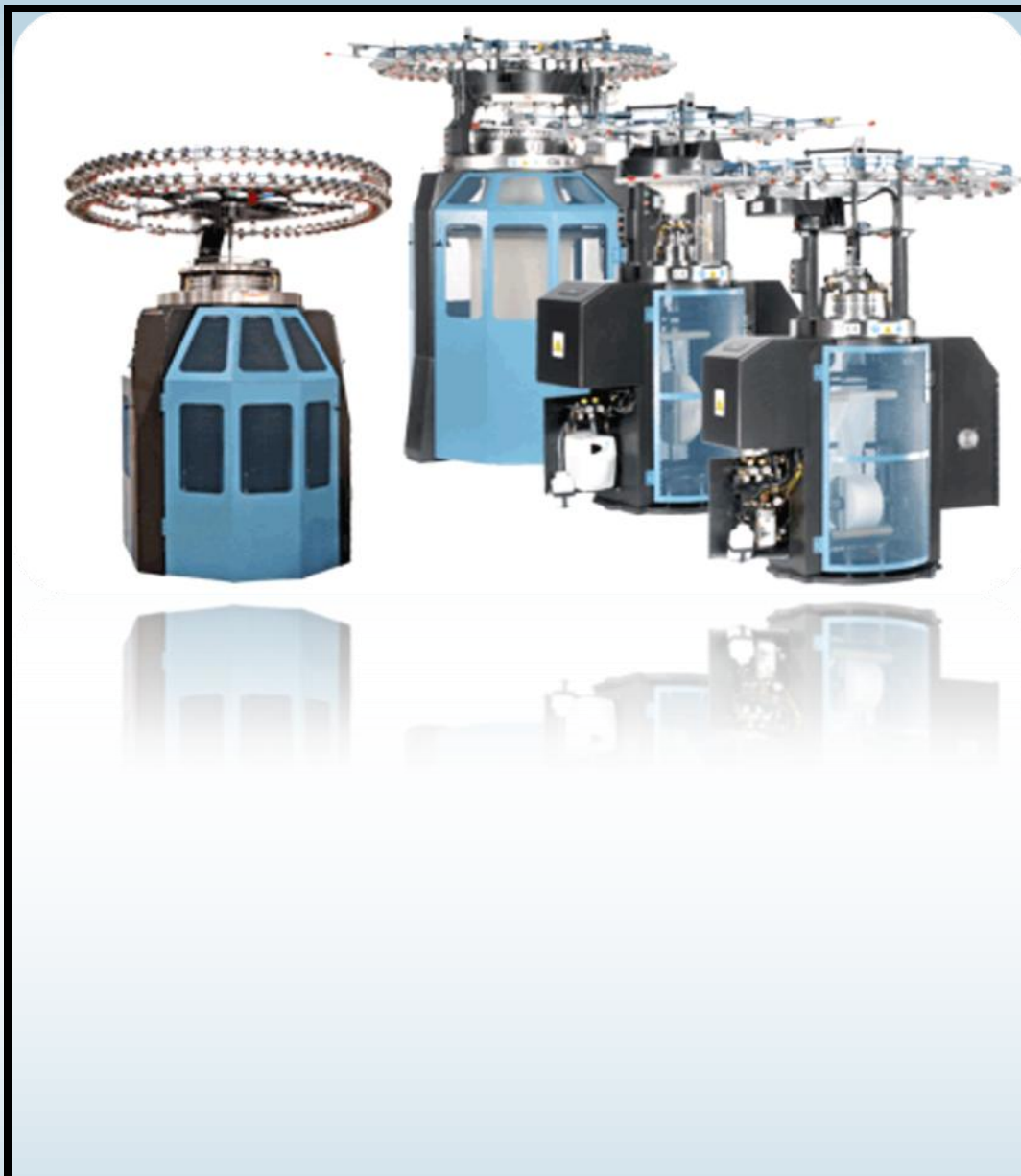


V **L** **VANGUARD** **PAI LUNG**



MODELS:SJD,2SR2/V,1SR2/SI,4SJ4/SI

VPL TOTAL FACTORY MANAGEMENT SYSTEM

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ISO 3593_00_ DISPLAY Operators Manual

This edition applies to the Vanguard Pai Lung LLC SJD, 2SR2/V,1SR2/SI and 4SJ4/SI circular knitting machines.

The construction of the Vanguard Pai Lung LLC knitting machines and accessories embody the most advanced features and engineering techniques obtainable in modern knitting equipment. These are the result of over 75+ years of manufacturing experience. Today, VPL knitting machines and accessories are in use the world over. Innumerable types of circular knit fabrics have been produced profitably using VPL products. We are proud of the performance record our products have compiled in knitting mills throughout the world and we are pledged to maintain this high standard.

Changes are periodically made to the information herein; any such changes will be reported in subsequent editions or technical bulletins.

This Operators Manual for SJD,2SR2/V,1SR2/SI/and 4SJ4/SI has been prepared as an aid and guide to efficient knitting.

It's immediate purpose is to illustrate the proper assembly, operation, adjustment and maintenance of VPL Delta machines. Read and follow this manual carefully and you will be repaid with longer machine life, more efficient operation, higher production, better quality fabric and lower knitting costs.

Before leaving our plant, each machine is inspected, test-run and set to operate at peak efficiency for normal yarn and normal mill conditions. No further mechanical adjustments should be necessary.

The information contained herein does not imply to cover all details or variations of machinery in connection with maintenance. Should further information be required, contact the Vanguard Pai Lung Customer Service Department for assistance. This publication could contain technical inaccuracies or may contain typographical errors.

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Requests for VPL publications should be made to your local VPL representative or to VPL at the address below:

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Monroe, NC 28111-5009 U.S.A.

Phone: 704/283-8171 Toll Free: 800/222-1971 Fax: 704/283-

www.vanguardpailung.com

After extensive testing of the Delta SJ4AC/D machine throughout the last 10 years some of the primary factors that prohibit Higher Speeds were Yarn Quality, Creel and Tubing Design, Knitting Mill Air Quality, Lint Control, Proper Maintenance and Machine Overhaul Procedures. These factors are critical for all knitting machines, but with the increased Delta speeds they proved to be detrimental towards the machines overall performance and reaching higher speed factors.

Suggested Speed Factors for the SJ4AC/D, DI, DI2, DI3 Knitting Machines

Plain Jersey Fabrics UP To 1750 Speed Factor, 16 to 28 cut.

Polyester and Lycra UP To 1150 Speed Factor, 16 to 28 cut.

Cotton Yarns and Lycra Up To 1150 Speed Factor, 16 to 28 cut.

Pattern Work and No Lycra Up To 1500 Speed Factor, 16 to 28 cut.

Suggested Speed Factors for the SJ3AC/D, DL, DI, DI2, DI3 Knitting Machines

After testing at the factory on the 3 feeds per inch machines, it has been determined this machine's top speed should be for the following Fabrics, 28 cut and down.

Plain Jersey Fabrics UP To 1850 Speed Factor, 16 to 28 cut.

Polyester and Lycra UP To 1350 Speed Factor, 16 to 28 cut.

Cotton Yarns and Lycra Up To 1200 + Speed Factor, 16 to 28 cut.

Pattern Work and No Lycra Up To 1500 Speed Factor, 16 to 28 cut.

MACHINE BREAK IN PERIODS:

We encourage all customers to allow 4 weeks of run time at the Factory set Speed of 1000 before increasing the speed factor of Delta Knitting Machines. We suggest increasing the speed approximately 187.50 Hz. each week until the top speed is accomplished for your particular type of machine.

