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SSI Part # MANUAL-PSBM
PulseNet Soil Bag Module User's Manual

PulseNet Soil Bag Module was written by
Brent Keith, Taylor Walker, David Tallent, and Softrol Systems, Inc.


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INTRODUCTION

CONVENTIONS USED IN THIS MANUAL

Certain words are emphasized to convey a special meaning. In general, they are:

*italics* - used to stress a word's importance.
*bold* - indicates a standard term used in PulseNet.
"any words" - parentheses indicate verbiage on the screen, or something you should type.
*[Enter]* - square brackets refer to keys on your keyboard.

OVERVIEW

PulseNet Soil Bag Module (PSBM) is an application program which allows an IBM or compatible personal computer to communicate with the MicroPulse family of machine controllers used in the system. The true power of the automation provided by the controllers is realized when they are *combined* with PulseNet. The PulseNet Soil Bag Module enables:

♦ System monitoring from a remote location via personal computer (PC).
♦ Display of all bags in the system, from the Lift stations to the washers themselves.
♦ Reporting of bags lifted at the Lift stations, as well as those dropped into the washers.
♦ Automatic pulling of loads from the Storage Area to the Buffer rails or washers.
♦ Automatic delivery of loads from the Buffer Area to the washers.

There are one or more controllers associated with all major areas of the system. Data may be *uploaded* from the controller, or *downloaded* to the controller. These processes move data between the PulseNet program and the controllers. All communication can occur *without regard to the current state of the controller*. This means, for example, that a controller may be lifting a bag while you are downloading data to view the bags on the rails.

The system is broken down into *areas*, each performing a specific function. These areas are Transport (the bag lifts), Storage (up to two areas to store lifted bags), Buffer (also two independent areas), Drop (each Drop area servicing up to six washers), and Return. Following is a diagram of a typical system:
TYPICAL SYSTEM
INSTALLATION

SYSTEM REQUIREMENTS

♦ An IBM or 100% compatible PC with a Pentium 3 processor (Pentium 4 recommended).
♦ Microsoft Windows XP, or Windows 2000.
♦ A minimum of 512 Megabytes of system RAM (1 Gigabyte recommended).
♦ SXGA monitor capable of 1280 x 1024 X 16.7 million colors or better.
♦ Approximately 4 Megabytes of free hard disk space (see NOTE below).
♦ A PCI half-slot for ArcNet communications.

NOTE

If you will be gathering and storing bag histories, allow extra hard disk space for the storage of this data into the database. However, no matter what your hard disk size, the database should be purged of older data on a regular basis.

THE ARCNET NETWORK

ArcNet communications requires the use of active and/or passive hubs. These hubs are connected via twisted-pair cable to ArcNet cards installed in the PC and in each controller. This network is usually installed by Softrol or OEM personnel, as every plant configuration is unique.

INSTALLING THE SOFTWARE

Insert the PulseNet installation CD into your CD-ROM drive. If you have AutoStart enabled within Windows, the installation will start automatically. If not, just browse the CD with Windows Explorer and double-click on the Setup.exe file to start the installation.

You should choose all the Installation Choices offered, unless you already have the Adobe Acrobat Reader, in which case you may uncheck this option.
RUNNING PULSENET FOR THE FIRST TIME

Softrol OEM's our products to several other companies. The first time PSBM for Windows is run, it will ask the user to select the appropriate manufacturer. This tells the Main Menu of PSBM to display "PulseNet", or some other name for the product line.

Also, you will be asked permission to create two default data files. You need to let the program create these files. If they ever get accidentally erased from your system later, PulseNet will again ask permission to create them. If this occurs, just answer "Yes", and the program will create default versions of the missing files.

When first installed, PulseNet's data and support files are basically empty, although some may contain generic data to get you started. As you use the system, data will become available for reporting and other duties.
THE MAIN MENU

The title bar of the window will display the program name and version. The line directly beneath this is called the **menu bar**, and displays all the **menus** in a horizontal list. Below this is the Softrol logo, and buttons for Run and Stop, which enable or disable communications with the MicroPulse controllers in the system. When the program is running, the bag icon next to these buttons will be animated (the bag will be moving).
The button to the right of the Run/stop buttons and bag icon is the View Rails button. This allows viewing of the bags on the rails in a separate window, regardless of which page is active. It’s features will be discussed later.

Next is the plant info, followed by the date and time, and the currently selected controller. This is the controller on which certain menu selections will operate, and can be changed within the menus. Lastly, there is an Exit button for terminating the program.

Below the controls we have discussed thus far is the main area of the program, broken down into pages. These pages may be accessed by clicking the mouse on the appropriate tab. Here is a summary of these tabbed pages:

♦ Operate Lift - this is the page used by the Lift Operators. It allows the selection and definition of bags to be lifted and stored into the Storage Area.
♦ Request Loads - this page allows the user to define and queue loads which will be assembled and sent to the Buffer Area for later transport to the washers.
♦ Drop Bags - this interface constantly monitors the system and sends loads from the Buffer Area to the washers as needed. It also supplies the washers with a data record of the load, which will follow the load throughout the system.
♦ Reports - all the reports can be accessed from this page. There are reports for bags that have been lifted into Storage, and for bags that have been dropped into the washers. This page also contains some database utilities.
♦ Miscellaneous - this page contains functions that affect multiple other pages, and so are presented on their own tab.
♦ Diagnostic - the last page contains some tools to help Softrol personnel diagnose problems or conditions within the system. As a general rule, the user should not access this page unless directed to do so by Softrol.

Note that some tabs may not be visible or accessible on all computers in the system. Some PC’s may be dedicated to certain functions, and disabled for others that would interfere or are not needed.

SOME BASIC TERMS AND CONCEPTS

The terms dialog and focus will be used throughout the manual. A dialog is simply the window you work in as the result of selecting an item from the Main Menu. It can also mean the current page you are using. Dialogs contain all the information you need to perform the job at hand. These include list boxes or grids which display a vertical list, text boxes which allow you to type in your responses, checkboxes that allow certain options, options (sometimes called “radio buttons”) which select one of several choices, and buttons which perform specific tasks.

Focus refers to the currently active object in the dialog - the one which will react to mouse or keyboard activity. Focus can be moved either by clicking on the object with the mouse, or using the [Tab] key. When a list box has the focus, a dotted rectangle appears around the current selection (usually enclosing the highlight bar). The highlight bar is the colored bar which covers the currently selected item in the list. When a text box has the focus, it contains
the blinking cursor, and it's text is frequently highlighted. Lastly, when a button has the focus, it's text is enclosed in the dotted rectangle mentioned above. Hitting [Enter] when a button has the focus is the same as clicking it with the mouse.

If a button has a bold border when no other buttons have the focus, that is the default button. Pressing [Enter] will activate the button, no matter which object has the focus.
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OVERVIEW

The Setup menu customizes the PSBM program to match the controllers and equipment installed in the plant, allows layout of the plant floor and rail system, and specifies the computer's communication port and printer.

CONFIGURE PLANT LOCATION

The Configure Plant Location dialog allows the user to enter the name, address, and plant ID of his particular site. This information is reproduced in the header of all reports generated by PulseNet.

![Configure Plant Location Dialog]

CONFIGURE PORTS

Use this dialog to set the communication method your computer uses to talk to the controllers. Up to four network cards may be defined, although the norm is just one. The correct communication mode for Soil Bag is ArcNet, and the current cards being installed are of the “Type 2” variety.

The ArcNet twisted-pair mode is the most common network. It uses twisted-pair cable with terminal block or RJ-45 connectors. Make sure the address matches that of the ArcNet interface card in the computer. Typical settings are ArcNet Type 2 and PC ID # 255. Click the “Help” and “System” buttons for assistance in finding the I/O Address. The Offset is not used for current ArcNet cards.
Be sure to set the total number of networks in the “Total” list box, and select and define each number. For example, if you have two network cards, there will be 2 total networks, #1 and #2.

**SYSTEM DEFAULTS**

System configuration and settings are done in this dialog. Most other dialogs in the program use this data, so it is extremely important to understand each section and set it up correctly.

The Miscellaneous section sets the default language the program will use, as well as whether to show all text in bold and to use the metric system or not. Also, if a floor scale is specified in the
Program Options dialog (discussed later), it’s Tare Weights should be set here. The “1 Bag” Tare Weight is usually the weight of an empty single cart and an empty bag. The “2 Bag” Tare Weight is only used when two bags are being weighed at once with a single scale, and is usually the weight of an empty double cart and two empty bags.

Users should probably start with the Controller section. All possible MicroPulse controllers are shown, and the ones present in the system must have the correct ID assigned. Those controllers not used should have their Off-line checkboxes checked. Failure to check off-line controllers will cause the program to slow down while it searches for them.

![Rail Setup Grid](image)

The Rail Setup section is extremely important, as it defines all rails in the system and their attributes. This data will be input by Softrol personnel, but it is important to understand. Each rail needs to have an area assigned. See the diagram on page 6 for reference when assigning these areas. A rail number is also needed, as well as the maximum number of bags the rail can hold. **Note that rails always begin at number one.** Although the user sees Storage Area rails starting at 101, they start at 1 internal to the program and controllers.

The Zones field is only applicable to Storage rails. It tells PulseNet how many zones a bag must pass through before it gets to the rail. Think of a zone as a short section of rail that can only hold one bag. In the Storage Area, there are zones entering and zones leaving the rails. These zones enable the user to see exactly where a bag is in real-time on it’s way to it’s destination.

Each rail can have it’s corresponding Controller ID assigned, and it must match those in the Controller section discussed previously. The Status and Data Addresses are assigned by Softrol personnel, and should never be changed.

