain Valves

Chapter 2. How to Configure and Program the Control

2.1. Configuration for the MilTouch® EX Controller (Document BICLWC01)	Figure 23: Configuration Screens
2.1.1. Temperature Unit (A)	
2.1.2. Language (B)	
2.1.3. Type (C)	
2.1.4. Speed Unit (D)	
2.1.5. Staph Guard (E)	
2.1.6. Rev G / + (F)	
2.1.7. Drain Code (G)	
2.1.8. Steam Error (H)	
2.1.9. Fill Error (I)	
2.1.10. Cooldown Error (J)	
2.1.11. Extra Water (K)	
2.1.12. Reuse Drain (L)	
2.1.13. Overhead Tank (M)	
2.1.14. Flow Meters (N)	
2.1.15. Tilt Type (O)	
2.1.16. RPM Control (P)	
2.1.17. Recirculation (Q)	
2.1.18. AmpSaver (S)	
2.1.19. Temperature Probe (T)	
2.1.20. Electronic Level (U)	
2.1.21. Variable Speed (W)	
2.1.22. Configure Decision Z	
2.1.23. Water Levels	
2.1.24. Wet-Down	
2.1.25. Bath Level Offset	
2.1.26. Chemical Valves	
2.1.27. Drain Washout	
2.1.28. Name	
2.1.29. Simulator	
2.1.30. Counts Per 100	
	Figure 24: Processor Board Revisions

Sections	Figures, Tables, and Supplements
2.1.31. Offset Valve Time	
2.1.32. Jog Speed	
2.1.33. Tank Temperature	
2.1.34. Programmable Outputs	
2.1.35. Mildata	
2.1.35.1. Mildata Address	
2.1.35.2. Formula	
2.1.35.3. Work Order	
2.1.35.4. Goods Code	
2.1.35.5. Customer	
2.1.35.6. Employee	
2.1.35.7. Weight	
2.1.35.8. Pieces	
2.1.35.9. Lot	
2.1.36. Digital-to-Analog Offset	
2.1.37. Staged RPM	
2.1.38. Staged Delay	
2.2. MilTouch-EX™ Wash Formula Decisions (Document BICLUP01)	
2.2.1. Type	
2.2.2. Time	
2.2.3. Temperature	
2.2.4. Hot Water	
2.2.5. Cold Water	
2.2.6. 3rd Water	
2.2.7. Level or Liquor Ratio	
2.2.7.1. Water Level	
2.2.7.2. Liquor Ratio	Figure 25: <i>Nominal Weight</i> button
	Figure 26: <i>Add Formula</i> button
	Figure 27: <i>Back</i> button
	Figure 28: Steam window
2.2.8. Steam	
2.2.9. Chemical	
2.2.10. Speed	
2.2.11. Drain Type	Supplement 3: The RinSave® Drain Sequence
2.2.12. Re-Use Drain	
2.2.13. How to End	
2.2.14. On Time	
2.2.15. Off Time	
2.2.16. Fill from Tank	
2.2.17. Recirculate Water	

Sections	Figures, Tables, and Supplements
<p>2.3. How to Calibrate the Flow Meter (Document BICLWC02)</p> <ul style="list-style-type: none"> 2.3.1. Application 2.3.2. Preparation 2.3.3. Procedure 	<p>Supplement 4: Common Unit Conversions</p> <p>Figure 29: Calibration by Weight</p> <p>Figure 30: Configure button</p> <p>Figure 31: Flow meter button</p> <p>Figure 32: Flow Meter Calibration screen</p> <p>Figure 33: Water Quantity screen</p>
<p>2.4. Using Programmable Outputs (Document BICLWP02)</p>	<p>Figure 34: Access to the <i>Programmable Outputs</i> Display</p> <p>Figure 35: <i>Programmable Outputs</i> Display</p> <p>Figure 36: <i>Formula Number Data Entry</i> Display</p> <p>Figure 37: <i>Programmable Outputs</i> Display</p> <p>Figure 38: Programming Display for Programmable Outputs</p>
<p>Chapter 3. Troubleshooting</p>	
<p>3.1. MilTouch™ and MilTouch-EX™ Error Messages (Document BICLUT03)</p> <ul style="list-style-type: none"> 3.1.1. Door Opened 3.1.2. Vibration Switch Tripped 3.1.3. Too Long to Fill 3.1.4. Too Long to Drain 	<p>Figure 39: Transducer Tube at Processor Board</p> <p>Figure 40: Schematic of Typical Drain Circuit</p>
<ul style="list-style-type: none"> 3.1.5. 3-Wire Circuit Disabled 3.1.6. Too Long to Steam 3.1.7. Too Long to Cool 3.1.8. Check Temperature Probe(s) 3.1.9. Level Made After Drain 3.1.10. Serial Communication Failure 3.1.11. Failed Speed Sensor 3.1.12. Inverter Tripped 3.1.13. External Fault Error 3.1.14. Brake Pressure Fault 3.1.15. Bearing Pressure Fault 3.1.16. Check Flow Meter 3.1.17. Tank Pump ol Tripped 3.1.18. Recirc Pump ol Tripped 3.1.19. Loading Aborted 3.1.20. Discharge Aborted 	

Sections	Figures, Tables, and Supplements
3.1.21. Invalid Formula	
3.1.22. Load Eye Blocked	
3.1.23. Up Lock Not Made	
3.1.24. Invalid Work Order	
3.1.25. Invalid Goods Code	
3.1.26. Invalid Customer Code	
3.1.27. Invalid Employee Code	
3.1.28. Can't Find Data	
3.1.29. Accumulator was Reset	
3.2. Outputs and Inputs for MilTouch-EX Controller (Document BICLWT02)	
3.2.1. Outputs	Table 1: Outputs on 8-output 16-input Boards Table 2: Outputs on 24-Output Board 1 Table 3: Outputs on 24-Output Board 2
3.2.2. Inputs	Table 4: Inputs on 8-output 16-input Board 1 Table 5: Inputs on 8-output 16-input Board 2
Chapter 4. Automated Loading and Discharge Information	
4.1. Automated Loading and Discharge (Document BICLDO01)	
4.1.1. Start-up Procedure	Figure 41: Automatic/Manual Selection
4.1.2. Special Configuration Decisions	Figure 42: Main Configuration Menu
4.1.2.1. WTB (Automated Elbow) Configuration	Figure 43: WTB Configuration Menu
4.1.2.2. Post-wash Data Pass Decisions	Figure 44: Home Screen Display Figure 45: <i>Program Post-wash Data</i> Window
4.1.3. <i>Manual Override Position Machine</i> Functions	Figure 46: Manual Override Window
4.1.4. The Recovery Sequence	Figure 47: <i>Machine Loaded</i> Prompt Figure 48: <i>State 00</i> Window

Chapter 1

How to Use the MilTouch-EX Washer-Extractor Control

BICLW001 (Published) Book specs- Dates: 20160210 / 20160210 / 20160210 Lang: ENG01 Applic: CLF

1.1. Using the MilTouch™ EX Control

The Milnor® MilTouch™ EX washer-extractor control system uses a touch-sensitive display screen. All the functions and information you need to configure, program, and run the machine appear on this screen.



CAUTION [1]: Avoid Machine Damage—The touch screen works best if you use your finger to touch it with light or moderate pressure.

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

Supplement 1

MilTouch Simulator for Windows PCs

The MilTouch Simulator software lets you prepare wash formulas and perform other MilTouch controller tasks without using the MilTouch or MilTouch-EX control system. The software uses the same interface as the one on the machine to help you program formulas and manage their deployment.

The contents of this document apply to both the MilTouch washer-extractor control and the MilTouch Simulator software, with the following exceptions:

- In the PC software, the displays described in [Section 1.1.1.5 “The Inputs and Outputs Displays”](#) do not reflect the state of any real hardware. The PC software does not simulate inputs and outputs.
- The PC software will not simulate the actions of a formula.
- The PC software allows you to export formulas to any suitable storage device attached to your computer. The machine control exports to either a USB flash drive or to memory internal to the controller. See [Section 1.1.1.2 “The Data Transfer Display”](#) for details.

1.1.1. The Home Display

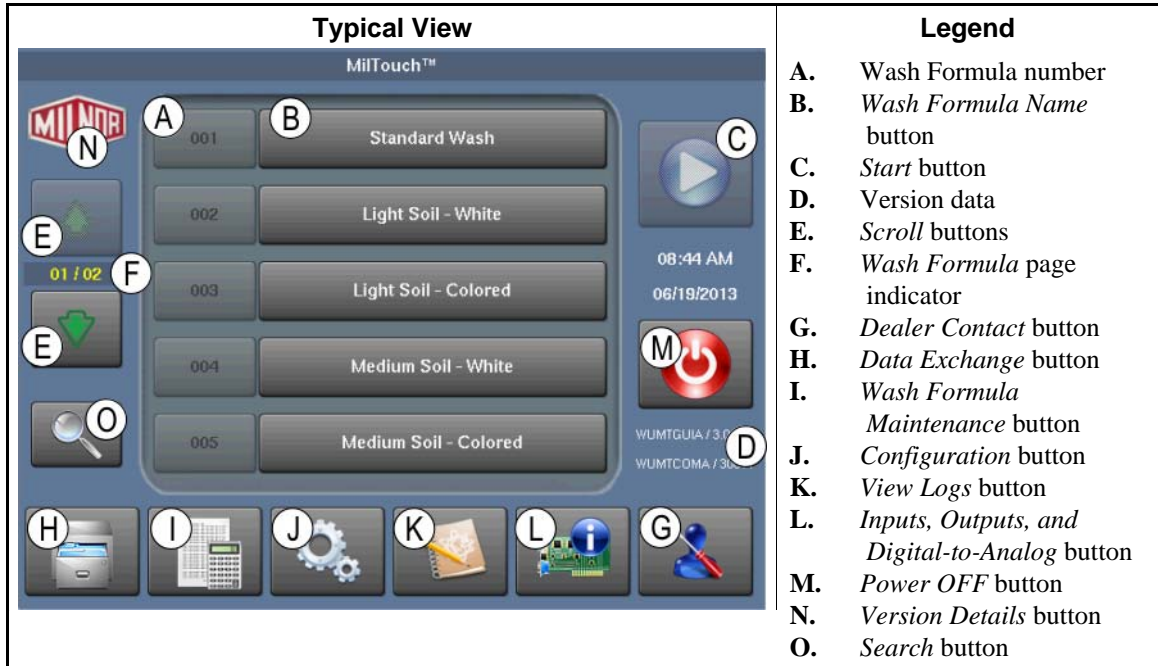
You can run any available wash formula from the display in [Figure 1](#).

1. Use the *scroll* buttons to bring the wash formula onto the screen.
2. Touch the *Wash Formula Name* button. The button changes color to show that the formula is selected.

3. Touch the blue *Start* button.

See Section 1.1.2 for information about the *Run* display.

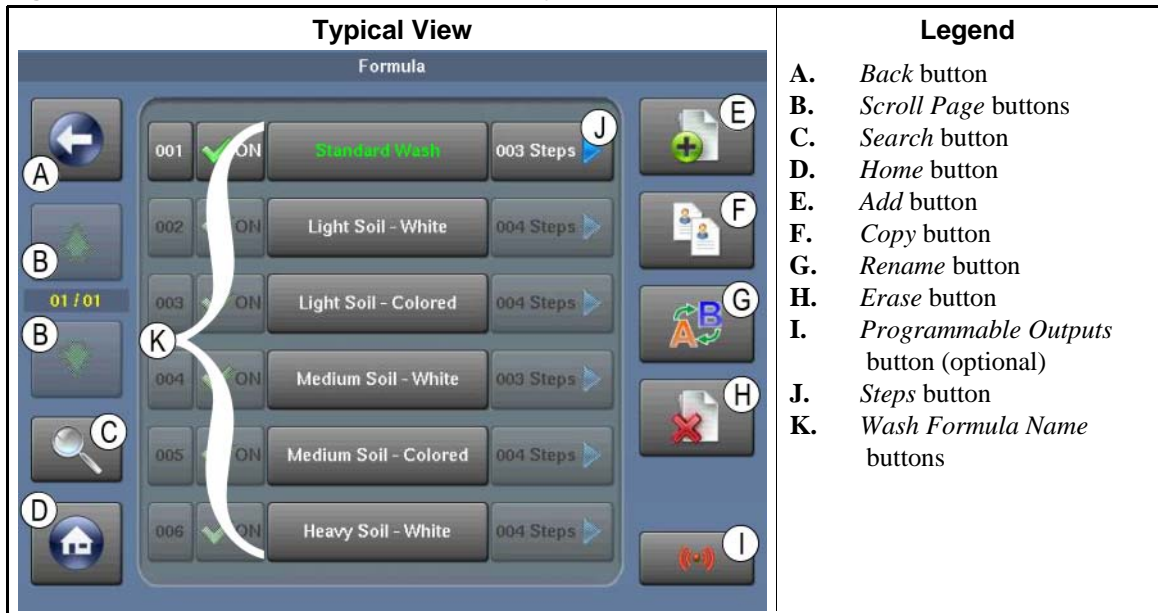
Figure 1: The Home Display



1.1.1.1. The Wash Formula Maintenance Display—Touch the *Wash Formula Maintenance* button. You can change, add, and delete wash formulas from this display.

1. Use the scroll buttons if necessary to bring the wash formula you want onto the display.
2. Touch the *Wash Formula Name* button.
3. Use the instructions below.

