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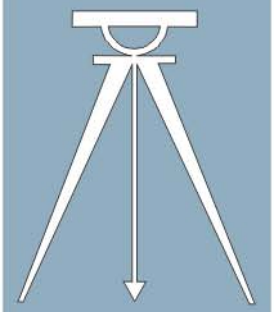
Installation—

MultiTrac®, Including Miltrac, Online Communicator, Drynet, and Device Master



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:

CTLMULTI TUNPLN-D

Preface

BIYDTI04 (Published) Book specs- Dates: 20071001 / 20071001 / 20091102 Lang: ENG01 Applic: YDT SCU

i. About Manual MTYDTI01: Installation—MultiTrac®, Including Miltrac, Online Communicator, Drynet, and Device Master

In essence, MultiTrac is a consolidation of the following Milnor® PC-based standard and optional* (see Note 1) system controllers and data collectors in a single control console:

Miltrac—Coordinates and tracks the transfer of batches throughout the system.

Online Communicator—Collects production data for troubleshooting and in conjunction with the separate Mildata product.

Drynet (Dryer/Shuttle Controller)* —Operation, programming, troubleshooting, and monitoring of dryers and shuttles.

Device Master*—Operation, programming, troubleshooting, and monitoring of specialized conveyors and other devices.

This manual is intended for use by the technician involved in commissioning a Milnor automated laundering system and assumes a general knowledge of such systems, as well as of the controllers/data collectors mentioned above.

Note 1: Miltrac and Online Communicator are standard with MultiTrac. Drynet (Dryer/Shuttle controller) and Device Master are optional. Additionally, various optional hardware is available with MultiTrac. Throughout this manual, asterisks (*) are used to indicate hardware and software that is only provided if the corresponding optional controller, or other MultiTrac option is purchased.

i. 1. Scope

This manual explains how to get MultiTrac and its component controllers functioning initially. Once these controllers are communicating with the various devices (machines), look to the documentation for the individual controller or device for further information on configuring, operating, programming, troubleshooting, monitoring, and data collection.

After the MultiTrac console is set in position and furnished with electric power (which should occur as part of the overall system installation, in accordance with the system layout drawings and electrical schematics), the following tasks are needed to get MultiTrac functioning initially:

1. Complete the installation of the MultiTrac hardware and install the wiring between MultiTrac and all devices it communicates with. This is explained in the section “Completing MultiTrac Hardware Installation and Device Wiring”.
2. Verify that all applicable software is installed, as explained in “Working With the MultiTrac Software”.
3. Establish Miltrac, Online Communicator (Mildata), Drynet*, and Device Master* communication, as explained in “Establishing Communication With Subordinate Devices”.

Milnor offers various options for adding secondary monitors to a MultiTrac installation. The reasons this may be beneficial and information on how to do so are provided in “MultiTrac Secondary Monitor Applications.”

i. 2. How to Identify this Manual and its Included Documents [Document BIUUUD13]

A complete identification of this manual or any document in this manual must include **all** specifications shown on the front cover, as defined below:

Published manual number—Primary identification number for the manual or any variation of it.

Specified date—The approximate date of introduction of the product or product change this manual covers.

As-of date—When a manual for an old product is generated, any new information about the old product developed up to this date will be included in the manual.

Access date—The date the manual was generated (assembled and formatted).

Applicability—Code(s) that represent a group of machines this manual applies to and/or actual model numbers of applicable machines. The complete list of applicable models is provided inside the front cover. If "not used" appears here, this is not a product manual, but has another purpose such as to provide administrative procedures.

Language Code—A code representing the specific language and dialect of this manual. "Eng01" identifies the language/dialect of the manual as United States English.

When referring to any **document** used in this manual (as identified by an eight-character document number such as BIUUUD13 at the start of the document), a complete identification of the document must include all specifications shown on the front cover, except substituting the document number for the published manual number.

i. 3. Contacting Milnor® [Document BIUUUK06]

Your first contact with any question should be your authorized Milnor dealer, but problems or special situations encountered in the field may require consultation with the Milnor factory. Written correspondence can be mailed to this address:

Pellerin Milnor Corporation
Post Office Box 400
Kenner, Louisiana 70063-0400
Telephone: 504-467-9591
http://www.milnor.com

i. 3.1. Ordering Replacement Parts—In most cases your authorized Milnor dealer can provide any necessary parts for equipment you purchased from them. If your dealer is not available or able to help you acquire parts, contact the Milnor parts group.

Milnor Parts
Telephone: 504-467-2787
Fax: 504-469-9777
E-mail: parts@milnor.com

i. 3.2. Customer Service and Technical Support—For your technical questions or comments about Milnor equipment, contact your Milnor dealer first. If your dealer is unable to respond, the Milnor customer service group has many years of collective experience with our equipment. These men and women will give you the best possible answer to your question.

Milnor Customer Service
Telephone: 504-464-0163
Fax: 504-469-9777
E-mail: service@milnor.com

www.milnor.com (Customer Service)

i. 3.3. Service Seminars—Milnor offers service seminars to help train personnel in the maintenance and repair of Milnor equipment. These seminars are focused on various machine types and have been held in many locations. For information about upcoming seminars, contact the Milnor training group.

Milnor Training
Telephone: 504-712-7725
Fax: 504-469-9777
E-mail: training@milnor.com

i. 3.4. Warranty Information—Your Milnor dealer can address most warranty claims. However, if you have concerns or questions beyond the scope of your dealer, please contact our warranty group.

Milnor Warranty Administrator
Telephone: 504-712-7735
Fax: 504-469-9777
E-mail: service@milnor.com (Attention: Warranty)

i. 3.5. Equipment Manuals—If you have suggestions or questions about any part of this manual or any other documentation included with your machine, the Milnor technical publications group can assist you.

Milnor Technical Publications
Telephone: 504-712-7636
Fax: 504-469-1849
E-mail: techpub@milnor.com

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1. Safety—System Controllers and Data Collectors

1.1. General Safety Requirements—Vital Information for Management Personnel [Document BIUUUS04]

Incorrect installation, neglected preventive maintenance, abuse, and/or improper repairs, or changes to the machine can cause unsafe operation and personal injuries, such as multiple fractures, amputations, or death. The owner or his selected representative (owner/user) is responsible for understanding and ensuring the proper operation and maintenance of the machine. The owner/user must familiarize himself with the contents of all machine instruction manuals. The owner/user should direct any questions about these instructions to a Milnor® dealer or the Milnor® Service department.

Most regulatory authorities (including OSHA in the USA and CE in Europe) hold the owner/user ultimately responsible for maintaining a safe working environment. Therefore, the owner/user must do or ensure the following:

- recognize all foreseeable safety hazards within his facility and take actions to protect his personnel, equipment, and facility;
- work equipment is suitable, properly adapted, can be used without risks to health or safety, and is adequately maintained;
- where specific hazards are likely to be involved, access to the equipment is restricted to those employees given the task of using it;
- only specifically designated workers carry out repairs, modifications, maintenance, or servicing;
- information, instruction, and training is provided;
- workers and/or their representatives are consulted.

Work equipment must comply with the requirements listed below. The owner/user must verify that installation and maintenance of equipment is performed in such a way as to support these requirements:

- control devices must be visible, identifiable, and marked; be located outside dangerous zones; and not give rise to a hazard due to unintentional operation;
- control systems must be safe and breakdown/damage must not result in danger;
- work equipment is to be stabilized;
- protection against rupture or disintegration of work equipment;
- guarding, to prevent access to danger zones or to stop movements of dangerous parts before the danger zones are reached. Guards to be robust; not give rise to any additional hazards; not be easily removed or rendered inoperative; situated at a sufficient distance from the danger zone; not restrict view of operating cycle; allow fitting, replacing, or maintenance by restricting access to relevant area and without removal of guard/protection device;
- suitable lighting for working and maintenance areas;
- maintenance to be possible when work equipment is shut down. If not possible, then protection measures to be carried out outside danger zones;
- work equipment must be appropriate for preventing the risk of fire or overheating; discharges of gas, dust, liquid, vapor, other substances; explosion of the equipment or substances in it.

1.1.1. **Laundry Facility**—Provide a supporting floor that is strong and rigid enough to support–with a reasonable safety factor and without undue or objectionable deflection–the weight of the fully loaded machine and the forces transmitted by it during operation. Provide sufficient clearance for machine movement. Provide any safety guards, fences, restraints, devices, and verbal and/or posted restrictions necessary to prevent personnel, machines, or other moving machinery from accessing the machine or its path. Provide adequate ventilation to carry away heat and vapors. Ensure service connections to installed machines meet local and national safety standards, especially regarding the electrical disconnect (see the National Electric Code). Prominently post safety information, including signs showing the source of electrical disconnect.

1.1.2. **Personnel**—Inform personnel about hazard avoidance and the importance of care and common sense. Provide personnel with the safety and operating instructions that apply to them. Verify that personnel use proper safety and operating procedures. Verify that personnel understand and abide by the warnings on the machine and precautions in the instruction manuals.

1.1.3. **Safety Devices**—Ensure that no one eliminates or disables any safety device on the machine or in the facility. Do not allow machine to be used with any missing guard, cover, panel or door. Service any failing or malfunctioning device before operating the machine.

1.1.4. **Hazard Information**—Important information on hazards is provided on the machine safety placards, in the Safety Guide, and throughout the other machine manuals. **Placards must be kept clean so that the information is not obscured. They must be replaced immediately if lost or damaged. The Safety Guide and other machine manuals must be available at all times to the appropriate personnel.** See the machine service manual for safety placard part numbers. Contact the Milnor Parts department for replacement placards or manuals.

1.1.5. **Maintenance**—Ensure the machine is inspected and serviced in accordance with the norms of good practice and with the preventive maintenance schedule. Replace belts, pulleys, brake shoes/disks, clutch plates/tires, rollers, seals, alignment guides, etc. before they are severely worn. Immediately investigate any evidence of impending failure and make needed repairs (e.g., cylinder, shell, or frame cracks; drive components such as motors, gear boxes, bearings, etc., whining, grinding, smoking, or becoming abnormally hot; bending or cracking of cylinder, shell, frame, etc.; leaking seals, hoses, valves, etc.) Do not permit service or maintenance by unqualified personnel.

1.2. Safety Alert Messages—Internal Electrical and Mechanical Hazards [Document BIUUUS11]

The following are instructions about hazards inside the machine and in electrical enclosures.

WARNING 1: Electrocution and Electrical Burn Hazards—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.
- Do not remove guards, covers, or panels.
- Do not reach into the machine housing or frame.
- Keep yourself and others off of machine.
- Know the location of the main machine disconnect and use it in an emergency to remove all electric power from the machine.

WARNING 2: Entangle and Crush Hazards—Contact with moving components normally isolated by guards, covers, and panels, can entangle and crush your limbs. These components move automatically.

- Do not remove guards, covers, or panels.
- Do not reach into the machine housing or frame.
- Keep yourself and others off of machine.

1.3. Safety Alert Messages—Unsafe Conditions [Document BIUUUS14]

1.3.1. Damage and Malfunction Hazards

1.3.1.1. Hazards Resulting from Inoperative Safety Devices

WARNING 3: Multiple Hazards—Operating the machine with an inoperative safety device can kill or injure personnel, damage or destroy the machine, damage property, and/or void the warranty.

- Do not tamper with or disable any safety device or operate the machine with a malfunctioning safety device. Request authorized service.

WARNING 4: Electrocution and Electrical Burn Hazards—Electric box doors—Operating the machine with any electric box door unlocked can expose high voltage conductors inside the box.

- Do not unlock or open electric box doors.

1.3.1.2. Hazards Resulting from Damaged Mechanical Devices

WARNING 5: Multiple Hazards—Operating a damaged machine can kill or injure personnel, further damage or destroy the machine, damage property, and/or void the warranty.

- Do not operate a damaged or malfunctioning machine. Request authorized service.

1.3.2. Careless Use Hazards

1.3.2.1. Careless Operation Hazards—Vital Information for Operator Personnel (see also operator hazards throughout manual)

WARNING 6: Multiple Hazards—Careless operator actions can kill or injure personnel, damage or destroy the machine, damage property, and/or void the warranty.

- Do not tamper with or disable any safety device or operate the machine with a malfunctioning safety device. Request authorized service.
- Do not operate a damaged or malfunctioning machine. Request authorized service.
- Do not attempt unauthorized servicing, repairs, or modification.
- Do not use the machine in any manner contrary to the factory instructions.
- Use the machine only for its customary and intended purpose.
- Understand the consequences of operating manually.

1.3.2.2. Careless Servicing Hazards—Vital Information for Service Personnel (see also service hazards throughout manuals)

WARNING 7: Electrocution and Electrical Burn Hazards—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 service the machine unless qualified and authorized. You must clearly understand the hazards and how to avoid them.
- Abide by the current OSHA lockout/tagout standard when lockout/tagout is called for in the service instructions. Outside the USA, abide by the OSHA standard in the absence of any other overriding standard.

— End of BIUUUS27 —

2. Completing MultiTrac® Hardware Installation and Device Wiring

Note 2: In this document, asterisks (*) indicate optional MultiTrac components.

CAUTION 8: Electrocution and Electrical Burn Hazards—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.

- Abide by the current OSHA lockout/tagout standard when lockout/tagout is called for in the service instructions. Outside the USA, abide by the OSHA standard in the absence of any other overriding standard.
- Do not service the machine unless qualified and authorized. You must clearly understand the hazards and how to avoid them.

MultiTrac is shipped with some of its hardware components already installed and internally wired. However, after all components are tested at the Milnor® factory, the computer, monitor, keyboard, mouse, ticket printer*, and secondary monitor* are replaced in their original cartons, and the cartons placed in the MultiTrac cabinet for shipping.

Tip: The original manufacturers' packaging and literature for all PC components is shipped with the MultiTrac console. This includes, in addition to the computer, monitor, keyboard and mouse, the UPS (uninterrupted power supply) and four-serial-port card, which are already installed. If a ticket printer* and/or secondary monitor* were purchased, it also includes these peripherals as well as the additional VGA card for the secondary monitor. Take note of the literature and keep it handy for reference. Understanding functional characteristics such as the reset button, status lights, and sequence of connections on the UPS, and the COM number assignment on the serial port card, can assist in setup and troubleshooting.

2.1. Standard Hardware Installed On Site

Install the PC components as follows:

1. Place the computer, monitor, keyboard and mouse in the MultiTrac cabinet as shown in Figure 1 and Figure 2.
2. Bolt the computer in position as shown in Figure 2.
3. Make the connections at the rear of the computer as shown in Figure 2.
4. Make the power connections shown in Figure 2.

Figure 1: MultiTrac Console

View of Console with PC Components In Place

Legend

1. MultiTrac cabinet

2. Monitor, keyboard, and mouse. See Figure 2 for computer connections.

3. Rotating beacon. See Figure 2 for connection.

4. MultiTrac and Device Master* face plate controls, including:

4a. Master switch—Sets power to the PC and Device Master* boards OFF (⊗) or ON (⊶).