NOTE: If the above is not observed, it will result in Voiding the Warranty of the machine

Section 3. Warranty Coverage Time

All Warranty's are Covered From Day of Startup.

1. Electrical 90 Days
2. Mechanical 1 Year
3. Cylinder 2 Years
4. Cams (Cylinder and Sinkers) 2 Years
5. Yarn Carriers 1 Year

Section 4. Safety Labels

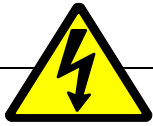
SAFETY NOTICE - EMBLEMS PAST AND PRESENT

Pages 12 thru 15

In Spanish and English Language

SAFETY NOTICE - NEW STYLE LABELING (continued)

⚠ WARNING ⚠ AVISO



HAZARDOUS VOLTAGE EXISTS INSIDE ENCLOSURE WITH MAIN POWER SWITCH OFF.

EXISTE TENSIÓN PELIGROSA DENTRO DE LA CAJA CON EL INTERRUPTOR DE ENERGÍA PRINCIPAL APAGADO.

⚠ WARNING ⚠ AVISO



HAZARD FROM FLYING DEBRIS. SERIOUS EYE INJURY CAN OCCUR.

Σ SAFETY GLASSES MUST BE WORN WHEN NEAR AN OPERATING MACHINE.

PELIGRO DE MATERIAL VOLANTE. PUEDE PRODUCIR GRAVES HERIDAS EN LOS OJOS.

Σ HAY QUE USAR LENTES DE SEGURIDAD EN LAS CERCANIAS DE UNA MAQUINA EN MARCHA.



HAZARD FROM AIRBORNE NOISE. SERIOUS EAR INJURY CAN OCCUR.

Σ HEARING PROTECTION MUST BE WORN WHEN NEAR AN OPERATING MACHINE.

PELIGRO DE RUIDO EXCESIVO. PUEDE PRODUCIRSE GRAVES HERIDAS EN LOS OIDOS.

Σ HAY QUE USAR PROTECCION ACUSTICA (OREJERAS) EN LAS CERCANIAS DE UNA MAQUINA EN MARCHA.



READ AND UNDERSTAND THE OPERATOR'S MANUAL BEFORE USING THIS MACHINE.

Σ FAILURE TO FOLLOW THE OPERATING INSTRUCTIONS COULD RESULT IN DEATH OR SERIOUS INJURY.

ASEGÚRENSE DE LEER Y ENTENDER EL MANUAL DEL OPERADOR ANTES DE USAR ESTA MÁQUINA.

Σ LA FALTA DE SEGUIR LAS INSTRUCCIONES OPERACIONALES PUEDE RESULTAR EN LA MUERTE O HERIDAS SERIAS.

⚠ CAUTION ⚠ ¡CUIDADO!



HOT SURFACE. DO NOT TOUCH.

TO AVOID POSSIBLE SKIN BURNS, ALLOW SURFACE TO COOL BEFORE SERVICING.

SUPERFICIE CALIENTE. ¡NO TOCAR!

Para evitar quemaduras en la piel, permita que la superficie se enfríe antes del servicio.

NOTE: Machine safety signs and labels shall periodically be inspected and cleaned by the operator to maintain good legibility. Replace machine safety signs and labels when they are no longer legible. Replacement safety signs and labels are available through Vanguard Pai Lung or through the local machine agent.

SAFETY NOTICE - NEW STYLE LABELING (continued)

The following pictograms represent safety procedures for various countries and economic communities around the world. Read and understand the various warnings and procedures in this manual before operating or repairing the machine.

NOTICE AVISO



MAIN POWER. MACHINE LOCKOUT POINT.

CORRIENTE PRINCIPAL. Lugar de bloqueo y etiquetado de la máquina.

NOTICE AVISO




Contact with oil can result in defatting of the skin and in certain cases irritation can develop from sensitivity. Consult the MSDS and/or Technical Data Sheet supplied with the lubricating oil for first aid procedures and recommended personal protective equipment.



El contacto con resultado de la lata de aceite en defatting de la piel y en cierta irritación de los casos puede convertirse de sensibilidad. Consulte el MSDS y/o la hoja de datos técnica provistos del aceite lubricante para los procedimientos de los primeros auxilios y el equipo protector personal recomendado.

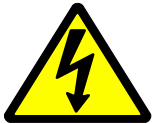


NOTE: Machine safety signs and labels shall periodically be inspected and cleaned by the operator to maintain good legibility. Replace machine safety signs and labels when they are no longer legible. Replacement safety signs and labels are available through Vanguard Pai Lung or through the local machine agent.

SAFETY NOTICE - NEW STYLE LABELING

The following pictograms represent safety procedures for various countries and economic communities around the world. Read and understand the various warnings and procedures in this manual before operating or repairing the machine.

⚠ WARNING ⚠ AVISO	
	<p>HAZARD FROM ROTATING PARTS. SERIOUS INJURY OR DEATH CAN OCCUR.</p> <ul style="list-style-type: none"> Σ TURN OFF MAIN POWER BEFORE OPENING SAFETY GATES. Σ OPERATE MACHINE ONLY WITH SAFETY GATES SECURELY CLOSED AND LATCHED. Σ DO NOT ATTEMPT TO COMPROMISE OPERATION OR INSTALLATION OF SAFETY DEVICES. Σ LOCKOUT/TAGOUT MAIN POWER PRIOR TO SERVICING THIS EQUIPMENT.
	<p>PELIGRO DE PARTES GIRATORIAS. PUEDE OCASIONAR GRAVES LESIONES O LA MUERTE.</p> <ul style="list-style-type: none"> Σ APAGAR LA CORRIENTE PRINCIPAL ANTES DE ABRIR LAS PUERTAS DE SEGURIDAD. Σ HACER FUNCIONAR LA MÁQUINA SÓLO CON LAS PUERTAS DE SEGURIDAD CERRADAS Σ NO INTENTAR CAMBIAR O ANULAR LOS MECANISMOS DE SEGURIDAD. Σ Bloquear y etiquetar la corriente principal antes de reparar este equipo.

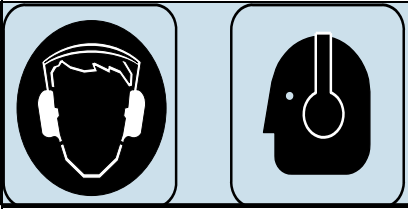
⚠ WARNING ⚠ AVISO	
	<p>HAZARD FROM ROTATING PARTS. SERIOUS INJURY OR DEATH CAN OCCUR.</p> <ul style="list-style-type: none"> Σ TURN OFF MAIN POWER BEFORE OPENING SAFETY GATES. Σ OPERATE MACHINE ONLY WITH SAFETY GATES SECURELY CLOSED AND LATCHED. Σ DO NOT ATTEMPT TO COMPROMISE OPERATION OR INSTALLATION OF SAFETY DEVICES. Σ LOCKOUT/TAGOUT MAIN POWER PRIOR TO SERVICING THIS EQUIPMENT.
	<p>PELIGRO DE PARTES GIRATORIAS. PUEDE OCASIONAR GRAVES LESIONES O LA MUERTE.</p> <ul style="list-style-type: none"> Σ APAGAR LA CORRIENTE PRINCIPAL ANTES DE ABRIR LAS PUERTAS DE SEGURIDAD. Σ HACER FUNCIONAR LA MÁQUINA SÓLO CON LAS PUERTAS DE SEGURIDAD CERRADAS Σ NO INTENTAR CAMBIAR O ANULAR LOS MECANISMOS DE SEGURIDAD. Σ Bloquear y etiquetar la corriente principal antes de reparar este equipo.