**Note that the Configure Layout dialog (discussed later) will use the Max Bags value to determine the length of a rail displayed on the layout.**

To the right of the rail setup grid is a grid to setup the zones. They are input just like rails,
except the only data needed is Area, Zone Number, and Controller ID.

The last part of the Rail Setup section is for configuring the Buffer rails. Every controller’s rails must always start at number one, internal to the program and controllers. But, just as Storage rails are referred to by the user as starting at 101, Buffer rails may be referred to by aliases also. Although these rails are initially setup in the big grid to the left, they can have different “Names” assigned to them. This allows the Buffer rails to be referred to by the user as “1, 2, 3, and 4”, rather than “1 and 2 for Buffer Area #1, and 1 and 2 for Buffer Area #2”.

The Lift Time section specifies whether the Lift buttons (Up, Down, etc.) on the screen operate immediately when clicked, or have an associated timeout. These times, as well as those in the Bag Time section, should be adjusted by Softrol personnel for optimal performance.

The last section in System Defaults is Database, and these values also should not be changed by the user. It is informative, however, to know how PulseNet finds it’s database. If the system is using a Microsoft SQL Server database, the setups will be input by Softrol personnel and should never be changed, unless directed to do so by Softrol.

For systems using Microsoft Jet databases, the name of the database is given in the File Name box, and should always be “PulseNet.mdb”. If the Folder Name box is empty, this file is searched for in PulseNet’s own site folder. In the case of the Soil Bag program, this is usually “C:\PSBM\HOME.SIT”. If, however, the File name box contains a valid path, the database is searched for there. This path can be to another folder on the computer, or even a different PC on your local network. This is often the case, so other copies of PSBM, and even other PulseNet programs, can share the data in the database.

For optimal processing speed when using Jet databases, there is a “Copy DB & Use Locally” checkbox. If the database resides somewhere other than PulseNet’s own site folder, and this box is checked, the program will copy the remote database locally and use it for many functions. Data that is global for the entire system, however, such as reporting data, will still be stored and accessed on the remote database itself.

**CONFIGURE LAYOUT**

This dialog enables the user to construct an aerial view of the plant floor. All rails and zones in the system may be placed on the layout, and graphics tools are available for enhancement. Note that this dialog depends on data that is setup in System Defaults. If you have not set up the rails and zones in System Defaults yet, there will be no equipment available to place on the layout. The user may still make graphic drawings, however.

The layout starts out with one page defined, named “Page #1”. The user may rename this page, and add more pages as desired. Rails and zones can appear on more than one page, allowing the user to have a page for the entire plant using small bags, and other pages that are “zoomed in” on specific areas using large bags.
NOTE

Do not combine rails in the Storage Area with rails in the Buffer Areas on the same page if you will be using that page for the Manual CallOff feature. It will confuse it.
The rail, zone, and drawing tools will be discussed first. Across the top of the Configure Layout window is the toolbar. This is where all main functions of the layout are located. Also available is a popup editing menu, accessed by right-clicking the mouse on an object or “white space”. White space refers to an area of the drawing that contains no objects or graphics.

The Selection Tool is for selecting objects and graphics that have already been placed. In general, objects refer to rails and zones, and graphics refer to all the other elements of the layout (those drawn with the drawing tools).

The Insert Rail button will bring up a list of all rails not already placed on the current page. First select which bag size you want, small or large. Large is preferable, as there is room inside the bag graphic to display certain types of information. When you select one and click OK, the program will place a gray square at the top left of the layout. When this square is moved using “drag-and-drop”, you will be asked for a direction (Up, Down, Left, or Right).

This is the direction that bags travel across the rail. In other words, if you are placing a horizontal rail on which the bags travel left-to-right, you would select “Right”. The Soil Bag program will then extend the rail and draw it, depending upon the settings for that rail used in System Defaults. The rail will be drawn as a rectangle to save memory, but will be drawn fully when you view it in the View Rails dialog. For reference, the width of the gray rectangle is the same as the bag diameter, and the length is the length of the rail itself. The rail will “stick out” slightly on each end and be longer than the row of bags it holds.

Zones are placed in a similar manner, but appear round, as they will when viewed.
The graphics commands all work alike. These include Draw Rectangle, Square, Oval, Circle, Rounded Rectangle, Rounded Square, and Line. First select the graphic you wish to insert. A properties page will appear so you can customize the look of the shape or line. Text can be entered to appear inside shapes. In the Solids section, you may specify Filled or Outline. Filled will fill in the shape with the selected color, and Outline will leave it hollow. Also, the thickness of the outline (or thickness of a line) may be set with the Pen setting. A larger number draws a thicker line. Finally, the color may be set with the Color button.

Extra features include setting the font to be used for text, and whether to enclose text in a box.

After clicking OK, you are ready to draw. Click and hold the mouse button down at the desired location of one corner of the shape, or one endpoint of the line. Then drag the mouse to the desired location of the other corner, or line endpoint, and release.

The Insert Text button will bring up the same Properties page. After clicking OK, the text will be placed in the upper left-hand corner of the layout. It can then be moved into the desired location.
location using drag-and-drop.

Be careful when dragging, as any slip on the mouse button when choosing opposite shape corners, or the second line endpoint, will draw a tiny shape or line. This graphic may be so small it appears only as a dot. If this happens, just use the right-click editing menu to delete the graphic and start over.

The Properties button brings up the Properties Sheet, which has the default settings and values used for object and graphic insertion.

The Move Layout button is used to move the entire layout, and offers choices for Left, Right, Up, and Down. This is a good time to discuss the invisible grid, and the units of measurement used on the layout.

The unit of measurement used on the layout is called a **twip**. Fifteen twips equal one pixel. So, if your monitor has a resolution of 1280 x 1024, there are 19,200 twips horizontally and 15,360 twips vertically. The area available for drawing is somewhat smaller than this because of window borders.

Whenever an object or graphic is placed on the layout, it automatically snaps to a 60 twip grid, so it may move slightly when dragged-and-dropped. As soon as you release the mouse button, the object snaps to the nearest grid point. This aids in lining graphics up with each other.

The Move Layout button asks how many “squares” to move the layout. A square is the same size as a Windows icon, 32 pixels. That would be 480 twips.

The Manage Tabs button will allow the user to Add a tab (page), Delete a tab, or Name one. Insertion of new pages occurs after the current page, and deletion and naming acts on the current page.

The Save and Exit buttons perform their obvious functions. Note that a page must be saved before switching to another.

Lastly, the current coordinates (measured in twips) and the active drawing tool are displayed at the far right of the toolbar. Right-clicking the mouse on an object or graphic will popup an Edit Menu. The functions offered are self-explanatory, and those not applicable to the object selected will be disabled.

The Move commands will ask how many twips to move an object. Try to enter numbers in multiples of 60, since all drawing elements are placed on a 60 twip grid. Usually, if a drawing element is just slightly not lining up, 60 twips will do the trick. Occasionally, 30 twips is needed to center one object with another.

On every layout page there is a box for displaying the Item, Lot, and
Customer for highlighted bags. This box can be moved to another location by drag-and-drop, and the layout will remember where it was placed.

PROGRAM OPTIONS

The Program Options dialog allows the user to customize the way the program works, and also to define the duties of that particular computer. It can only be accessed by entering in the manager’s security password. This password is only for the manager’s use, and may only be obtained from Softrol personnel with proper authorization.
The Tab Display section defines which tabs, or pages, will be available to the user. Disabled tabs will have their legends blanked out, and the corresponding page cannot be shown.

The Bag Lifts section tells PulseNet how many lifts are in the system, and how to display them. If using a computer for each lift, the unused lift can be hidden. Also, lift positions can be displayed in any arrangement on the page, depending how the screen is positioned. If the system contains only one lift, it is automatically centered in the page. Lastly, if the first bag to exit the lift needs to appear on the right rather than the left-hand side, check the “First Bag On Right” box.

The Washer Loads section defines how loads are made from the Storage rails. Loads must always consist of bags of the same Item Number. If “Allow Mixed Lots” is unchecked, these bags must also be of the same Lot Number. “Allow Mixed Customers” works similarly.

“Assemble by bag count” causes loads to be made by the number of bags desired, as long as the weight doesn’t exceed the washer’s capacity. It uses the desired minimum and maximum weights to make a load, adding bags to get to the maximum weight without going over.

The Buffer Rails section tells the program if it is OK to mix Lots or Customers on the Buffer rails. This would allow the user to have loads on a Buffer rail that were all the same Lot Number, for instance. Setting these options will display a warning that can be overridden.

The Miscellaneous section contains options for how the program behaves, and if a floor scale is utilized. Auto-Start Program will automatically click the Run button for you whenever PulseNet first opens. Auto-Start View Rails will likewise start the viewing of bags in the system whenever View Rails first opens. The Auto-Select option is for the Lift operators. If checked, and the bags can fit on the predetermined Storage rails, the operator will not be prompted for their destination. Prompt for Customer decides whether to ask the Lift operator for a Customer Number when lifting bags.

![Floor Scale](image)

Also in the Miscellaneous section is a Floor Scale button. If one or more floor scales are present, they should be setup using this dialog. The scales will be read through the computer’s serial ports, and the ports themselves, as well as the type of scale head, need to be specified. If a Lift handles only one bag, just set Bag #1 and Bag #2 to the appropriate COM Port (the other port settings are ignored). If two bags are handled, one or two scales may be utilized. If one scale is used, the same COM Port should be set for both bags. When there are two scales,
however, set the correct COM Port for each bag. Lift #2 is set up in the exact same fashion. The Tare Weight of the scale should be set also, but this is done in the more accessible System Defaults dialog. Tare Weight is explained fully in that chapter of this manual.