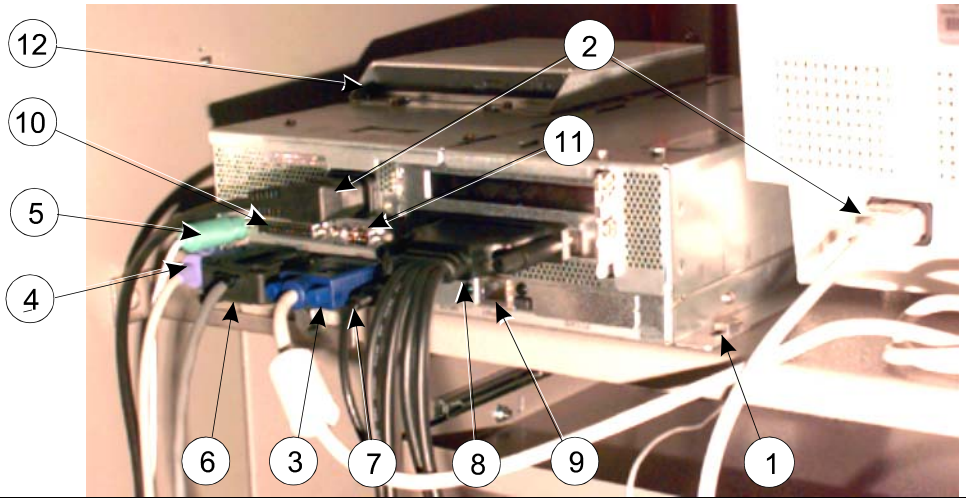
4b. Operator Signal (🚶)* and Signal Cancel button (🚶)* for all Device Master* devices.

4c. Stop button (⓪)* and Start button (①)* for all Device Master* devices.

5. Electric box and face plate controls for up to two (2) shuttles and six (6) dryers. Master switch (⊗ / ⊶), Stop button (⓪) and Start button (①), are provided for each device. If system includes more than two shuttles or six dryers, a second electric box and set of face plate controls is provided.

Figure 2: MultiTrac Computer and UPS (Uninterrupted Power Supply)

Rear of Computer Showing On-Site Attachment and Connections



Power Connections

Legend

1. Bolt computer to shelf - two places.
2. Power cords for computer and monitor. See Item 15
3. VGA connection for primary monitor.
4. Keyboard connection.
5. Mouse connection.
6. LPT1 (Parallel Port)—Connection for board (may be labeled “Ticket Printer Board”) that controls the rotating beacon.
7. USB Port—Two ports provided. Connect communication cable from UPS to one. Other port available for a PC printer (not provided). Ports are interchangeable.
8. COM3 through COM6 (four-serial-port card). Connects to terminal strip for serial links: Drynet (COM3), PC Miltrac (COM4), Online Communicator (COM5), and PC Device Master (COM6).
9. Eithernet receptacle for PC networking. Cabling fabricated on site (see manual MTYCUI01).
10. COM1—Reserved for optional ticket printer* (see Section 2.2).
11. COM2—Not normally used.
12. CD drive—only used to install software and only accessible from rear of cabinet.
13. UPS (uninterrupted power supply) in housing.
14. Plug power cord for UPS into receptacle in MultiTrac cabinet.
15. Plug power cords for computer and monitor into the “Battery Backup Outlets”on the UPS, **not** the “Surge Only Outlets”.

2.2. Optional Hardware Installed On Site

The PC Miltrac software supports a ticket printer* and a secondary monitor*. These peripherals are normally located remotely. If either of these options is purchased, install it as follows:

2.2.1. Ticket Printer*—Currently Milnor supports the Star, SP200F series printer. Typically, the printer will be used to print tickets to accompany batches as they exit the dryers. This peripheral communicates with the MultiTrac computer via COM1 (see Figure 2). If the cable supplied with the printer is of sufficient length, simply connect the printer as shown in the original manufacturer's instructions. If a longer run is required, it is permissible to substitute a longer cable, wired as shown in the manufacturer's instructions. For runs exceeding 50 feet, it may be necessary to obtain one of the currently available, third party products for extending the distance between the printer and the host computer. Contact Milnor Technical Support for assistance.

2.2.2. Secondary Monitor*—The secondary monitor is used to display PC Miltrac pages at a remote location. If this option is purchased, an additional VGA card will be installed in the computer. If the cable supplied with the monitor is of sufficient length, simply connect the monitor as shown in the original manufacturer's instructions. If a longer run is required, it will be necessary to obtain one of the currently available, third party products for extending the distance between the monitor and the host computer. Contact Milnor Technical Support for assistance.

2.3. Wiring MultiTrac to All Applicable Devices

Install all on-site wiring to MultiTrac and ensure that devices are properly grounded before attempting to establish communication between MultiTrac and the various system devices. The following summarizes the control connections required on site.

- Subsystem connections between each dryer and shuttle and its face plate controls on the MultiTrac cabinet
- Subsystem connections between the Device Master controller* and each device it controls
- Serial link between the MultiTrac PC (running PC Miltrac) and each Miltrac device
- Serial link between the MultiTrac PC (running Online Communicator) and each Miltrac Device.
- Serial link between the MultiTrac PC (running Dryer/Shuttle Controller*) and each dryer and shuttle.
- PC network connections (for networking the MultiTrac, Mentor, and Mildata PC's together)

Instructions for making these on-site electrical connections are not provided in this document. Refer to the following for detailed connection information:

- Manual ME6UTCS1AE—“Schematic and Electrical Parts—MultiTrac / PC Device Master Mark 4 Controls”
- Manual MTYCUI01—“On-Site Control Connections for Milnor Automated Laundering System Machines and Controllers”
- Individual device schematic manuals

— End of BIYDTI02 —

BIYDTI03 (Published) Book specs- Dates: 20071001 / 20071001 / 20091102 Lang: ENG01 Applic: YDT SCU

3. Working With the MultiTrac® Software

The MultiTrac PC uses the Microsoft® Windows® 2000 Professional operating system. This, and the applicable controller software are installed at the Milnor® factory. PC Miltrac, Online Communicator and Drynet* each use subordinate programs (which load automatically). The programs are listed in Table 1. Subordinate program names are indented. The version numbers shown are the versions on which this document is based. Although this document will be useful in understanding other versions of the software, you will likely see some functional differences.

Table 1: Controller Software Used on MultiTrac PC

Program Name	Version	Path and Filename	Purpose
PC Miltrac	20002	c:\milnor\miltrac\miltrac.exe	User interface
Miltrac Communicator	20002	c:\milnor\miltrac\traccomm.exe	Device communication and control
Online Communicator	14101	C:\Program Files\Milnor\Mildata\online.exe	Collects production data (see note)
Online Communicator Configuration	1.02 or 1.03	C:\Program Files\Milnor\Mildata\onlncfg.exe	Used to establish communication between Online Comm. and devices.
Note: Online Communicator has no user interface in MultiTrac. The user interface is provided by the separate Mildata product. However, Mildata is not required for Online Communicator to function.			
Drynet (Milnor Dryer/ Shuttle Controller)*	17012	c:\milnor\drynet\DryNet.exe	User interface
Device Communicator	17007	c:\milnor\drynet\DevComm.exe	Device communication and control
Dryer Programmer	17009	c:\milnor\drynet\Drymk2.exe	Programming functions (see note)
Note: Dryer Programmer is the same software as provided with Mildata and stand-alone.			
Windows Device Master*	20004	c:\milnor\devmas\devmas.exe	User interface (see note)
Note: Because a separate microprocessor-based controller is provided as part of Device Master, this controller, not a program running on the PC, performs the communication and control functions.			

Notice 9: Knowledge of Microsoft Windows Assumed—For an adequate understanding of the instructions that follow, the reader must be familiar with the use of PC's and with the newer Microsoft® Windows® operating systems—Windows 95 or later.

3.1. MultiTrac Power ON / OFF

The MultiTrac Master switch (⊗/⊙) is the power switch for all MultiTrac electronic components **including** the computer. Set the Master switch to ON (⊙) to start the computer's boot-up sequence. Set the Master switch to OFF (⊗), **without invoking the Windows shutdown sequence**, to shut down the computer. When you set the Master switch to OFF (⊗), the UPS handles the shutdown sequence automatically. If you observe the monitor after power off, you will see that the UPS reverts to battery power, keeping the computer on for a short time, but then signals the computer to perform a shutdown, after which it shuts itself off.

CAUTION 10: Risk of UPS Malfunction—If you invoke the Windows shutdown sequence, the UPS will lose communication with the computer. At power-off, the UPS will remain on battery power, causing the battery to drain.

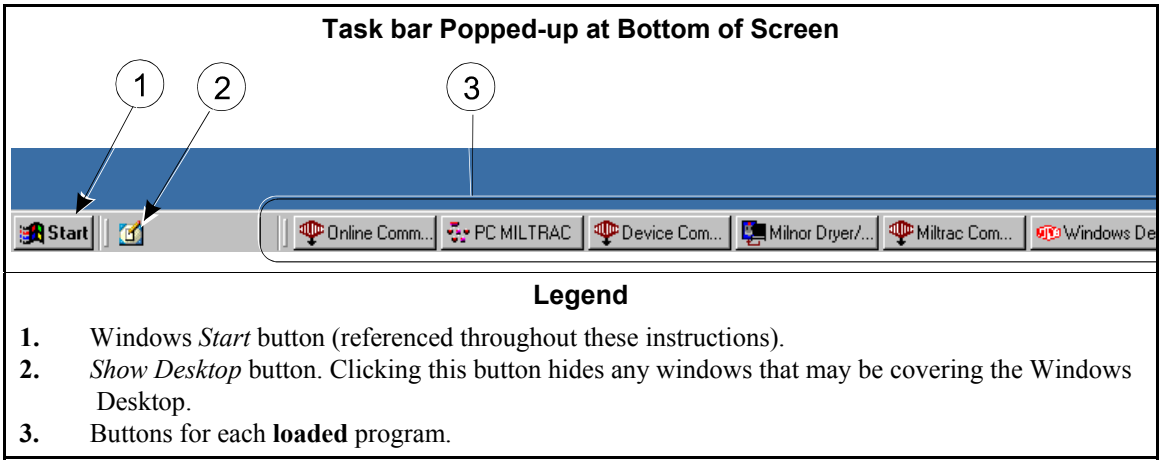
- Do not invoke the Windows shutdown sequence. Just set the Master switch to OFF (⊗).

3.2. Checking for the Presence of Controller Software

When each controller software is installed, the setup program places a reference to the software in one of the *StartUp* folders. Hence, the MultiTrac computer should not only have all applicable controller software installed, but after boot-up, the software and most subordinate programs should be loaded (running). The only exceptions are the Dryer Programmer and Online Communicator Configuration programs, which only load when needed.

Set the MultiTrac Master switch to ON (⏻). Once the MultiTrac computer completes boot-up and you respond to any prompts that appear, display the Windows Task bar (if set to *Auto hide*) as shown in Figure 3, by moving the mouse cursor to the bottom of the screen. The Task bar contains the *Start* button and a button for each loaded program. The Task bar also contains a useful *Show Desktop* button that hides any software windows that may be displayed.

Figure 3: Windows Task bar



Legend

1. Windows *Start* button (referenced throughout these instructions).
2. *Show Desktop* button. Clicking this button hides any windows that may be covering the Windows Desktop.
3. Buttons for each **loaded** program.

If it appears that any applicable programs are not running, check to see if the software is installed by looking for:

1. a desktop icon for the main program.
2. the main program name in the programs list accessed with *Start, Programs*
3. the main and subordinate program files in their respective directories, as listed under “Path and Filename” in Table 1.

If a required software was not installed, see Section 3.4 and Section 3.5. If a software was installed, but is not running, shut down MultiTrac (as explained in Section 3.1) and restart it. If, after boot-up, the program is still not running, contact Milnor Technical Support. Do not attempt to add a reference to the program in one of the startup folders without assistance. **Improperly adding such a reference can cause multiple instances of the program to run, which will, in-turn, likely cause malfunctions.**

3.3. Software Display and Navigation Tips

During setup and troubleshooting, and occasionally during normal operation, it is necessary to navigate (move) among the various software that are concurrently running on the MultiTrac computer. Before attempting to work with the software, you should be familiar with the navigation methods, precautions, and software characteristics listed below.

- **Activate a running program with the Windows *Alt* + *Tab* method**—While holding the *Alt* key, successively press the *Tab* key. You will toggle through the icons for the running programs (name of selected program displayed below icons). When you release the *Alt* key,

the currently selected program becomes the active program; that is, its program window is displayed and accessible to the user.

- **Access the Desktop with the Windows *Show Desktop* icon**—As shown in Figure 3, click this icon on the Task bar to quickly clear the Windows Desktop of any program windows covering it.
- **Unload (shut down) a software using the Windows *Ctrl+Alt+Del* method**—PC Miltrac, Drynet, and PC Device Master are all designed to prevent easy shutdown. All but PC Device Master must be running for the system to function and PC Device Master must be running to perform configuration and troubleshooting. However, if it becomes necessary to shut down a particular software, simultaneously press the *Ctrl, Alt, and Del* keys once, click the *Task Manager* button, select the program to be shut down, then click *End Task*.
- **Avoid multiple instances**—Malfunctions will likely result if more than one instance of a program is running during processing. When a properly functioning MultiTrac is powered-on, a single instance of each needed program will load automatically. Use care not to manually load an already running program, such as by incorrectly double-clicking on a desktop icon with the intent of causing that program's window to appear. If the same icon and program name appears more than once on the Task bar or in the Task Manager window, this indicates multiple instances are running.
- **Admin password**—When making configuration changes to the various MultiTrac software, the user must be logged in as Administrator (Admin). Until a unique password is set by the user, the default Admin password is “jackson”. The password is case-sensitive, so the default password must be entered with the keyboard *Caps Lock* off.
- ***Minimize Main Form at Startup***—This PC Miltrac feature, if enabled, causes the Miltrac software window to be minimized at startup. Enable this menu item if it is preferable for the operator to see a software window other than PC Miltrac (e.g., Drynet) after boot-up. Access this menu item in PC Miltrac, by performing an *Admin Login*, then selecting *Options* and toggling the *Minimize Main Form at Startup* selection to *ON* (checked).
- ***Load Last Screen***—If the system is **not** provided with a secondary monitor*, leave this PC Miltrac menu item disabled to avoid overriding the *Minimize Main Form at Startup* selection. Otherwise, if this toggle is turned on, every time the MultiTrac PC is booted up, the PC Miltrac page that remains visible after boot-up, will be the one that was present when MultiTrac was last shut down. Access this menu item in PC Miltrac, by performing an *Admin Login*, then selecting *Options* and toggling the *Load Last Screen* selection to *ON* (checked).
- ***Show pages in secondary monitor***—If a secondary monitor is provided, use this PC Miltrac menu item to cause PC Miltrac pages to appear in the secondary monitor. Access this menu item in PC Miltrac, by performing an *Admin Login*, then selecting *Options* and toggling the *Show pages in secondary monitor* selection to *ON* (checked). For proper functioning, *Minimize Main Form at Startup* and *Load Last Screen* must also be *ON*.`
- **In Drynet, *Configure, Dryers* calls the Dryer Programmer**—In Drynet, there are two menu items under *Configure*: *Shuttles* and *Dryers*. Selecting *Shuttles*, brings you to the shuttle configuration window within Drynet. However, selecting *Dryers* causes the separate Dryer Programmer software to become active. When its main screen appears, you must then login as administrator (*Admin Login*) in this program, then select *Configuration* from its menu. All dryer configuration is handled by this program.