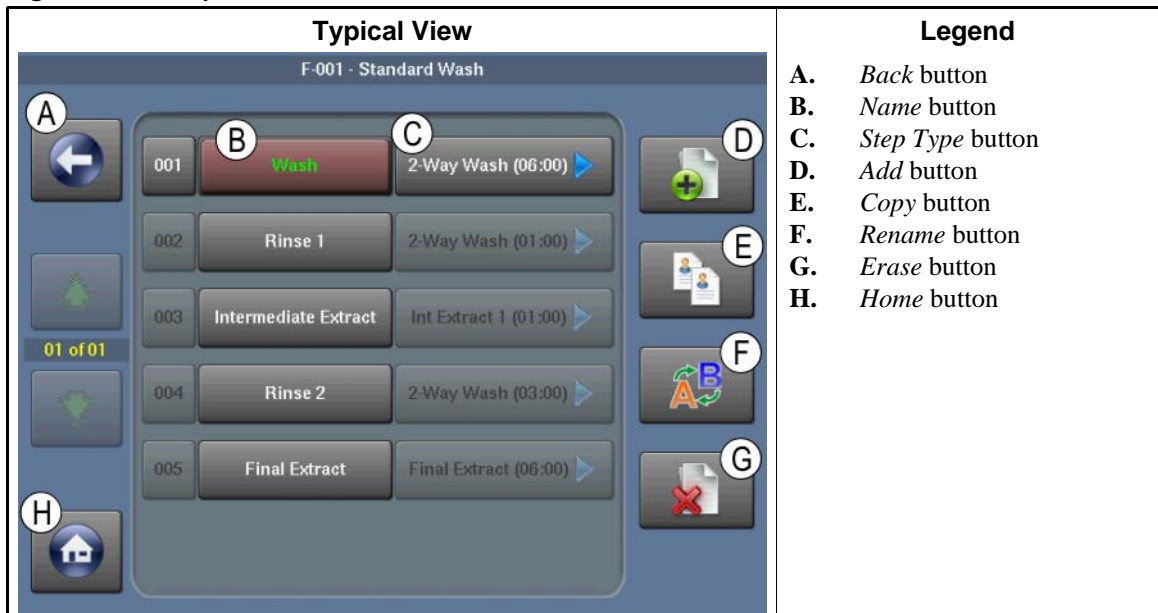
Figure 2: The Wash Formula Maintenance Display



1.1.1.1.1. To Change an Existing Wash Formula

1. Touch the *Steps* button to the right of the wash formula you want to change. The control will display the steps.

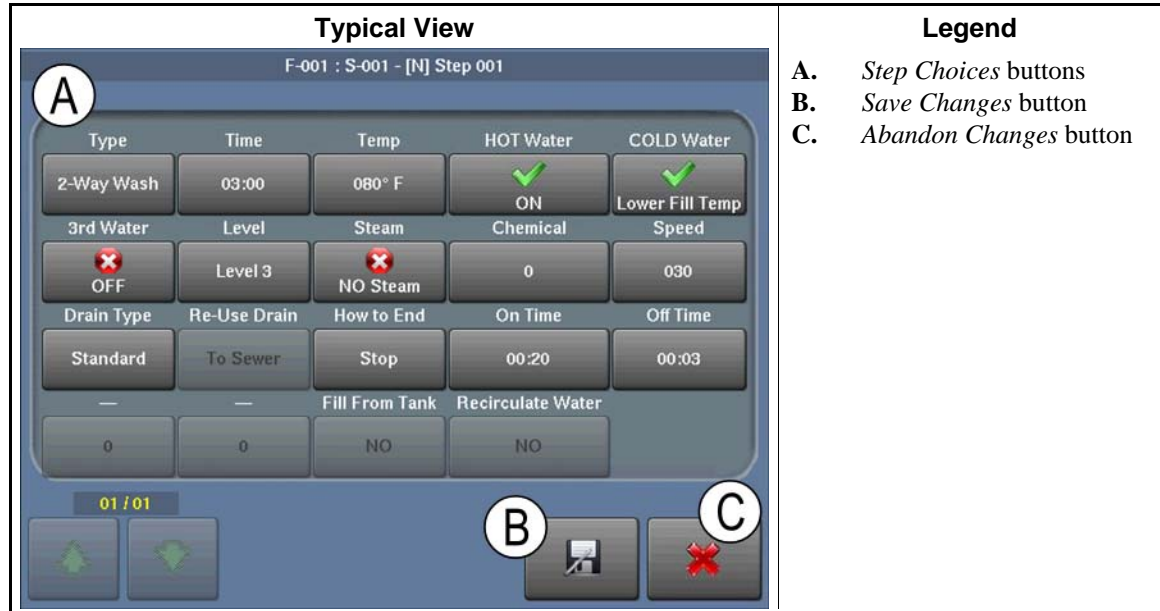
Figure 3: The Steps in a Wash Formula



2. Touch the *Step Type* button next to the step you want to change. The control will display the choices.
3. Touch the step parameter you want to change.
 - For selection lists, touch the value you want to use.
 - For fields that require a typed value, touch the value in the box at the top. When the box changes color to orange, delete the current value. Touch the desired numbers or letters to

enter the new value. Finally, touch the checkmark button to save the new value and go back one level. To abandon the most recent change, touch the *Exit* button.

Figure 4: The Step Choices Display



4. Touch the *Save Changes* button (Figure 4) to save the changes. The control displays the steps in the formula (Figure 3).
5. Touch the *Home* button to go to the *Home* display (Figure 1).

Supplement 2

About the Steam Codes

Use the *No Steam* option unless your machine is configured for steam and connected to a steam supply line.

No Steam—No steam is allowed in this bath step.

After, Runs—Steam starts only after the commanded bath level is achieved. If necessary, steam is allowed to maintain temperature. The timer runs when the steam valve is open.

Stops—Steam begins only after the commanded bath level is achieved. After temperature is first achieved, no more steam is allowed in the step. The timer stops running when the steam valve is open.

After, Stops—Steam begins only after the commanded bath level is achieved. If necessary, steam is allowed to maintain temperature. The timer stops running when the steam valve is open.

Early, After, Runs—Steam starts when the lowest safe bath level is achieved. If necessary, steam is allowed to maintain temperature. The timer runs when the steam valve is open.

Early, Stops—Steam starts when the lowest safe bath level is achieved. After temperature is first achieved, no more steam is allowed in the step. The timer stops running when the steam valve is open.

Early, After, Stops—Steam starts when the lowest safe bath level is achieved. If necessary, steam is allowed to maintain temperature. The timer stops running when the steam valve is open.

1.1.1.1.2. To Add a New Wash Formula

1. From the *Wash Formula Maintenance* display, touch the *Add* button.
2. The control names the new wash formula similar to [N] Formula - xx, where xx is a number.
3. Touch the *Rename* button to change the wash formula name.
 - a. In the *Formula Name* window, touch the formula name.
 - b. Touch the *[Clear All]* button to erase the formula name that the controller provided.
 - c. Use the keypad to enter a formula name.
 - d. Touch the *Accept* button to write the new formula name to memory. The *Wash Formula Maintenance* display appears.
4. Touch the *Steps* button beside a formula to add steps.
 - a. Touch the *Add* button. A new step appears with a step type of *End Formula (00:00)*.
 - b. Touch the *Step Type* button to program the step. The *Step Decisions* display appears.
 - For selection lists, touch the value you want to use.
 - For fields that require a typed value, touch the value in the box at the top. When the box changes color to orange, delete the current value. Touch the desired numbers or letters to enter the new value. Finally, touch the checkmark button to save the new value and go back one level. To abandon the most recent change, touch the *Exit* button.
 - c. Touch the *Type* button on the *Step Choices* display, then select the type of step you want.
 - d. Touch the *Time* button. Touch each desired units box and erase the value, then enter a new value.
 - e. Touch the *Confirm* button to save the step time.
 - f. Set the remaining choices for the step.
 - g. Touch the *Save Changes* button to save the step.
 - h. The *Steps* display appears.
5. Repeat the steps above to add and modify steps.

1.1.1.1.3. To Erase a Wash Formula

1. Touch the *Name* button for the formula you want to erase.
2. Touch the *Erase* button.
3. Confirm that you want to erase the formula.

1.1.1.2. The Data Transfer Display—You can save wash formulas from a MilTouch machine to an external USB device or to the internal memory area in the controller.

Figure 5: The Data Transfer Display on the Controller

Typical View	Legend
	<p>A. <i>Scroll buttons</i></p> <p>B. <i>Transfer Direction buttons</i></p> <p>C. <i>Data Set Name button</i></p> <p>D. <i>Transfer Wash Formulas button</i></p> <p>E. <i>Transfer Configuration button</i></p> <p>F. <i>Media Format Available indicator</i></p> <p>G. <i>External Storage button</i></p> <p>H. <i>Internal Storage button</i></p> <p>I. <i>Home button</i></p> <p>J. <i>Copy Data button</i></p> <p>K. <i>Rename Data button</i></p> <p>L. <i>Delete Data button</i></p> <p>M. <i>Update Operating Software button</i></p> <p>N. <i>External Media button</i></p>

The *Media Format Available* indicator lights green when the software recognizes a connected USB device.

1. Touch the *External Storage* button or the *Internal Storage* button to select the storage location.
2. Touch the *Transfer Wash Formulas* button or the *Transfer Configuration* button to select whether to copy the wash formulas or the machine configuration.

Figure 6: The Data Transfer Display on the Programmer Software

Typical View	Legend
	<p>A. <i>Machine Memory Data Set button</i></p> <p>B. <i>Storage Location button</i></p> <p>C. <i>Stored data area</i></p>

1.1.1.3. Data Transfer with the MilTouch Programmer Software—Use the procedures in this section to transfer these types of data between a MilTouch machine and a personal computer running the MilTouch Programmer software:

- machine configurations
- wash formulas.

1.1.1.3.1. How to Mount a USB Flash Drive to the Machine Controller—This procedure requires a USB flash drive.

1. At the MilTouch machine, touch the *Data Exchange* button on the *Home* display (Figure 1) to access the *Data Transfer* display (Figure 5).
2. While the *Information* box is visible, attach a blank USB flash drive in the USB port on the left side of the machine control box.
3. Touch the button in the *Information* box to clear the box.
4. If a green "+" is visible on the *External Media* button, then touch the button to mount the USB flash drive. If a red "-" is visible on the button, continue with this procedure.
5. Touch the *External Storage* button to save the machine configuration on the flash drive.
6. Touch the *Transfer Configuration* button.

1.1.1.3.2. How to Save Machine Configuration Files—This procedure requires a USB flash drive.

1. Touch the *Data Set Name* button.
2. To change the name of the configuration file, touch the *Rename Data* button, replace the original name, and touch the button in the *Information* box to confirm the change.
3. Touch the bottom green *Transfer Direction* button to copy the configuration to the flash drive.
4. Touch the button to confirm the successful export.
5. Touch the *External Media* button to unmount the flash drive.
6. Store the flash drive in a safe place.

1.1.1.3.3. How to Transfer Machine Configuration Files to a MilTouch Machine—This procedure requires a USB flash drive that contains one or more MilTouch configuration files. The previous section describes how to save machine configuration files to a USB memory flash drive.

1. Access the *Data Transfer* display.
2. Mount the flash drive according to Section 1.1.1.3.1.
3. Touch the *External Storage* button to see a list of the available configuration files.
4. Touch the desired configuration file in the stored data area (Figure 6).
5. Touch the top green *Transfer Direction* button to copy the configuration to the machine controller.
6. Confirm the successful import, unmount the flash drive, and remove the flash drive from the machine controller.

1.1.1.3.4. How to Save and Transfer Wash Formulas

1. This procedure requires a USB flash drive.
2. Access the *Data Transfer* display.
3. Mount the flash drive according to Section 1.1.1.3.1.
4. Touch the *Transfer Wash Formulas* button.

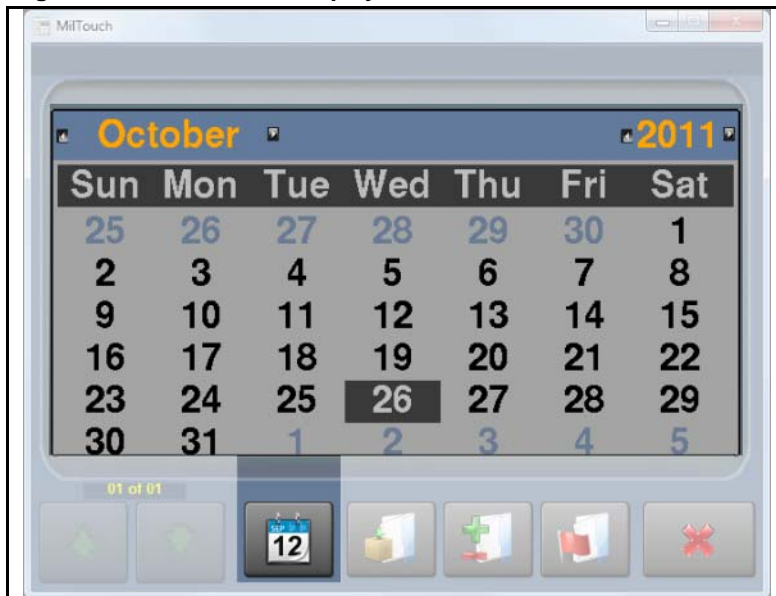
5. Touch the *External Storage* button to see a list of the available wash formula files.
6. To copy the wash formulas from the machine to the USB flash drive, touch the *Data Set Name* button.
7. To copy the wash formulas from the USB flash drive to the machine controller, touch the desired wash formula button in the list at the left of the *Transfer Direction* buttons.
8. Touch the available *Transfer Direction* button. Only one of these two buttons will be enabled.
9. When the transfer is complete, confirm the transfer, then store the flash drive in a safe place.

1.1.1.4. The Data Log Displays—To view the accumulated data, touch the *View Logs* button on the *Home* display (see [Figure 1](#)).

Note 1: Data log displays are not available in version 2.0.112 of the display software. Version data is on the *Home* display ([Figure 1](#)).

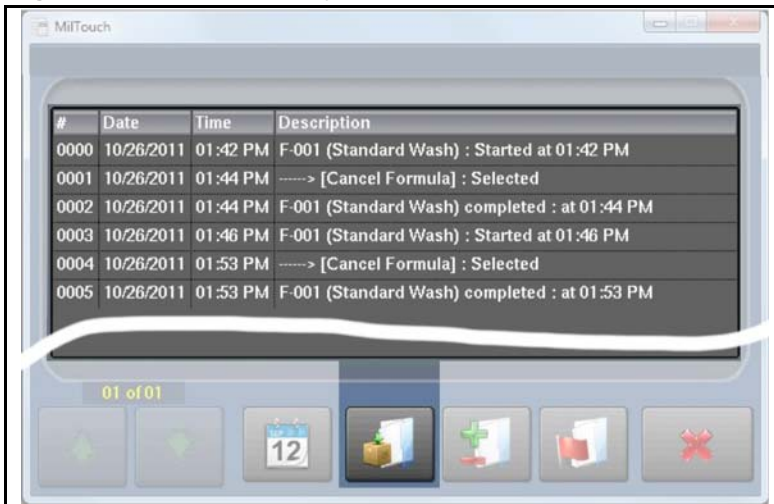
1.1.1.4.1. **The Date Selection Display**—Touch the date for the log files you want to view.

Figure 7: Date Selection Display



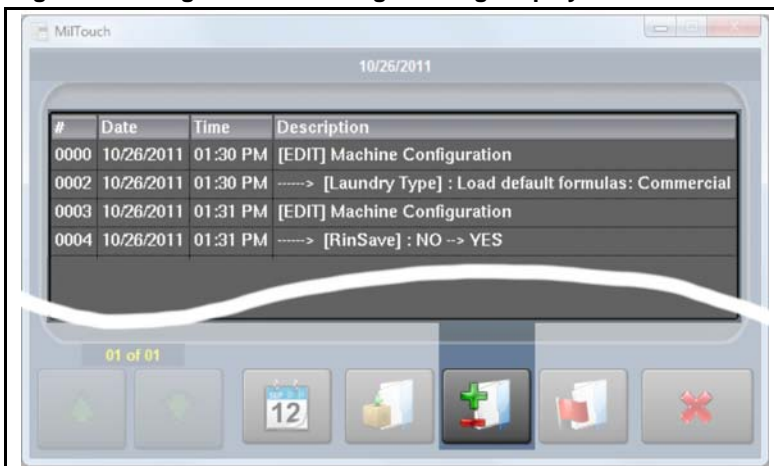
1.1.1.4.2. **The Production Display**—The *Production* display shows the wash formula number and name, the start time, and the end time for the formula.