PulseNet handles single scales weighing two bags in a special way. When the first bag is weighed, the Tare Weight is subtracted from the scale reading, and assigned to Bag #1. This is normal. However, when the second cart/bag is rolled onto the scale and weighed, the first bag’s total weight (before Tare Weight subtraction) and another Tare Weight are subtracted from the scale’s reading, giving an accurate weight for the second bag.

The “Weigh 2 Bags & Divide” option is only used where one scale needs to weigh two bags at once, and use only one weight measurement. In this case, the total weight is taken, the “double-cart tare weight” is subtracted, and the result is divided and assigned to each bag.

The Configure Drops section allows for program backward compatibility, and also for accommodating two computers that are pulling bags for the Drop Bags page of the Soil Bag program. The default option is “Save to DB”, and should be used whenever possible. If using two PC’s to drop bags, however, the “Save to INI” option allows each computer to maintain it’s own set of washers to service. Note that while two computers may drop bags, only one is allowed to also use the Request Loads page at the same time.

The Buffer Calloff Scheme option is purely for backward compatibility, and the “WL & Spur CallCode” is used for all but the earliest versions of Soil Bag. Choosing ‘Washer Number” will cause all recent versions of Soil Bag to malfunction and not release any bags to the washers.

The Request Loads section determines how many pages are used on the main Request Loads page. These “sub-pages” are “Send to Buffer”, “Send to Washer A”, “Send to Washer B”, and “Send to Washer C”. Usually, the Buffer page is used for loads destined for buffer rails that feed washer/extractors. Likewise, the Washer pages are normally used to send bags directly to the machine (usually a “tunnel” or “batch” washer), bypassing any buffer rails.

The Reports section allows the user to decide what data will be stored in the database for reporting. Unused reports should not store their data in the database, so it can be smaller and faster. The “Store Dropped Bags to DB” and “Store Dropped Bags to Log” are different in that the DB option stores the data in the database, making it available for reports. The Log option, while storing the data, does so in a separate file and is mainly used for real-time display of what loads have been dropped when viewing the Drop Bags page.

The Program Mode section is very important, and defines the function of that particular computer in the system. The Normal option is for PC’s that are located at the Lift Stations, and that is usually their only function. The Request Loads and Drop Bags Simultaneously option is for computers that do just that. Only one PC in the system should use this option. However, for soil systems servicing multiple banks of washers, the Normal option can be used, and the Drop Bags page shown to accommodate the additional washers. The Remote PC option is mainly for computers in offices, away from the soiled and wash areas. There is usually only one Remote PC in a system, but more can be used if desired. One of these Remote PC’s will hold the SQL
Server database (if one is utilized), and all Remote PC’s can view the bags on the rails, pull reports, and manage Work Orders.

**PRINTER SETUP**

This is the standard printer setup dialog used by Windows itself. Please refer to your Windows and printer manuals for more information.

**SITE MANAGEMENT**

“Store” and “Retrieve” are used to backup and restore all customer-specific data associated with the program, using ZIP files. It is wise to store your site data at least once a month in case of accidental data erasure or computer failure. Features not supported by Soil Bag have been disabled. The “View Comments” button on the Retrieve page displays comment information.
stored inside the file.
The Automatic tab deserves additional discussion. By default, site backups are done in the background every day at 3:00 AM. The latest seven backups are kept, in case the user needs to roll PulseNet back to an earlier state. All options concerning this process, even disabling it, can be set on this page.

An excellent backup scheme is to direct the automatic backups to a removable device, such as a “memory stick”. Just use the “Browse” button to locate the memory device, making it the “Backup Folder”. By placing the backups here, the user is protected even from a hard drive crash.

EXIT

This menu selection exits PulseNet and returns to Windows.
OVERVIEW
This menu contains selections which communicate with the MicroPulse controllers in the system. The controller accessed is the current one displayed in the upper right-hand corner of the main window.

CHECK MACHINE COMMUNICATIONS
This selection allows the user to test communications with all controllers. Click the “Start” button, and each controller’s status will be displayed.

MONITOR
The monitor allows the user to view the status of any controller in the system, plus any washer defined as a “drop” on the Drop Bags page. You may use the mouse to push keys on the keypad, just as if you were standing in front of the actual controller. To push a key, merely
click on it with the left mouse button. To hold down one or more keys, click on them with the
right mouse button. They will stay held down until a button is clicked normally with the left
button. For example, to press the "Yes", "No", and "Enter" keys simultaneously, click on the
"Yes" and "No" keys with the right mouse button, then click on the "Enter" key with the left
button.

RAIL PEEK

Rail Peek is a utility for viewing and editing the raw controller memory that holds individual
bag data. It should only be used by authorized Softrol personnel.

CHANGE MACHINE ID

The Change Machine ID dialog presents a scrolling list of machines for the user's selection.
Once a machine is highlighted in the list box, you may click the "OK" button or hit the [Enter]
key. In addition, a selection may be made by double-clicking it with the mouse, no matter
where the highlight bar is. This changes the current machine upon which the Machine menu
selections work.
OVERVIEW

This menu contains selections for setting up Items, Lots, and Customers in the database, as well as managing the database.

CONFIGURE DATABASE

This is the main selection for entering Item, Lot, and Customer data into the database. This data is used throughout PulseNet for choosing bags to lift, pick for loading, etc.

The database is usually shared with other PulseNet programs, such as the Plant Monitor. For
this reason, the “Process Database” button should be where the user begins when adding an item. The button allows editing of the Process Database table in the same manner as Plant Monitor. This particular table is frequently shared with the PPMM and other PulseNet programs, and needs to be kept separate. Typically, the Process Database table contains all the Item Numbers used by the plant. There is other data associated with each item that is specific to the Plant Monitor’s functions. Some of this data, however, is shared by the Soil Bag program, such as assigned Weight, Lot, and Customer.

The three large grids fill in tables specific to the Soil Bag system, so some redundancy is present. For instance, when you use the Configure Items grid to configure Item Numbers with data specific to Soil Bag, if that Item Number exists in the Process Database, it’s name will automatically be used by Soil Bag. If the item doesn’t exist in the Process Database, the user must assign a name in Soil Bag.

Other data shared by the two programs is “Desired Weight A” and “Weight Tolerance”. Soil Bag calculates it’s Maximum Weight for a load by adding the desired weight and the tolerance. The Minimum Weight is input directly in Soil Bag.

Before we discuss this dialog in depth, it might be advantageous to map out a typical plant’s database duties, in order, before we start. Typically, the user will start with the Process Database, making sure all Item Numbers and their Descriptions (Item Names) are present. If assembling washer loads by weight, the Desired Weight A and Weight Tolerance should also be entered. Next, the Configure Items section should be used to add all Item Numbers to Soil Bag’s own database table. Although each Item Number must be re-entered, the names from the Process Database will appear automatically.

Then, the Configure Lots section should be taken care of in a similar manner. Unlike items, the names of lots do not reside anywhere else in the system, and must be assigned here. Same thing for customers, which should be done last. Note that even if you are not prompting for Customer Numbers, you should input and name Customer #1. This is the customer that will be used by default if not prompted for one.

The Configure Items section is very important for directing bags to the correct Storage rails,
and setting the Minimum Weight of a load.

To add an item, enter it’s Item Number in the Item box. If it’s name exists in the Process Database, it will be used and the Name box will be disabled.

The rail choices bear further discussion here. The Primary Rail is the “first choice” of where to send this bag into Storage. If this rail is unavailable (full or has a problem), the Secondary Rail is used. Likewise, if this rail is also full, the third Tertiary Rail choice will be used for the bag’s destination. These are the default choices for destination Storage rails, and will be consulted every time the Lift is ready to lift bags.

If Auto-Select is checked on the Operate Lift page, the Lift Operator will not be prompted for a rail as long as one of these three choices can be accommodated. But, if all three rails are full, he will be asked for a different destination. If Auto-Select is unchecked, however, the operator will be prompted every time for a destination, even though one or more of the rail choices may be available.

The Minimum Weight field is important if you are assembling washer loads by weight. A load will not be made if the combined weight of all bags in the load is less than this value.

The Item Color and Buffer fields are not used in the Soil Bag program and may be left alone. The Lot and Customer fields at the end are for the user’s convenience, and indicate what is assigned in the main Process Database.

The Configure Lots section functions exactly as Configure Items, except for two things. First, the Lot Names are not stored anywhere else on the system, and therefore must be input here. Secondly, the Color field here is used, and should be set for all lots. Several graphical elements of the program will display these colors, with black text inside. Therefore, avoid dark colors, especially black, so the text will be readable.

In Configure Customers, the Numbers and Names may be entered, but the Color is not used.

The Print buttons for all three grids offer printing the lists in numerical order (“123”) or alphabetically (“ABC”).

**DATABASE MANAGER**

The Database Manager is a diagnostic tool for the use of authorized Softrol personnel, and should not be used by the end user.

**COPY REMOTE DB LOCALLY**

This menu selection is only applicable if using the Jet database option in System Defaults. If “Copy DB & Use Locally” is checked in System Defaults, the program is accessing a remote database. This remote database is copied locally for program speed whenever it is first started, or a site backup is done. This insures that PulseNet is accessing current data. If changes are
made on another computer to the remote database, most notably the Process Database, the changes can be reflected immediately by choosing this selection.

If you are using a remote database, but not copying it locally, this selection can still be of use, by bringing the database over manually before a site backup.
OVERVIEW

This menu contains a few selections to aid the user in the use of the program.

LANGUAGE & METRIC SYSTEM

These selections are placed here for the convenience of the user. They will toggle the language and metric settings without affecting the master settings in the “System Defaults” dialog. When the metric system is active, a check-mark appears beside the selection in the menu itself.
HELP MENU

OVERVIEW

The Help menu contains selections to access the User’s Manual, display enhancements and bug fixes made to the program, and display the About Box.