3.4. What's Provided On CD

If it becomes necessary to install software on site, individual software can be selectively installed from CD, or the entire contents of the hard drive, as it was when it left the Milnor factory can be restored in one operation. The pertinent CD's shipped with the MultiTrac console include:

- **MultiTrac Software CD (WUPCMULTITRAC)**—includes the individually installable PC Miltrac, Online Communicator, Drynet*, and PC Device Master software*, as well as the Windows Dryer Programmer executable file (`drymk2.exe`)*.
- **MultiTrac Recovery CD**—used to quickly restore the contents of the hard drive (software and data) to the condition that existed when the MultiTrac unit left the Milnor factory.
- **Moxa™ Driver CD**—This is the driver for the currently used, four-serial-port card.
- **Norton™ Ghost CD**—This software is used by the Milnor factory to create the recovery CD, but is not needed subsequently. The CD is only provided for licensing compliance.

Several other original manufacturers' CD's are shipped with the MultiTrac hardware, but these are not used.

3.5. Adding or Upgrading Software On Site

Whenever upgrading software and unless directed otherwise by Milnor Technical Support, un-install the previous version before installing the latest. Use the Windows un-install facility by selecting *Start, Settings, Control Panel, Add/Remove Programs* and following the instructions.

At the root of the MultiTrac Software CD, you will find a directory for each controller software—PC Miltrac, Online Communicator, DryNet and Device Master—along with a Windows Dryer Programmer folder. Under each directory, you will find one or two sub directories representing the latest and, if provided, next-to-latest software versions. Unless directed otherwise by Milnor Technical Support, install the latest version. Each controller software includes a setup program (setup.exe) in the respective software directory. Run this program and follow the instructions to install the software. This process will install both the main software and any subordinate programs it requires.

The Windows Dryer Programmer (`drymk2.exe`) is provided separately in the unlikely event that this program should be reinstalled without reinstalling the Drynet software. To do so, simply copy this file to the `c:\milnor\drynet` directory, overwriting any copy of the file already present in this directory.

3.6. Software Recovery

After installing all applicable software, the Milnor factory creates the MultiTrac Recovery CD which permits quickly reinstalling the software (including the operating system) on site, should this become necessary—that is, if the data on the hard drive becomes inaccessible. However, keep the following points in mind:

1. The software recovery process is dependent to some extent on being performed on a PC containing the same hardware as when the recovery CD was made. Certain hardware changes may cause the process to fail.
2. The process, if successful, restores the software and data to the condition it was in when the recovery CD was made (when the PC left the Milnor factory). It will not restore data, such as configuration information, wash formulas and collected production data, added after the MultiTrac is placed in service (see Note 3). Additionally, if software was subsequently added or upgraded, the recovered software will not include these changes.

The software recovery process is not explained in this document. Because of the many conditions that could affect the recovery process, it is advisable to perform this process under the guidance of Milnor Technical Support personnel.

Note 3: If the backup procedures provided with the various controller software are used, the corresponding restoration procedures can be used to restore this data once the software is recovered.

— End of BIYDTI03 —

4. Establishing Communication With Subordinate Devices

PC Miltrac, Online Communicator, Drynet* and Device Master* each communicate with that controller's subordinate devices via a separate serial link. Each controller, except for Device Master, identifies a particular device on its network (see Note 4) by a unique device address (identification code). A device will have one address for each network it is on. A dryer, for example, will have a Miltrac address, a Mildata address, and a Drynet address. **A device's Mildata address and Drynet address must match. If possible, these should also match the device's Miltrac address. However, this is not required and, in fact, is not always possible, as explained in Supplement 1.** Currently, addresses are set on the device (dryer, shuttle, press, CBW, etc.) as follows:

- **Miltrac address**—programmed in the device's software as part of configuration (see Note 5).
- **Online Communicator (Mildata) address**—programmed in the device's software as part of configuration (see Note 5).
- **Drynet* address** (applies to dryers and shuttles only)—set on the two rotary switches on the device's processor board.
- **Device Master***—Does not require device addressing. The Device Master serial link (discussed at the end of this document) only runs between the MultiTrac PC (running PC Device Master software) and the Device Master microprocessor controller located in the MultiTrac cabinet. The Device Master controller communicates with the various Device Master devices via microprocessor outputs and inputs.

Once a unique address is set on each applicable device, these addresses must be identified in the system controller's software.

> **Note 4:** The term "network" used in this document, refers to connecting the processor boards in individual machine controllers to a central controller, via a two-conductor cable using RS485 serial protocol (a serial link). It does not refer to PC networking, which is used to connect the MultiTrac, Mentor, and Mildata PC's together. Establishing serial communication with the machine controllers (the subject of this document) is required for operational control of the laundering system. PC networking, explained in manual MTYCUI01 Installation—"Onsite Control Connections...", is required to support certain newer software features and PC data sharing.
>
> **Note 5:** The Miltrac and Mildata addresses for dryers and shuttles can be downloaded from the MultiTrac PC if Drynet communication has already been established with the device. This is the procedure explained in this document.

Tip: Errors in addressing (such as assigning an address already used by another device on the same network or improperly identifying a device's address on the controller) are a common cause of communication problems. (Other common causes are incorrectly wired serial links and missing or inadequate signal grounds.) Before proceeding, determine all device addresses and record these on paper. Use care when setting addresses on the devices and identifying addresses on the controllers.

Supplement 1

About Milnor Device Addressing Schemes

The device addressing schemes used with Milnor automated laundering systems are evolving with changing needs. This describes certain characteristics of these addressing schemes as of November 2003 and some expected future changes.

The **Miltrac™** controller controls the movement of goods using a scheme that determines each device's relationship to the other devices according to an X-Y coordinate system. During setup, every Miltrac device receives a unique device number. The device number serves two purposes:

1) it represents a device's position within the X-Y coordinate system and 2) in all Miltrac versions until PC Miltrac version 20003, the device number **is** the Miltrac device address (the "Miltrac Address" value that must be assigned in the individual device's software to establish communication with the Miltrac controller). Beginning with PC Miltrac software version 20003, each device can be assigned a Miltrac device address different from the device number (although the device address defaults to the device number).

Milnor introduced its **Mildata®** product after Miltrac had been on the market for several years. The potential for confusion and improper configuration is reduced if each device's Mildata address matches its Miltrac address. In most cases, this is easily accomplished. However, instances have arisen where a laundry with two CBW® systems, each controlled by a separate Miltrac controller has Miltrac device addresses duplicated from one CBW® system to the other. In those cases, the Mildata addresses for some of the devices could not match the Miltrac addresses, because each device must have a unique Mildata address.

Drynet is the most recent of these products. A device's Drynet address must match its Mildata address. This permits Drynet and Mildata to share the same formula database (mis-matching these addresses will result in "Data unlocatable" errors). This also limits the potential for confusion because at least two of a device's three addresses will match. Drynet is currently the only controller to use device addresses set in hardware (on the rotary switches) versus addresses configured in software. The Dryer Programmer software provided with Drynet permits the technician to program each dryer at the MultiTrac console, then download the data to the dryer. However, the download process can only occur if communication has already been established between Drynet and the dryer. If the Drynet address were configured in software, a first-time download of this data would not be possible because the Drynet address needed to link the controller with the device would be contained in the data not yet downloaded.

Ideally, each device would have only one address and this would apply to all controllers. This is indeed, the goal that Milnor software developers are working toward, mindful of the need to continue supporting existing systems. The processor board currently used in Milnor system machines (P/N 08BSPE1T) has two onboard rotary switches for device addressing. Currently, only Drynet makes use of these switches. On devices other than dryers and shuttles, these switches are not currently used. Eventually, however, this will be the method used to set a single address applicable to all controllers. In addition to the advantage mentioned above, this will save programming steps because the technician will no longer need to enter device addresses in configuration. Device addressing will be straightforward. Each device added to the system, no matter its position will simply be assigned the next available address in numerical order and that address encoded via the rotary switches. PC Miltrac version 20003 supports this because it permits changing Miltrac device addresses without affecting the Miltrac device number, thus overcoming the problem of duplicated Miltrac addresses in systems with two or more Miltrac controllers.

In a new CBW system; that is, a system in which all machines have yet to be assigned device addresses, refer to the various controller instructions (most importantly, the Miltrac reference manual) then set down the intended device addresses on paper. You may want to mark up a system layout drawing for this purpose. Because it is helpful if the Miltrac addresses are based on the physical positions of the devices, determine these first. If possible, use the Miltrac address value for the Mildata address and the Drynet address as well, but remember the following points:

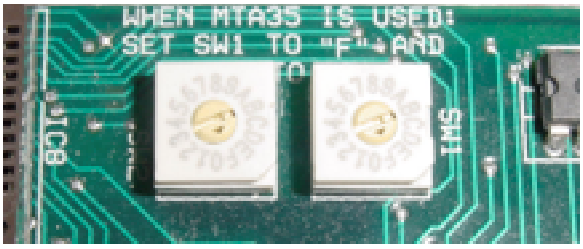
1. In systems with two or more Miltrac controllers, some Miltrac addresses may be repeated from one Miltrac system to the other and in this event, certain devices will need to be assigned a different value for the Mildata address and Drynet address, than that of the Miltrac address.
2. Whether or not a device's Mildata address and Drynet address match its Miltrac address, the Mildata address must match the Drynet address.

Once addresses are assigned on paper, you can proceed to establish communication, as explained below. The following instructions are presented in the order in which this should be accomplished.

4.1. Set the Drynet Address on Each Dryer and Shuttle

If the MultiTrac includes Drynet*, set the Drynet address for each dryer and shuttle on the rotary switches located on each device's processor board (see Figure 4). You will need to convert the Drynet address from decimal to hexadecimal. The pair of switches can be set to any value between zero and 255 (00 to FF hex). The switch labeled SW1 is the most-significant digit and SW2 is the least significant digit (see caution statement 11). For example, for a Drynet address of 12 (0C hex), set SW1 = 0 and SW2 = C.

Figure 4: Rotary Switches on Processor Board



CAUTION 11: Risk of Improper Switch Settings—The digit significance of the switches on the processor board currently used on these machines (P/N 08BSPE1T) is opposite that of the switches used to set board addresses on Milnor peripheral boards.

- Do not use peripheral board switch instructions when setting processor board switches.

By setting the Drynet addresses first, you will be able to configure each dryer and shuttle at the MultiTrac console (most importantly, each device's Miltrac address and Mildata address) then upload this information.

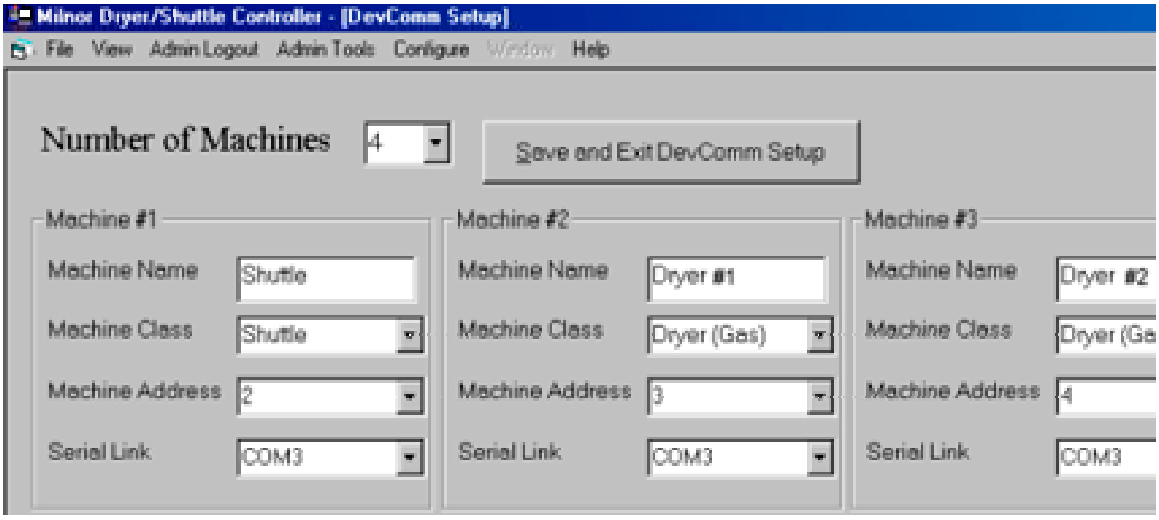
4.2. Set Up Drynet (Establish Drynet Communication)

This configures the Dryer/Shuttle Controller (Drynet)* software for the specific machines it will control and establishes communication with these machines. To access this part of the program, activate the Dryer/Shuttle Controller software, perform an *Admin Login*, then select *Admin Tools, DevComm Setup*. In the *DevComm Setup* window (see Figure 5), first specify the *Number of Machines*; that is, a combined count of the number of dryers and shuttle(s), then, in each resulting information box, enter or select the appropriate values, as follows:

Machine Name—Enter any convenient name by which to identify this machine.
Machine Class—Select from the drop-down list.
Machine Address—Select the value from the drop-down list corresponding to this device's Drynet address.
Serial Link—Select the COM port on the MultiTrac computer used for Drynet serial communication. Normally, this is COM3 (as shown in Figure 2).

After entering all needed information, click the *Save and Exit DevComm Setup* button.

Figure 5: Part of DefComm Setup Window



Once Drynet has been set up, each device will be represented by a status box on the Drynet main window. Before communication is established, the window will display the status message "* NOT RESPONDING *", as shown in Figure 6. The device must be powered ON to respond. If you haven't already done so, apply power to the dryers and shuttle(s) by setting the Master switch for each device to ON (⏲). At this time, communication should be established as indicated by status messages similar to those shown in Figure 7.

Figure 6: Device Status Windows—Communication Not Yet Established

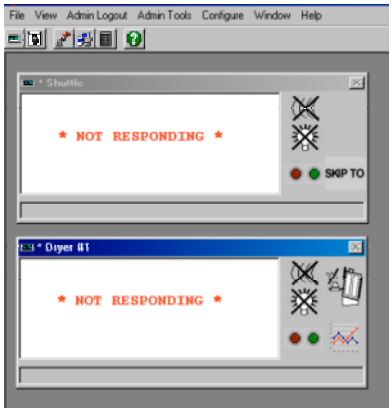
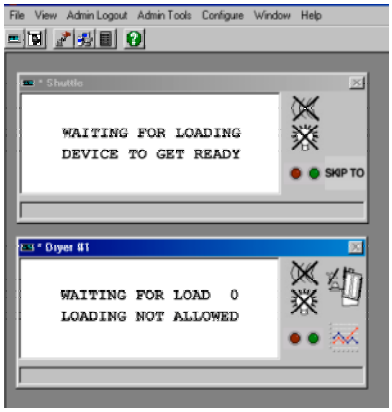


Figure 7: Device Status Windows—Drynet Communication Established



Tip: If desired, you can rearrange the device status boxes by dragging with the mouse. To save the re-arranged box locations so they automatically display in this position in the future, make sure the Drynet Toolbar is displayed (*View, Toolbar*) then click the toolbar button with the diskette symbol.