Figure 8: Production Display



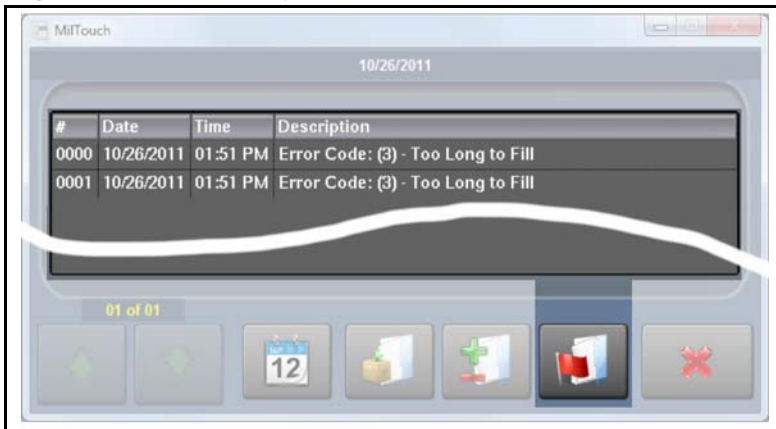
- 1.1.1.4.3. **The Configuration and Programming Display**—The *Configuration and Programming* log shows a brief description of each change made to the machine configuration or to any wash formula.

Figure 9: Configuration and Programming Display



- 1.1.1.4.4. **The Errors Display**—The *Errors* log shows the error code and a brief description of each error condition the machine encountered.

Figure 10: Errors Display



1.1.1.5. **The Inputs and Outputs Displays**—Touch any output button to actuate the output. Touch the button again to turn the output OFF. All outputs turn OFF when you exit the *Outputs Display*.

Figure 11: The Outputs Display

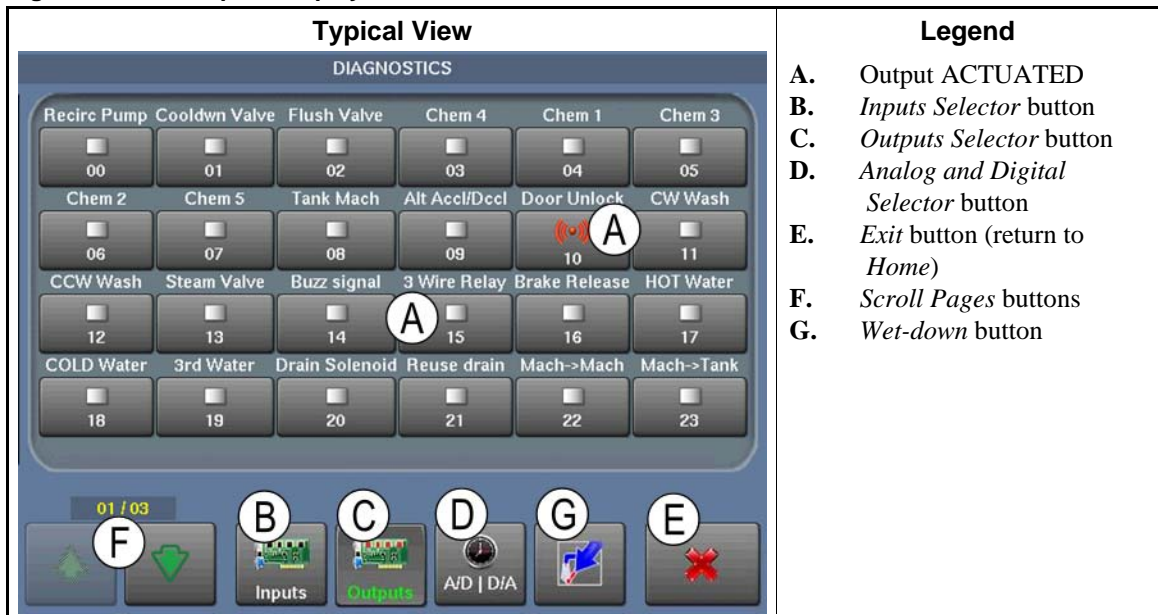


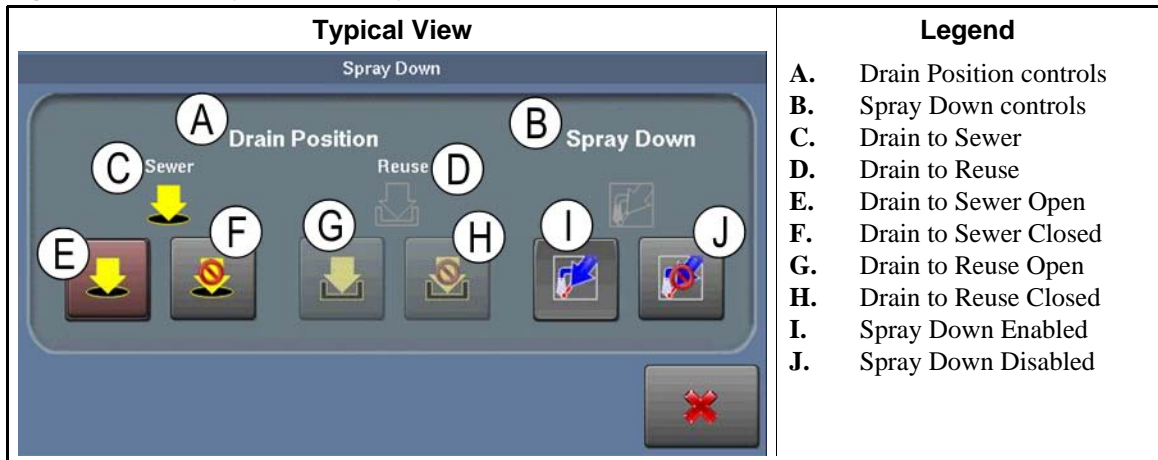
Figure 12: The Inputs Display

Typical View						Legend
DIAGNOSTICS						<p>A. Input in MADE state</p> <p>B. <i>Inputs Selector</i> button</p> <p>C. <i>Outputs Selector</i> button</p> <p>D. <i>Analog and Digital Selector</i> button</p> <p>E. <i>Exit</i> button (return to Home)</p> <p>F. <i>Scroll Pages</i> buttons</p> <p>G. <i>Wet-down</i> button</p>
Tank Full	Door Closed	Inv Input	Autospot	Wash Pos	Load Pos	
1MTA4-1 Timer Stop	1MTA4-2 Basket Rot	1MTA4-3 Excursion	1MTA4-4 Front Not Dwn	1MTA4-5 Brake Pads	1MTA4-6 Brake off	
1MTA4-7 Dr Open Des	1MTA4-8 Speed Lmt Des	1MTA4-11 Coarse Balance	1MTA4-12 Three Wire	1MTA4-13 —	1MTA4-14 —	
1MTA4-15 —	1MTA4-16 —	1MTA4-17 Ctrl to Soil	1MTA4-18 Brng Seal Dilt	2MTA4-1 —	2MTA4-2 Extrnl Fault	
2MTA4-3	2MTA4-4	2MTA4-5	2MTA4-6	2MTA4-7	2MTA4-8	
01 / 02						
F		B		C		
Inputs		Outputs		A/D D/A		
G		E				
Wet-down		Exit				

Figure 13: The Analog-Digital Values Display

Typical View						Legend
Analog Channels						<p>A. Analog and Digital data area</p> <p>B. <i>Inputs Selector</i> button</p> <p>C. <i>Outputs Selector</i> button</p> <p>D. <i>Analog and Digital Selector</i> button</p> <p>E. <i>Exit</i> button (return to Home)</p> <p>F. <i>Scroll Pages</i> buttons</p> <p>G. <i>Wet-down</i> button</p>
Function	Bd /Ch	Counts	Actual	Desired	Units	
Level	0x21/3	0000	1	14	In	
Probe 1	0x21/4	0000	70	80	F	
Probe 2	0x21/5	0327	0	0	F	
Wash Motor	0x31/0	0060	- 0	+ 10	RPM	
Tank Pump	0x31/1	0000	- 0	+ 0	Gal/Min	
Sewer Pump	0x32/2	0000	- 0	+ 0	Gal/Min	
Tank Meter	0x01/0	0000	0	0	Gallons	
Fresh Meter	0x01/1	0000	0	14	Gallons	
Sewer Meter	0x01/2	0000	0	0	Gallons	
01 / 01						
F		B		C		
Inputs		Outputs		A/D D/A		
G		E				
Wet-down		Exit				

Figure 14: The Spray Down Display



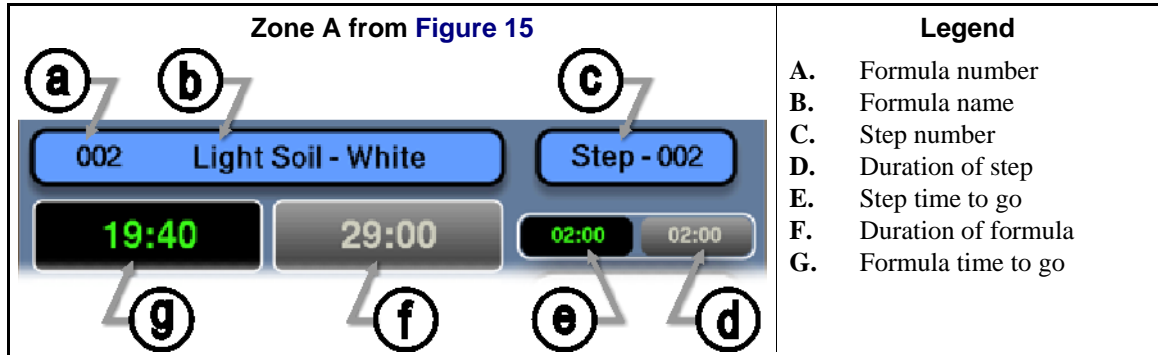
1.1.2. The Run Display [Document BICLJ001]

Figure 15: The Zones of the Run Display



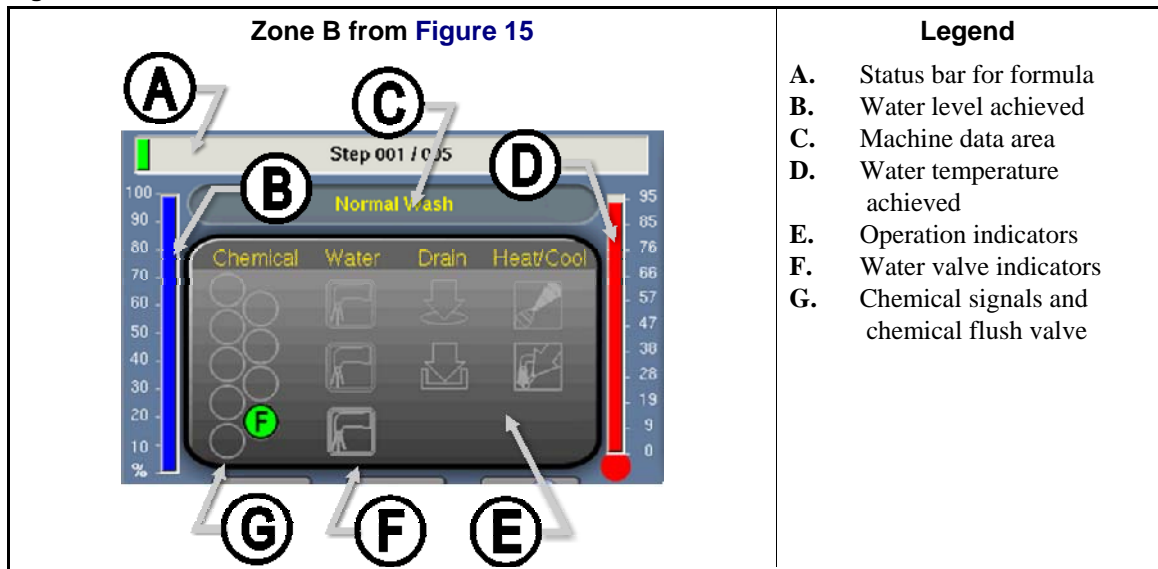
1.1.2.1. The Names and Timers on the *Run* Display