USER’S MANUAL

This selection brings up the User’s Manual in the Acrobat ® Reader. Detailed help about how to navigate through the document is contained in the Reader itself.

PROGRAM HISTORY

This menu selection will display the enhancements and bug fixes made to the program during it’s lifetime. It is useful for keeping track of changes as you update the program.

ABOUT

This menu selection displays the About Box, which contains the manufacturer, name, and copyright notice of the program. The version number is also listed (as it is in the Main Menu's title stripe).
OVERVIEW

The first page of the Main Menu screen allows the user to lift bags into the Storage Area.

BASIC BAG LIFT SEQUENCE

The basic operation of the bag lift is as follows: the lift is lowered to the Intermediate position, where a “trolley” is placed on the lift rail. Then it is lowered and the bag straps are hung on the trolley’s large hook, and the “ripcord” to open the bag is placed on a special small hook. The contents of the bag are then entered into the system by selecting the appropriate Item Number,
Lot Number, and Customer Number. Then, the bag’s destination is chosen. This tells the system which Storage rail to send the bag to. Next (if a floor scale is being used), the “Get Weight” button is pressed to grab the weight from the scale and assign it to the bag. If a second bag is to be lifted at the same time, this process is repeated. Lastly, the bag is lifted toward the ceiling, where it meets the Transport rails and starts its journey to the Storage Area. This process! is then repeated many times during a normal work shift, filling the Storage Area with bags.

We will now discuss the specifics of the Operate Lift screen in more detail.

**LIFT BUTTONS**

There are four buttons for operating the lift. They are Up, Intermediate, Index, and Down. Unlike the others, the Index button does not actually move the lift. It merely releases a trolley to the lift rail when the lift is at the Intermediate position. Note that the lift may be operated from these buttons in PulseNet, or by the pendulum hanging nearby, or a combination of both.

**BAG SELECTION BUTTONS**

The large buttons to the left of each lift are the Bag Selection buttons. They allow the user to
specify the contents of the bag, or bags, that are about to be lifted into Storage. One or two bags may be lifted at a time, but never more than two.

The Select button will display the Item Number Selection window. This window will show all Items contained in the Process Database, along with their Item Names. If these have not yet been entered, the user should configure all Items, Lots, and Customers as per the Configure Database selection discussed earlier before continuing.

Clicking on an Item Button will copy the information into the Current Item button, located at the bottom in the center. This button always holds the last item selected. To confirm the selection, simply click on the Accept button. Clicking the Exit button will abort the selection process.

Lots are selected in exactly the same manner. Note that if a Lot Number is assigned to the selected Item in the Process Database, that Lot Number will be used and the user will not be prompted.

The option to assign a Customer Number is located in the Program Options selection of the Setup menu. If this option is checked, the user will be prompted for a Customer Number. Otherwise, Customer #1 will be automatically chosen.

After the bag contents are specified, the bag’s Destination Rail needs to be decided. If the program option of Auto-Select is enabled, and any of the three predetermined choices are available, the user will not be prompted for this information. If however, none of these choices are available, or Auto-Select is disabled, the user will need to specify a Storage rail on which to put the bag. In all cases, rails are checked for availability and their status displayed in the rail selection box.

When a bag is completely selected, it will be displayed in the Current Bags grid. At this point, the appropriate “Get Weight” button should be used to enter the weight, if one or more floor scales are used.

In addition, the last bag selected will also appear in the Last Bag grid at the bottom. To specify a first or second bag on the lift that is identical to the last one selected, just click the Copy Last Bag button. Whatever is in the bottom grid will be copied into the Current Bags grid.
Once the lift’s load has been specified with either one or two bags, click the Done button. The bags will disappear from the Current Bags grid, and reappear graphically on the picture of the lift itself. Inside the bag graphic, the Item Number (top) and Lot Number (bottom) will be displayed. Also, the bags’ destination rail in the Storage Area will appear above the bag, just above the lift rail.

Underneath the Done button is the Bag Clear button. This button should be used with care. It will, at any time, erase the bags from the lift, its memory, and the screen. An example of when this could be helpful is when you have specified one or more bags to lift, but need to start over because of incorrect bag specification.

Next are the Bag Edit buttons. They will allow editing of the bag information, including Item, Lot, and Customer Numbers and the Destination. The left button always edits the bag on the left, and the right-hand button edits the right-hand bag, regardless of the bag numbers. The bag numbers are set up in the Program Options menu selection discussed earlier. Always remember that Bag #1 is always the first one to leave the lift and head for the Storage Area.
OVERVIEW

This page enables the automatic “calling-out”, or marking, of bags in the Storage Area and sends them to the desired Buffer rails, or directly to a washer (usually a tunnel or batch washer). The desired loads are specified and added to the list, and this list is continually scanned from top to bottom. If the currently selected load can be made, the bags are marked and the MicroPulse controller releases them. The making of a load depends on the parameters the user chooses for the load, and also on physical factors such as whether or not there is room on the
target Buffer rail or washer pre-load rail.

Note that there are three pages here, named “Send to Buffer”, “Send to Washer A”, “Send to Washer B”, and “Send to Washer C”. This provides one page for sending bags to up to four Buffer Rails, and up to three additional pages for sending bags to locations not serviced by a Buffer Rail. You do not have to use separate Washer pages for multiple tunnel washers, for example. All non-Buffer bound loads can be listed on one page, or you can indeed use separate Washer pages for each destination. This allows the user much versatility.

As the list is scanned, a **highlight bar** will indicate which load is currently being looked at for processing. As a special feature, once the list is built and is scanning, the user can skip over certain loads and relocate the highlight bar by right-clicking the mouse on the desired load. The scanning continues from where the bar was relocated.

The computer that assembles loads is called the **Master Loading PC**, and there can only be one of these in the Soil Bag system. This is to prevent multiple computers from trying to mark the same bags for release and interfering with each other. Master Loading PC’s are designated in the Program Mode section of the Program Options dialog by checking the “Request Loads and Drop Bags simultaneously” option. Other PC’s can drop bags, but only one can request loads. The Drop Bags page will be discussed later in this manual. For the user’s convenience and information, non-Master computers can still display the Request Loads page and see what the Master Loading PC is processing in real-time. However, all other functions are disabled.

**LOAD BUTTONS**

The Load buttons should be discussed first. These are Add, Delete, Copy, and Paste. The Add button allows the user to define a load to be eventually dropped into a washer. Just like defining a bag to be lifted into Storage (discussed earlier), the user is first prompted for an Item, Lot, and Customer. Depending on the settings in Program Options and the data present in the Process Database, input of the Lot and Customer may or may not be required.

After these choices, the desired Buffer rail is requested if sending to a Buffer, or the washer number is requested for the Washer pages. If a washer page services multiple washer/extractors, a machine number of zero may be entered as a “wildcard”. Otherwise, the load will only be called out of storage if the designated washer is available. For Buffer Areas, the rails associated
with them are defined in System Defaults. After the Buffer Area is chosen the user must pick either the Normal rail or the Express rail. The only difference between the two rails is that the Express rail is scanned first when trying to release a load to the washers. So, if a particular load has a high priority for getting washed first or ahead of other loads, it should be sent to the Express rail.

The Washer Loads section of System Defaults has an option to either assemble loads by bag count or by weight. If Count is selected, the user is prompted for a minimum and maximum number of bags for the load. If Weight is chosen, the lowest acceptable weight and the highest acceptable weight for a load are prompted for instead. Loads will not be marked for further release into the system unless these minimums and maximums are met.

There is one exception to this rule when assembling loads by bag count. The maximum weight allowed in the system is 1599 pounds. But, in case the bags have been overloaded, as long as the load meets the count requirements, the weight can go over 1599. In this case, however, the load weight is not recorded as actual, but dropped down to 1599. This prevents bags that are overloaded from getting stuck in the Storage rails because they cannot meet the load criteria.

Notice that the Buffer Page has two columns marked “MinBags” and “MaxBags”. Due to space limitations, the Washer Pages have one column named “Bags”. The first digit is always the MinBags, and the second digit is the MaxBags.

Lastly, the user is asked if the load should be scanned and processed Always, Once, or Timed. **Always** means that the entry stays in the list, and the program tries to assemble the load every time the list’s highlight bar rolls around and selects it. **Once** means that when the load gets selected, it is deleted from the list if the load was assembled successfully. If the load was unable to be made, it stays in the list until it is made, then deleted. **Timed** works just like **Once**, except the load will not be looked at or processed until the designated time has either arrived, or has passed. This allows the user to space out certain special loads during the day to make sure they get processed, but not all at once.

**LIST MANAGEMENT BUTTONS**

There are three buttons for managing the load list, named Save, Restore, and Clear. The Clear button is self-explanatory, and merely empties out the list so that it contains no loads. Save and Restore warrant some further explanation, however.

The Save button will store the current contents of the load list. This is handy for returning the list to a previous state the user deemed important. For example, this is perfect for setting up a sequence of loads containing a number of Once duration loads, and when the list gets exhausted, loading it back again to start over.

Clicking on the Restore button offers the user two choices, Last Save and Current State. The Last Save choice will bring back the list that was last saved by clicking the Save button, as described in the scenario above.
Current State, however, will restore the list to it’s last known state. Every time the list changes for any reason, this Current State is updated automatically. Using this option seems unnecessary, but it does have a purpose. An example would be if a brown-out or power outage caused the computer to power down. This button would allow the user to restore the list to exactly what it was before power was cut, so he could continue from where the program left off.

EDITING BUTTONS

The rest of the buttons across the bottom of the load list are called Editing Buttons. They allow the user to change the Minimum and Maximum Bags or Weight of a load, which Buffer Area it is going to, which Buffer rail (Normal or Express), and the Duration. There are even Arrow Buttons to the extreme right, which allow changing a load’s position in the list. To perform any of these functions, click the mouse on the desired load to highlight it, then on the appropriate button to change it accordingly.