4.3. Set the Miltrac and Mildata Addresses On Each Dryer and Shuttle

This is done at the MultiTrac console as part of device configuration. Refer to the dryer and shuttle reference manuals for detailed explanations of the various configure decisions. The Dryer/Shuttle Controller (Drynet) and Milnor Dryer Programmer software also provide active help. This feature displays an explanation of each user input field when you click on the field.

Configuring a device at the MultiTrac console is a two-part process: 1) Enter the configuration information. 2) Upload this information to the device.

4.3.1. **Configure Each Dryer (With the Dryer Programmer)**—With the Dryer/Shuttle Controller (Drynet) software active, select *Configure, Dryers* . This loads the Dryer Programmer software. Perform an *Admin Login* in this software, then select *Dryer Configuration, Configure New/Existing Dryer* to access the dryer configure decisions and active help. Dryer configuration is presented on two pages. To establish communication, you will only need to access the first page, and only that portion of the page shown in Figure 8. Select or enter the following information:

Machine ID Number—This number is only used for organizing the list of machines on the lower right of this window. It is not a device address nor related to any other configuration data.

Machine Name—For consistency, enter the same name as that entered for this machine on the *DevComm Setup* window.

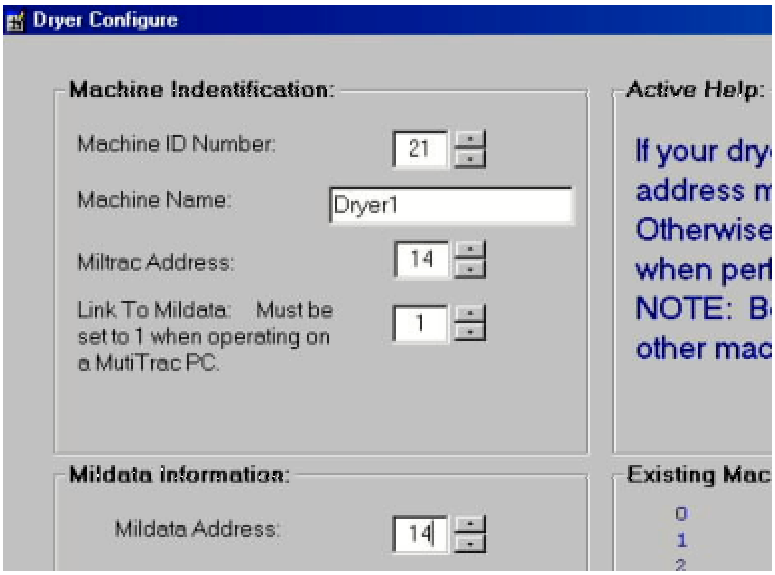
Miltrac Address—This will set the Miltrac address for this machine. This is the address that you will later identify in the PC Miltrac software.

Link to Mildata—Select *1* to enable setting the *Mildata Information*. Whether or not this installation includes the Mildata product, Mildata must be enabled and a Mildata address set so that this machine can communicate with the Online Communicator software.

Mildata Address—This will set the Mildata address for this machine. Remember that this must match the Drynet address previously set on the rotary switches on this device's processor board. This is the address that you will later identify in the Online Communicator software.

The second configuration page is accessed by clicking the *Edit Configuration* button at the bottom of this page. However, for the purpose of establishing communication, you can leave all remaining configure decisions at their default, or current values, for now.

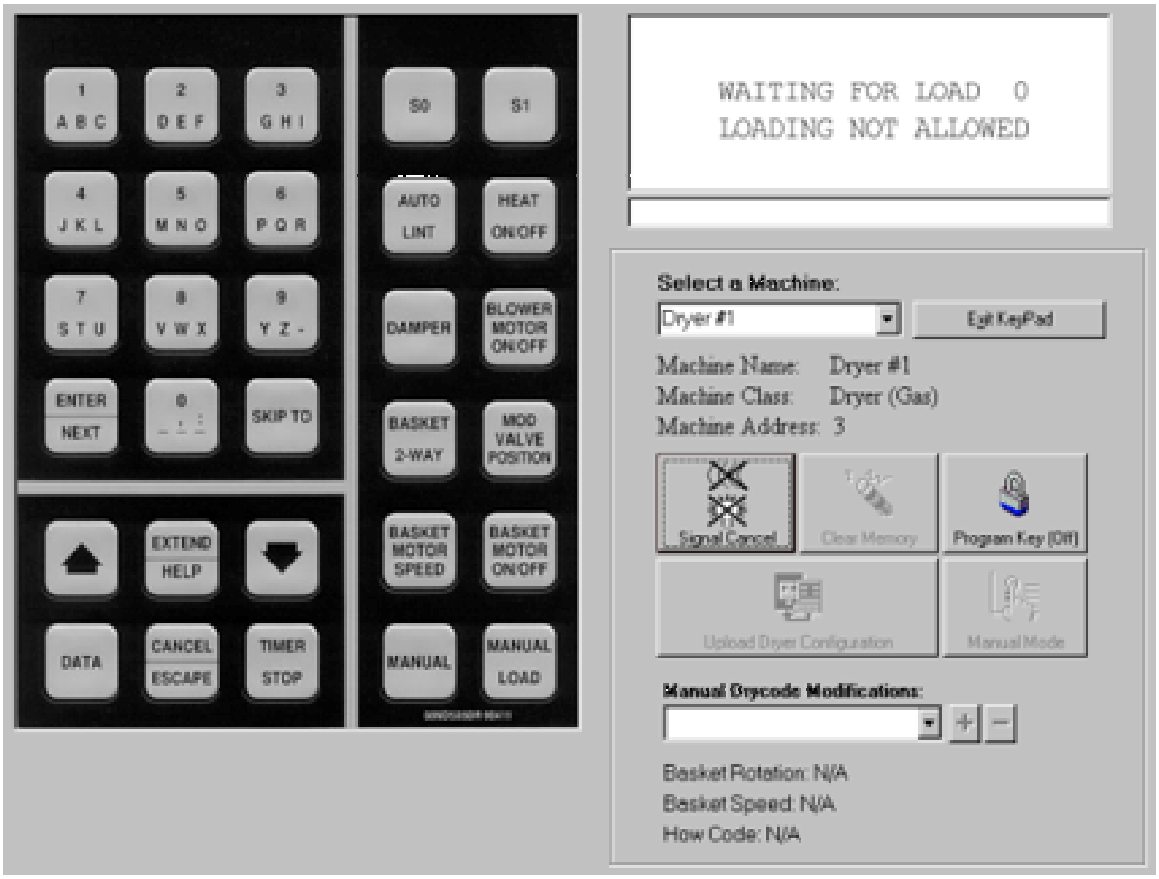
Figure 8: Part of First Dryer Configure Window



4.3.2. Upload Dryer Configuration—Once a dryer's configuration data (or at least the data listed in Section 4.3.1) is entered and you have returned to the Dryer/Shuttle Controller software, perform an *Admin Login* if necessary, then select *View, Machine Keypad* and select the appropriate dryer. Its virtual keypad, display, and control buttons appear as shown in Figure 9. The virtual keypad works the same way as an actual keypad on the device would, except that you "press" a key by clicking on it with the mouse.

> **Note 6:** In Figure 9, you will see a disabled *Upload Dryer Configuration* button. This is for a future release of the Dryer/Shuttle Controller software. In the future, dryer uploading will function similar to shuttle uploading (explained in Section 4.3.4).

Figure 9: Dryer Virtual Keypad, Display and Control Buttons

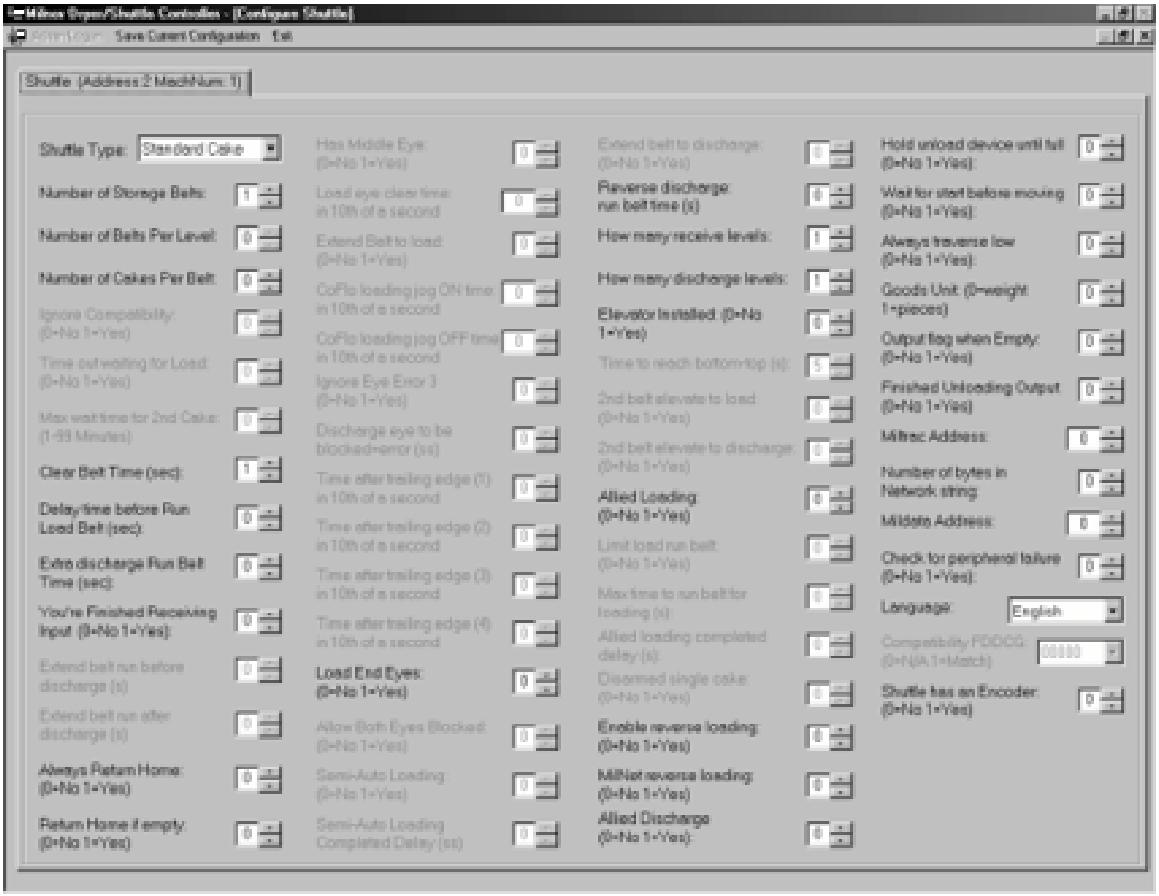


With the dryer powered ON (⏻), observe the dryer virtual display and proceed as follows:

Display or Action	Explanation
	Clicking the *Program Key* button accesses the Program mode and displays the *Program Menu*, as indicated by the display. Henceforth, the displays and key commands will be as explained in the dryer reference manual. Those needed for this procedure are repeated here.
PROGRAM 0 MENU OK TURN KEY TO RUN	
5	Selects option 5 on the *Program Menu — DOWN LOAD*.
PROGRAM 5 MENU DOWN LOAD	
ENTER	Accepts the displayed selection and advances to the next decision—*DOWN LOAD DEVICES*.
DOWN LOAD DEVICES 0 MACHINE<-->MACHINE	
2	Selects option 2 on the DOWN LOAD DEVICES menu—*PC->MACHINE*.
DOWN LOAD DEVICES 2 PC->MACHINE	
ENTER	Accepts the displayed selection and advances to the next decision—*RECEIVE CONFIG ?*
RECEIVE CONFIG ? 0 NO [1=YES]	
1, ENTER	Specifies that configure data should be included in the data transfer and begins the process. Configure data must be included so that the Miltrac and Mildata addresses will be sent.
(S) 9600 BAUD xxx RECEIVING DATA	Appears during the data transfer process. *xxx* is a scrolling hexadecimal number indicating the current byte location of the data.
DATA UNLOCATABLE	If this display appears, an error occurred. The most likely cause is that the Mildata address configured for this dryer does not match the Drynet address previously set on the dryer's rotary switches. It is also possible that the the Device Communicator software could not locate a required DLL file. To check this, make Device Communicator active and verify that the last line displayed in the Device Communicator window is `C:\milnor\drynet\04012.dll`.
PROCESS COMPLETED NEXT TO PROCEED	This display indicates data transfer is complete and was successful.