⚠ WARNING ⚠ AVISO	
	<p>HAZARD FROM ELECTRIC SHOCK. SERIOUS INJURY OR DEATH CAN OCCUR.</p> <p>ENCLOSURE CONTAINS: 460 VAC, 3 PHASE, 50/60 HZ CIRCUITS</p> <ul style="list-style-type: none"> Σ ONLY QUALIFIED SERVICE PERSONNEL TO ACCESS THIS ELECTRICAL ENCLOSURE. Σ LOCKOUT/TAGOUT SUPPLY DISCONNECTING DEVICE PRIOR TO SERVICING ELECTRICAL ENCLOSURE.
	<p>PELIGRO DE DESCARGA ELÉCTRICA. PUEDE OCASIONAR GRAVES LESIONES O LA MUERTE.</p> <p>Esta área eléctrica contiene: 230 VAC, 3 FASES, 50/60 HZ CIRCUITOS</p> <ul style="list-style-type: none"> Σ Sólo el personal de servicio debidamente capacitado debe tener acceso a estas áreas eléctricas. Σ Bloquear y etiquetar el dispositivo desconector de suministro de energía antes de efectuar servicio en estas áreas eléctricas.
	

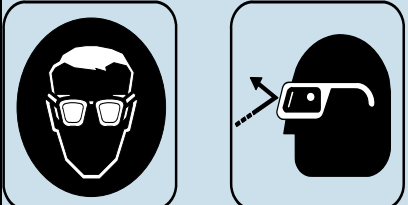
NOTE: Machine safety signs and labels shall periodically be inspected and cleaned by the operator to maintain good legibility. Replace machine safety signs and labels when they are no longer legible. Replacement safety signs and labels are available through Vanguard Pai Lung or through the local machine agent.

SAFETY NOTICE - OLD STYLE LABELING

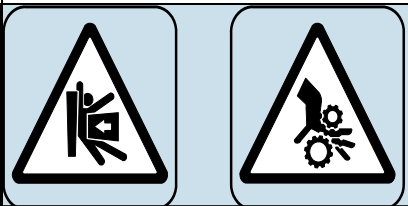
The following pictograms represent safety procedures for various countries and economic communities around the world. Read and understand the various warnings and procedures in the operator's manual before operating the machine.



WARNING:
HAZARD FROM AIRBORNE NOISE
SERIOUS EAR INJURY CAN OCCUR
HEARING PROTECTION MUST BE WORN WHEN
NEAR AN OPERATING MACHINE

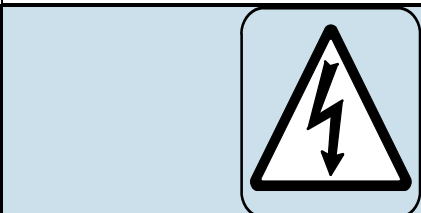


WARNING:
HAZARD FROM FLYING DEBRIS
SERIOUS EYE INJURY CAN OCCUR
SAFETY GLASSES MUST BE WORN WHEN
NEAR AN OPERATING MACHINE



WARNING:
HAZARD FROM ROTATING PARTS
SERIOUS INJURY OR DEATH CAN OCCUR

- * TURN OFF MAIN POWER BEFORE OPENING SAFETY GATES OR REMOVING COVERS.
- * OPERATE MACHINE ONLY WITH SAFETY GATES SECURELY CLOSED AND LATCHED.
- * DO NOT ATTEMPT TO COMPROMISE OPERATION OR INSTALLATION OF SAFETY DEVICES.
- * KEEP HANDS, JEWELRY, CLOTHING, AND HAIR AWAY FROM ROTATING PARTS.



WARNING:
HAZARD FROM ELECTRIC SHOCK
SERIOUS INJURY OR DEATH CAN OCCUR

- * ONLY QUALIFIED SERVICE PERSONNEL TO ACCESS THIS ELECTRICAL ENCLOSURE
- * LOCK OUT SUPPLY DISCONNECTING DEVICE BEFORE SERVICING ELECTRICAL ENCLOSURE.



WARNING:
GENERAL HAZARD, SERIOUS INJURY OR SEVERE DAMAGE TO THE MACHINE CAN OCCUR
READ AND UNDERSTAND THE PROCEDURES
IN THE OPERATOR'S MANUAL BEFORE
OPERATING THE MACHINE.

NOTE: Machine safety signs and labels shall periodically be inspected and cleaned by the operator to maintain good legibility. Replace machine safety signs and labels when they are no longer legible. Replacement safety signs and labels are available through Vanguard Pai Lung or through the local machine agent.

Ordering Instructions

When ordering parts for your Vanguard Supreme Circular Knitting Machine, please include the following information:

*Machine Model

*Needle Gauge

*Machine Serial Number

*Part Number of Item Needing Replacement

*Cylinder Diameter and Cut

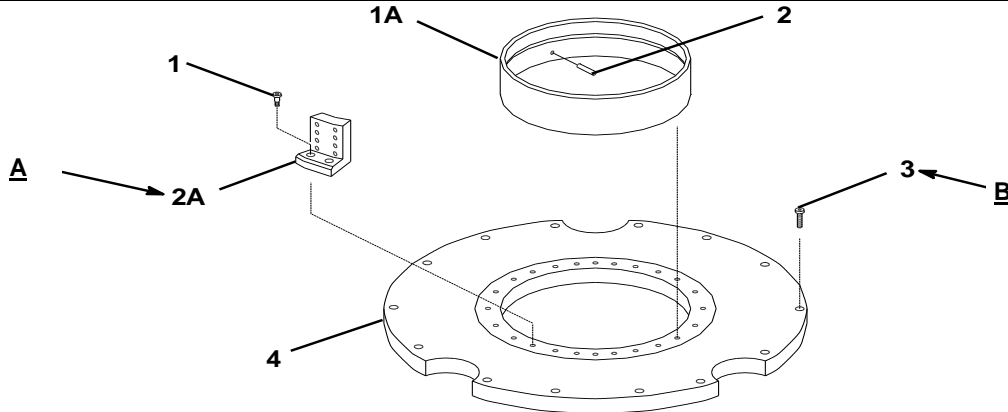
*Description of Item Needing Replacement

Do not use the item or page numbers from this manual except as additional information.

Each page of this parts manual identi-

<p>A Item Number for an Assembly</p> <p>B Item Number for a Part</p> <p>C Assembly Name</p>	<p>D Part Name</p> <p>E Assembly Number</p> <p>F Part Number</p>
--	---

* If a part number is not available for an assembly or an individual part, "No P/N" will appear in the part no. column. Order the individual part if the assembly does not have a part number. Order the assembly if the individual part does not have a part number.



	ITEM	PART NUMBER	DESCRIPTION
	1A	Specify Dia & Cut	Inserted Cylinder Assembly
A →	2A	117344-DIA	Section Block Assembly ← C
			(See Figure 8 for Illustrated Parts Breakdown.)
F →	1	7769	Shoulder Screw
	2	805354	Dowel Pin
	3	6426	Socket Head Cap Screw 1/4-20 x 1 1/4 ← D
B →	4	No P/N	Cam Retaining Ring

VPL Total Factory Management System



Total Factory Management Areas of Savings and Profitability:

Fabric defect scanner:

Using infrared fabric defect scanning reduces yarn and knitted fabric waste considerably by detecting defects immediately. The defects are tagged by location and type for inspection. This increases overall plant efficiency and fabric quality.