Figure 16: The Names and the Timers



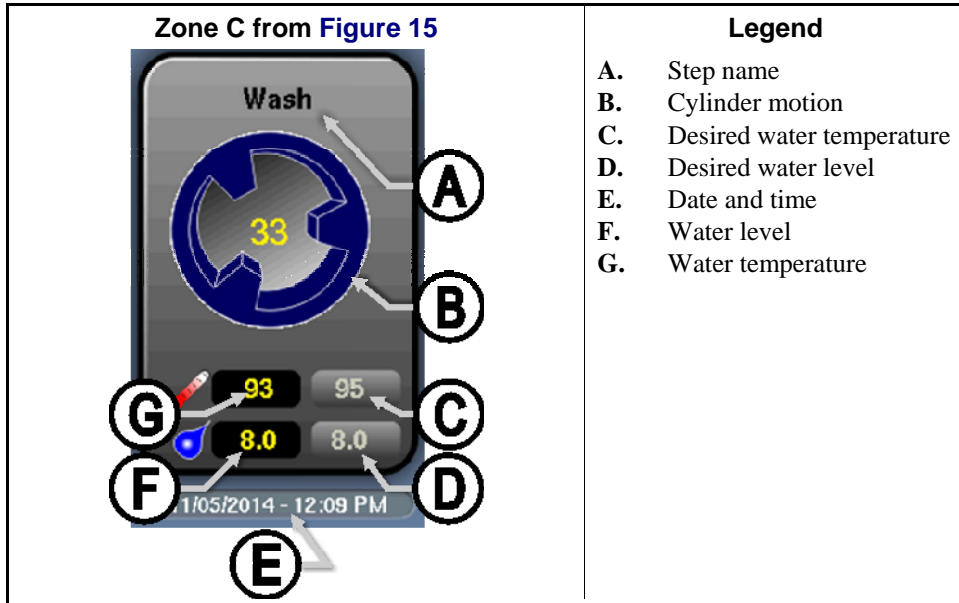
1.1.2.2. The Machine Status Data

Figure 17: The Machine Status Data



1.1.2.3. The Machine Operations

Figure 18: The Machine Operations



1.1.2.4. The Standard and Pop-up Controls on the Run Display

Figure 19: Standard Controls

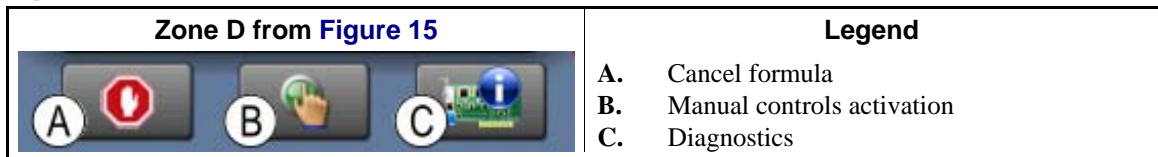


Figure 20: Pop-up Controls for Water Valves

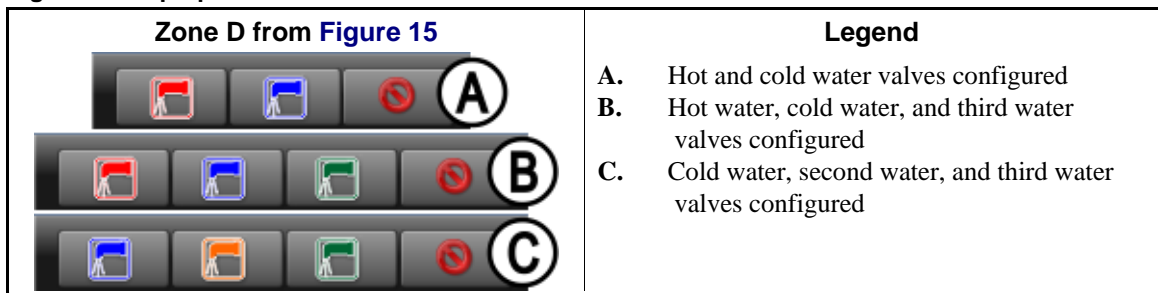


Figure 21: Pop-up Controls for Steam and Cooldown Valves

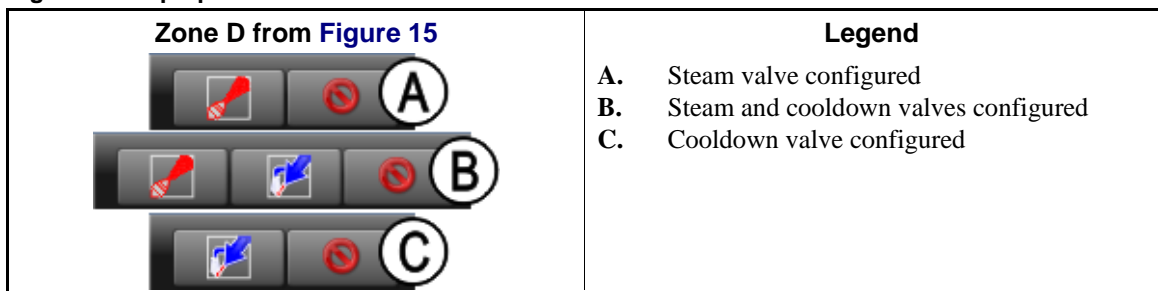
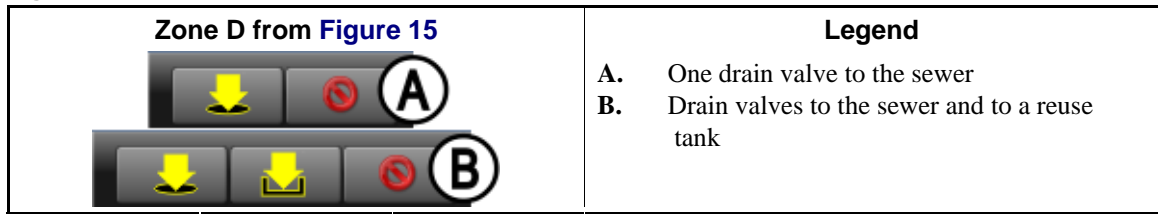


Figure 22: Pop-up Controls for Drain Valves



— End of BICLWO01 —

Chapter 2

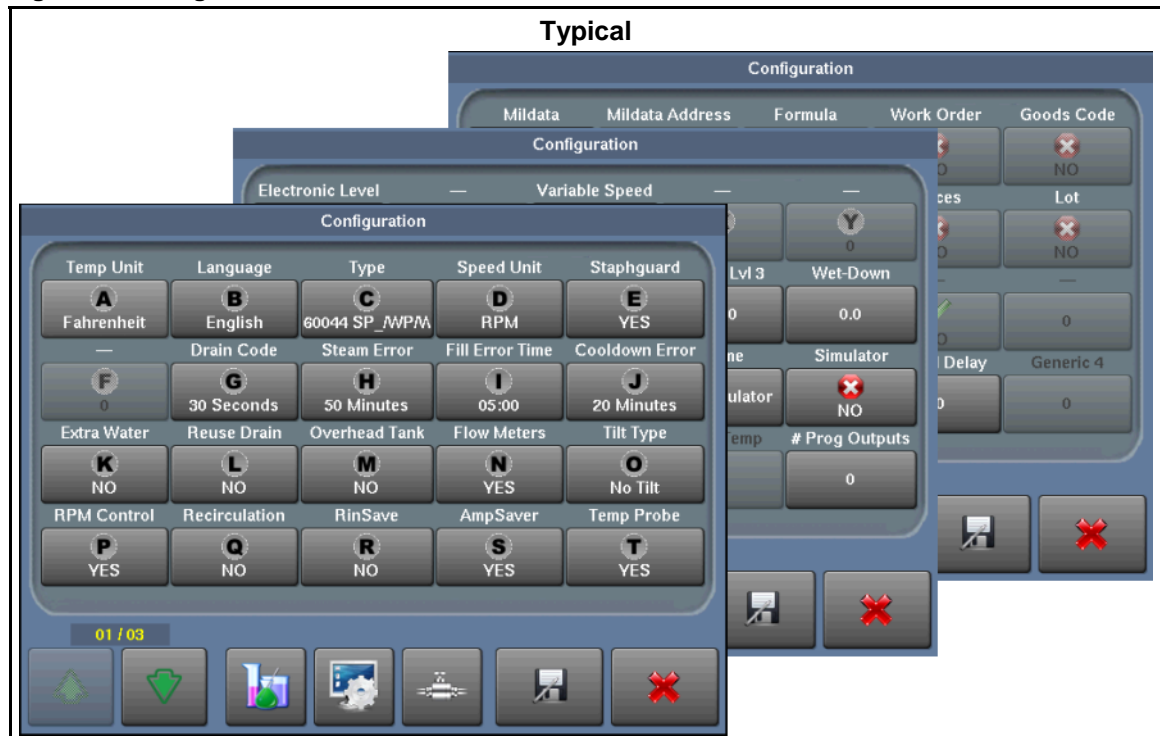
How to Configure and Program the Control

BICLWC01 (Published) Book specs- Dates: 20160210 / 20160210 / 20160210 Lang: ENG01 Applic: CLF

2.1. Configuration for the MilTouch® EX Controller

Use the fields described below to configure the machine for how you will use it, temperature and water units, etc.

Figure 23: Configuration Screens



2.1.1. Temperature Unit (A)

Set the unit to program and display bath temperature.

2.1.2. Language (B)

Set a language for the machine prompts.

2.1.3. Type (C)

Select the type of machine shown on the machine name plate. The name plate is on the back side of the machine.

2.1.4. Speed Unit (D)

Set the unit to program and display basket speed.

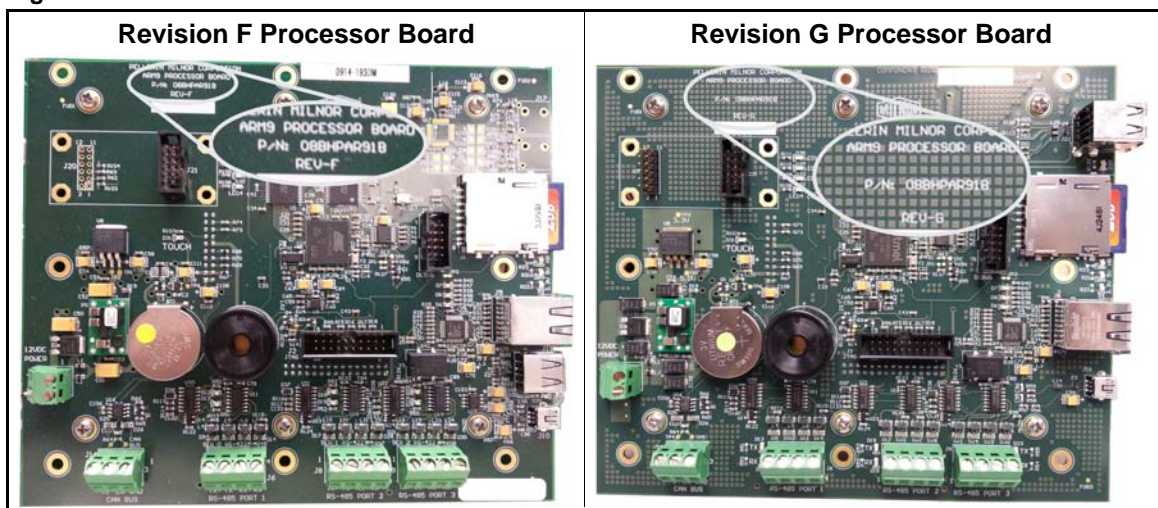
2.1.5. Staph Guard (E)

Set whether this machine is a Staph Guard pass-through model.

2.1.6. Rev G / + (F)

Set whether the processor board in this machine is revision G or later. This affects how the processor board communicates with the peripheral boards.

Figure 24: Processor Board Revisions



2.1.7. Drain Code (G)

Set the time for drain speed between two bath steps and between a bath step and an extract step.



CAUTION 2: **Avoid Machine Damage**—Do not select a drain code that provides less time at drain speed than stated on the machine configuration nameplate.

2.1.8. Steam Error (H)

Set the time allowed for the machine to use steam to heat the water to the correct temperature.

2.1.9. Fill Error (I)

Set the maximum time allowed for the machine to fill to the desired level.

2.1.10. Cooldown Error (J)

Set the time allowed for the machine to complete a cooldown to a programmed bath temperature.

2.1.11. Extra Water (K)

Set whether this machine is attached to a third water source.

2.1.12. Reuse Drain (L)

Set whether this machine has a reuse tank and a second drain valve.

2.1.13. Overhead Tank (M)

Set whether this machine has an overhead tank.

2.1.14. Flow Meters (N)

Set whether this machine is equipped with flow meters to measure incoming water.

2.1.15. Tilt Type (O)

Set the tilt system for this machine:

2.1.16. RPM Control (P)

Set whether this machine has speed control.

2.1.17. Recirculation (Q)

Set whether this machine has the equipment required to recirculate bath liquor.

2.1.18. AmpSaver (S)

Set whether this machine is part of a Milnor® AmpSaver® system to help reduce peak electricity consumption.

2.1.19. Temperature Probe (T)

Set whether this machine has a temperature sensor. A temperature sensor allows programming a specific temperature for each bath step.

2.1.20. Electronic Level (U)

Set whether this machine has electronic level sensing abilities (pressure transducer).

2.1.21. Variable Speed (W)

Set whether this machine has variable speed abilities.

2.1.22. Configure Decision Z

not used

2.1.23. Water Levels

Set a value for each water level. Water Level 1 must be the lowest level. Water Level 3 must be higher than Level 1 and Level 2.

2.1.24. Wet-Down

Set the wet-down level for this machine.

2.1.25. Bath Level Offset

Set a digital counts value here so the displayed bath level on the *Run* screen is the same as the actual bath level in the machine.

2.1.26. Chemical Valves

Set the number of chemical valves controlled by this machine.

2.1.27. Drain Washout

Set the number of seconds for the drain washout time.

2.1.28. Name

Set a machine name to describe the machine on printed reports.

2.1.29. Simulator

Set this value to YES if this software is running on a personal computer. Set this value to NO if this is a washer-extractor.

2.1.30. Counts Per 100

Set the number of flowmeter counts accumulated when 100 units of water flow through the flowmeter. This value is calculated and entered by the controller when the flow meter is calibrated according to [Section 2.3. “How to Calibrate the Flow Meter”](#).

2.1.31. Offset Valve Time

Set the number of tenths of a second **before the desired number of counts is accumulated** for the controller to command the water valves to close. This reduces overshoot.

2.1.32. Jog Speed

Set the basket speed in RPMs when the operator is manually jogging the basket.

2.1.33. Tank Temperature

Set the temperature for the overhead tank.

2.1.34. Programmable Outputs

Set the number of programmable outputs available.

2.1.35. Mildata

Set whether this machine is part of a Mildata network.

2.1.35.1. Mildata Address—Set the machine address on the Mildata network.

- 2.1.35.2. Formula**—Set whether this machine will pass formula data for each load to the Mildata computer.
- 2.1.35.3. Work Order**—Set whether this machine will pass the work order for each load to the Mildata computer.
- 2.1.35.4. Goods Code**—Set whether this machine will pass the goods code for each load to the Mildata computer.
- 2.1.35.5. Customer**—Set whether this machine will pass the customer code for each load to the Mildata computer.
- 2.1.35.6. Employee**—Set whether this machine will pass employee data for each load to the Mildata computer.
- 2.1.35.7. Weight**—Set whether this machine will pass weight data for each load to the Mildata computer.
- 2.1.35.8. Pieces**—Set whether this machine will pass the number of pieces for each load to the Mildata computer.
- 2.1.35.9. Lot**—Set whether this machine will pass the lot number for each load to the Mildata computer.
- 2.1.36. Digital-to-Analog Offset**
Set this value to calibrate the digital-to-analog board to the inverter for basket speed.
- 2.1.37. Staged RPM**
Set the maximum allowed speed in RPMs for the first phase of a staged extract step.
- 2.1.38. Staged Delay**
Set the duration in seconds of the first phase of a staged extract step.

— End of BICLWC01 —

BICLUP01 (Published) Book specs- Dates: 20160210 / 20160210 / 20160210 Lang: ENG01 Applic: CLF

2.2. MilTouch-EX™ Wash Formula Decisions

2.2.1. Type

End Formula—The formula is completed and causes the controller to query for how to stop the formula.

1-Way Wash—a bath step in which the cylinder turns in one direction

2-Way Wash—a bath step in which the cylinder turns in the two directions

Soak Wash—a bath step in which the cylinder does not turn

Staged Extract—an extract step used for maximum removal of moisture

1. The cylinder speed increases from drain speed to the extract speed for 150 seconds.

- If the cylinder increases to the set speed in less than 150 seconds, the controller holds the speed until the 150 seconds completes.

- If the cylinder does not increase to the set speed, acceleration continues until the 150 seconds completes.
2. After the 150 seconds completes, the step timer stops.
 3. The cylinder speed decreases to a stop.
 4. The cylinder turns clockwise for 8 seconds, coasts for 3 seconds, then turns counter-clockwise for 8 seconds.
 5. The cylinder accelerates to drain speed for 8 seconds.
 6. The step timer runs while the basket accelerates to the programmed speed.
 7. The step ends when the step timer reaches 0.

Standard Extract—an extract step which accelerates to cylinder to a programmed speed and maintains that speed for the programmed time

2.2.2. Time

Program the hours, minutes, and seconds that the step timer will run before it declares that this step is complete.

Tip: Some types start the step timer after requirements are met, such as water level. The time required to meet these requirements will affect the total time of the step and the formula.

2.2.3. Temperature

Set the temperature desired for a bath step. Units are Fahrenheit or Celsius degrees, as configured. The valid range is 50 to 205 degrees Fahrenheit (10 to 96 degrees Celsius).

2.2.4. Hot Water

OFF—Do not open the hot water inlet valve while the machine is filling.

ON—Use hot water while the machine is filling.

Raise Fill Temperature—The hot water valve opens only to increase the bath temperature to the desired temperature while the machine is filling.

2.2.5. Cold Water

OFF—Do not open the cold water inlet valve while the machine is filling.

ON—Use cold water while the machine is filling.

Lower Fill Temperature—The cold water valve opens only to decrease the bath temperature to the desired temperature while the machine is filling.

2.2.6. 3rd Water

OFF—Do not open the 3rd water inlet valve while the machine is filling.

ON—Use 3rd water while the machine is filling.

Raise Fill Temperature—The 3rd water valve opens only to increase the bath temperature to the desired temperature while the machine is filling.

Lower Fill Temperature—The 3rd water valve opens only to decrease the bath temperature to the desired temperature while the machine is filling.

2.2.7. Level or Liquor Ratio

The amount of water in the machine for each bath step is normally controlled by a pressure transducer. Optionally, some models can be equipped with a flow meter to measure the amount of water that flows into the machine.