One more thing should be mentioned concerning how loads are marked for release. Both involve settings in the System Defaults dialog. In this dialog, the Washer Loads section has two checkboxes, one for Allow Mixed Lots, and another for Allow Mixed Customers. If the one for Lots is unchecked, loads will be marked irregardless of the Lot Number, meaning that only the Item Number must match for all bags in the load. Mixed Customers works in exactly the same manner, making loads regardless of the Customer Number. If either of these boxes are checked, the loads are still allowed, but the user is warned of the situation and given a chance to cancel the marking of the load.

These two options also exist in the Buffer Rails section of System Defaults. Here though, the idea is to decide if a Buffer rail should consist of all one Lot and/or Customer Number, or to allow mixing. For example, if all the bags on a Buffer rail are made up of Lot Number 52, and the user tries to send a load containing bags from Lot #67, he will be warned that he is about to mix Lots on the Buffer rail.

DISPLAYING MARKED LOADS

When a load has been successfully marked, the bags that make up the load will be displayed in
the Marked Loads grid. Below the grid is a magenta-colored box that displays the total Load Weight of the bags. This is the soiled weight that will be dropped into the washer when the bags travel to that position. Once the bags are marked for release, PulseNet’s job is done. The MicroPulse controllers continuously scan the Storage rails for marked bags. When a marked load is found, the controller orchestrates their movement from Storage to the appropriate Buffer rail.

**CONTROLLING THE LOADING**

There are four options for controlling how and if PulseNet marks loads and feeds the Buffer rails. The most obvious is the large “Active” checkbox just below the Marked Loads grid. If this box is unchecked, the program suspends cycling through all load lists, and does not search for bags to mark. Individual pages may be disabled in the Active Tabs section. The third option for buffered loads is the Active Rails section. If any of the Buffer rails are unchecked, any loads in the list that are destined for that rail will be skipped.

<table>
<thead>
<tr>
<th>Area</th>
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<th>RailNo</th>
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</thead>
<tbody>
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</tr>
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<tr>
<td>1</td>
<td>Storage 1</td>
<td>21</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

The last option for controlling the pulling of bags from the Storage Area is actually located on another page, the Miscellaneous page. This is because it’s settings affect more than just the Request Loads page of PulseNet.

On the Misc page, clicking the Read button will load all Storage rails into the grid. There are two columns for each rail that control it’s behavior, In and Out. In the case of Request Loads, we are concerned with the Out column. If an Out column is changed to No, then that rail is skipped when searching for bags to make a load. This provides a way for the user to fill up a rail for later use, without the system automatically pulling bags off of it. To change a rail’s status, highlight the rail by clicking on it, then on the In or Out button to change it’s state.
The In column controls whether or not the Lift Stations can send bags up the Lift and store them on that rail. If set to No, the Lift computer will not allow the operator to specify that Storage rail as a valid destination.

WORK ORDERS

The Work Orders section allows the saving and management of load lists. Rather than enter in long lists of the day’s proposed production each time, the lists can be saved and restored at any time. This is a great time-saving tool for the user, and is one of PulseNet’s premier features.

The Select button will display a list of previously-built Work Orders for the user’s selection. If the load list is not empty, the user will be asked to Replace the existing load list with the desired Work Order, or Append it to the bottom of the list. The current Work Order’s name will then be displayed in the long box just above the buttons.

The Save As New button will take the current load list and save it as a new Work Order. The user will be asked for a descriptive name to assign to the new Work Order. This function is best used when PulseNet is idle, or the Active option is unchecked, as the list may be constantly changing as it makes loads.
The Manage button allows the creation, editing, and deleting of Work Orders. The creating and editing works very similar to the Request Loads page itself. As a matter of fact, all buttons underneath the Work Order grid function exactly as described before. This dialog, however, has another grid to the left which displays all available Work Orders already entered into the system.

The Save button will save the current load list in this dialog to the name highlighted in the Work Orders name grid. This allows for editing of existing orders. New orders should be saved by clicking the Save As button instead. The user is asked for confirmation if changing an existing order, or saving a new one to an exiting name.

Through the use of the Always, Once, and Timed durations, and the ability to chain Work orders together with the Append option, the user has vast versatility to tailor the production day to any need that should arise. This is especially true once a library of Work Orders has been created and refined. Experimentation with Work Orders will yield better productivity and throughput for the plant.
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DROP BAGS PAGE

OVERVIEW

This page displays the status of the washer loading part of the Soil Bag system. The PulseNet program itself however does not actually drop the loads into the washer. This job is performed by the “WL” MicroPulse controllers. The function of the Drop Bags page is to exchange data and signals with the controllers so the loading can take place, and most importantly, choose and mark loads for transport from the Buffer Area to the Loading Spurs.

Before the Drop Bags page can be utilized, however, all setups previously discussed in this manual must be performed. Then, there are additional setup duties to perform on this page itself. They are located at the bottom, and consist of the Machine Configuration button (washer icon), Configure Drops button (bag-on-rail button), and the Active Rails section.

MACHINE CONFIGURATION

The main purpose of this dialog is merely to set the minimum and maximum Load Weight the washer will accept, and the formulas that are allowed to be processed.

WARNING

It is important to only edit those settings marked above as Soil Bag Settings. All others are
handled by the automation programs, and any changes to them could adversely affect plant floor operations.

The proper procedure for editing the settings is to click the Read button to transfer the washer’s current settings to PulseNet. Then, make the necessary changes and click the Write button to send the settings back to the machine. The Print button may be used to produce a hardcopy of these settings, in case they are lost and need to be re-entered.

CONFIGURE DROPS

This dialog is the heart of the Drop Bags scheme, and needs to be setup very carefully. There can be a maximum of sixteen drops configured. To enable a drop, select the desired Drop Number, then check the Drop Enabled box. Next, the washer’s ArcNet ID number should be selected in the Machine ID drop-down list. The “Washer Number” below this box usually matches the “Machine ID”, but any number can be chosen. The washer’s Network should be chosen next, which will be “1” unless there are multiple ArcNet cards in the computer connecting the washers together. This situation is rare.

The Washer Number is the “name” by which the washer will be referred to by the Soil Bag program. When bags are marked for transfer from the Buffer Area to the washers, the Washer Number is paramount in telling the system where to deliver the goods. To avoid confusion, it is usually the same as the washer’s ID. The other pieces of data needed to direct the load to the correct washer are located in the Soil Bag section at the bottom of this dialog.

Using the typical system example, the diagram above shows how to set up Washer #1, which goes to a Buffer Rail. It is fed by the rails of Buffer Area #1, so that option is selected. The WL Controller that is assigned to Drop Area #1 has an ID of 153, so that value is set as the Soil Bag
Controller ID. Lastly, the controller’s first Spur is routed to Washer #1, so Spur #1 is selected. For reference, each WL Controller can handle up to six Machine Drops (Spurs), although our example system uses only three of these drops per controller.

If a Drop is for a non-buffered washer, such as a tunnel or batch washer, the “Source” option should be set to “Storage”, and the “Direct from Storage” criteria specified. First is the Drop Area, then the “Call-Off Code” needs to be specified. Softrol personnel will usually set up these codes, but as an example, the first tunnel controller would have a code of “11”, the next on “12”, and so on. Lastly, if the tunnel is controlled by a Softrol MicroPulse controller, the “Washer has SSI Controller” box should be checked. This assures all pertinent data for an automated system is transferred when bags are dropped into the washer.

### ACTIVE RAILS

This section merely enables or disables the transfer of bags from the Buffer Area rails to the washers. If a particular rail is unchecked in this section, no loads will be called off for transport to the washers. An example of this feature’s usefulness comes toward the end of the plant’s work day. It allows the user to fill up the rail and ready the system for the next day’s production needs.

### MACHINE DROP INTERFACES

Now that setup has been discussed, we need to look at the “meat” of the page, which is the actual orchestration and display of dropping bags into the washers.

<table>
<thead>
<tr>
<th>Mach</th>
<th>PreLd</th>
<th>Ready</th>
<th>Load</th>
<th>Item</th>
<th>Lot</th>
<th>Cust</th>
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<td>1</td>
<td>✓</td>
<td>1</td>
<td>7</td>
<td>8</td>
</tr>
</tbody>
</table>

On the extreme left are the Drop Numbers. Some may be “grayed out” (disabled) due to being defined but disabled in the Configure Drops dialog. The next column is the Machine Number associated with that drop. Clicking on this “Mach” box will display a monitor of the machine’s controller. There is also a master Monitor button at the lower right corner of the page.

Next are two columns that both display and enable/disable loading functions. The PreLoad will be high (set to 1) whenever the Loading Spur of the washer is empty and a load is needed. If not, a zero will be displayed. The PreLoad button beside it will be green and display a checkmark whenever the user desires to send bags to the Loading Spur. If this button is clicked so that it turns red and displays an “X”, the sending of loads to this washer will be stopped.

The next column is for Machine Ready, and indicates that the washer is operational and ready
to receive a load. Clicking the green checkmark button beside the display will disable the drop and prevent Soil Bag from dropping bags into the washer.

These buttons are handy for several scenarios. For instance, if a machine is down for repair or otherwise off-line, the PreLoad can be disabled and no bags will be sent to the washer. Also, if the user wants to “pre-stage” bags above an operational washer for the next day’s run, the PreLoad can be enabled but the Ready can be disabled. This will send bags over the washer, but not drop them.

The last column that deals with loading is called LoadPresent, and is labeled simply “Load”. If this field is high, it indicates that a load of bags has traveled over the rails to the Loading Spur, and is ready to drop into the washer. If this field is low, it indicates there are no bags present over the machine.