Yarn Rate Monitor:

Yarn rate monitoring will detect overfeeds and underfeeds of yarn usage. This will correct density, porosity, sizing and shrinkage issues and can save a considerable amount in yarn usage.

Fabric Quality Improvements:

Fabric quality improvements are seen in the combined technologies of detecting and eliminating fabric imperfections. The technologies used to improve fabric quality are defect scanning, yarn rate monitoring and preventative maintenance procedures and are organized through the Knit monitoring system. Combining these technologies can help to increase your customer satisfaction and leads to increased orders and heightened branding of your company's reputation.

Machine Speed Increase Allowance:

Increasing speeds with maintained quality and efficiency leads to increased production and efficiency. This is done through maintained awareness of the machine healthiness using real-time data from the Knit monitoring system.

Labor Cost Reductions:

Coordinated communications from Knitter to Mechanic and to the healthiness of all the machines are used to organize the knitting room floor. This increases productiveness of employees and reduces labor costs.

Downtime Reductions:

All machine and employee functions are logged and classified for review. Inefficiencies are easily identifiable and addressable. Production becomes smoother and more efficient.

Yarn Quality Improvement:

By using the tools provided by the Knit monitoring system, mill owners have the ability to demand higher quality yarn from their suppliers. This can be done using the historical data generated and with the defective fabric on hand.



Knitting Room Data Acquisition Software | VPLH

The screenshot displays the VPLH Knitting Room Data Acquisition Software interface. The main window is titled "VPL Knit Manufacturing" and contains a grid of data for multiple machines. Each cell in the grid shows a percentage (e.g., 75.9%, 71.3%, 74.9%) and a status indicator (e.g., Y, R, D, X). Below the grid, there is a "More Machine Information" window for machine 2104. This window is divided into several sections:

- Totals:** Doff Count: 7473, Doff Preset: 10400, Shift Count: 15596, Expected Count: 15053, Life Count: 12591779.
- Shift Information:** Shift: JA, ER: 76.9.
- Fabric Defect Counters:** Unknown Defects: 27, Needle Run: 0, Drop Stitch: 9, Hole: 4, Press Off: 0, Oil Spot: 0, Skub Hole: 0, Thick / Thin: 0, Lint: 0, Closed Latch: 0, Total Known Defects: 13.
- Piece Information:** UPC: 60676566, % Complete: 71.06%.
- Fabric Defect Counters (Detailed):** Unknown Defects: 14, Needle Run: 0, Drop Stitch: 1, Hole: 3, Press Off: 0, Oil Spot: 0, Skub Hole: 0, Thick / Thin: 0, Lint: 0, Closed Latch: 0, Total Known Defects: 4.
- Other Data:** Style: 1366-29, Ravel # 1: 420, Ravel # 2: 0, Ravel # 3: 0, Ravel # 4: 0, Fault Counters: Needle Break: 0, Feeder Input: 45, Feeder Output: 42, Yarn Out of Tol: 0, Auc: 49, User Stops: 46, Mixed Inspection: 0, Speed: 140GH, RPM: 27.6, Knitter ID #: 00444, ER: 79.7.

The bottom status bar shows "Edgiffin Logged in" and the date/time: "12:53:04 PM Tuesday, May 17, 2011".

Knitting Room Data Acquisition Software

VPL TOTAL FACTORY MANAGEMENT SYSTEM

The complete data acquisition software package for knitting rooms

This document will give an overview of the knit monitoring software. For information regarding the hardware operation, please refer to the *VPL 5000 Installation & Operation Guide*.

1. INTRODUCTION

Vanguard Pai Lung Total Factory Management System is a complete package to schedule, monitor and manage a knitting room. The system uses many advantages to give you the information you want when you want it. The Ethernet network that connects the machines to PC is fast and reliable and is easily supportable by any IT department. This eliminates special networking bridges and cost to bring data from the machines to the database software. Reports can be generated and exported to practically any platform. Real-time devices keep track of when things happen to give the most accurate information.

1. Vanguard Pai Lung Total Factory Management System

Real-time monitoring of knitting equipment

Virtual knitting floor

Knitting floor status indicators

Preventive maintenance counters with visual warning indicators and options for machine run prevention

Machine information database

Fabric Style database with machine download

Equipment and personnel tracker

- Downtime

- Shift and Knitter Efficiency

- Machine problem declarations

- Fabric defect types

- Piece data

Shift, Fabric Style and Knitter scheduling

Comprehensive Reporting

Graphical and Text Messaging

Machine “Help and Documentation screen” programming

MySQL database

TCP communications

2. MAIN SCREEN

The main screen of the Knit Monitoring software contains the Virtual Floor layout where the Machine icons are placed. The main screen also has a status bar at the bottom of the screen for system information to be displayed. This section will describe the main screen window and its con-

2.1 Virtual Knitting Floor

The virtual knitting floor is a graphical representation of the actual Knitting Room floor (see Figure 1).