2.2.7.1. Water Level

Level 1, 2, and 3—Fill to the level that was configured for Level 1, 2, or 3.

User Defined—Fill to a user-defined level for this step only. Units are inches or centimeters.

2.2.7.2. Liquor Ratio—Machines equipped with a flow meter can fill to a programmed ratio of water to goods. This ratio is defined as a programmed amount of water for the programmed nominal load weight for each formula. When the machine is loaded, the operator enters the actual weight of the load, then the machine calculates the desired number of flow meter counts to achieve the programmed ratio.

For each step that will use liquor ratio, touch the *Level* button, then the *User Defined* button. On the *Water Level* screen, enter the number of water units desired for the programmed nominal weight for the formula. This value must be more than the value configured for *Water Level 3*.

1. Touch the *Nominal Weight* button (Figure 25) to go to the *Program Nominal Weight* screen.

Figure 25: Nominal Weight button



2. Touch the *Add Formula* button on the *Program Nominal Weight* (Figure 26) screen to enter the formulas that use the flow meter.

Figure 26: Add Formula button



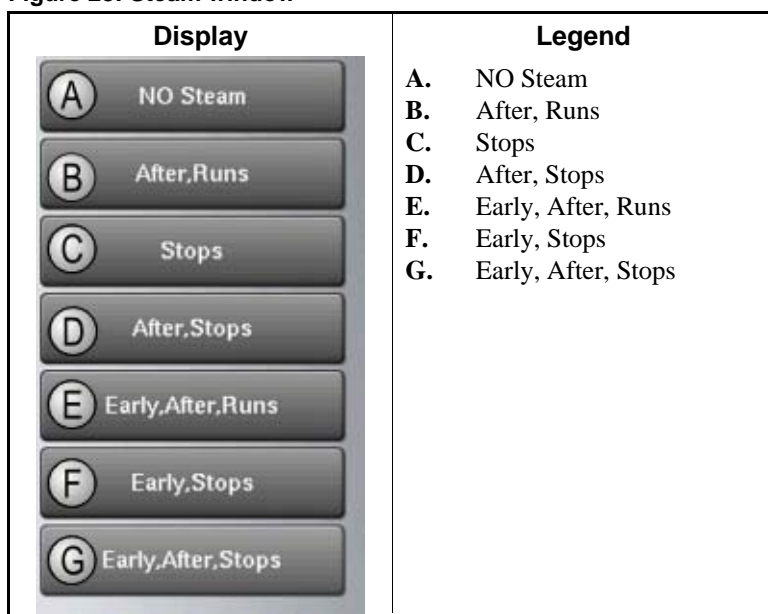
3. For each formula on the *Program Nominal Weight* screen, touch to select the formula number, then touch the enabled *Nominal Weight* button to enter a nominal weight.
4. When all formulas have nominal weights assigned, touch the *Back* button (Figure 27) to return to the *Formula* screen.

Figure 27: Back button



2.2.8. Steam

Figure 28: Steam window



- A. NO Steam**—Do not use steam in this step to achieve or to restore the bath temperature.
- B. After, Runs**—After the desired bath level is achieved, run the step timer, and use steam to achieve and to maintain the bath temperature.
- C. Stops**—After the desired bath level is achieved, use steam to achieve the bath temperature with the step timer stopped. Do not use steam to maintain the temperature.
- D. After, Stops**—After the desired bath level is achieved, use steam to achieve the bath temperature with the step timer stopped. If necessary, use steam to maintain the temperature.
- E. Early, After, Runs**—At the lowest safe bath level, use steam to achieve the bath temperature. Start the step timer when the desired level is achieved. If necessary, use steam to maintain the temperature.
- F. Early, Stops**—At the lowest safe bath level, use steam to achieve the bath temperature. Start the step timer when the desired level and temperature are achieved. Do not use steam to maintain the temperature.
- G. Early, After, Stops**—At the lowest safe bath level, use steam to achieve the bath temperature. Start the step timer when the desired level and temperature are achieved. If necessary, use steam to maintain the temperature.

2.2.9. Chemical

Chemical Number (e.g., 001)—The fixed display of the chemical number.

ON/OFF—Is this chemical used in this step?

Chemical Name (e.g., Chemical 01)—Chemical name, as programmed elsewhere.

When to Inject—Choose the "With Fill" option to start the chemical injection when the water valves open to fill the cylinder. Choose the "Level OK" option to start the chemical injection when the water level in the cylinder is achieved. Choose the "Level + Temp" option to start the chemical injection when the water level in the cylinder is achieved and the desired temperature is achieved.

Injection Time—Number of seconds to inject this chemical.

Signal with Injection—Enable this decision to sound the operator signal and require the operator to press the Signal Cancel button before the injection begins.

2.2.10. Speed

Wash Speed (RPM)—Range is 010 RPMs minimum to 038 RPMs maximum

Extract Speed (RPM)—Minimum value is 200 RPMs. Maximum value is determined by machine model.

2.2.11. Drain Type

Standard—Basket rotates at approximately 1 G-force for the drain duration. Actual speed is determined by the configured machine type. The drain valve opens after a distribution delay.

2-Way Wash—Basket rotates both directions at wash speed while draining. The drain valve opens when the step timer expires.

Do Not Drain—The drain valve remains closed to keep the bath liquor for the next step. Basket rotation is determined by the following bath step.

Stop with Fill—The basket does not rotate while the machine is filling. The drain valve opens after a distribution delay.

Stop with Drain—The basket does not rotate while the machine is draining. The drain valve opens when the step timer expires.

Stop with Fill and Drain—The basket does not rotate during filling and draining. The drain valve opens when the step timer expires.

RinSave—The basket rotates according to a specific sequence, described below. The drain valve opens 10 to 15 seconds after the step timer expires.

Supplement 3

The RinSave® Drain Sequence

1. When the bath ends, the cylinder turns clockwise at wash speed for 8 seconds.
2. Before the drain valve opens, the cylinder accelerates to the standard drain speed for 4 seconds.
3. The drain valve opens and the cylinder turns at standard drain speed for a time determined by the configured machine type.
4. The cylinder accelerates to RinSave speed for the remainder of the drain sequence.
5. If the next step is an extract step, the cylinder accelerates to the programmed speed. If the next step is a bath step, the cylinder decelerates to a stop.

2.2.12. Re-Use Drain

To Sewer—Drain this extract step to the sewer.

Reuse Tank—Drain this extract step to a reuse tank through a secondary drain valve.

2.2.13. How to End

Stop—The operator signal sounds, and the basket coasts to a stop.

Reversing—The operator signal sounds, and the basket reverses for 20 seconds in each direction with 3 seconds of dwell time between reversals.

Rotating—The operator signal sounds, and the basket rotates clockwise at wash speed.

Tumble—The operator signal sounds, and the basket reverses at wash speed. You can open the door to remove part of the load, then press the *Start* button to resume basket rotation.

Stop + Signal—The operator signal sounds and the basket coasts to a stop. The operator signal stops sounding after 2 minutes.

Reversing + Signal—The operator signal sounds, and the basket reverses for 20 seconds in each direction with 3 seconds of dwell time between reversals. The operator signal stops sounding after 2 minutes.

Rotating + Signal—The operator signal sounds, and the basket rotates clockwise at wash speed. The operator signal stops sounding after 2 minutes.

Tumble + Signal—The operator signal sounds, and the basket reverses at wash speed. You can open the door to remove part of the load, then press the *Start* button to resume basket rotation. The operator signal stops sounding after 2 minutes.

2.2.14. On Time

When a bath step turns in two directions, this is the number of seconds the motor is ON, turning the basket.

2.2.15. Off Time

When a bath step turns in two directions, this is the number of seconds the motor is OFF, letting the basket coast.

2.2.16. Fill from Tank

If the machine is equipped with an overhead tank, fill from the tank for this step.

2.2.17. Recirculate Water

If the machine is equipped with recirculation piping, circulate the bath liquor out of the machine, through other devices, and back into the machine.

— End of BICLUP01 —

BICLWC02 (Published) Book specs- Dates: 20160210 / 20160210 / 20160210 Lang: ENG01 Applic: CLF

2.3. How to Calibrate the Flow Meter

The flow meter measures the quantity of water as it flows into the machine cylinder for a bath step. The MilTouch controller uses the value reported by the flow meter to close the water valves when the desired amount of water per weight unit of goods is achieved. Any unit can be used for the water unit, but the controller prompts for the actual **weight** of goods in each load.

Supplement 4

Common Unit Conversions

$$\text{Gallons (US)} = 0.12 \times \text{Pounds (US)}$$

$$\text{Gallons (US)} = 0.264 \times \text{Liters or Kilograms}$$

$$\text{Kilograms} = 1.0 \times \text{Liters}$$

$$\text{Kilograms} = 0.454 \times \text{Pounds (US)}$$

$$\text{Liters} = 1.0 \times \text{Kilograms}$$

$$\text{Liters or Kilograms} = 3.785 \times \text{Gallons (US)}$$

$$\text{Pounds (US)} = 8.3 \times \text{Gallons (US)}$$

$$\text{Pounds (US)} = 2.2 \times \text{Kilograms}$$

A paddlewheel, a part of the flow meter located in the path of fresh water flowing into the machine, spins as water flows past it. Each revolution of the paddlewheel sends a pulse to the machine controller. The controller uses the count of the pulses to determine how much water has flowed into the machine.

2.3.1. Application

If the programmed water level is less than or equal to the configured high water level, the programmed water level (inches or centimeters; not liters, gallons, kilograms, or pounds) is used. If the machine is configured for a flow meter and programmed for a water level value greater than the configured high water level, the controller uses the flow meter to determine when the desired amount of water is in the cylinder.

When the operator selects a wash formula with a water level value greater than the configured high water level, the controller uses the flow meter and the actual weight of the load to calculate the actual number of units of water required. To determine how many units of water to allow into the machine, the controller prompts for the weight of each load.

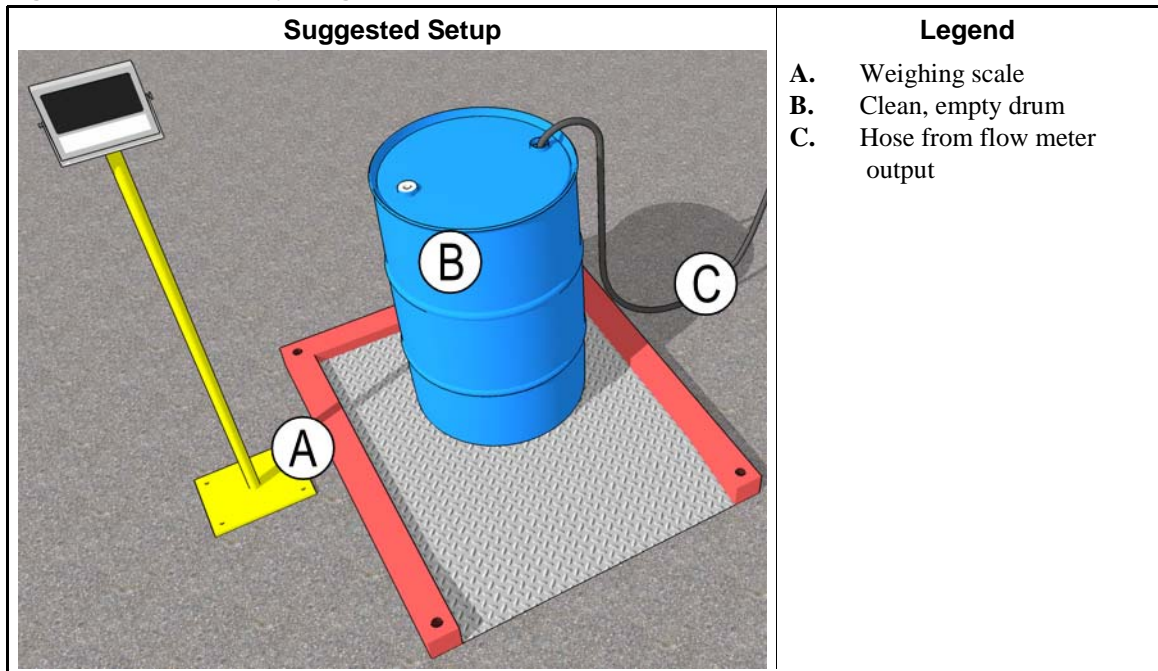
For example, assume that a bath step is programmed to use 800 kilograms of water for 400 kg of goods. When the formula containing this step is selected to run, the controller will prompt the operator for a customer number and the actual weight of the load. If the load weight is 375 kilograms, the controller will proportionally reduce the amount of water admitted into the cylinder according to this equation:

$$(375 / 400) * 800 = 750 \text{ kilograms of water}$$

2.3.2. Preparation

The flow meter calibration procedure requires you to temporarily redirect water from the washer-extractor to a container. Depending on the units you choose for metering the water when the machine is operating, you must be able to accurately weigh the container and its contents or accurately determine the volume of water in the container.

Figure 29: Calibration by Weight



2.3.3. Procedure

1. Place a large calibration container on an accurate weighing scale. Larger containers provide more accurate calibration.

You can choose any convenient unit for calibration. Liters, kilograms, pounds, and gallons are example units.

2. Disconnect the water inlet hose between the flow meter and the machine cylinder.
3. Secure the water inlet hose so that when the water valves open, the water that would normally flow through the flow meter and into the machine cylinder instead flows into the calibration container.

Tip: Allow unimpeded flow from the machine water valves to the calibration container. Restrictions, such as a smaller hose diameter, can make the calibration less accurate.

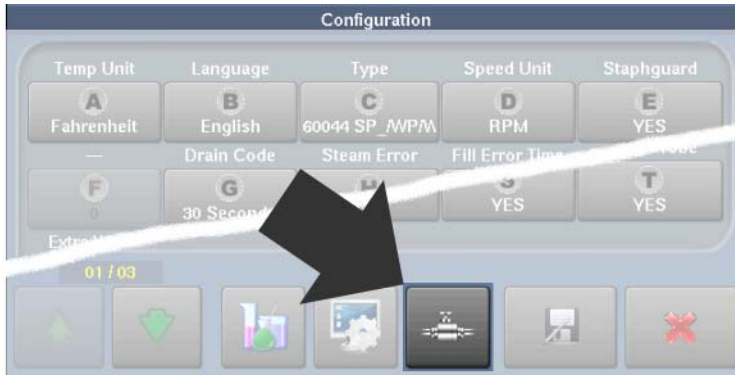
4. Tare the scale so that it reads zero (0) with the empty container and hose in place.
5. From the main screen, touch the *Configure* button (Figure 30).

Figure 30: Configure button



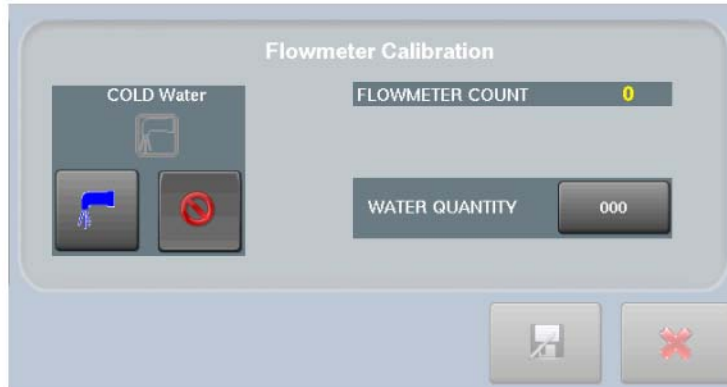
6. On the first *Configure* screen, be sure that the controller is configured for a flow meter (*Decision N = YES*).
7. At the bottom of any *Configure* screen, touch the *Flow meter* button (Figure 31).