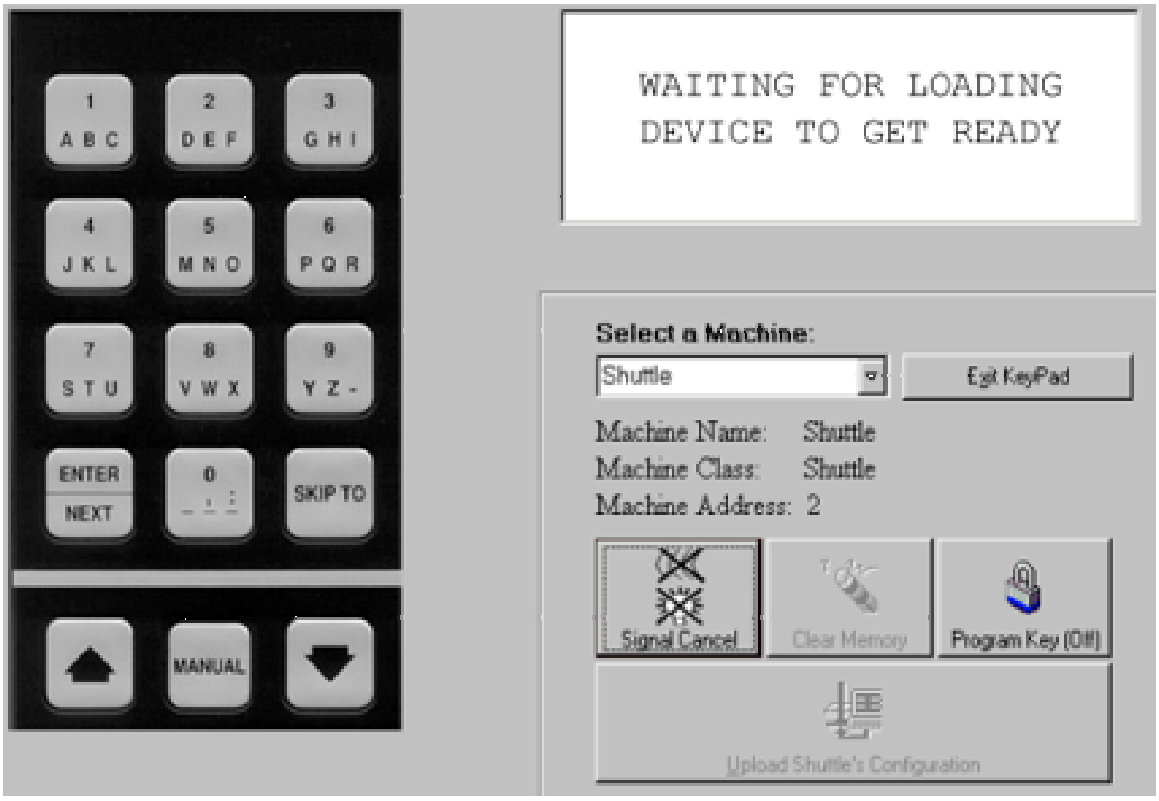
4.3.3. Configure Each Shuttle (With the Dryer/Shuttle Controller)—With the Drynet software active, perform an *Admin Login*, if necessary, then select *Configure, Shuttles* to display the *Configure Shuttles* window shown in Figure 10. This window displays one tab for each shuttle previously defined. Select a tab (if more than one shuttle) to display all configure decisions for that shuttle. Refer to the shuttle reference manual for explanations of the various configure decisions. The fields for the *Miltrac Address* and *Mildata Address* are located on the right side of this window. For the purpose of establishing communication, you may set these two values, leaving all other values at their current, or default settings for now. **Click *Save Current Configuration* on the menu bar after making any configure changes.**

Figure 10: Shuttle Configuration Window



4.3.4. Upload Shuttle Configuration—Once the shuttle's configuration data (or at least the Miltrac and Mildata addresses) are entered, perform an *Admin Login* if necessary, then select *View, Machine Keypad*. Select the appropriate shuttle. Its virtual keypad, display, and control buttons appear as shown in Figure 11.

Figure 11: Shuttle Virtual Keypad, Display and Control Buttons



The data uploading process for the shuttle is different from that of the dryer because the shuttle must be taken off line to make programming changes and because the shuttle microprocessor controller's intrinsic software does not provide data transfer procedures. With shuttle power ON (⏲) and the system idle, observe the shuttle display on the MultiTrac screen and proceed as follows:

Display or Action	Explanation
WAITING FOR LOADING DEVICE TO GET READY	This, and similar displays indicate that the shuttle is on line. The shuttle must be taken off line to upload data to it.
0*	Disables the shuttle's three wire circuit and takes it off line, as indicated by the display shown. The operator alarm will sound.
THREE WIRE DISABLED PUSH START TO GO	

* This is the *Stop* button for this shuttle on the MultiTrac console.

Clicking the *Program Key* button accesses the Program mode, displays the *Program Menu*, as indicated by the display, and enables the *Upload Shuttle's Configuration* button.

PROGRAM 0 MENU
OK TURN KEY TO RUN

Uploads this shuttle's configuration. This button is provided in place of using the virtual keypad because the shuttle microprocessor controller has no data transfer procedure.

4.4. Set The Miltrac and Mildata Addresses On Other Devices

The Miltrac and Mildata addresses (part of device configuration) must be set on the CBW and extraction device (membrane press or centrifugal extractor) before Miltrac and Mildata can establish communication with these devices. This data must be initially entered at the device itself. If the system includes the Mildata product, subsequent programming can be done at the Mildata PC, then uploaded to the device. In fact, once you have entered the device's Mildata address, you can leave the other configuration decisions at their default values, if you wish, and complete this programming at the Mildata computer.

If the system does not include the Mildata product, all programming must be done at the device. It is not possible, at present, to program the CBW or extraction device at the MultiTrac console. Refer to the applicable reference manual for detailed explanations of the various configure decisions for the CBW, press, and centrifugal extractor.

4.5. Configure PC Miltrac (Establish Miltrac Communication)

Once the Miltrac addresses have been set on each device, you can configure the PC Miltrac software for the specific machines it will control and establish communication with these machines. Miltrac configuration requires an understanding of Miltrac systems. Two sources of information are the Miltrac reference manual, for the microprocessor-based Miltrac product and the active help information provided with the PC Miltrac software.

To access PC Miltrac configuration, activate the PC Miltrac software and perform an *Admin Logon*. Two of the sub-menus under the *Configure* menu selection are pertinent here:

System provides access to various global settings and the active help information for these settings (see Figure 12). One of these settings is *Number of Devices on Miltrac*, which is the combined total of all machines—CBW, press/extractor, shuttle(s), dryers, etc.—in the Miltrac system. The value set here determines how many separate configuration pages (one page per device) will be available.

Devices provides access to a list of sequentially numbered devices (see Figure 13). The number of devices shown is that previously specified in *Number of Devices on Miltrac*, as explained above. Select any device in this list and click the *Configure* button to display the configuration page for that device (see Figure 14). The configuration page provides access to the configure decisions and active help information for these decisions. One configure decision—*Serial Com Port*—refers to the COM port on the MultiTrac computer used for Miltrac serial communication. Normally, this is COM4 (as shown in Figure 2).

Notice 12: Configure changes are not immediate.—Configuration changes will not take effect until the computer is rebooted or the Miltrac Communicator program is reloaded.

- On the PC Miltrac menu, select *Options, Reload Miltrac Communicator.*

Figure 12: Part of PC Miltrac Configuration (System Configuration) Window

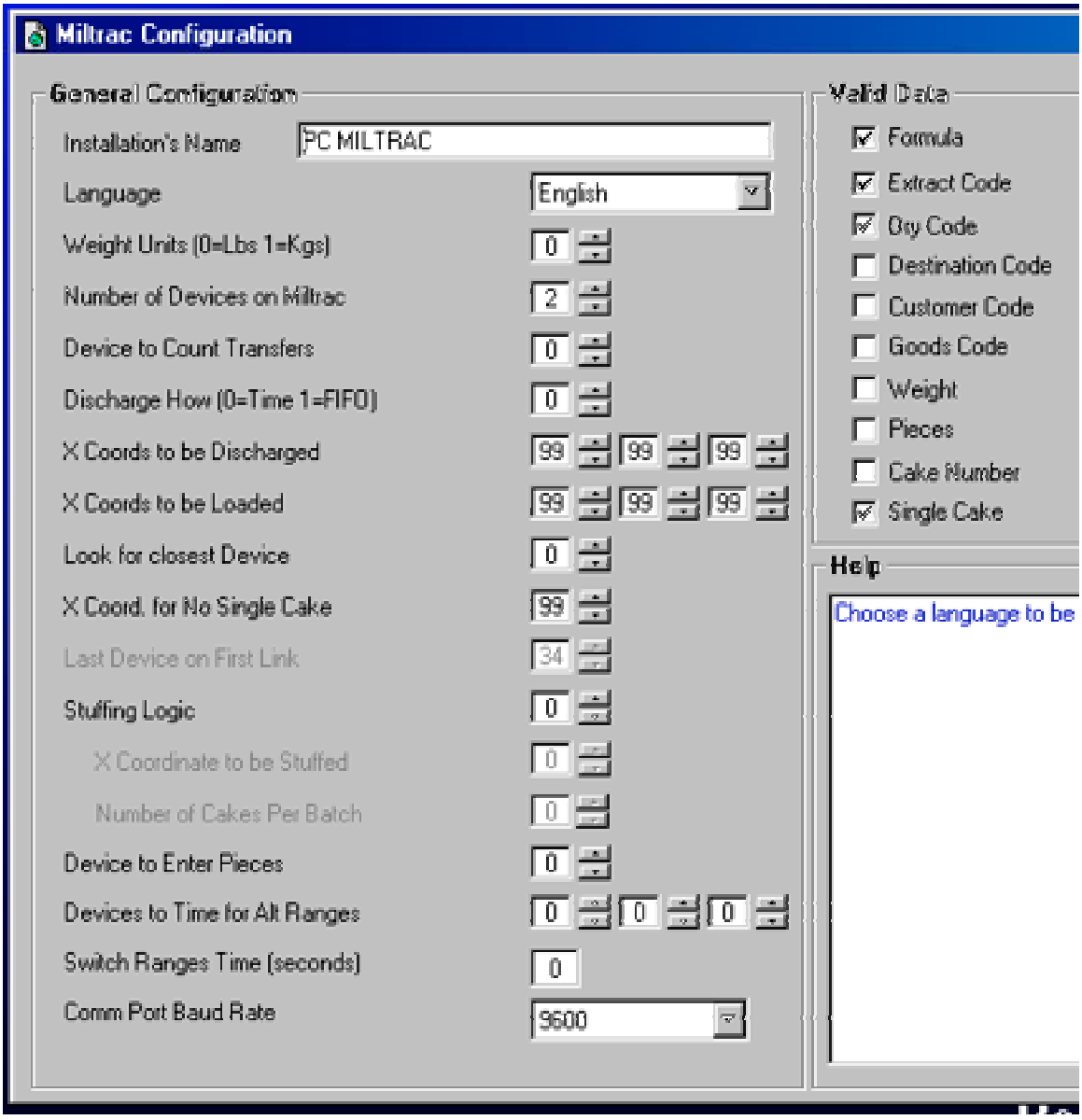


Figure 13: Part of PC Miltrac Devices (Device List) Window

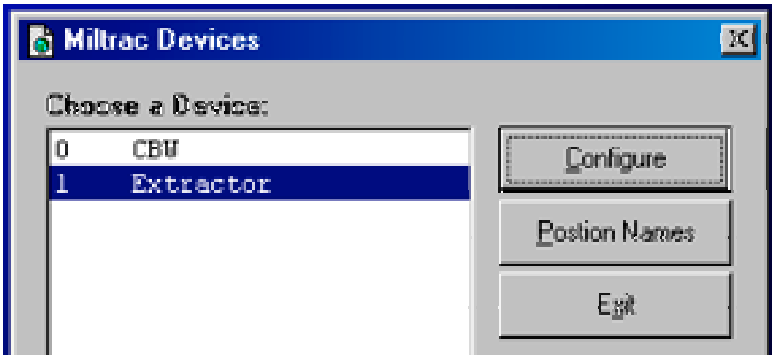
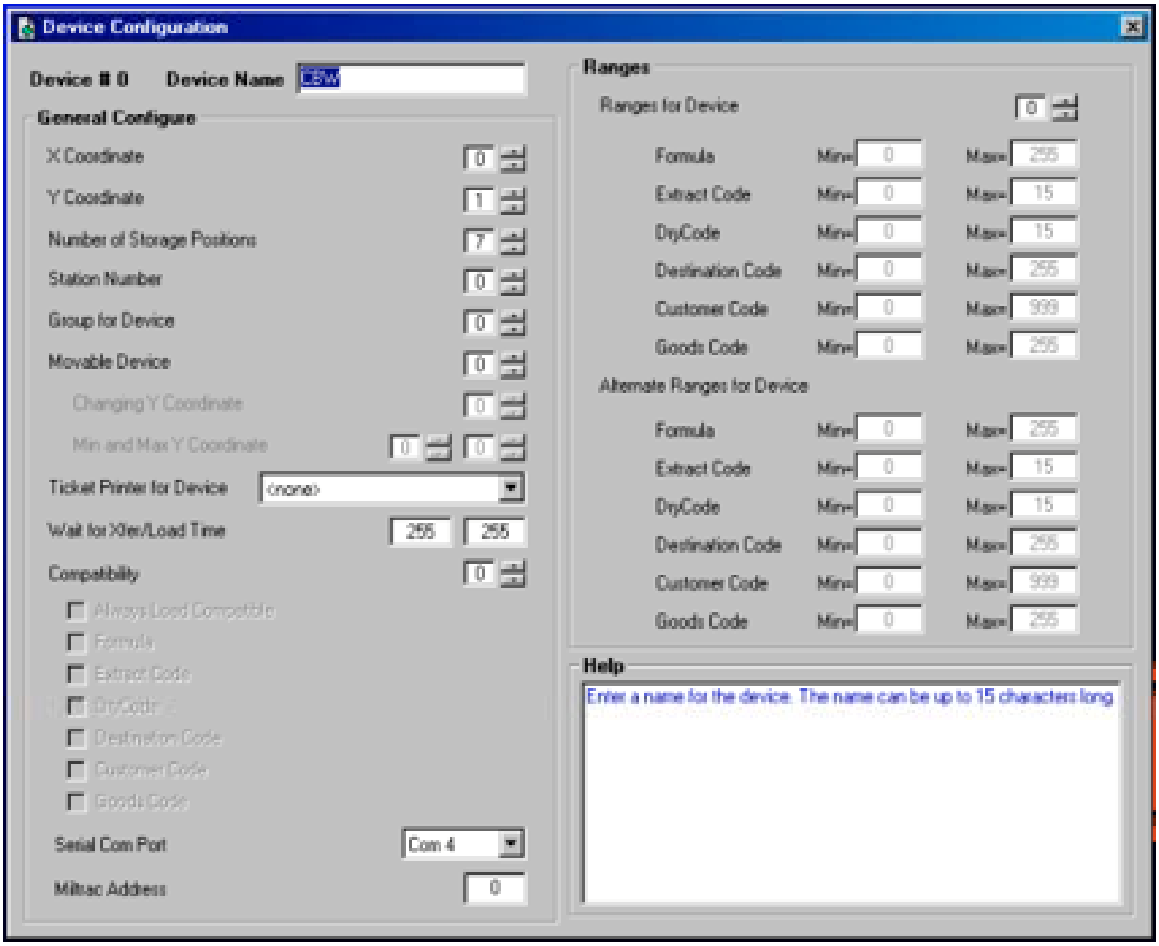


Figure 14: PC Miltrac Device Configuration Window



Once PC Miltrac has been configured, each device will be represented by a box on the PC Miltrac State page (select *View, State Page*). Before communication is established, the box will display the status message "* NOT RESPONDING *", as shown in Figure 15. The device must be powered ON to respond. If you haven't already done so, apply power to each device by setting its Master switch to ON (⏻). At this time, communication should be established as indicated by the display of various information similar to that shown in Figure 16, indicating the current state of the device.