The next columns are for Item, Lot, Customer, and Weight. These values are filled in by the MicroPulse controllers that keep track of the bags in the system. The columns indicate the contents of the bags presently hanging over the washer. The Weight displayed is for all bags in the load, not any individual bag.

The right-hand side of the Machine Drops section displays the final steps of loading the washers, and the status of the system. Any errors with the bag delivery system will appear in the Bag Error column.

The Drop column goes high whenever the MicroPulse controlling the Loading Spur commands that a bag be dropped into the washer. Once the goods are emptied from the bag and it starts rolling away from the washer, the Bag Clear signal goes high.

The Legend column displays the current state of the PulseNet Soil Bag program. PulseNet continually monitors and communicates with all Machine Drops in a “round-robin” fashion. The displayed state is actually the current point in the loading sequence logic for each drop. In a similar fashion, the washers themselves are monitored, and their status is displayed in the adjacent Machine State column.

Finally, there are eight I/O (Input/Output) lights for each drop, and a Reset button. The lights correspond to input and output modules in the MicroPulse’s control rack. Their displayed state is mainly used by Softrol personnel to diagnose and monitor the system. The Reset button should only be used in extreme or emergency situations. It will clear the drop of all data, return PulseNet’s logic loop to the idle state, and then re-establish the correct status for that drop.
Even if a load is hanging over a washer that has been reset, that load’s data will be reloaded into PulseNet, and the entire system will return to normal operation.

The bottom half of the Drop Bags page displays bags as they are dropped into the washers, and additional loading options.

On the left is a list of bags dropped into the machines. Each bag is listed and numbered. For example, if a load consisted of three bags, they will appear in the list as Bag #1, Bag #2, and Bag #3. The Weight displayed for these bags is not the individual bag weight, but the entire Load Weight of all bags in the load. This list has two buttons next to it, one to purge old data that is no longer needed, and another to print the list. If entries are not purged from the list, once 32,000 entries are present, the list resets itself and starts over. The list may be saved and automatically restored whenever the Soil Bag program is restarted by checking the “Save Dropped Bags to Log” option. This option is located in the Reports section of the Program Options dialog discussed earlier.

This Dropped Bags Log is actually redundant, as this data is permanently stored in the database if the Save Dropped Bags to DB option is checked in Program Options. Dropped bag reports are based on data in the database, not on this displayed list. It is merely here for the user’s convenience of viewing recent activities.

Of the three vertical buttons, the top two (Machine Configuration and Configure Drops) have already been discussed. The bottom button, with hands pointing in different directions, is a toggle for Extra Data. When clicked, it replaces the Dropped Bags Log with a Dropped Loads Log. While the normal Bags Log displays all bags in each load, the Loads Log displays one entry for each entire load. It’s data is what is actually stored in the database, if that option is selected. Also, the Extra Data button will replace some of the data on the right-hand of the display with diagnostic data. This diagnostic data consists of numbers associated with the Legend and Machine State columns, and reasons why loads may not be dropping into washers. This is mainly service information for Softrol personnel.

The small Last Drop grid merely displays the last entry added to the Dropped Bags Log on the extreme left. It is there to more clearly display what bag was dropped last.

The Active Rails section is very important, as it controls what rails in Buffer Area will be available to the washers. If a rail is unchecked, no bags will be automatically marked and sent around to the washers. The rail will become idle and release no bags further down into the system. This is convenient for either preparing for the next day’s production needs, or storing special loads that will be released and processed later.
OVERVIEW

This page contains all the reporting capabilities of the Soil Bag program, plus some database and system status utilities.

LIFTED BAGS REPORT

The left side of the Reports page is devoted to the Lifted Bags report. Data is only available for this report if “Save Lifted Bags to DB” is checked in the Program Options dialog of the Setup.
menu. If it is, all bags lifted on both Lift Stations will be recorded and displayed here.

There are two buttons that will load data into the report for viewing. The Today button will display all bags lifted from midnight up to and including the present time. This gives the user an instant accumulation of all goods put into Storage so far that day. To view bags that have been lifted into Storage over a specific period, click the Period button and specify a starting and an ending Date/Time.

Beneath the data loading buttons is the “Sort By” section. There are many options for sorting the data, depending on what the user wishes to view and gauge the results upon. Whenever the sorting option changes, the smaller grid to the right will update with relevant totals.

The total number and weight of all bags lifted is displayed at the bottom, and these figures will also appear on any printed report. To print the main data grid, click the Print button on top, closest to the large grid. The lower Print button will print a report containing the totals data in the smaller grid.

Because each bag lifted into the Storage Area is placed into the database, it can grow quite large. This can either fill up a small hard drive, or cause excessive load time for computers that must copy the database locally before starting up Soil Bag. The database should be periodically emptied of old and unused records. There are two mechanisms for accomplishing this task. The Purge button located between the two Print buttons is used to delete old records from the database by specifying a date/time range. Usually, the oldest entry is chosen for the Start Date, and the End Date will depend upon how far back the user wishes to keep data for reporting.

**PURGE TABLES OF OLD ENTRIES**

The other way of deleting old records is by using the “Purge Tables of Old Entries” section. This function deletes records not by dates, but by number of entries.

Click on the Read button to count the records in all three major database tables. After counting records, the program will then make suggestions on how many records to keep. These defaults can be overridden by typing in the desired number of records to keep in the appropriate box. Then click the Go button to delete the old data. Note that deleting records out of the Bag Edits table is a special function and requires the security password before allowing deletion.

**BAGS IN SYSTEM REPORT**

This display is not a true report *per se*, in that the data displayed is not stored in the database. Instead, clicking on the Read button polls all MicroPulse controllers in the system. All bags
hanging on the rails in all areas are then listed in the reporting grid. This gives the user the exact count and weight of the goods suspended on the rails.

**SPECIAL FUNCTIONS**

The Edits button in the section displays a report of all bags that have been added, edited, deleted, and moved by manual means. Bags that have been lifted into the system and exit normally with no modifications are not included in the report.
This report is useful in tracking down an apparent inconsistency or issue, by showing a log of all actions taken on a bag beyond the normal operation of the program.

**DROPPED BAGS REPORT**

This report shows all loads that have been dropped into the washers by the Soil Bag system. Like the Lifted Bags report, this one also allows many sorting options and displays totals in a separate grid to the right.

This report, because of its importance, is also more robust and has many additional features. There is a CSV button for exporting the data to a Comma Separated Value file, that many database programs, and Microsoft Excel, can directly read. There is also a PDF button that will create a Portable Document Format file that the Adobe Acrobat Reader can display. This PDF file is handy for attaching to an E-mail and sending to co-workers or other interested parties. The Acrobat Reader comes with PulseNet, and is available to others free on Adobe’s website.

There is also the familiar Period button to the left for changing the reporting dates, and Purge button that will delete records by a date/time range.

But by far, the most exciting feature of this report is its charting capabilities. After sorting by the data you which to graph, click on the Chart button. Once the chart displays, there are many options available to the user, too numerous to discuss here. Extensive on-line help is available in the chart itself by right-clicking the mouse in the chart area, and selecting Help from the popup menu.

There are even buttons at the bottom of the chart itself for creating PDF files, formatting the
printing, and maximizing the display. A little experimentation with this tool, and the customization it offers, will allow the user to make dazzling presentations.
STORAGE BAGS

This button does not display a visible report per se, but uses functions on the Diagnostic page to print out a report listing all bags hanging in Storage. Bags are sorted by rail number and bag position, and it is a handy tool for auditing the contents of the Storage Area. This printout is guaranteed to match the display of bags in the View Rails dialog, as the same code is used in both functions.

Just for reference, here is what this button does: first, on the Diagnostics page, it sets the Rails/Zones option to Rails. Then, it checks the “Storage Only” box. Finally, It “presses” the Upload button, and then the Print button.

Note that the Diagnostic page does not have to be visible or even available for this printout to function.
OVERVIEW

The Miscellaneous page holds functions that are best placed by themselves because they affect the operation of multiple pages elsewhere.

STORAGE RAILS

This section deals with the loading and unloading of the rails in the Storage Area. Clicking the
Read button will display the status of all Storage rails. To change a rail’s status, highlight it with the mouse by clicking on the row, then click the In or Out button. Each click of either button will change the selected rail’s status.

Storage rails that are disabled for Input affect the Operate Lift page, by not allowing any bags to be sent to them. A warning will be displayed to the Lift Operator if he tries to specify a disabled Storage rail as a bag’s Destination.

Disabling the Output of a Storage rail will cause that rail to be ignored by the Request Loads page. No bags will be marked and assembled into a load if they reside on a disabled rail.

Since the enabling and disabling of Storage rails is such an ever-changing and dynamic process, the settings are not stored. If PulseNet is exited and restarted, all Storage rails will be enabled for Input and Output by default. Any desired changes must then be made.
OVERVIEW

The Diagnostic page is mainly for the use of authorized Softrol personnel. Under direct supervision by Softrol, the user may perform some of the functions and report the results to the supervising Softrol engineer for troubleshooting purposes.

CONTROLLER SECTION

This section displays all active MicroPulse controllers in the Soil Bag system. Clicking the Run button will display the selected controller’s LCD readout below the list. The Stop button will
cease this communication. In addition, the Monitor button may be clicked, displaying the LCD and keypad also. This keypad may be clicked on (effectively pressing the key), just as if the user was standing in front of the controller. To press multiple keys at once, just right-click on as many keys as desired, then click the last key with a normal left-click. All buttons will be sent to the controller as if pressed simultaneously. For example, to bring up the override display on a controller, the Up and Down keys are usually pressed together. To accomplish this with PulseNet, just click on one of them with the right mouse button, then click the other key with the left mouse button.