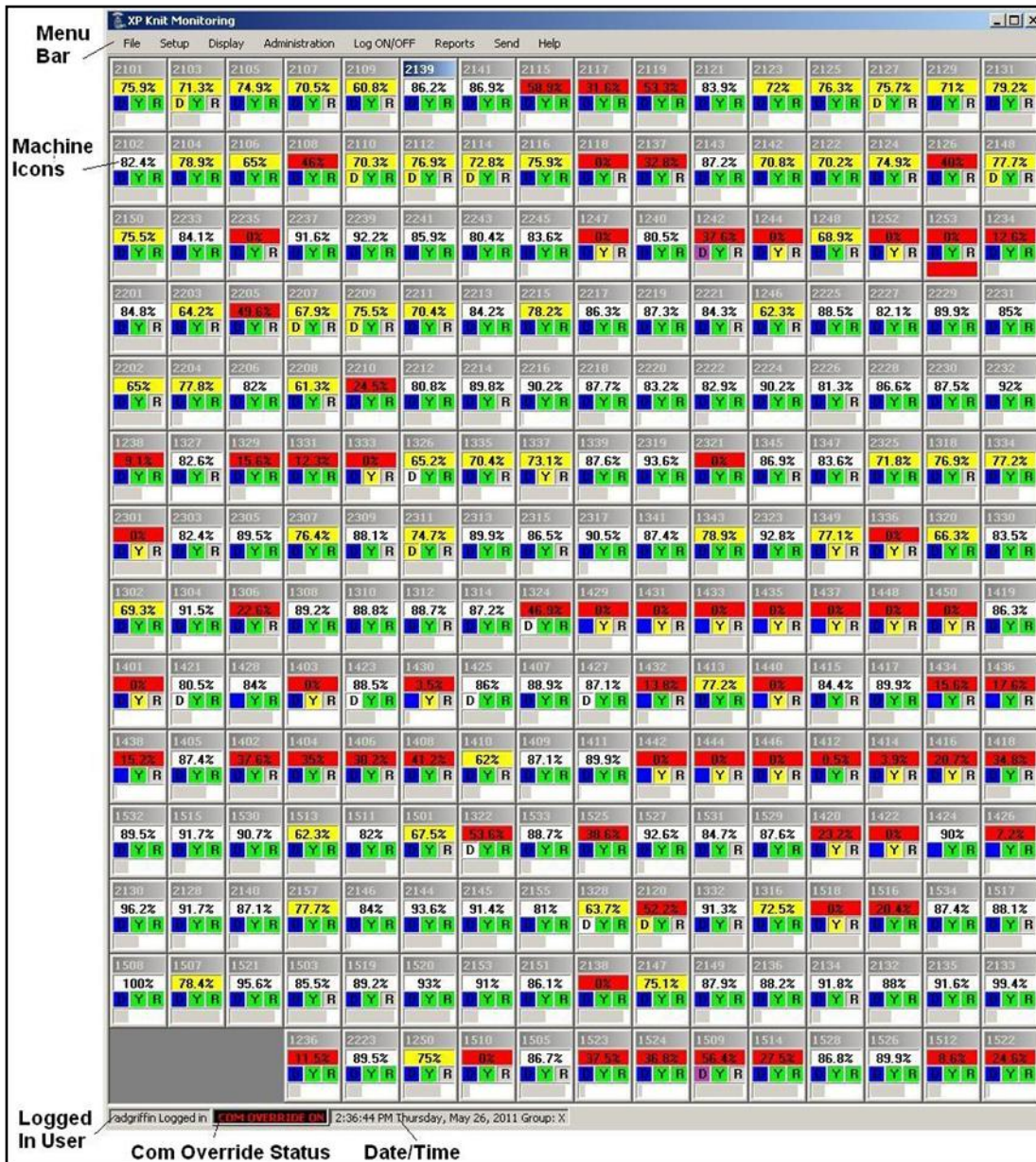


Figure 1: Main Screen

2.2 Status Bar

The status bar is located at the bottom of the main screen window. It displays the current user logged in, com override status, and system data and time. The knit monitoring software broadcasts the system date and time to all machines connected. This will synchronize the machine date and time to the system date and time.

2.3 Machine Icon

The machine icon is a representation of an individual machine on the knitting room floor. (See Figure 2) Each icon in the main window of the knit monitoring software is a visual representation of a machine on the knitting room floor. Each icon can be positioned so that it will correspond with the actual location of the machines that they represent. At a glance, the information on each icon quickly conveys the complete status of the machine.

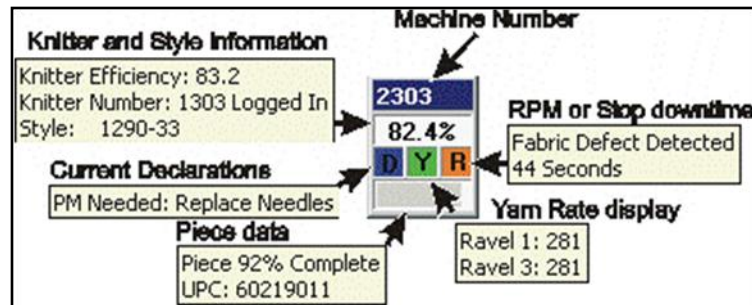


Figure 2: Default Machine Icon

2.3.1 Main Display

The main display can be set up to show the knitter efficiency, shift efficiency, current fabric style loaded on to the machine or the knitter currently logged on to the machine. When the pointer arrow is over the status indicator, a pop-up caption will be displayed. This pop-up caption is used to show the other information not currently being displayed without constantly changing the indicator setup. When the indicator is set to display the shift efficiency, then the caption will display what knitter is currently logged on to the machine. When the indicator is set to display the knitter currently logged on to the machine, then the caption will display the shift efficiency. When the indicator is set to display the current fabric style loaded on to the machine, then the caption will display what knitter is currently logged on to the machine and the shift efficiency. The background color of the status indicator can be set to change depending on the efficiency of the machine. (See Figure 20, Figure 21, Figure 22, Figure 23)

2.3.2 Declaration / PM Panel

When a knitter encounters a problem with his machine, it must be entered, or declared, depending on the type of problem that has occurred. The declaration indicator is color-coded to a list of available problem options that a Knitter enters right at the machine. The color of the declaration indicator will, therefore, change depending on the code entered. In addition, the knit monitoring software can also initiate a declaration from a separate list of possible problems.

Routine preventive maintenance (PM) is performed on a machine that has reached a predetermined revolution count. When this preventive maintenance level has been reached, the declaration indicator will flash the letter “D.” This gives a clear indication that the PM level has been reached even if other declarations are being shown at the same time.

The list of declarations available from the knitter is:

- | | | |
|---|------------------------|--------------------------|
| 1. # NOT ASSIGNED | 20. Looping | 40. Take-Up Chain-Gears |
| 2. Air-gauge leak | 21. Main Drive | 41. Take-Up Rollers |
| 3. Airline/Air Hose | 22. Needle Detector | 42. Take-Up Turn Table |
| 4. Broken Needle | 23. Needle/Sinker | 43. Tape/Quality Wheel |
| 5. Broken Sinker | 24. No Tickets | 44. Thick/Thin Yarn |
| 6. Creel/Tubes | 25. No Yarn | 45. Thrown Roll |
| 7. Electrical/Machine
will not start | 26. Oiler/Leaks/Line | 46. Too Many Defects |
| 8. Electrical run away | 27. Overhaul-PM | 47. Blow/std/Machine |
| 9. Electrical/bad motor | 28. Overhaul-PM Audit | 48. Fabric Scanner |
| 10. Electrical/Light | 29. PM Audit | 49. Scanner-Cal-Err |
| 11. Check Machine | 30. Porc Evlts Sprg | 50. Cylinder change |
| 12. Call Mechanic | 31. Press Off | 51. Gram-Machine |
| 13. Task Completed | 32. Quality/Draw | 52. Change Doff Revs |
| 14. Task Canceled | 33. Rag-n-Needles | 53. Start/Up Gram |
| 15. Flutter Blower | 34. Regulator-Air-Leak | 54. Start/Up Knit/Down |
| 16. Gate Switch | 35. Reneddle | 55. Start/Up Tie/Yarn |
| 17. Gates | 36. Resinker | 56. False-Fabric-Defects |
| 18. Holes/Drops | 37. Sinker Streak | 57. Fan |
| 19. IPF (Memminger) | 38. Take-up Spreader | |
| | 39. Take-up Belt | |

The list of declarations available from the Knit Monitoring software is:

1. Machine Memory Full
2. Incorrect Protocol from Machine
3. Machine Shift Change Needed
4. PM Level # Warning
5. PM Level # Reached
6. Run Disabled for PM
7. Knitter Message Waiting

2.3.3 Ravel Panel

The ravel panel, as depicted by the letter “Y”, shows the status of the rate of yarn coming into the machine. It also displays the status of the tolerance for the ravel, which is the minimum and maximum rate acceptable to maintain proper machine function. When the ravel is correct, the indicator turns green. When the ravel falls outside the accepted tolerance, the indicator turns red. The machine can also be stopped, if desired, when the ravel has been out of tolerance for a given amount of revolutions. To access a machine’s real-time ravel reading from the knit monitoring software, move the pointer arrow over the ravel indicator until the pop-up caption appears. Each ravel is displayed in inches and centimeters.

2.3.4 RPM / Fault Panel

The RPM / fault panel shows the status of the machine speed. The machine is sent the correct RPM and a tolerance for the RPM by the knit monitoring software. This is done using the fabric style data for the machine. The RPM is then monitored by the machine. When the RPM is correct the indicator turns green. When the RPM is out of tolerance the indicator turns yellow. The machine can also be stopped, if desired, when the RPM has been out of tolerance for a given amount of revolutions. When the pointer arrow is over the RPM indicator, a pop-up caption will be displayed. This pop-up caption is used to show the real-time RPM reading from the machine. Anytime the machine stops, the RPM indicator will display a color code that represents the stop and the pop-up caption will show the description and downtime of the stop.