Figure 31: Flow meter button



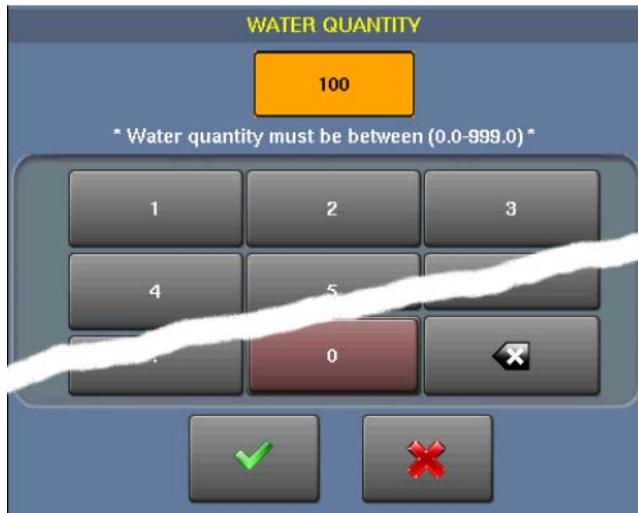
8. When the *Flow Meter Calibration* screen (Figure 32) appears, wait for the *flow meter count* field to reset to 0.

Figure 32: Flow Meter Calibration screen



9. Touch the *Water Valve Start* button (Figure 32) to open the water valves. Water flows into the calibration container. The flow meter count value increases as water flows past the flow meter.
10. When the desired weight or volume of water is in the container, touch the *Water Valve Stop* button. Do not overfill the container!
11. Touch the *Water Quantity* button to open the *Water Quantity* screen (Figure 33).

Figure 33: Water Quantity screen



12. Enter the quantity of water that is in the calibration container, then touch the checkmark to confirm the value and return to the calibration screen.
13. Touch the *Save Data* button on the *Flow Meter Calibration* screen (Figure 32).
14. Connect the water inlet hose to the water inlet on the machine cylinder.

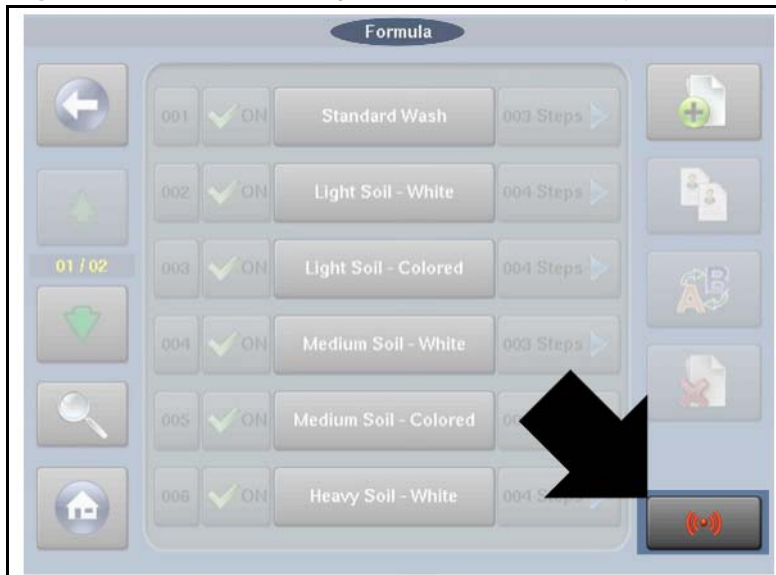
— End of BICLWC02 —

BICLWP02 (Published) Book specs- Dates: 20160210 / 20160210 / 20160210 Lang: ENG01 Applic: CLF

2.4. Using Programmable Outputs

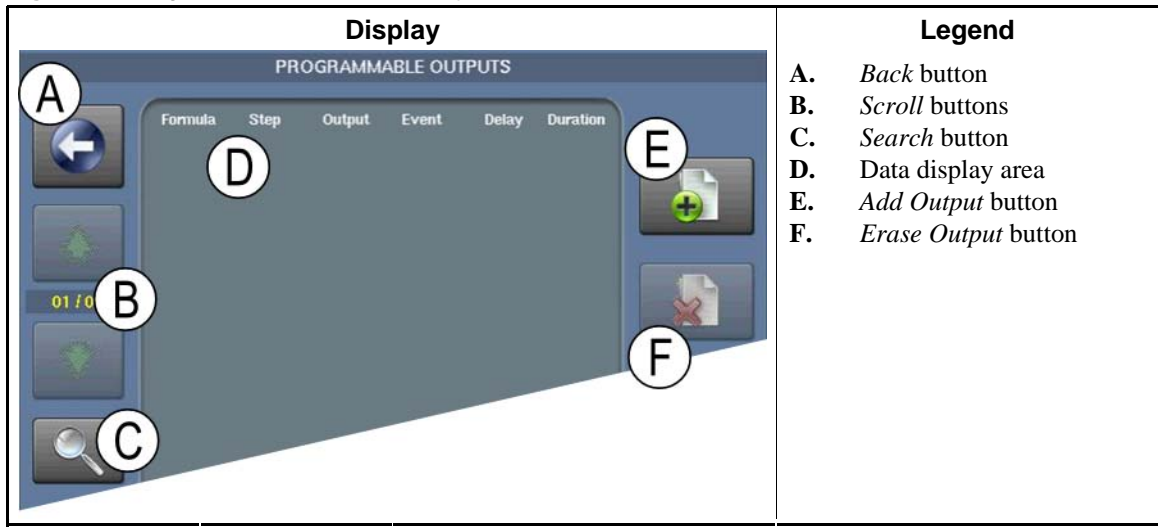
The Milnor® MilTouch-EX™ controller can operate up to 20 optional output relays. You assign these relays to operate in specific formulas and steps. You also assign the event that will trigger the output, the delay before the output operates, and the length of time that the output will operate. Figure 34 shows the button on the *Formula Modification* display that opens the *Programmable Outputs* display.

Figure 34: Access to the Programmable Outputs Display



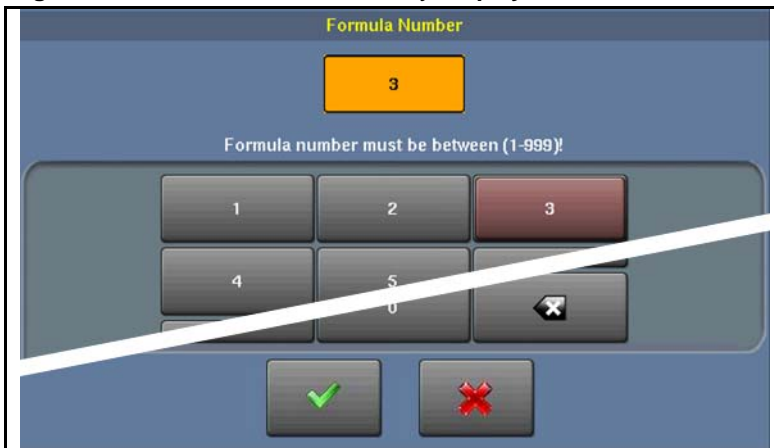
1. On the *Programmable Outputs* screen (Figure 35), touch the *Add Output* button to begin.

Figure 35: Programmable Outputs Display



2. When the *Formula Number* display (Figure 36) appears, enter the formula for which this output will be active.

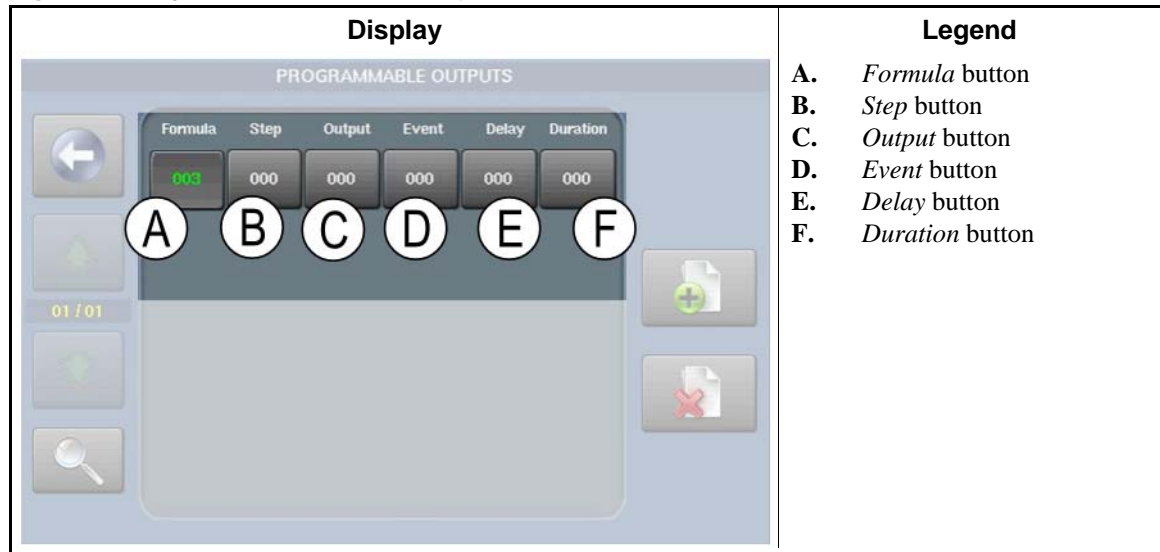
Figure 36: Formula Number Data Entry Display



3. Confirm the formula number to return to the *Programmable Outputs* display (Figure 37). The data display area shows that the output is available for programming.

Tip: Each programmable output usually controls exactly one function, but this function can be used in multiple formulas and steps.

Figure 37: Programmable Outputs Display



4. Touch the *Step* button to enter the step for which this output will be active.
5. Confirm the step number to return to the *Programmable Outputs* display.
6. Touch the *Output* button to set the output relay to use.
7. Touch the *Event* button to set the event type that will activate the output.

There are four events that can actuate a programmable output:

- 0 = Disabled.** Use this selection to disable an existing programmable output entry. This setting prevents the output from actuating.
- 1 = Bath Step.** Use this selection to actuate the output at the start of a bath step. The first step of a formula begins immediately after the operator presses the Start button. A bath step begins when the previous step ends. **A bath step may begin before the step timer starts running**, as when a bath step requires a specified temperature.
- 2 = Drain.** Use this selection to actuate the output at the start of a drain sequence. A drain sequence begins immediately when the step timer expires for the preceding bath step, before the basket accelerates beyond wash speed.
- 3 = Extract.** Use this selection to actuate the output at the start of an extract step. An extract step always begins a fixed time after the drain opens in the preceding drain sequence, while the basket is accelerating from drain speed to extract speed.

8. Touch the *Delay* button to set the desired time between the event and the actuation of the output.

The valid range for the delay is from 0 seconds to 9999 seconds (about 2 hours and 47 minutes). The output will not actuate if the delay is longer than the step time.

Figure 38: Programming Display for Programmable Outputs



9. Touch the *Duration* button to set the desired number of seconds for the output to remain actuated.

Tip: The output will always turn off at the end of the event which controls it, even if the *Duration* value has not expired.

— End of BICLWP02 —

Chapter 3

Troubleshooting

BICLUT03 (Published) Book specs- Dates: 20160210 / 20160210 / 20160210 Lang: ENG01 Applic: CLF

3.1. MilTouch™ and MilTouch-EX™ Error Messages

3.1.1. Door Opened

The Door Opened: Close the door. Press the Start button to resume operation at the current step.

Electrical Failure: If the door is not open, turn the machine Off. Do a check with the schematic to find the cause of the error.

The controller stops the wash program and turns off all outputs. Correct the error condition, touch the *Signal Cancel* button, then press the *Start* button to resume the wash program.

3.1.2. Vibration Switch Tripped

The Machine is not Anchored: Check the bolts that hold the machine to the floor. Tighten or replace bolts that are loose or broken. Press the Start button to resume operation at the current step.

The Load is Distributed Poorly: Do a check that there is enough water in the bath before the extract step to allow the goods to spread around the basket. Press the Start button to resume operation at the current step.

The Load is too Small: This machine works best when you fill it to the rated capacity of the machine. Wash goods in full loads. Press the Start button to resume operation at the current step.

3.1.3. Too Long to Fill

Fill Time Configured too Short: Do a check of the configured fill time. Increase the fill time if necessary.

Low Water Pressure: Do a check of the water pressure and volume to the machine.

Water Valve Malfunctioned: Use the schematic to do a check of the water valves and the circuits that control the valves.

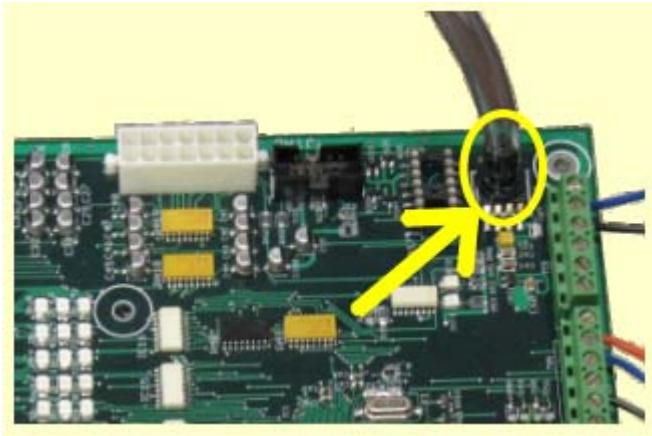
The controller closes all water valves and turns off all chemical injections. When you touch the *Signal Cancel* button, the controller resets the *Fill Error* timer and resumes the wash program.

3.1.4. Too Long to Drain

Drain Blocked: The drain pipe from the machine to the sewer may be blocked. Check the drain pipe and remove obstruction.

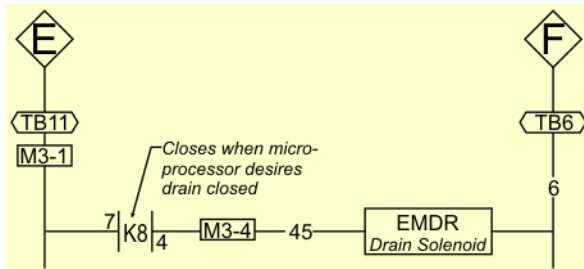
Transducer Tube Blocked: The tube from the shell to the pressure transducer may be blocked. Check the tube and remove lint or other obstructions.

Figure 39: Transducer Tube at Processor Board



Drain Valve Malfunctioned: The drain valve or drain valve solenoid may have malfunctioned. Use the schematic diagram to find the problem.

Figure 40: Schematic of Typical Drain Circuit



The wash program continues, and the display continues to show the error until the operator touches the *Signal Cancel* button.

3.1.5. 3-Wire Circuit Disabled

This error occurs on MilTouch-EX models. Correct the error. Touch the Start button to enable the circuit.

The controller stops the wash program and turns off all outputs. Correct the error condition, touch the *Signal Cancel* button, then press the *Start* button to resume the wash program.