Figure 15: Part of PC Miltrac State Page—Communication Not Yet Established

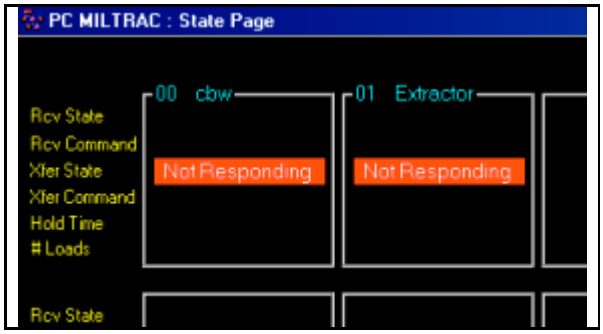
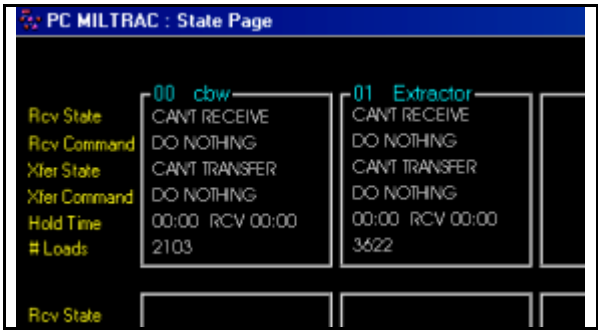


Figure 16: Part of PC Miltrac State Page—Communication Established



4.6. Configure Online Communicator (Establish Mildata Communication)

The Online Communicator software, which performs the Mildata data collection function, is provided standard with MultiTrac because of the usefulness of this data in troubleshooting. An accompanying configuration program provides that portion of Mildata configuration needed to establish communication between Online Communicator and the devices it collects data from. The separate Mildata product provides a wide range of tools for tracking, interpreting and displaying this collected production data, useful in improving operational efficiency. It also provides greater configuration capability.

The Online Communicator software automatically loads whenever the MultiTrac computer is powered on. The main window does not provide a *Configure* menu selection. To access configuration, right-click on the *Online Communicator* button in the task bar (place the mouse cursor over the button and press the right mouse button), then select *Configure* in the popup menu, as shown in Figure 17. This will load the configuration program and display the window shown in Figure 18.

Figure 17: Accessing Online Communicator Configuration

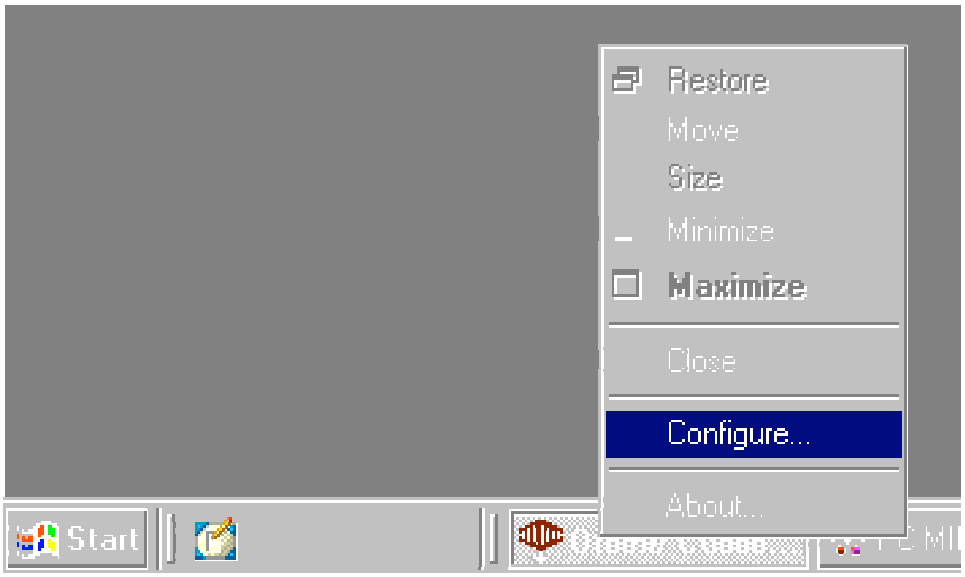
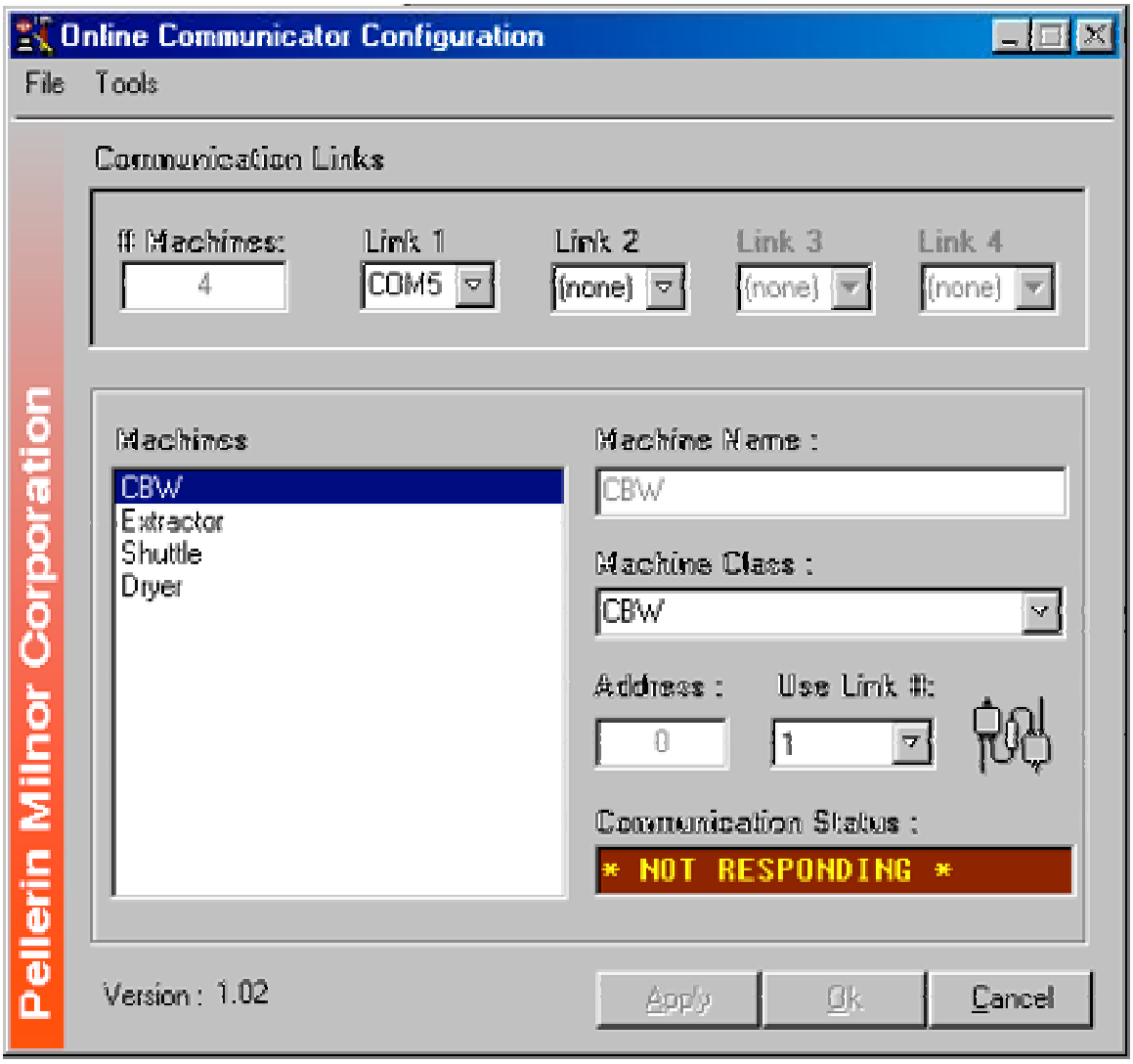


Figure 18: Online Communicator Configuration Window (Version 1.02 shown)



Two different versions of the configuration program are explained here: version 1.02 (shown in Figure 18) and version 1.03, which looks similar but provides additional capability. Both versions provide the following menu selections:

File—Provides access to the following sub-menu item.

File, **Exit**—Exit the configuration program.

Tools—Provides access to the following sub-menu items.

Tools, **Import Miltrac Devices**—Copies certain configure values (explained below) from Miltrac to Online Communicator.

Tools, **Configure ODBC Connection**—Displays a dialog box in which to specify the location of the database used to store production data collected by Online Communicator. The default location is `C:\Program Files\Milnor\MILDATA\mildata.mdb`. This location is correct if the MultiTrac computer is not networked to a Mildata computer (if Mildata is not supplied). If a Mildata computer is present, this path must be changed to the network location of the database file on the Mildata computer, so that this Online Communicator software shares the same database with Mildata.

Certain configure decisions, including the Mildata address for each device, are not initially editable. Rather, their values are imported from Miltrac. In either software version, begin by selecting *Tools, Import Miltrac Devices* on the menu bar. The software will copy the corresponding Miltrac configure values to the applicable fields on this window. For example, it will copy each device's Miltrac address to the Mildata address field (*Address:*) for that device. Assuming you previously entered the same value for both addresses in each device's configuration (as recommended in at the beginning of this document), the imported values will be correct. However, if your laundry layout requires that certain devices have a Mildata address different from the Miltrac address, the imported value must be changed for those devices. To do so, you will need to have either the Mildata product, or version 1.03 of the Online Communicator Configuration software, which allows you to enable the normally-disabled fields. If you have neither, contact Milnor Technical Support. If you have version 1.03 of the configuration program, press the *F2* key then enter the fixed password "pmc" in the dialog provided. This enables the normally disabled configure fields, permitting you to edit this data.

The following is an explanation of each field on the Online Communicator Configuration window. Those shown as "disabled" are those whose values are imported from Miltrac and whose fields can only be enabled for editing, beginning with version 1.03 of the software.

 # Machines (disabled)—The total number of devices that will communicate with Online Communicator via its daisy chained serial link.

Link 1, *Link 2*, etc.—The COM port(s) on the MultiTrac PC used for Online Communicator/Mildata communication. Although the software permits any of up to four separate ports to be individually configured for each device (see "Use Link #:" below), the current wiring scheme where all devices are connected to the same serial link, only requires a single port—normally COM5, as shown in Figure 2. Verify that *Link 1* is set to *COM5* (the default).

Machines—The list of devices (by previously assigned machine name) on the Online Communicator/Mildata network. The values shown in all fields explained below apply to whichever device is highlighted (selected) here.

Machine Name: (disabled)—The name previously assigned to this device in Miltrac.

Machine Class:—The device category. Select from drop-down list.

Address: (disabled)—The Mildata address. When you select *Tools, Import Miltrac Devices* on the menu bar, the software inserts a value equal to this device's Miltrac address. If this is not the same as the device's Mildata address, this value must be changed to the Mildata address, as explained above.

Use Link #—Specifies which COM port will apply to this device. Currently this is COM5 for all devices (*Link 1*) so this value must be *1* (the default).

Communication Status:—Indicates whether Online Communicator is communicating with this device. * *NOT RESPONDING* * indicates that communication is not yet established. *ONLINE* indicates communication is established.

As you set up the devices, click the *Apply* button to immediately invoke the values entered thus far. Click the *Ok* button when completed, to accept all values entered and close this window.

4.7. Verify Communication Between PC Device Master* and the Device Master Controller*

If Device Master* is included, the serial link between the IEC terminal block inside the lower, front cabinet door and the Device Master controller, also located in the MultiTrac cabinet, was wired at the Milnor factory. Assuming the computer connections shown in Figure 2 were made, the PC Device Master software should communicate with the Device Master controller (via COM6) when MultiTrac is powered on and the PC Device Master software loads. If not, the

software will display a *Communications Failure* error. Refer to the Device Master reference manual for more information on this error and on the various Device Master devices.

— End of BIYDTI01 —

BIYDTI05 (Published) Book specs- Dates: 20071001 / 20071001 / 20091102 Lang: ENG01 Applic: YDT SCU

5. MultiTrac® Secondary Monitor Applications

When properly configured, MultiTrac will automatically display the most useful operational data (but not necessarily the only important data) on its **primary monitor** each time it is powered on. Normally this is either the Drynet main page (if the system includes optional Drynet), or the PC Miltrac main or cake page (if the system does not include Drynet). However, it is often beneficial to provide additional monitors to do one or more of the following:

- Simultaneously display more data than will fit on the primary monitor, hence avoiding the need to navigate among screens, which risks interfering with MultiTrac functioning.
- Display batch data at specific work areas.

The data displayed on any secondary monitors is intended for viewing only. Any user interaction such as clicking on-screen controls will continue to be performed on the primary monitor.

5.1. Capabilities and Limitations

It is possible to provide:

- A second local monitor, to display PC Miltrac data different from that of the primary monitor.
- One or more remote monitors to display the same data as on the primary monitor, or PC Miltrac data different from that of the primary monitor. All remote monitors display the same data.

MultiTrac **does not** currently support the following:

- Non-Miltrac data on a secondary monitor, if different from the data on the primary monitor. Remember that MultiTrac consists of four controller software: PC Miltrac, Online Communicator, optional PC Drynet, and optional PC Device Master. Of these, only PC Miltrac currently supports a secondary video card (see Note 7). If the intent is to display different data on the secondary monitor, this data must be a PC Miltrac window.

  Note 7: More specifically, only PC Miltrac can be configured to open automatically on the second monitor. It is possible to drag and drop any software window to the secondary monitor, but any such adjustments are lost each time the MultiTrac PC is powered off or rebooted.

  Note 8: For applications involving the remote display of Mentor® or Mildata® screens, refer to "PC Networking" in manual MTYCUI01 "On-Site Control Connections for Milnor Automated Laundering System Machines and Controllers" and the documentation for Mentor and Mildata for more information.

- More than two types of data on different monitors. It is not possible to have unique information automatically appear on each of three or more monitors.

5.2. Typical Secondary Monitor Applications and Available Options

The following are typical secondary monitor applications. Milnor offers four options in support of these.

5.2.1. Application 1: Additional Monitor at MultiTrac Console—This permits more data to be displayed simultaneously at the MultiTrac console. Typically, one monitor is available for interaction (e.g., responding to Drynet prompts) while the other continues to display the movement of batches through the laundering system. The MultiTrac "2nd Local Monitor VGA" option (ZXUUACS5CA) provides a second video card, monitor and monitor enclosure with the MultiTrac console.

5.2.2. **Application 2: Monitor(s) Located On Production Floor (Usually Behind Dryers)**—Data different from that of the MultiTrac main monitor, and specific to certain production personnel, is displayed on monitor(s) located convenient to those personnel. Typically, monitors are placed behind the dryers and display the Miltrac *Post* page to identify the batches discharging from the dryers. The "Allow 8 Rem VGA CAT5 Base Unit" option (ZXUUACS5AA) provides a second video card and a base unit that splits the video signal into eight CAT5 outputs, and can support runs of up to 360 feet (110 meters) via straight-through CAT5 cable. The "Rem VGA CAT5 Remote Unit" option (ZXUUACS5BA) provides a CAT5-to-VGA signal converter for **one** remote monitor. The "Remote VGA Monitor..." option (ZXUUACSAAA) provides one VGA monitor (see notes below).

> **Note 9:** Requires the hardware setup shown in Section 5.3.3 as well as one "Rem VGA CAT5 Remote Unit" option and one "Remote VGA Monitor..." (or one customer-supplied monitor) per remote location.
>
> **Note 10:** CAT5 cable (straight-through cable) to be supplied by customer. More information on CAT5 cable can be found in "PC Networking" in manual MTYCUI01 "On-Site Control Connections...". Customer-supplied monitors should be of same type and size.
>
> **Note 11:** Milnor recommends housing each monitor and signal converter in a protective enclosure. Such enclosure is also supplied by the customer.