Also, notice that the title of this section appears blue. What that means is that any other section of the Diagnostic page whose title is blue will share the selected Machine ID. For example, the ID chosen in the Controller section will be the one to which the Initialize Rail section sends its data. Both sections are titled in blue, and therefore share the same Machine ID.

**COMMAND AREA**

This function, also titled in blue and using the same ID as the Controller section, is used for direct manipulation of a bag’s data in the MicroPulse’s memory. Different Command parameters perform duties such as editing a bag’s data, deleting the bag, etc. The Read button will display the current contents of the command area on the controller. This is handy for double-checking that other functions of PulseNet sent the correct data to the Command Area. The Write button will send an actual command to the MicroPulse, causing it to perform the desired function. The Reset button will reset the values in the Command Area.

The data traded back and forth with this function has a very specific format, and by no means should be used by the end user unless specifically directed to do so by authorized Softrol personnel. Disregarding this warning may result in lost or corrupted data, or worse.

**INITIALIZE RAIL**

This section allows the operator to reset the bag data associated with any rail in the system. This data includes how many bags have been placed on the rail, how many have been removed, and the rail’s status. Entering a valid Rail Number and clicking the Init Rail button will clear the rail of all bag data, making it appear to the system as empty, and reset its status to a “ready to
receive” state. It should only be used if the rail’s data gets garbled and is inaccurate, and can not be corrected by other means (such as manually adding, editing, or deleting bags).

**LIFT BAG DATA**

The Lift Bag Data section is for displaying the data associated with all bags on both Lifts at any given time. Clicking the Read button will fill in the boxes with the current data. This is one of the few “safe” functions on the Diagnostic page. Viewing this data will not harm the system, although most of it is already displayed on the Operate Lift page as the Lift Operator sends bags to the Storage Area.

**BAG POINTERS & BAG DATA**

This section is also considered safe for use by the end user, as data is displayed but no editing is allowed. When the Read button is clicked, all MicroPulse controllers in the system are polled, and all bags on all rails are displayed.

<table>
<thead>
<tr>
<th>Area</th>
<th>Rail</th>
<th>BagIn</th>
<th>BagOut</th>
<th>NumBag</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage 1</td>
<td>17</td>
<td>24</td>
<td>21</td>
<td>3</td>
</tr>
<tr>
<td>Storage 1</td>
<td>18</td>
<td>46</td>
<td>33</td>
<td>13</td>
</tr>
<tr>
<td>Storage 1</td>
<td>19</td>
<td>42</td>
<td>41</td>
<td>1</td>
</tr>
<tr>
<td>Storage 1</td>
<td>20</td>
<td>19</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Storage 1</td>
<td>21</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Buffer 1</td>
<td>1</td>
<td>42</td>
<td>42</td>
<td>0</td>
</tr>
<tr>
<td>Buffer 1</td>
<td>2</td>
<td>29</td>
<td>21</td>
<td>8</td>
</tr>
<tr>
<td>Buffer 1</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Buffer 1</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Buffer 1</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Buffer 2</td>
<td>1</td>
<td>15</td>
<td>47</td>
<td>15</td>
</tr>
<tr>
<td>Buffer 2</td>
<td>2</td>
<td>12</td>
<td>43</td>
<td>10</td>
</tr>
<tr>
<td>Buffer 2</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Buffer 2</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Buffer 2</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Drop 1</td>
<td>1</td>
<td>22</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Drop 1</td>
<td>2</td>
<td>22</td>
<td>20</td>
<td>4</td>
</tr>
<tr>
<td>Drop 1</td>
<td>3</td>
<td>25</td>
<td>21</td>
<td>4</td>
</tr>
<tr>
<td>Drop 1</td>
<td>4</td>
<td>30</td>
<td>26</td>
<td>4</td>
</tr>
<tr>
<td>Drop 2</td>
<td>5</td>
<td>7</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

In the left-hand grid, the BagIn and BagOut columns are of little use to the user. However, each rail in the system is listed, along with the number of bags it currently contains. This is handy for double-checking the bags hanging from the rails.

Each bag on the rails is listed in the right-hand grid, giving the details of it’s contents and destination. The Rail column, of course, designates which rail the bag is hanging from, and the Bag column displays it’s position on the rail. The first bag, Bag #1, will be the first bag to exit the rail. Higher numbered bags are further back on the rail and were sent there later than the lower numbered bags. In other words, Bag #1 is the “oldest” bag on the rail.
VIEW RAILS

OVERVIEW

This dialog may be displayed any time by clicking the View Rails button at the top of the Soil Bag program’s window. All pages defined and laid out with the Configure Layout dialog discussed earlier will be available for viewing in real-time.
VIEWING BAGS

Once this dialog initializes, the layout will appear, showing all bags on the rails. There are many functions built into the program to view the bags, edit their data, add and delete bags, and even manually mark bags for transport to the Buffer Rails.

The polling of the MicroPulse controllers for bag locations and data can be started or stopped by clicking the Start and Stop buttons. If the user desires the polling to automatically start whenever the dialog is entered, just check the Auto-Start box.

Each bag on a rail will be colored according to the Lot Color set up previously in the Configure Database dialog. Also, bags at rest (not moving along the rail) will display the last three digits of their Item Number (minus any leading zeroes). Therefore, if possible, it is advantageous to keep your Item Numbers to three digits (below 1000), although it is not required.

If a bag is moving, it’s border color will change from black to white. This lets the user know that the bag is traveling from one rail to another.

To view more detailed data about a bag’s contents, click on the bag with the mouse. This becomes the “selected bag”, and it’s shape will change from round to square. The Bag Data grid at the top of the page will then fill with other pertinent data associated with the bag. Also, Item, Lot and Customer numbers and names will be displayed in the floating “Names” box. This Names box may be relocated anywhere on the page by dragging-and-dropping it to it’s new location.
As bags are added to and taken from the rails, the picture will be updated accordingly. If the selected bag moves, the new bag at the old location becomes the “selected bag”, and the Bag Data grid updates accordingly. In other words, the “square bag” never moves (unless the user clicks on a different bag). If the location becomes empty, however, the data will disappear from the Bag Data grid.

**MANAGING BAGS**

Occasionally, bags may need to be edited, added, or deleted. An example of needing to edit a bag would be if the Lift Operator entered an incorrect Item Number for the bag’s contents. A bag (or many bags) may need to be added when the system is first installed, to account for goods already in Storage. Finally, bags may need to be deleted if the rail is disabled for maintenance and the bags physically removed.

Clicking the Add, Edit, or Delete buttons beside the Bag Data grid brings up a similar-looking record editor (in Delete mode, the Save button appears as a Delete button). The fields in blue, Area, Rail, and Bag, define the bag’s location in the system. When adding a bag, they can be set to any valid destination. When editing or deleting, however, they are locked and cannot be changed. Some of the data fields in black may also become locked, depending upon the action being proposed.

Data may be entered into the fields either by the computer’s keyboard, or by clicking the mouse on the large keypad. In addition, there are ‘library” buttons for Item, Lot, and Customer. When clicked, all available choices appear, in the same fashion as the Operate Lift page.
Depending on the bag’s present or target location, some of the black data fields have different meanings, and designate unique settings to the system.

Here is a brief explanation of the data fields:

- **Destination** - when in the Transport and Storage areas, this is the Storage rail number for which the bag is targeted. Once the bag leaves the Storage Area, however, this field is used to hold the weight of all bags in the load. This is called the Load Weight.
- **Weight** - this field always contains the weight of the individual bag itself.
- **Bag Serial** - each bag in the system has a unique Bag Serial Number to help identify it. This field never changes and should not be edited by the user.
- **Load Serial** - when bags in the Storage Area are marked as loads for release to the Buffer rails, this field holds the Load Serial Number. All bags comprising a load will have the same number. It also should never be changed by the user. However, in the Transport Area, and while sitting idle in Storage, this field holds the second and third choices for the Destination Rail in the Storage Area. These choices are set in the Configure Database dialog in the Database menu.
- **Buffer** - this field actually has three parts. The first part is the actual Buffer field. When loads are assembled from the Storage Area by the Request Loads page, the target Buffer Rail is held here. If the bag is going to a non-buffered washer, such as a tunnel or batch washer, the “Call-Off Code” is instead held here. The first non-buffered washer will have a Call-Off Code of “11”, the next one “12”, and so on. The next part, called Bags, defines how many bags make up the load. The last part, Washer, is used by the Drop Bags page as it calls out loads from the Buffer rails for transport to the washers’ Loading Spurs. The Washer field holds the Washer Name, not the machine’s ArcNet Node ID (see Configure Drops in the Drop Bags chapter).

**NOTE**

If editing an idle bag in Storage, do not enter any values in the Buffer fields except zeroes. If you do, the system will try to move that bag, thinking it is a buffer or washer load.

Under extreme circumstances, bags may be edited and the Buffer fields entered on purpose, to make the system think there is a load ready for removal from Storage. This is called “manually marking bags”. If manually marking three bags on a rail, for example, the third bag from the end should be edited first, then the second, and lastly the first bag to exit the rail. This is because the moment the MicroPulse controller sees a bag on the end of a rail as marked, it will start pulling it out. If you mark this end bag first, you won’t get a chance to mark the entire load. This entire job, however, is best performed by the Make Load button, discussed later in this chapter.