2.4 Machine Information Screen

The machine information screen can be displayed by left-clicking on one of the Virtual icons or by left-clicking on "More Info" in the machine database screen. (See Figure 3) All of the real-time data collected from the machine can be viewed from this screen. This includes all totalized counters, machine fault counters, fabric defect counters, style information, shift information, piece information, knitter information, efficiencies, machine status, declaration status, down-time status and the date and time of the last download. All of this information is organized on one screen so that it can be quickly reviewed.

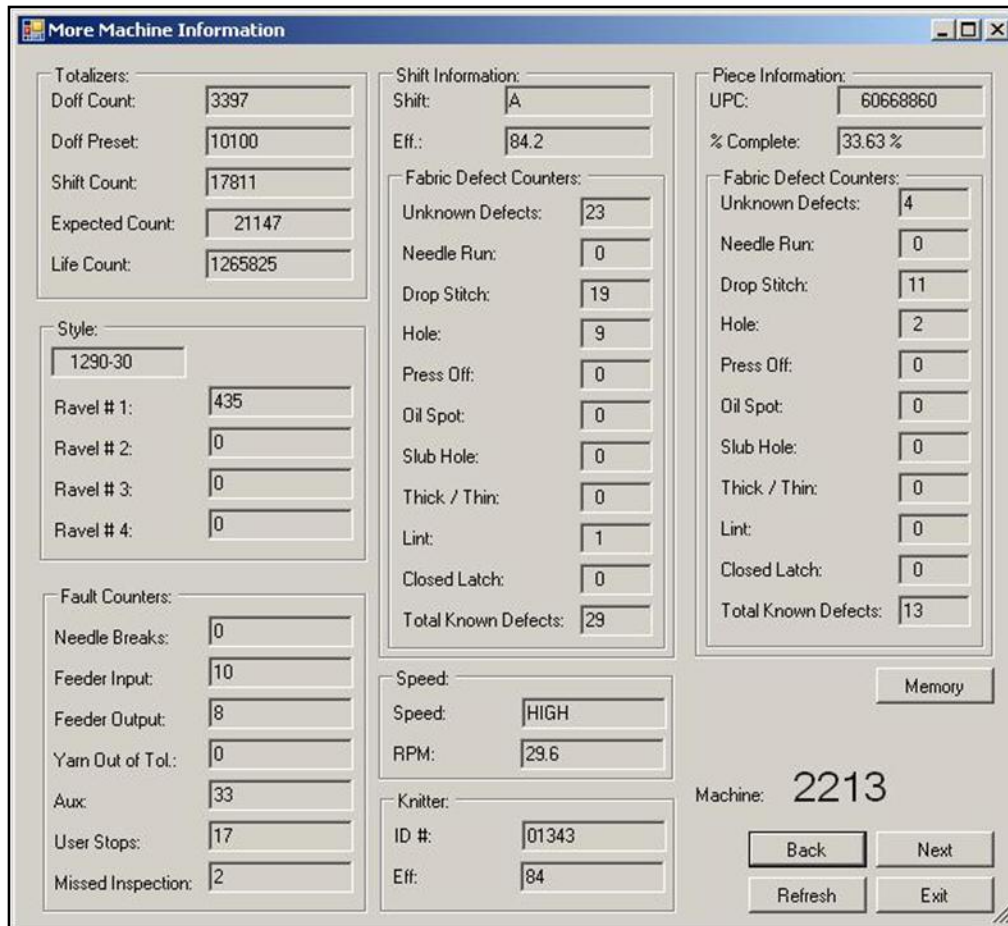


Figure 3: Machine Information Screen

3. MENU FUNCTIONS

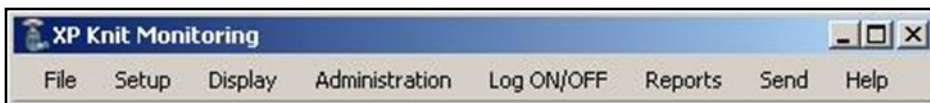


Figure 4: Main menu

3.1 File Menu

The file menu contains the com override toggle, align floor layout, save floor layout, refresh floor layout, and exit options as seen in Figure 5.

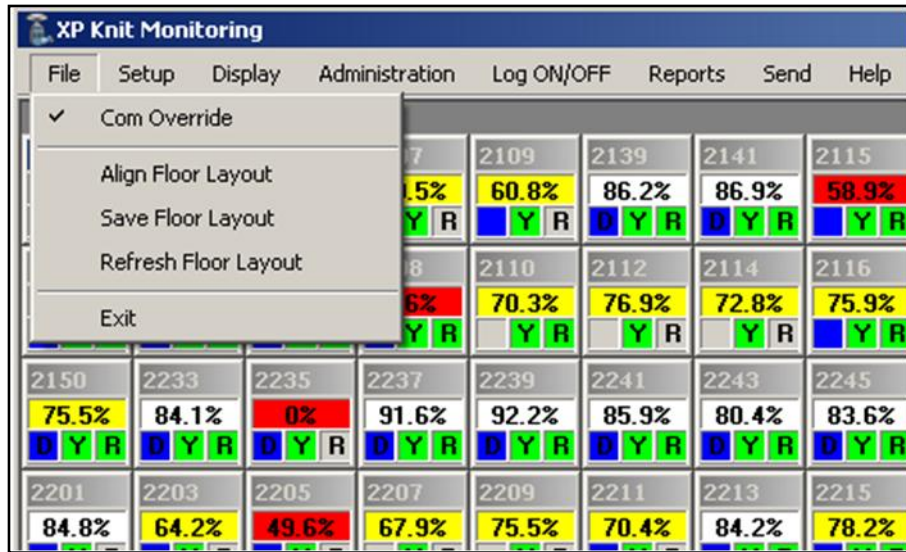


Figure 5: File Menu

3.1.1 Com Override

Under normal operation, machine icons display a “No Com” message when they are not connected. By activating “Com Override”, disconnected machines will instead show their last known status. Prolonged use of com override may cause machine connectivity issues to go unnoticed.

3.1.2 Floor Layout

The floor layout menu items are used in creating the virtual knitting floor. The icons that represent each machine in the main window of the knit monitoring software are a visual representation of the machines on the knitting room floor. These icons can be positioned so that they will correspond with the actual location of the machines that they represent. When lining up the icons across the floor, use the menu item ‘Align Floor Layout’ to snap the icons into place. This will force the icons on an imaginary grid so that they are lined up evenly across the window (see Figure 6). Once the virtual knitting room floor is laid out, use the ‘Save Floor Layout’ menu item to save the locations of the icons in the window. The icons can be moved without saving for other uses as in temporarily grouping problem machines that need attention. Once this arrangement is not needed, use the ‘Refresh Floor Layout’ menu item to move all the icons back to their previously saved positions.