5.2.3. **Application 3: Mirrored Data at One Remote Location**—The signal from the main video card can be split and provided to one remote monitor (such as may be useful for supervisory personnel). Milnor does not currently provide an option specifically for this; however, various video signal splitters and boosters are readily available from third party sources. Generally, distances in excess of 25 feet (8 meters) require a signal booster.

5.3. Installing Secondary Monitors

The installation procedures will depend on the type of setup and whether any optional equipment was pre-installed at the Milnor factory.

WARNING 13: Electrocution and Electrical Burn Hazards—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.

- Abide by the current OSHA lockout/tagout standard when lockout/tagout is called for in the service instructions. Outside the USA, abide by the OSHA standard in the absence of any other overriding standard.
- Do not service the machine unless qualified and authorized. You must clearly understand the hazards and how to avoid them.

5.3.1. **Video Card Installation (if applicable)**—If your setup uses a second VGA card (i.e., your secondary monitor(s) will display data different than that of the main monitor) and this card was not previously installed in the MultiTrac PC, install and configure it as follows, observing all precautions listed in the manufacturer's instructions:

5.3.1.1. Hardware and Driver Installation—The only available card slots on the MultiTrac PC are of the PCI type so the second VGA card must be of this type. This is what is furnished by Milnor. Install the card as follows:

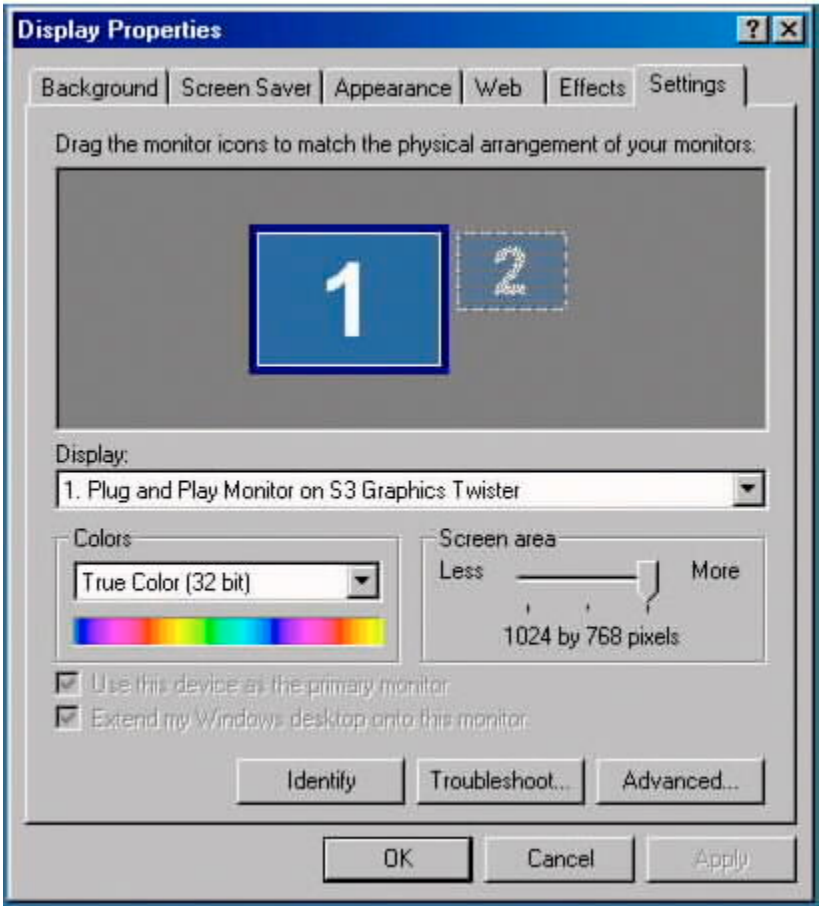
1. Turn off the PC and unplug the power cord.
2. Unscrew and remove the access panel on the PC.
3. Remove the metal cover (if present) from one of the available PCI slots and insert the new card in the slot.

4. Reattach the PC access panel and power cord.
5. Allow the PC to boot up completely then close all running applications.
6. Insert the compact disc (CD) that came with the video card and follow the instructions regarding driver installation.
7. Allow the PC to reboot.

5.3.1.2. Windows Display Setup—Set the Windows display properties as follows:

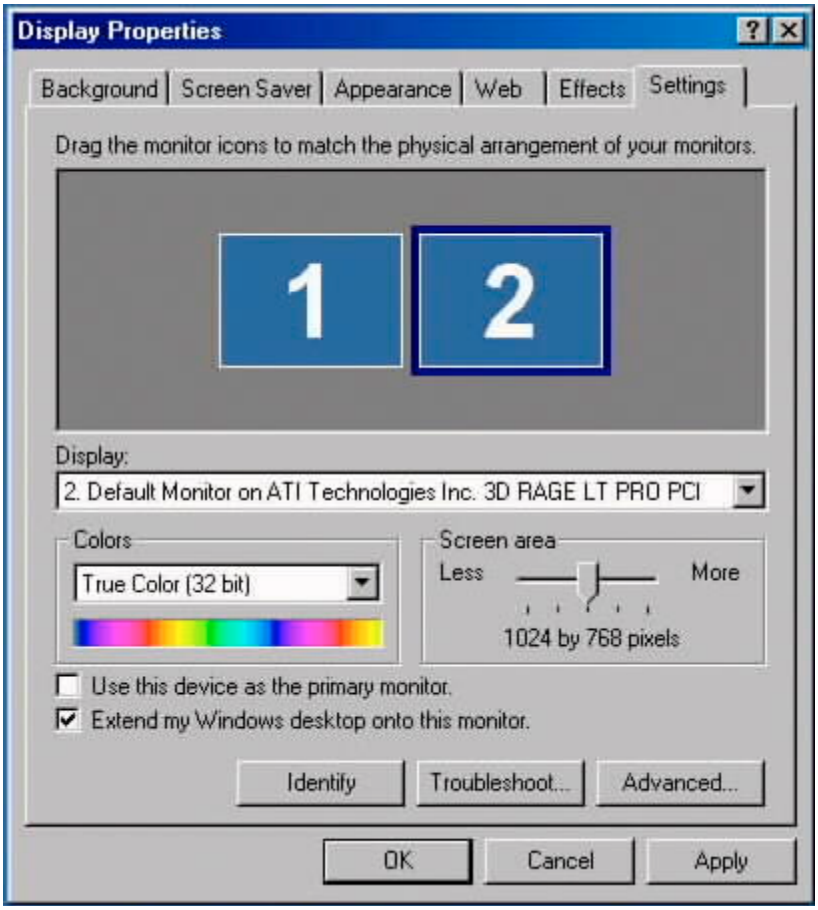
1. Click the *Show Desktop* button on the task bar to clear the desktop.
2. Right mouse click on the desktop and choose *Properties* from the popup menu. This will display the *Display Properties* window.
3. Select the *Settings* tab. Both video cards should be listed in the drop down list and two monitors should be represented as boxes numbered 1 and 2, similar to that shown in Figure 19.

Figure 19: Display Properties Window Before Adjustments



4. Click either numbered box to display the *Colors* and *Screen Area* values for that monitor. Adjust the secondary monitor (the "2" box) so that its values match the primary monitor (the "1" box).
5. With the "2" box selected, select *Extend my Windows desktop onto this monitor* (so that it is checked) then click *Apply* and *Yes* in the message box that appears. The Display Properties window should now appear similar to Figure 20.

Figure 20: Display Properties Window After Adjustments



5.3.1.3. PC Miltrac Configuration—Configure the PC Miltrac software, as follows:

1. Start the PC Miltrac software and perform an *Admin Login*.
2. Under the *Options* menu, select the following items (toggle these **on**):

   Show pages in secondary monitor
   Minimize Main Form at Startup
   Load Last Screen

3. Under the *View* menu, select the page that you want displayed on the secondary monitor(s): *Main*, *State*, *Cake*, or *Post*. Typically this is the *Post* page (see Note 12).

> **Note 12:** Which ever page is selected for remote display will not be available to view locally. However, to temporarily display this page locally, under *Options*, simply toggle the *Show pages in secondary monitor* **off**. While this setting is in effect, the secondary monitor(s) will be blank.

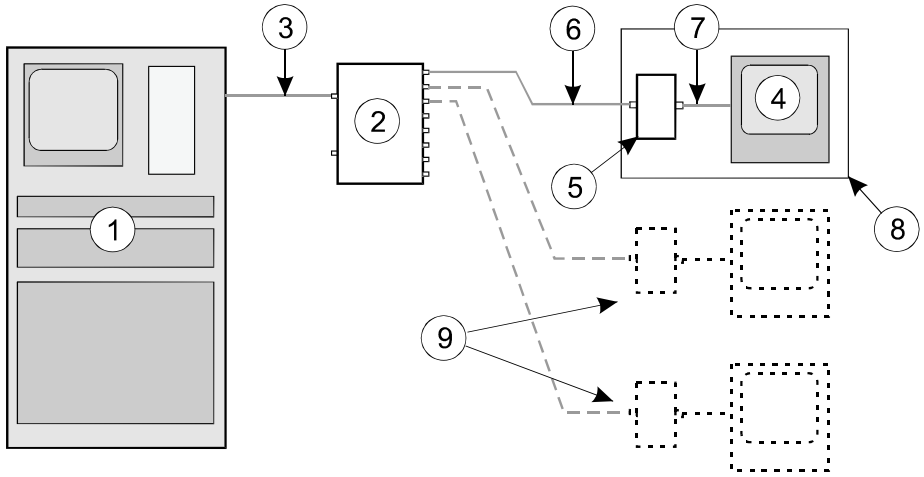
5.3.2. **Local Monitor Installation (if applicable)**—If your secondary monitor is to be installed at the MultiTrac console, install it as follows:

1. Set the monitor in place in its enclosure.
2. Plug the monitor's power cord into one of the “Battery Backup Outlets” on the UPS.
3. Attach the video cable to the secondary video card.

5.3.3. Remote Monitor Installation and Signal Cabling—If your secondary monitor(s) are to be located remotely (away from the MultiTrac console), this involves the hardware and setup shown in Figure 21.

Figure 21: Remote Monitor(s) Installation

Required Components



Legend

1. MultiTrac Console
2. VGA-to-CAT5 video signal splitter furnished with the "Allow 8 Rem VGA CAT5 Base Unit" option. This component has eight CAT5 outputs and one VGA output. Milnor recommends locating this unit in the MultiTrac cabinet.
3. VGA video cable from second video card furnished with the "Allow 8 Rem VGA CAT5 Base Unit"option.
4. Remote monitor furnished with the "Remote VGA Monitor..." option or furnished by customer.
5. CAT5-to-VGA signal converter furnished with "Rem VGA CAT5 Remote Unit" option (one unit per remote monitor required).
6. Straight-through CAT5 cable furnished by customer. System will support runs up to 360 feet (110 meters).
7. VGA video cable.
8. Protective enclosure for monitor and converter, furnished by customer.
9. Additional remote monitor setups, as needed. One splitter will support up to eight.

— End of BIYDTI05 —

6. General Startup and Shutdown Procedures for Milnor® Automated Laundering Systems

This document generally applies to Milnor automated laundering systems comprised of a CBW® tunnel washer, a press, a shuttle, dryers, and one or more PC-based controllers running Mentor®, Miltrac™, and DryNet software. Applicable systems may also have a Milnor loading conveyor, other specialized conveyors controlled by a Milnor Device Master controller and/or multiple processing lines with multiples of the above devices. The precise steps for a given laundering system will necessarily vary from these in places, and laundry management personnel may want to write system-specific instructions for their operators. This information aims to convey a methodology that can assist in this endeavor.

Two kinds of startup and shutdown information are provided: general startup and shutdown steps, which are likely to vary for any specific installation, and guidelines for establishing your specific startup and shutdown procedures.

6.1. Where the Controls are Located

The controls used to start up and shut down the press, the loading conveyor and other specialized conveyors are usually mounted on the respective machine. The pertinent controls for all other system devices are clustered at the following consoles:

Mentor console—Includes the power controls for the Mentor PC and the CBW® tunnel washer. The Mentor software running on this PC provides an interface for numerous operator functions pertaining to the tunnel washer.

MultiTrac console—Includes the power controls for the MultiTrac PC. The Miltrac software running on this PC provides an interface for numerous operator functions pertaining to overall system control. The MultiTrac console often includes the Drynet and Device Master functions described below.

DryNet console—Includes the power controls for the DryNet PC, and for each dryer and shuttle. The DryNet software running on this PC provides an interface for numerous operator functions pertaining to the dryers and shuttle. DryNet is often included as part of the MultiTrac console.

Device Master console—Includes the *Master* switch that energizes the Device Master PC and enables all Device Master devices—typically specialized, post-dryer conveyors. However, each device has its own *Start/Stop* switch, which may be located on the device or grouped at one or more convenient locations. The Device Master software running on this PC provides an interface for numerous operator functions pertaining to these devices. Device Master is often included as part of the MultiTrac console.

6.2. Startup Sequence

The Miltrac™ controller is responsible for coordinating the various devices (machines and other controllers) in the laundering system. Generally, the order in which devices are brought on-line does not matter to Miltrac; however, the proper sequence will obtain more efficient use of time and resources.

6.2.1. Step 1. At the Mentor Console, Power-up the Mentor PC and Tunnel

1a. Press the *Mentor On* button (green button in the MENTOR area labeled *1*) to energize the PC. You need not wait for the Mentor PC to boot up. The Mentor software starts automatically.

1b. Press the *CBW® On* button (green button in the CBW area labeled *1*) to energize the tunnel 3-wire circuit (which supplies power to motor contactors, pumps and other components). The

message “Power Failure” appears on the Mentor *Operational Display* and the tunnel begins filling with water, and steaming. It normally takes several minutes to achieve the proper levels and temperatures. Proceed to Step 2.

6.2.2. Step 2. Power-up the Press

2a. At the press, turn the *Master* switch to *On* (⏻) to energize control power.

2b. Press the *Start* button (green button labeled *1*). This energizes the 3-wire circuit. The press cannot detect whether it, or the COINC (press-controlled) conveyor are loaded. the controller displays a series of startup messages, then asks if the press or the COINC have a cake. If you answer no to both questions, the press is now on-line.

2c. If you answer yes to either or both questions, the controller prompts for cake (batch) data. Enter the batch codes for the respective cakes. The press is now on line.

6.2.3. Step 3. At the MultiTrac Console, Power-up the PC—Turn the *Master* switch to *On* (⏻) to energize the PC. You need not wait for the PC to boot up. Depending on the installation, this PC may contain one or more of the following control software applications: Miltrac, DryNet (Dryer/Shuttle Controller), and Device Master. These start automatically.