**ZONES**

Before we continue, a discussion of zones is in order. Some rails in the system are for transport only, and not meant to store bags for any appreciable length of time. They are merely paths to get the bags from one holding area to another. The common rail that feeds all bags to the individual Storage rails is an example of this. As a bag travels down this rail, the appropriate gate energizes and diverts the bag to it’s desired destination rail. The common rail exiting the
So the system can detect bags along these common rails, sensors are placed along their length to designate zones. A zone is an area of a rail that can only hold one bag. As said before, the bag is not supposed to stay in the zone for any appreciable amount of time. It is merely a point along its journey. These zones are constantly monitored by the system. This lets the equipment know where the bag is at any given time during its journey from one actual holding rail to another.
The zones along the entrance and exit to the Storage Area we just mentioned help the system know when to release a bag. If a bag must pass through an occupied zone to reach it’s destination, it is held back until that zone is clear.

**MOVE BAG**

There are several advanced functions available to the experienced user. One of these is the Move Bag feature. Clicking the Move Bag button brings up it’s window, and it looks very similar to the Add/Edit/Delete dialog, except there is a From and To section.

The From section has all it’s fields locked, and they cannot be edited. The To section is fully editable, allowing the user to move a bag from any location to another.

An example of why this may be necessary is as follows: let’s say a bag is traveling through the zones exiting the Storage Area on it’s way to the Buffer Area. The bag reaches it’s destination, but the last zone sensor malfunctioned, and the system thinks the bag is stuck in the zone. The Move Bag feature would allow the user to move the bag from that zone to it’s correct Buffer rail, and the system is now corrected.

If moving a bag to a rail, there is no need to count bags on the rail to know what the last position will be. Just click the Calculate Bag Position button and it will be entered for you.

Obviously, this feature can be very damaging if used by those not familiar with the system. It should only be used in extreme or emergency circumstances by trained and experienced users.

**AUTOMATIC VERSUS MANUAL CALLOUT**

Bags in the Storage Area are usually assembled into loads by the Request Loads page. That page scans the rails looking for bags to send to the washers. The process is automatic and continuous. As we have learned, there are many options and criteria that can be used when looking for washer loads. When the Request Load page finds a load it can assemble from one or more rails, they are “marked” as a washer load. They of course must be the bags at the end of the rail, which will exit first. The MicroPulse controllers are also scanning the rails, and when a marked load is detected, it is sent to the designated Buffer rail. This scheme is call automatic callout.

**MAKE LOAD BUTTON**

Manual callout involves the user assembling each load by hand, using the Make Load button in the View Rails window. This is a less desirable method than Automatic Callout, as an employee must constantly be in front of the PC, making sure the washers
have enough goods and production is not interrupted.

To designate a group of bags as a washer load, the user first clicks on the Make Load button. This puts the View Rails window in a special mode. Any bags clicked on will be selected, and added to the load.

As bags are selected, an “X” appears in the center, indicating that they are part of the proposed load. There is a box in the upper left-hand corner of the View Rails window that keeps track of the bags in the load by number and total weight.

These four green bags, Item #31, can make a load

These four green bags, Item #31, cannot make a load

There is a maximum of five bags for a load, and the total weight cannot exceed 1599 pounds. Any attempt to exceed these limits will display an error message.

Once the Make Load button has been clicked, the normally disabled OK and Cancel buttons next to it will enable. When all desired bags are selected, clicking the OK button will turn the bag’s borders from black to white and officially mark the bags for release. Clicking the Cancel button will return the bags to their previous state, and they will not be considered a washer load.

A load can consist of bags from different rails, as long as they are at the end of a rail and can freely exit the rail. Below are examples of valid and invalid loads.

**MARKING BAGS MANUALLY**

An even less desirable way to assemble a washer load is to mark the bags manually by using the Edit Bag dialog discussed previously. While this method is possible, it is highly discouraged. Without exercising extreme caution and
thought, it is easy to enter incorrect data and produce a load that is not only confusing to the system, but potentially dangerous.

To properly mark a load, the Load Serial Number must match on all bags in the load. Furthermore, the Buffer rail the load is destined for must be specified. And lastly, the total number of bags in the load must be entered correctly.

**WARNING**

Bags should be marked in reverse order, meaning the bag at the end of the rail should be marked last. Otherwise, the load will start exiting Storage before all bags are marked.

**MINIMIZE & EXIT BUTTONS**

The last two buttons at the top of the View Rails dialog are for minimizing the window and exiting the dialog. They function exactly as their Windows counterparts, but are of a larger size here so they can be easily pressed on a touch-screen.

When the View Rails window is minimized, it may be restored by either clicking on it’s entry in Windows’ task bar, or clicking the View Rails button again at the top of Soil Bag’s main window.

The View Rails window can, of course, be moved anywhere on the screen by clicking on it’s title stripe, holding the mouse button down, and dragging the window to it’s new location (just like any other window).

**VIEW MACHINE CONTROLLER FUNCTION**

There is a “hidden” function in the View Bags dialog. Under specific circumstances, the washer controllers may be viewed and manipulated. These conditions must be met for this to occur: the washer must have a full Softrol MicroPulse controller installed, and the object representing the washer on the layout must have a specific caption. This caption must contain the number symbol, followed by the ID of the washer. Examples of this are “Washer #3”, “Machine #2”, and “#7”. If these conditions are met, double-clicking the mouse on the washer object will display a monitoring window, showing the washer’s LCD display and the keypad.
ArcFiber - the card in the Softrol card cage that enables communication between the controller and other nodes on the network, such as a washer or computer. It has a round twist-off BNC connector on it's edge for coaxial cable, and a green connector for twisted-pair cable.

ArcNet - a network made up of active and/or passive hubs, connecting the computer to all controllers in the system via coaxial or twisted-pair cable.

Automatic callout - the process of “marking” bags in the Storage Area in order to assemble a washer load. Once marked, the MicroPulse controller automatically transports them to the designated Buffer rail. This process is handled by the Request Load page.

do clicking - a raised, rectangular box containing text which, when clicked on with the mouse, performs a specific task.

double-click - to move the mouse cursor (the arrow) over an object, and quickly press and release the left mouse button twice.

database - a computer file, residing on the hard disk, which contains information arranged in an orderly fashion for fast retrieval.

dialog - a window brought up by choosing a menu selection which contains list boxes, buttons, etc. to perform a specific task.
**download** - to transfer data from the computer to the machine controller.

**focus** - denotes the active item in a dialog which will respond to keyboard and mouse input. It usually follows the cursor or highlight bar.

**folder** - a named storage place on the computer's hard disk. They can be nested - in other words, folders can contain other folders, such as the program’s default site folder C:\PSBM\HOME.SIT.

**hard disk** - the main storage device in a personal computer. All software and data files are stored here. It is assigned a letter for reference, such as C.

**highlight bar** - the colored line in a list box which denotes the currently selected item. The color of this line will depend on the color scheme Windows is using at the time.

**history** - a listing of events that have occurred on the controller in the past.

**list box** - a rectangular box containing lines of text in a column. These lines can be scrolled through and selected by the user.

**loading spur** - the last section of rail in the Drop Area, on which the bags hang directly over the washer.

**machine ID** - the LAN Member ID # present on the controller. It must be between 1 and 255, inclusive.

**machine-specific** - data which pertains to only one machine, such as configuration data.

**Main Menu** - the "home base" of PulseNet, it is the large window which first appears after entering the program. It contains menus to perform all the various functions, as well as tabbed pages.

**Manual callout** - the process of “marking” bags in the Storage Area in order to assemble a washer load. The bags are marked one at a time by hand in the View Rails window. Once marked, the MicroPulse controller automatically transports them to the designated Buffer rail.

**marking bags** - the process of flagging bags for removal from one area for transport to another area.

**menu** - a vertical listing of selections. Each selection usually brings up a dialog to perform the desired task.

**menu bar** - a horizontal listing of menus. Clicking on an item will drop down the corresponding menu.

**network** - the collective sum of the computer, machines, and the cable that connects them all
together.

**off-line** - refers to a machine that is turned off, or otherwise unavailable.

**on-line** - refers to a machine that is turned on and ready to communicate with PulseNet.

**option** - a circle, labeled with text, that selects a specific choice. When a dot appears in the circle, the option is selected. It is sometimes called a “radio button”

**path** - the drive and list of folders which tell the computer where a specific file can be found. For instance, in C:\PSBM\HOME.SIT\PULSENET.MDB, the file PULSENET.MDB (the local database) can be found in the path C:\PSBM\HOME.SIT.

**period** - the dates and times over which data has been collected and stored.

**PC** - Personal Computer, the computer on which PulseNet is installed.

**pendulum** - a small rectangular box, hanging on the end of a cable, containing four buttons which operate the bag lift.

**port** - a connector, usually on the back of the computer, for the purpose of communication with another device. Where your printer and the cable for PulseNet plug into your PC are examples of ports.

**purge** - to delete unused entries from a database.

**record** - an entry in a database representing a single sampling of data (usually a specific date and time).

**security** - a system whereby users must logon to PulseNet as a specific user name. Each user must input his own password before operating the program.

**selection** - a choice in a menu that brings up a dialog. Inventory History is an example of a selection within the Inventory menu.

**shortcut key** - a quick way to make a menu selection using only a single keystroke. No mouse activity or menu searching is required.

**signal** - the alarm which sounds on the machine controller. It's presence is detected in the Station Monitor selection.

**submenu** - a mini-menu which pops up beside a menu selection, offering more than the usual one choice.

**text box** - a rectangle in a dialog which accepts user input from the keyboard.
**toolbar** - a row of toolbuttons, usually at the top of a window.

**toolbutton** - a small square button with an icon (picture) inside. When clicked, it performs a specific function. Toolbuttons are frequently shortcuts to menu selections.

**upload** - to transfer data from a machine controller to the computer.

**vocabulary** - user-definable text, displayed by the controller at specific times.

**washroom** - the area of a plant where the washers, dryers, and chemical system are located and operated.

**watchdog** - a machine "alarm" that is tripped by exceeding a user-definable value, or by a preset condition.