3.1.6. Too Long to Steam

Low Steam Pressure: Do a check of the steam pressure from the boiler to the machine.

Steam Time Configured too Short: Do a check of the configured steam time. Set this time to the the time required to steam cold water at high level to the hottest temperature used.

Steam Valve Malfunctioned: Use manual operation to turn the steam valve On to confirm proper operation.

The wash program continues, and the display continues to show the error until the operator touches the *Signal Cancel* button.

3.1.7. Too Long to Cool

Cooldown Time Configured too Short: Do a check of the configured cooldown time. Increase this time if necessary.

Low Water Pressure: Do a check of the cold water pressure and volume to the machine.

Cooldown Valve Malfunctioned: Do a check of the cooldown valve for proper operation.

Temperature Circuit Malfunctioned: Do a check of the temperature probe and the analog-to-digital board for proper operation.

The wash program continues, and the display continues to show the error until the operator touches the *Signal Cancel* button.

3.1.8. Check Temperature Probe(s)

The Probe is Disconnected: Check the position of the probe and the connections.

The Probe Malfunctioned: Disconnect the probe and measure the resistance between the leads. The resistance between the leads should be between 2K and 35K Ohms. The resistance between either lead and the ground should be infinite.

The temperature probe detected a temperature below 32° F (0°C) or above 230°F (110°C). If the probe connections are found good, disconnect the probe and do a check that the resistance between the leads is from 2K to 35K Ohms. Also, do a check that the resistance between each lead and ground is infinite. The wash program continues, and the display continues to show the error until the operator touches the *Signal Cancel* button.

3.1.9. Level Made After Drain

Drain Blocked: Do a check that the drain valve and drain outlet are clear of debris.

Transducer Tube Blocked: The tube from the shell to the pressure transducer may be blocked. Check the tube and remove lint or other obstructions.

Drain Valve Malfunctioned: The drain valve or drain valve solenoid may have malfunctioned. Use the schematic diagram to find the problem.

If a slow drain caused the error, the error clears when the transducer senses that the water level in the cylinder is less than the configured low water level.

3.1.10. Serial Communication Failure

Board Failure: A peripheral board in the control box cannot communicate with the processor board.

The controller stops basket rotation and waits for the serial communications to resume. Touch the *Signal Cancel* button to end the wash program.

3.1.11. Failed Speed Sensor

Speed Sensor Failure: The sensor that verifies that the device used to determine if the basket has stopped is not working. The processor board must receive a signal from the speed sensor at least

every 10 seconds to keep the door closed while the basket turns. If this device fails at extract speed, the default coast time must expire before the door will unlock.

The wash program continues. The display shows the error until the operator touches the *Signal Cancel* button.

3.1.12. Inverter Tripped

Inverter error: The inverter that controls the motor had an error. The machine controller cannot tell about the specific error. See the inverter documentation for details.

The controller stops the wash program and turns off all outputs. Correct the error condition, touch the *Signal Cancel* button, then press the *Start* button to resume the wash program.

3.1.13. External Fault Error

This message is triggered by a device external to the Milnor machine.

This error usually originates from the chemical supply system. The wash program continues. The display shows the error until the operator touches the *Signal Cancel* button.

3.1.14. Brake Pressure Fault

Brake Pressure: Low air pressure in the brake release air cylinder caused by low air pressure, a leaking air cylinder piston cup, leaking/pinched air lines, leaking quick-release air valves, or a faulty pressure switch or pilot air valve.

If the air pressure in the brake system is less than the required pressure 8 seconds after the beginning of the step, the controller stops the wash program and turns off all the outputs. Correct the error condition, touch the *Signal Cancel* button to reset the 8-second timer, then press the *Start* button to resume the wash program.

3.1.15. Bearing Pressure Fault

Injecting less than 5 PSI (34.5 kPa): The machine is injecting less than 5 PSI (34.5 kPa) behind the excluder seal to protect the bearings. Do a check of the air supply and the sensor circuit.

If the main bearing pressure is less than the required pressure 8 seconds after the beginning of the step, the controller stops the wash program and turns off all the outputs. Correct the error condition, touch the *Signal Cancel* button to reset the 8-second timer, then press the *Start* button to resume the wash program.

3.1.16. Check Flow Meter

Flow Meter Malfunctioned: The level transducer detected water at the configured high level before the flow meter detected the correct number of units of water. Use the flow meter counts to determine if the flow meter is operational.

3.1.17. Tank Pump ol Tripped

This error appears only on machines equipped with an external tank. The motor overload device for the tank pump opened to protect the pump motor.

3.1.18. Recirc Pump ol Tripped

This error appears only on machines equipped with recirculation. The motor overload device for the recirculation pump opened to protect the pump motor.

3.1.19. Loading Aborted

This error appears only on machines equipped with an automatic loading elbow. An error occurred that caused the loading system to stop.

3.1.20. Discharge Aborted

This error appears only on machines equipped with an automatic loading elbow. An error occurred that caused the discharge system to stop.

3.1.21. Invalid Formula

The user entered a value for this field that does not exist in the Mildata computer.

3.1.22. Load Eye Blocked

This error appears only on machines equipped with an automatic loading elbow.

3.1.23. Up Lock Not Made

This error appears only on machines equipped with an automatic loading elbow. The controller can not be sure that the elbow is up and locked in a safe position.

3.1.24. Invalid Work Order

The user entered a value for this field that does not exist in the Mildata computer.

3.1.25. Invalid Goods Code

The user entered a value for this field that does not exist in the Mildata computer.

3.1.26. Invalid Customer Code

The user entered a value for this field that does not exist in the Mildata computer.

3.1.27. Invalid Employee Code

The user entered a value for this field that does not exist in the Mildata computer.

3.1.28. Can't Find Data

Mildata machines only. The formula requested by the machine was not found on the Mildata computer.

3.1.29. Accumulator was Reset

This error does not occur on MilTouch-EX models. The microprocessor detected that the completed-formula accumulator data was corrupt. All accumulators must be reset to zero.

— End of BICLUT03 —

3.2. Outputs and Inputs for MilTouch-EX Controller

3.2.1. Outputs

Tip: Some outputs can only be enabled when the 3-wire circuit is engaged. To test all outputs, enable the *3 Wire Relay*, then enable the *3 Wire Plse* output for 2 seconds. Turn off the *3 Wire Plse* output, then proceed with testing.

Table 1: Outputs on 8-output 16-input Boards

Output Number	Connections on Board	Function	Output Number	Connections on Board	Function
8/16 Board 1					
0	1MTA5-10 & 5-19	Recirculation Pump	4	1MTA5-4 & 5-14	Chemical 1
1	1MTA5-9 & 5-18	Cooldown	5	1MTA5-3 & 5-13	Chemical 3
2	1MTA5-8 & 5-17	Flush	6	1MTA5-2 & 5-12	Chemical 2
3	1MTA5-7 & 5-16	Chemical 4	7	1MTA5-1 & 5-11	Chemical 5
8/16 Board 2					
0	2MTA5-10 & 5-19	Fresh to Machine	4	2MTA5-4 & 5-14	Door Lock
1	2MTA5-9 & 5-18	Tank to Sewer	5	2MTA5-3 & 5-13	Steam in Tank
2	2MTA5-8 & 5-17	Fresh to Tank	6	2MTA5-2 & 5-12	not used
3	2MTA5-7 & 5-16	Flow Stop	7	2MTA5-1 & 5-11	3-wire Pulse

Table 2: Outputs on 24-Output Board 1

Output Number	Connections on Board	Function	Output Number	Connections on Board	Function
0	1MTA13-1 & 13-11	Tank to Machine	12	1MTA14-4 & 14-13	Drain Solenoid
1	1MTA13-2 & 13-12	Alt. Accel/Decel	13	1MTA14-4 & 14-14	Reuse Drain
2	1MTA13-3 & 13-13	Door Unlock	14	1MTA14-10 & 14-5	Machine to Machine
3	1MTA13-4 & 13-14	Clockwise Wash	15	1MTA14-10 & 14-15	Machine to Tank
4	1MTA13-5 & 13-15	C-clockwise Wash	16	1MTA14-10 & 14-6	Push-down
5	1MTA13-6 & 13-16	Steam Valve	17	1MTA14-10 & 14-16	T'fer Control #1
6	1MTA13-7 & 13-17	Operator Signal	18	1MTA14-10 & 14-7	T'fer Control Not #1
7	1MTA13-8 & 13-18	3-wire Relay	19	1MTA14-10 & 14-17	T'fer Control #2
8	1MTA13-9 & 13-19	Brake Release	20	1MTA14-10 & 14-8	T'fer Control Not #2
9	1MTA13-10 & 14-1	Hot Water	21	1MTA14-10 & 14-18	Clean Signal
10	1MTA14-11 & 14-2	Cold Water	22	1MTA14-10 & 14-9	Wash Clutch
11	1MTA14-12 & 14-3	Third Water	23	1MTA14-10 & 14-19	Spraydown

Table 3: Outputs on 24-Output Board 2

Output Number	Connections on Board	Function	Output Number	Connections on Board	Function
0	2MTA13-1 & 13-11	Chemical 14	12	2MTA14-4 & 14-13	Chemical 8
1	2MTA13-2 & 13-12	Chemical 9	13	2MTA14-4 & 14-14	Chemical 12
2	2MTA13-3 & 13-13	Chemical 13	14	2MTA14-10 & 14-5	Auto Recirculation
3	2MTA13-4 & 13-14	Chemical Flush	15	2MTA14-10 & 14-15	Drain Motor
4	2MTA13-5 & 13-15	Chemical 15	16	2MTA14-10 & 14-6	Low Extract Speed
5	2MTA13-6 & 13-16	Chemical 11	17	2MTA14-10 & 14-16	High Extract Speed
6	2MTA13-7 & 13-17	ChemSave	18	2MTA14-10 & 14-7	DrainSaver
7	2MTA13-8 & 13-18	Door Unlock Pulse	19	2MTA14-10 & 14-17	Move to Load Posi.
8	2MTA13-9 & 13-19	Chemical 10	20	2MTA14-10 & 14-8	AmpSaver
9	2MTA13-10 & 14-1	Door Lock Pulse	21	2MTA14-10 & 14-18	Move to Wash or Load
10	2MTA14-11 & 14-2	Chemical 6	22	2MTA14-10 & 14-9	not used
11	2MTA14-12 & 14-3	Chemical 7	23	2MTA14-10 & 14-19	Move to Wash Posi.

3.2.2. Inputs

Table 4: Inputs on 8-output 16-input Board 1

Input Number	Connection on Board	Function	Input Number	Connection on Board	Function
0	1MTA4-1	Tank is Full	8	1MTA4-11	Excursion
1	1MTA4-2	Door Closed	9	1MTA4-12	Front Not Down
2	1MTA4-3	Inverter Input	10	1MTA4-13	Brake Pads Worn
3	1MTA4-4	AutoSpot Desired	11	1MTA4-14	Brake is Off
4	1MTA4-5	Wash Position	12	1MTA4-15	Door Open Desired
5	1MTA4-6	Load Position	13	1MTA4-16	Speed Limit Desired
6	1MTA4-7	Do Not Allow Chemicals; Timer Stop	14	1MTA4-17	Coarse Balance
7	1MTA4-8	Basket Rotating	15	1MTA4-18	Three Wire

Table 5: Inputs on 8-output 16-input Board 2

Input Number	Connection on Board	Function	Input Number	Connection on Board	Function
0	2MTA4-1	not used	8	2MTA4-11	not used
1	2MTA4-2	not used	9	2MTA4-12	OK to Steam Tank
2	2MTA4-3	not used	10	2MTA4-13	Recirc Pump Overload
3	2MTA4-4	not used	11	2MTA4-14	Tank Pump Overload
4	2MTA4-5	I Want Clean Control	12	2MTA4-15	Signal Cancel
5	2MTA4-6	Bearing Seal Deflated	13	2MTA4-16	Fresh Meter
6	2MTA4-7	not used	14	2MTA4-17	Sewer Meter
7	2MTA4-8	External Fault	15	2MTA4-18	Tank Meter

— End of BICLWT02 —

Chapter 4

Automated Loading and Discharge Information

BICLDO01 (Published) Book specs- Dates: 20160210 / 20160210 / 20160210 Lang: ENG01 Applic: CLF

4.1. Automated Loading and Discharge

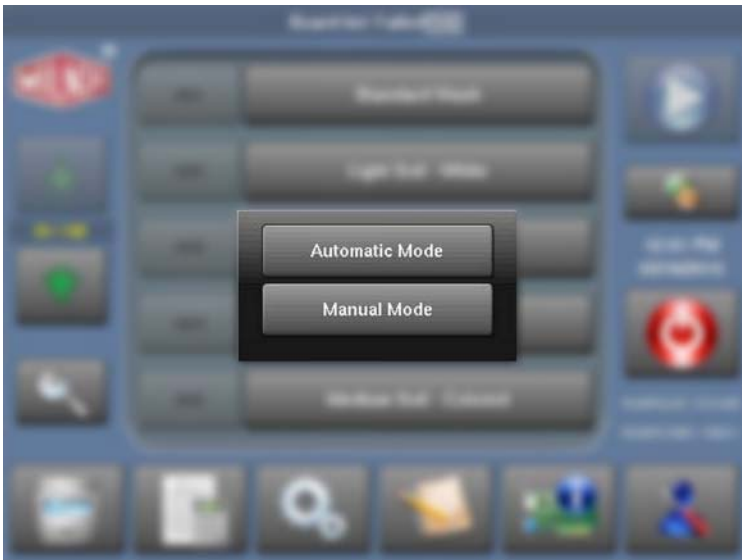
4.1.1. Start-up Procedure

At power-up the display prompts the user to choose either automatic mode or manual mode. See [Figure 41](#).

Automatic Mode—The machine waits for input from the Miltrac control system. The *Load Allowed* input (2MTA4-6) and *Discharge Allowed* input (2MTA4-5) must be grounded.

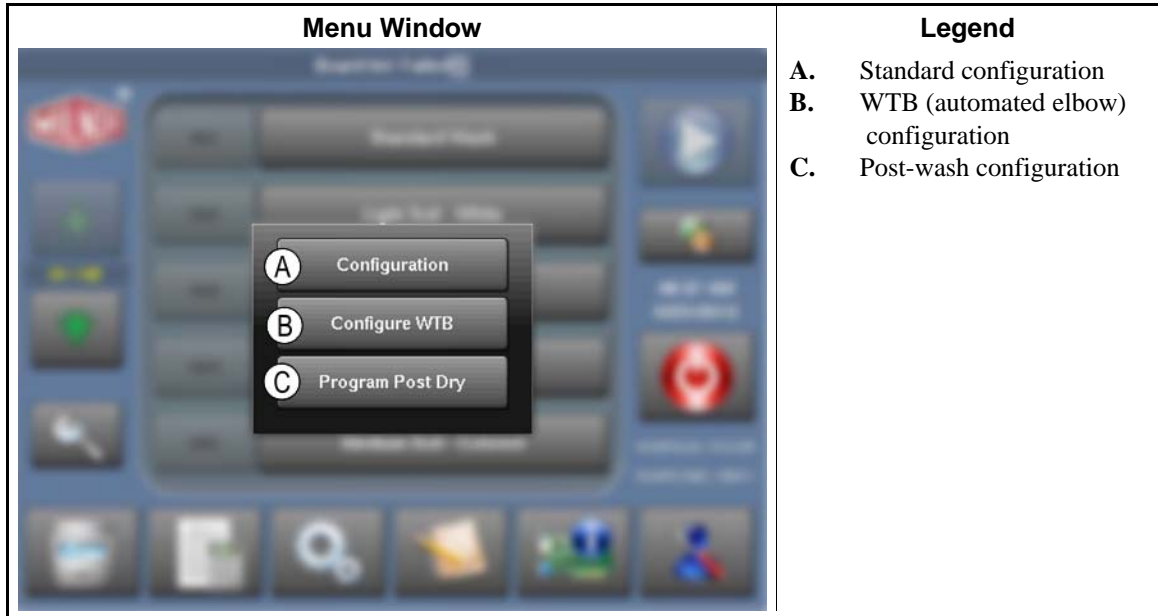
Manual Mode—The operator controls all operations through the touchscreen and the *Hydraulic Pump Enabled* button. See [Figure 46](#).