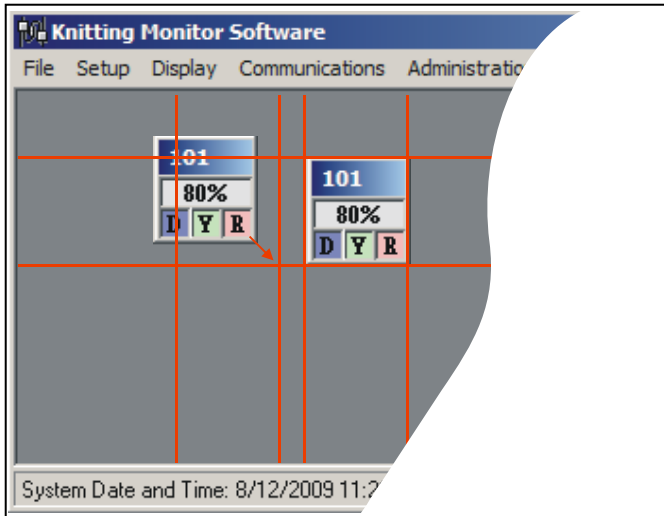


Figure 6: Grid Snapping

3.2 Setup Menu

The setup menu contains the Add/Edit submenu and the extended shift option. The Add/Edit submenu contains links to machines, styles, yarns, yarn vendors, PMs, cycles, knitters, fixers, and groups. (See Figure 7)

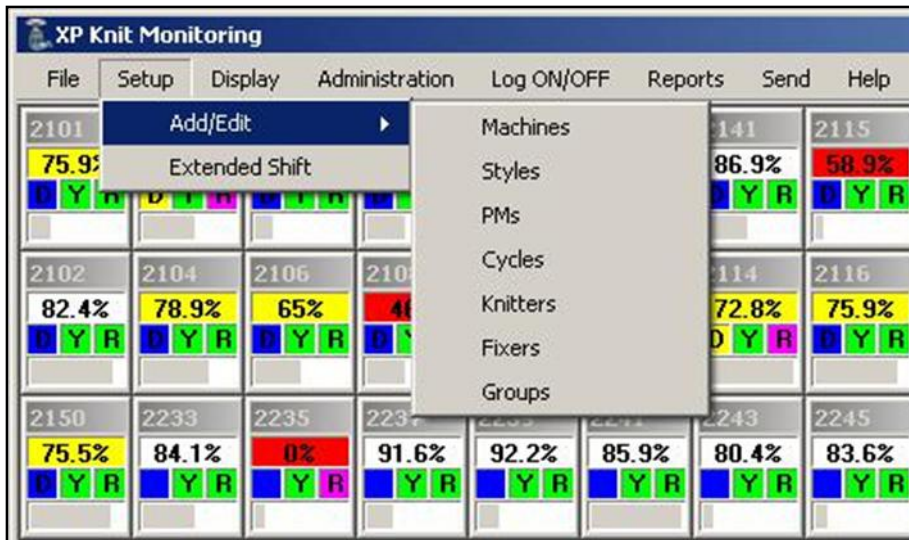


Figure 7: Setup Menu

3.2.1 Add/Edit Machines

All machines that will be monitored must first be entered into the database using this window. (See Figure 8) To add new machines, click 'New'. You will be prompted to enter the machine number and serial number. After this is entered, you will be shown the newly created machine's blank entry that must be populated. After entering in the machine's data, click 'Save'.

The machine data window contains several fields that must be populated for full functionality of the knit monitoring software. The left side of the window contains several general pieces of data about the machine: Manufacturer (Vanguard, etc.), Model (SJ4AC/DI2, etc.), Type (Jersey, Rib), Cylinder Size (Inches), Cut, Number of Needles, Number of Feeds, RPM Tolerance (How much the machine can deviate from the prescribed RPM before it shuts down.), Roll Weight (Pounds), Speed Factor, Machine Value (for knitter assignments).

The machine window also contains four individual PM counters. These counters decrease with each revolution of the machine it is associated with. Each PM counter has a warning count level, a negative count level, a run prevention selection and a description associated with it.

When any of the PM counters drop below its respective warning level count, a declaration is triggered. The declaration indicator on the associated icon turns blue. (See Figure 2) If the pointer arrow is over the indicator, a pop-up caption will be displayed. The caption will display "PM Needed" with the counter number and description of the PM level as entered in the machine database. When any of the PM cycle counters drop to zero, the "D" in the declaration indicator flashes.

When any of the PM cycle counters drop below their respective negative level count with the run prevention selection checked, that particular machine is stopped until the PM is taken care of and correctly logged into the PM Logging window. The machine database also has a selection for showing or hiding the machine icon on the screen. When adding machines to the knit monitoring floor layout, the "Show Icon" must be check marked. The check mark can be removed to remove the icon from the floor layout.

The PM descriptions are custom preset PMs that are created by you. If you have no selectable PM descriptions or the one you want is not an option, you must add that PM with the Add/Edit PMs window. (See Figure 10)

The machine window also displays cycle presets. These cycle presets are settings that you create with the Add/Edit Cycles window. (See Figure 11) If no cycles are selectable or the desired cycle is not an option, you must create it.

Finally, the machine must be setup for yarn/belt matching. There can be up to 4 belts and 4 yarns. Multiple belts can use the same yarn type, but only one yarn type can be put on a belt. For example if you want YARN1 to be used on belts 1 and 2 and YARN2 to be used on belt 3 and belt 4 is out of use, check belts 1, 2, and 3, and select YARN1 for belts 1 and 2, and select YARN2 for belt 3.

Machine2

Asset #: 0 Machine Number: **1236** Current Style: 8519-22-63
 Serial #: 54171 Back Next Current RPM: 63.1
 Life Counter: 6771011 Refresh New Print Show Machine On Floor
 Delete Save Exit

Manufacturer: Vanguard

	Last PM Date:	Last PM Revs:	PM Cycle Count:	Revs Until PM:	Warning Revs:	Description:	Stop at Negative Count	Count:
PM1	1/1/2010	0	6000000	-771011	100000		<input type="checkbox"/>	0
PM2	1/1/2010	0	1	-6771010	100000		<input type="checkbox"/>	0
PM3	1/1/2010	0	1	-6771010	100000		<input type="checkbox"/>	0
PM4	1/1/2010	0	1	-6771010	100000		<input type="checkbox"/>	0

Model: SJ44/DI2 Type: JERSEY

Cylinder Size: 22 # of Needles: 1656

Cut: 24 # of Feeds: 88

RPM Tol: 2 Mach Value: 0

Cycle Settings

Cycle Preset: [Dropdown] Cycle [Button]

Pre-Doff Clean: 0 Inspection Cycle: 0 RPM Tolerance: 0

Pre-Doff Flush: 0 Mid-Roll Flush: 0.00 Ravel Tolerance: 0

Max Defects: 0 Oil Flush Duration: 0

Yarn / Belt Matching

Belt 1 Use Yarn #: 1 Belt 2 Use Yarn #: 2
 Belt 3 Use Yarn #: 3 Belt 4 Use Yarn #: 4

Figure 8: Machine Database Window

3.2.2 Add/Edit Styles

All the fabric styles used on the Knitting Floor can be entered into the Fabric Styles Database using this window (See Figure 9). To create a new style, click 'New' and input the style name. Then fill in the form for the new style and click 'Save'.