6.2.4. Step 4. At the DryNet (or MultiTrac) Console, Power-up Dryers and Shuttle

4a. If DryNet is included with the MultiTrac console, proceed to step 4b. If this is a separate DryNet console, turn the *Master* switch to *On* (⏻) to energize the PC. You need not wait for the PC to boot up. The DryNet (dryer/shuttle controller) software starts automatically.

4b. Press the *Start* button (green button labeled *1*) for **each** dryer (see Note 13) and shuttle. This energizes the 3-wire circuit for each device. The shuttle will initialize (check to see if it contains goods). If the shuttle is empty, it is now on-line.

Tip: A MultiTrac PC that contains both Miltrac and DryNet software, is configured at the Milnor factory to boot up with the Miltrac software minimized. If Device Master software is not present on this PC, the operator will see the DryNet device windows for each dryer and shuttle immediately after boot-up. This behavior is controlled by the Miltrac *Minimize Main Form at Startup* selection under the *Options* menu (requires an *Admin Login* to change). If Device Master software is present, this software will probably be loaded and displayed on top of any other windows. Minimize the Device Master window to view the DryNet shuttle and dryer device windows.

4c. If the shuttle is loaded, it will prompt for cake (batch) data on its DryNet device window. Enter the batch codes for the respective cakes. This shuttle is now on line.

4d. Each dryer displays *Waiting to Load, Loading Not Allowed* on its DryNet device windows. Assuming the dryer is empty (as it should be), click the *Loading Allowed* button on the device window. The dryer now displays *Waiting to Load*. This dryer is now on-line.

> **Note 13:** It is convenient, but not necessary to bring all dryers on-line at this time. Bring each dryer on-line as it is needed, if desired.

6.2.5. Step 5. Power-up the Device Master Devices

5a. If Device Master is included with the MultiTrac console, proceed to step 5b. If there is a separate Device Master console, then, at this console, turn the *Master* switch to *On* (⏻) to energize the PC. You need not wait for the PC to boot up. The Device Master software starts automatically.

5b. Go to all appropriate control panels (see explanation of the Device Master console above) and press the *Start* button (green button labeled *1*) for **each** Device Master device (typically conveyors). This energizes the 3-wire circuit for the device and the device will initialize (check to see if it contains goods). Any empty device is now on-line.

5c. If a device is loaded, a message is displayed on the monitor where the Device Master software is running, asking you to confirm that this device is loaded. On confirmation, the Device Master *Data Entry* form is displayed. Enter the cake (batch) data for this batch, then close this form. This device is now on line.

6.2.6. Step 6. At The Mentor Console, Start Tunnel Rotation and Dose—When the message *Level and Temp Satisfied—Press Ctrl D to Start* appears on the Mentor *Operational Display*, prepare for processing as follows:

6a. On the Mentor keyboard, press Ctrl + D (hold the Ctrl key and press the D key) to start tunnel rotation.

6b. If the tunnel is empty of goods, proceed to step 7. If the tunnel contains goods left from the previous shutdown, bring the wash chemicals up to needed concentrations. Select *File, Inject Chemicals*, then specify 1, 2, or 3 times the normal maintenance dosage of chemicals (prescribed by the formulas associated with the batches currently in the machine).

6.2.7. Step 7. Prepare for Loading—If the tunnel is bag-loaded, activate the rail system to commence automatic operation then, go to Step 8. If the tunnel is conveyor-loaded and the soil room personnel are ready:

7a. Turn the CONLO/CONWA *Master* switch to *On* (⏻) to energize control power.

7b. If goods remain on the loading conveyor from the previous shutdown, go to Step 8. Otherwise, fill the conveyor as follows:

7c. Set the *Move Automatic/Manual* switch to *Manual* (✍).

7d. Place the proper amount of goods into the loading pocket (observe load lights on a CONWA model).

7e. Enter the cake (batch) data for this load on the Mentor main page.

7f. Momentarily hold the *Manual Forward/Reverse* switch to the *Forward* (⇧) position to increment the conveyor.

7g. Repeat this process until all pockets are loaded, then return the *Move Automatic/Manual* switch to *Automatic* (⇄), to commence automatic operation.

6.2.8. Step 8. At MultiTrac Console, Monitor System Operation—With all devices on-line, the system should be operating automatically. Confirm this by monitoring system operation on the Miltrac main page.

6.3. Shutdown Sequence

There are numerous approaches to shutting down a laundering system with regard to leaving machines loaded or running them empty. The shutdown sequence is presented as a flow chart (Chart 1) to accommodate virtually any approach. Review Section 6.4 "Guidelines for Installation-Specific Procedures" for important considerations in determining whether to empty machines or leave them loaded.

Chart 1: Shutdown Sequence

If the tunnel is bag-loaded, shut down the bag loading system.

The objective is to prevent it from dropping any more loads into the tunnel.

A1: **Does this system use a loading conveyor?**
- NO → **Go to A5**
- YES ↓

A2: **Do you want to empty the loading conveyor?**
- NO → **Go to A4**
- YES ↓

There is no particular benefit to emptying a loading conveyor at shutdown, other than to complete a production run. The next startup will be simpler if the loading conveyor remains loaded.

A3: **Stop loading the conveyor and wait until all compartments are empty.**

A4: **Shut down the loading conveyor.**

At the CONLO/CONWA control panel, set the *Master* switch to *OFF* (⊘).

A5: **Do you want to empty the tunnel?**
- NO → **Go to A7**
- YES ↓

A6: **Permit the tunnel to transfer without taking a load, assign the empty formula/customercodes, then wait until all modules are empty.**

At the Mentor console, set the *Loading Conveyor Off/On* switch to *Off* (✕). When module 1 first becomes empty (when the tunnel transfers without taking a load), enter the empty formula and customer codes (typically formula zero and customer zero) into the module 1 position, and observe the Mentor *Operational Display*. When these codes advance to the last module, the tunnel is empty.

Notice 14: Risk of improper processing—If the loading conveyor had more then one category of goods on it when it was shut down, some batch codes in Mentor's loading conveyor positions will be wrong because those codes continued to increment even though the actual batches did not.

- **Check and correct any erroneous data.**

A7: **Shut down the tunnel.**

At the Mentor console, press Ctrl + K (hold the Ctrl key and press the K key) on the keyboard to stop tunnel rotation, then press the *CBW Stop* button (the emergency stop button labeled 0). Do not shut down the Mentor PC now if you need to collect production data.

A8: **Do you want to empty the press and COINC?**
- NO → **Go to A10**
- YES ↓

The COINC (if used) is the conveyor that transfers cakes from the press to the shuttle. It is electrically part of the press.

A9: **Wait until the last cake exits the press or COINC.**

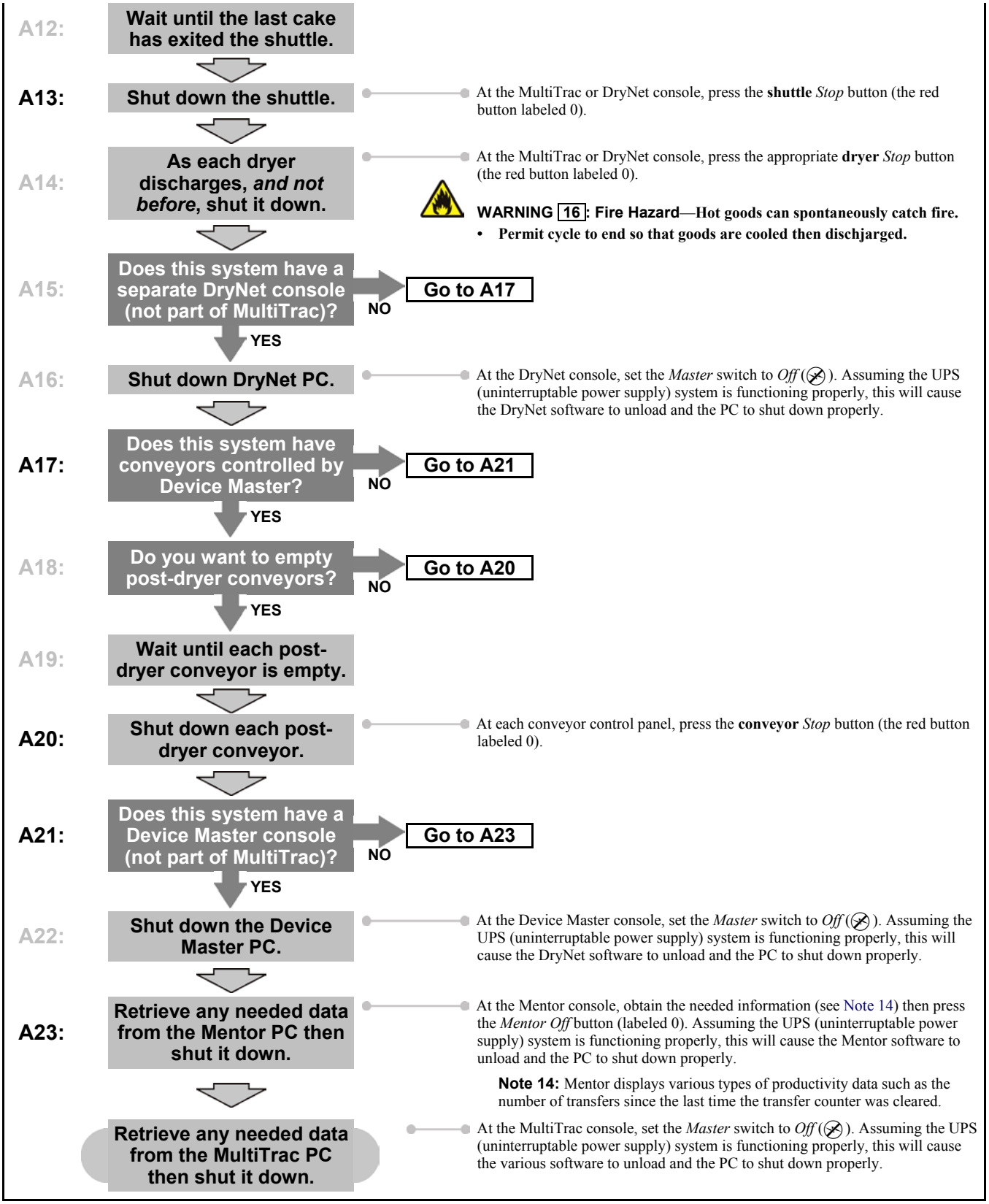
⚠ **CAUTION 15: Risk of malfunction—A pressed cake that remains in a single stage press at shutdown can become stuck in the can assembly, and require intervention at the next startup, to dislodge it.**

A10: **Shut down the press.**

At the press control panel, set the *Master* switch to *Off* (⊘).

A11: **Do you want to empty the shuttle?**
- NO → **Go to A13**
- YES ↓

Chart 1: Shutdown Sequence



6.4. Guidelines for Installation-Specific Procedures

When establishing your system-specific startup and shutdown procedures, consider safety, production quality, procedural efficiency, and staffing and scheduling.

6.5. Safety

- Start up machines safely. Be prepared for machine motion to begin as soon as you place a system machine on-line. This is most critical with a shuttle, which is essentially an industrial robot. Start up each system machine only when it is safe for it to function automatically. Never assume that external conditions will prevent it from moving.
- With the exception of low temperature conditioning work, never shut down dryers during processing. Permit the cycle to end so that goods are properly cooled then discharged. A load of hot goods at rest can spontaneously catch fire.
- Strive to avoid conditions that necessitate entering the shuttle path area at startup, such as to inspect batches to determine their classification or to remove cake tailings that are blocking photo eyes. It is possible for the operator to safely do so, but only if system machines are disabled (see document BISUUI01 “Proximity Safeguarding for Automatic Shuttle Conveyors” and the general safety instructions for more information). To avoid this likelihood, either run devices empty at shutdown or:
  - » Record the cake data for batches remaining in the machines at shutdown, as by making screen prints of the Miltrac *Cake Page* and post this information for the next startup.
  - » Process polyester goods (or any other goods that don't hold together well) early enough in the day that they don't remain stored as cakes at shutdown.

6.6. Production Quality

- Run the system empty before a protracted shutdown so that wet or damp goods do not become moldy.
- Ensure that when processing resumes on goods that remained in machines overnight, these are fully processed. In the tunnel, this will likely require injecting extra dosages of chemicals before processing starts, to bring the bath liquor up to normal concentrations. The chemical supplier should determine the startup dosing requirements for the various wash formulas and instruct laundry personnel on this. When starting a loaded press, don't cut short a pressing cycle that may not have been completed the previous day.

6.7. Procedural Efficiency

- Power-up the tunnel (and tunnel controller) first. It takes several minutes for the tunnel to achieve the required levels and temperatures before transfer is permitted. Use this time to start up the other devices.
- If the system includes a CONLO or CONWA loading conveyor, startup is simpler if the loading conveyor remains loaded from the previous shutdown. This avoids having to manually load, encode, and increment batches to fill up all conveyor compartments.
- Avoid leaving a single stage press loaded at shutdown. If the surface of a pressed cake remaining in the press dries out, the cake can become stuck in the can assembly. At the next startup, the cake can be pulled up with the rising can assembly. In such case, time-consuming manual intervention may be needed to dislodge the cake. This problem will be exacerbated if the operator mistakenly answers *no* when the press prompts: *Does the press have a cake?* This would cause the press to take another load on top of the stuck cake, resulting in downtime to correct the problem.

- System machines are equipped with numerous electromechanical controls for manual intervention. These controls must be set a certain way for automated processing. Understand these controls (see the various “description of controls” documents) and develop the habit of returning controls to the automatic position when manual intervention is complete. An incorrectly set control will prevent the machine from being placed on-line and it may take time to discover the source of the problem.
- Except for the Mentor (tunnel) controller, which has a special means of remembering batch codes from shutdown to the next startup, it is important to record the batch codes for any batches left in system machines at shutdown so that this information will be readily available at the next startup. A convenient means of obtaining this information is to make a screen print of the Miltrac *Cake Page*.

Tip: Some system machines can remember batch codes as long as the microprocessor's internal battery retains a sufficient charge, in which case, the controller will display the codes, but ask the operator to confirm these. Do not rely on this feature. It often only provides a couple of days memory and is only intended to make recovery from a temporary power outage easier.

- At startup, a dryer always displays the messages *Waiting for Load* and *Loading Not Allowed* and remains off-line. If dryers are routinely shut down empty, as they should be, the operator need only click the *Loading Allowed* button on the dryer's DryNet device display to place it on-line. Otherwise, he will need to determine by observation whether the dryer has a leftover load and, if so, use the *Machine Functions* display to enter batch data for this load.

6.8. Staffing and Scheduling

Laundry management will want to consider work schedules in its decision whether to run the system empty or leave it loaded at shutdown. It takes about 25 to 45 minutes to process a batch of goods from soiled dry to clean dry or conditioned (not finished), depending on goods type. If the laundry purges the system of goods at shutdown, soil room personnel will typically start and finish working about 25 to 45 minutes ahead of finishing personnel). In a laundering system that also stores batches at some position between washing and drying, this time could be significantly longer.

— End of BISCUO03 —