Figure 41: Automatic/Manual Selection



4.1.2. Special Configuration Decisions

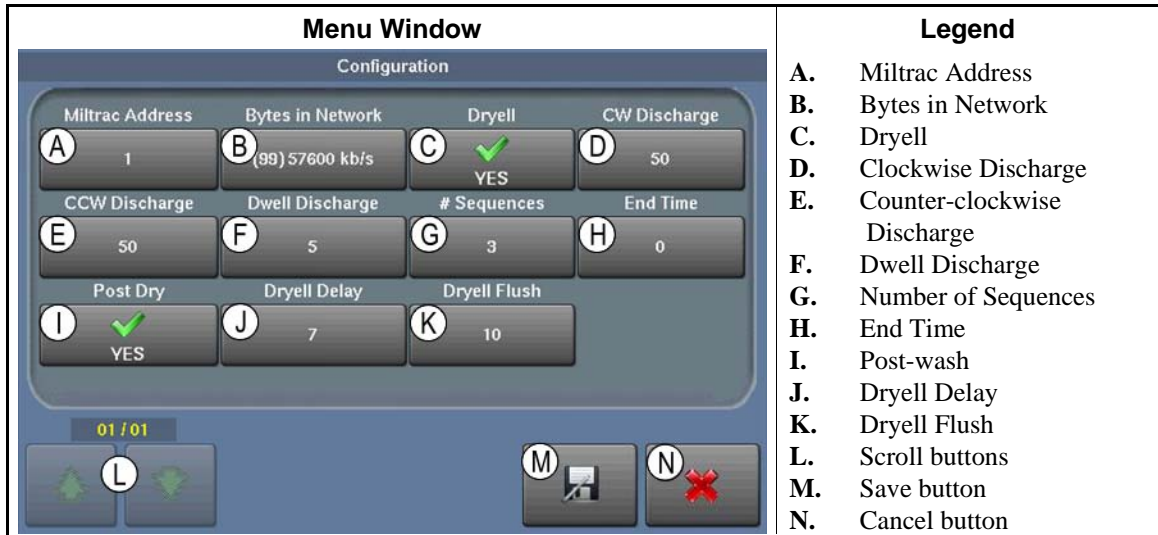
Figure 42: Main Configuration Menu



The standard machine configuration decisions are described in Section 2.1. “Configuration for the MilTouch® EX Controller”.

4.1.2.1. WTB (Automated Elbow) Configuration

Figure 43: WTB Configuration Menu



A. Miltrac Address—the address this machine occupies on the Miltrac controller system. The valid range is 000 to 255.

B. Bytes in Network—the string length used to communicate with the Miltrac controller system

C. Dryell—set to *Yes* if the machine is equipped with a Milnor loading elbow. Set to *No* otherwise.

- D. Clockwise Discharge**—the duration of clockwise rotation while discharging. Units are 1/10 second; valid range is 01 to 99.
- E. Counter-clockwise Discharge**—the duration of counter-clockwise rotation while discharging. Units are 1/10 second; valid range is 01 to 99.
- F. Dwell Discharge**—the duration of dwell between clockwise and counter-clockwise rotation while discharging. Units are 1/10 second; valid range is 00 to 50.
- G. Number of Sequences**—the number of times to repeat the discharge sequence of clockwise rotation, dwell, then counter-clockwise rotation. The valid range is 02 to 20.
- H. End Time**—the duration that the machine will run in End mode before it desires to discharge. Units are minutes; valid range is 0 to 850.
- I. Post-wash**—set to *Yes* if the controller should prompt for drycode and destination code information while a formula is being programmed. Set to *No* otherwise.
- J. Dryell Delay**—the desired time between when the loading process ends and the controller commands the elbow to tilt up. Units are seconds; valid range is 000 to 255.
- K. Dryell Flush**—the desired time for the controller to flush the elbow during the loading process. Units are seconds; valid range is 000 to 255.
- L. Scroll buttons**—not used
- M. Save button**—saves the current configuration and returns to the home screen display, shown in [Figure 44](#).

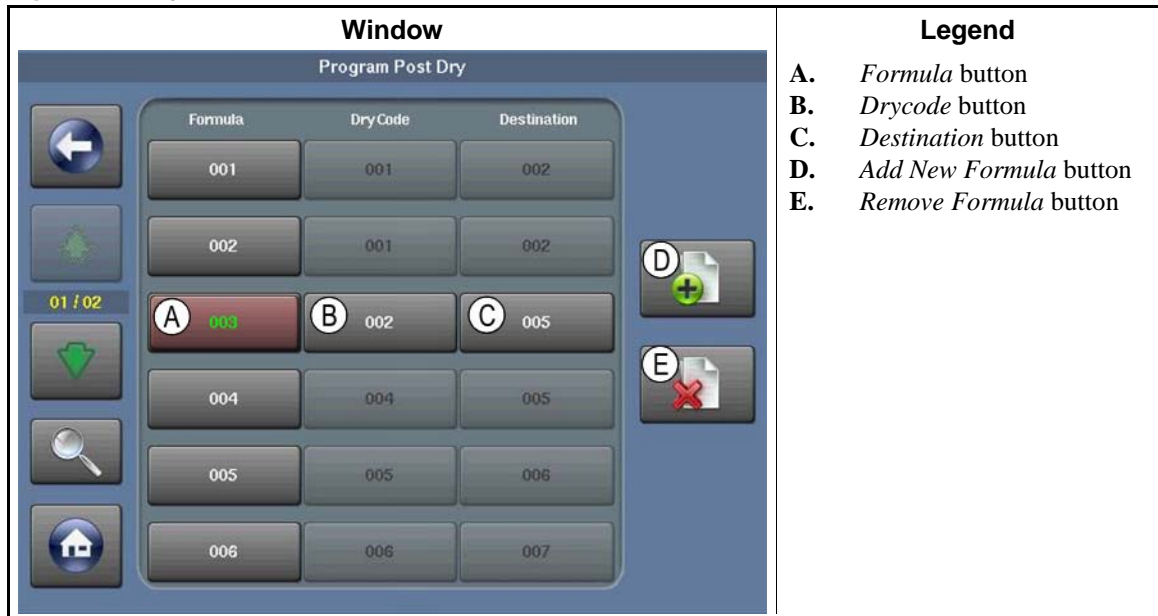
Figure 44: Home Screen Display



- N. Cancel button**—abandons the current configuration changes and returns to the home screen display, shown in [Figure 44](#).

4.1.2.2. Post-wash Data Pass Decisions—For each wash formula using post-wash codes, enter the wash formula number, the desired dryer program number, and the desired destination code. The machine will pass the associated data to the Miltrac network or the non-Milnor allied network when each wash formula runs.

Figure 45: Program Post-wash Data Window



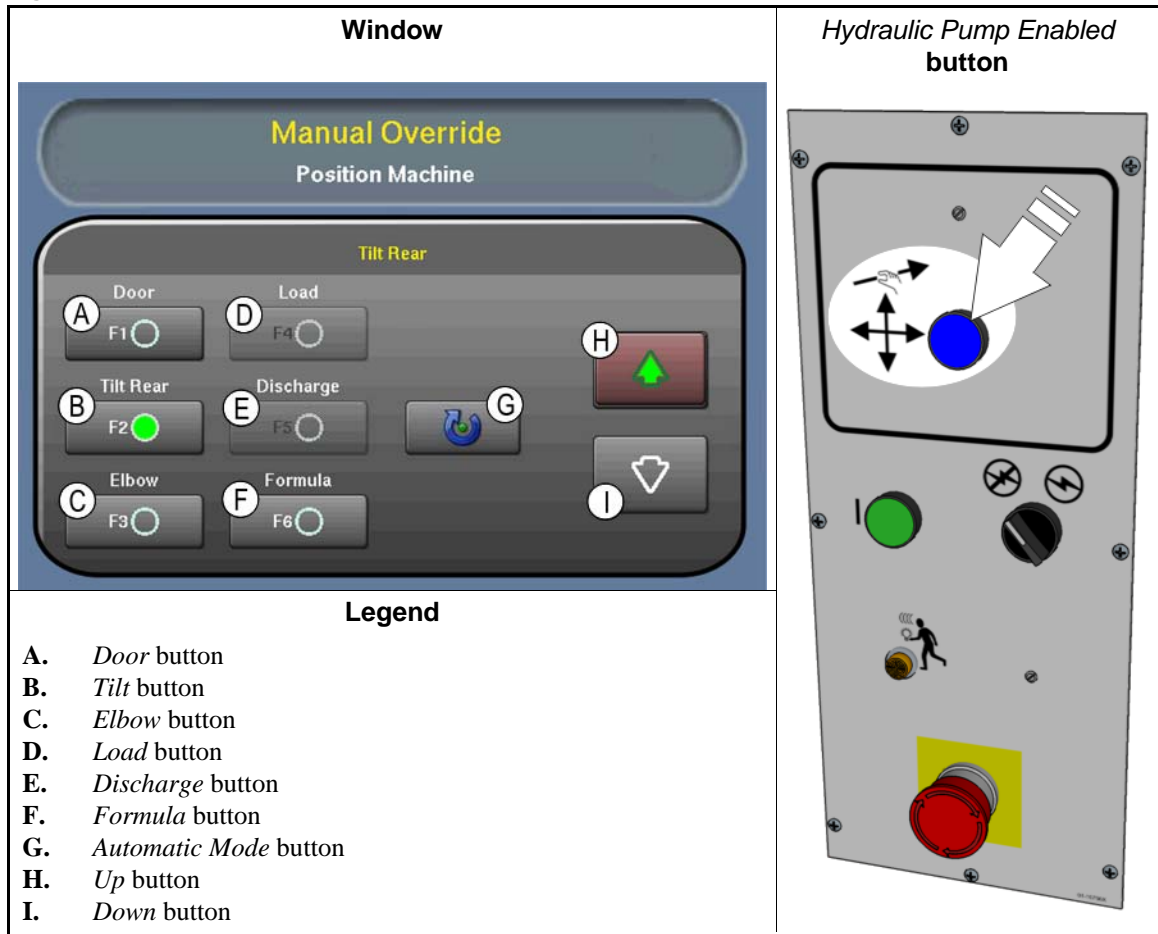
1. Touch the *Add New Formula* button to add a wash formula number. This action creates a new row in the table.
2. Touch the *Drycode* button to add a dry code.
3. Touch the *Destination* button to add a destination code.

4.1.3. Manual Override Position Machine Functions

These functions allow you to control certain machine functions that are usually controlled automatically. Manual control is allowed only when the machine controller determines that all requirements are met.

To use a function, first touch the function button and a direction button on the display, then hold the mechanical *Hydraulic Pump Enabled* button on the control panel until the operation is completed.

Figure 46: Manual Override Window



- A. Door**—Touch the *Door* button on the display, then touch the *Up* or *Down* button to select whether to open or close the door. Hold the *Hydraulic Pump Enabled* button to operate the door.
- B. Tilt Rear**—Touch the *Tilt Rear* button on the display, then touch the *Up* or *Down* button to select the tilt direction. Hold the *Hydraulic Pump Enabled* button to tilt the machine.
- C. Elbow**—Touch the *Elbow* button on the display, then touch the *Up* or *Down* button to select whether to move the loading elbow up or down. Hold the *Hydraulic Pump Enabled* button to move the elbow.
- D. Load**—The machine must be in the load position: rear down, door open, elbow down. Begin the load sequence to open the cold water valve and turn the basket at drain speed. The water valve closes when the water level reaches the configured tilt level. **After the goods are completely inside the machine, you must end the load sequence** to stop basket rotation and close any open water valve. The sewer remains closed. Basket rotation continues until you press the *Done* button. Use manual controls to raise the elbow, close the door, and select a formula.
- E. Discharge**—The machine must be in the discharge position: rear up, door open, elbow up and locked. Begin the discharge sequence to turn the basket in each direction for the configured discharge time. **After the goods are completely out of the machine, you must end the discharge sequence.** Basket rotation continues until you press the *Done* button. Return the machine to automatic mode or use the manual controls to operate the elbow, door, and tilting functions.

F. Formula—Touch the *Formula* button to exit the *Manual Override* window and return to the *Home* screen.

G. Automatic Mode—Touch the *Automatic Mode* button to initialize the machine for automatic operation.

4.1.4. The Recovery Sequence

This machine performs a recovery sequence at power-up to put certain components in their default positions. The default position may vary depending on how the laundry system surrounding this machine operates, but it is similar to this:

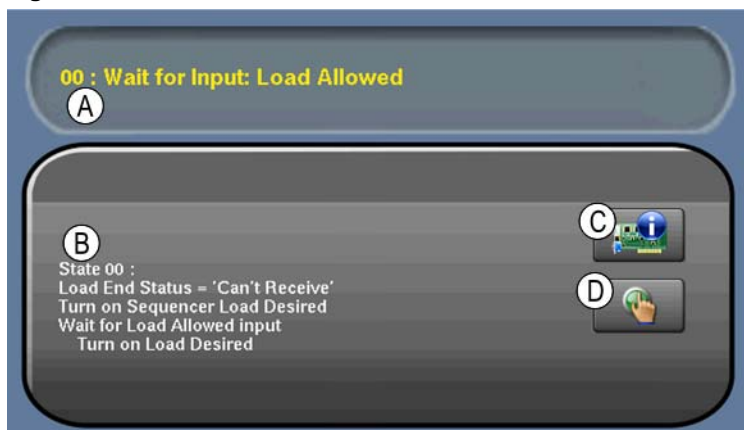
1. The elbow moves to the up and locked position.
2. The loading/discharge door opens fully.
3. The machine tilts to the rear fully down position.
4. The controller prompts, "Is there a load in the machine?" See [Figure 47](#).

Figure 47: Machine Loaded Prompt



- If the machine does not have a load, it starts automatic operation at State 00 (see [Figure 48](#)).

Figure 48: State 00 Window



- If the machine has a load, the controller prompts whether the machine was loading or discharging when automatic operation was interrupted.
- The controller prompts the operator to enter the batch data for the goods in the machine.

- » If the machine was interrupted after loading but before the goods were washed:
 1. The loading/discharge door closes fully.
 2. The machine tilts to the wash position.
 3. The controller starts the required formula.
- » If the machine was interrupted after washing but before the goods were discharged:
 1. The machine tilts to the rear fully up position.
 2. The controller starts the discharge sequence.

— End of BICLDO01 —