Add/Edit/Remove Style

Style: **1217-33-B** Back Next Yarn 1: []

Yarn Vendor: USA Base Style: 1217 Yarn 2: []

Speed Factor: 990 Roll Size: R Yarn 3: []

Customer: hbi Yarn 4: []

Creel Type: h

Roll Parameters:

Revolution: [] Draw: []

Inspection Cycle: 330 # of Belts: 2

Mid-Roll Flush: 4500 Rate Tolerance: 2

Oil Flush Duration: 6 Yarn #1 (in/): 262

Pre-Doff Clean: 35 Yarn #2 (in/): 0

Pre-Doff Flush: 40 Yarn #3 (in/): 262

Doff Revs: 9000 Yarn #4 (in/): 0

Max Defects: 15

Search New Refresh Duplicate Exit Delete Save

1217-33-B

Machine and Yarn Parameters:

Yarn 1: RS 450 S twist Merge 1: [] Units: Standard Metric

Yarn 2: [] Merge 2: []

Yarn 3: [] Merge 3: []

Yarn 4: [] Merge 4: []

System: NeB Den

Yarn Count 1: 32 Yarn 1 # of Feeds: 120 Yarn 2: NeB Den

Yarn Count 2: 0 Yarn 2 # of Feeds: 0 Yarn 3: NeB Den

Yarn Count 3: 0 Yarn 3 # of Feeds: 0 Yarn 4: NeB Den

Yarn Count 4: 0 Yarn 4 # of Feeds: 0

Machine Type: JERSEY Cut: 24

of Needles: 2256 Greige Width @ Roller: 0

Machine Feeds: 120 Grams: 5.15

Stitches/Inch: 0 Greige Yield Expected lb/yd: 0.39

Wales/Inch: 0 oz/yd: 0.02

Greige Weight: 310 Punch Weight oz/sq.yd: 0

Greige Yards: 800 Style Value: 25

Cylinder Size: 30 Correction Factor: 0

Style Revs: 23760

Figure 9: Style Window

3.2.3 Add/Edit PMs

Enter PM descriptions into this form to populate selectable PMs in the Add/Edit Machine Window. You must click 'Save' to save typed data. (See Figure 10)



Figure 10: Add/Edit PMs

3.2.4 Add/Edit Cycle

Use this window to pre-program cycles according to Table 1 below. (See Figure 1)

Table 1 – Cycle details

Parameter Name	Range	Description
Inspection Cycle	0 – 99999	Cycle counter that indicates to the Knitter to inspect the machine. If the machine is not inspected by the second inspection cycle, the machine is stopped and a missed inspection is counted.
Mid-Roll Flush	0 – 99999	The piece revolutions that the machine will begin the oil flush in the middle of the roll.
Oil Flush Duration	0 - 99	The duration of an oil flush
Pre-Doff Clean	0 - 999	The number of revolutions before the end of the roll that the machine will be stopped and the machine will display the Pre-Doff Clean message.
Pre-Doff Flush	0 - 999	The number of revolutions before the end of the roll that begins the end of the roll oil flush.
RPM Tolerance	0 - 9	The allowable amount of RPM tolerance.
Max Defects/Roll	0 - 99	The maximum defects allowed per piece.

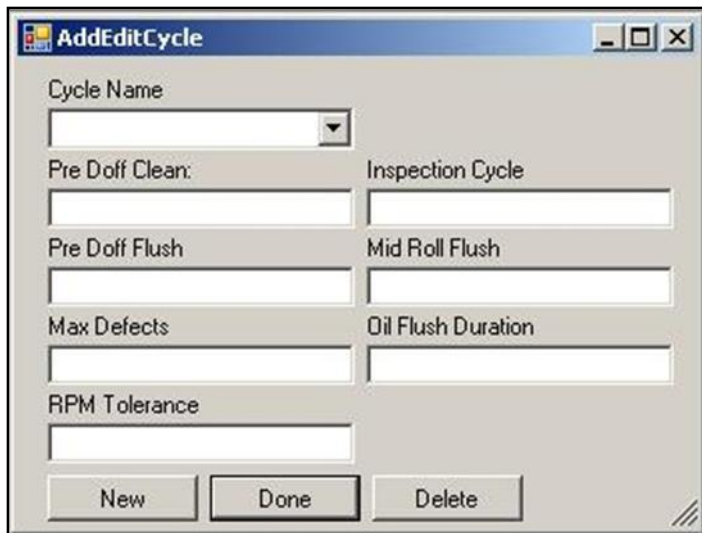


Figure 11: Add/Edit Cycle Settings

3.2.5 Add/Edit Knitters

Use this window to control the knitter database. (See Figure 12) Typed data must be saved by clicking 'Save'. Knitters must be added to groups to be scheduled in knitter sets. If no groups are selectable, or the desired group is not an option, go to add/edit groups to create and modify groups.



Figure 12: Add/Edit Knitters Window

3.2.6 Add/Edit Fixers

Use this window to control the fixer database. (See Figure 13) This window operates similarly to the knitter window with the exception of groups. Typed data must be saved by clicking 'Save'.

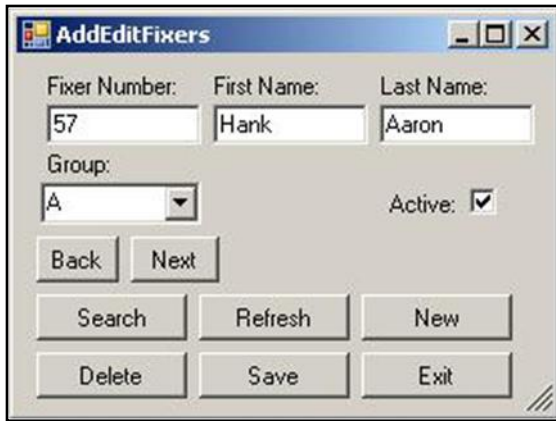


Figure 13: Add/Edit Fixers Window

3.2.7 Add/Edit Groups

Use this window to organize knitters into shift groups. (See Figure 14) To create a new group, click 'New' and input the group name. It will appear in the dropdown box. Add knitters to the group by selecting the group, then selecting knitters and clicking the '>>' button. To ungroup a knitter, select a knitter and click the '<<' button. To delete a group, select it and click 'Delete'. All knitters in a deleted group will be ungrouped.

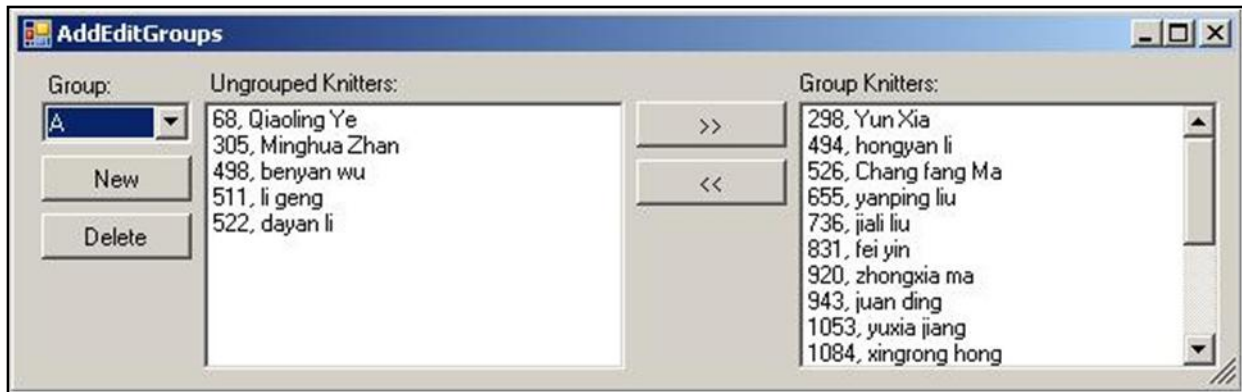


Figure 14: Add/Edit Groups Window

3.2.8 Shift Schedule

The 'Shift Schedule' window allows for the creation of a diverse plant schedule. The schedule is built in a modular format. (See Figure 15)

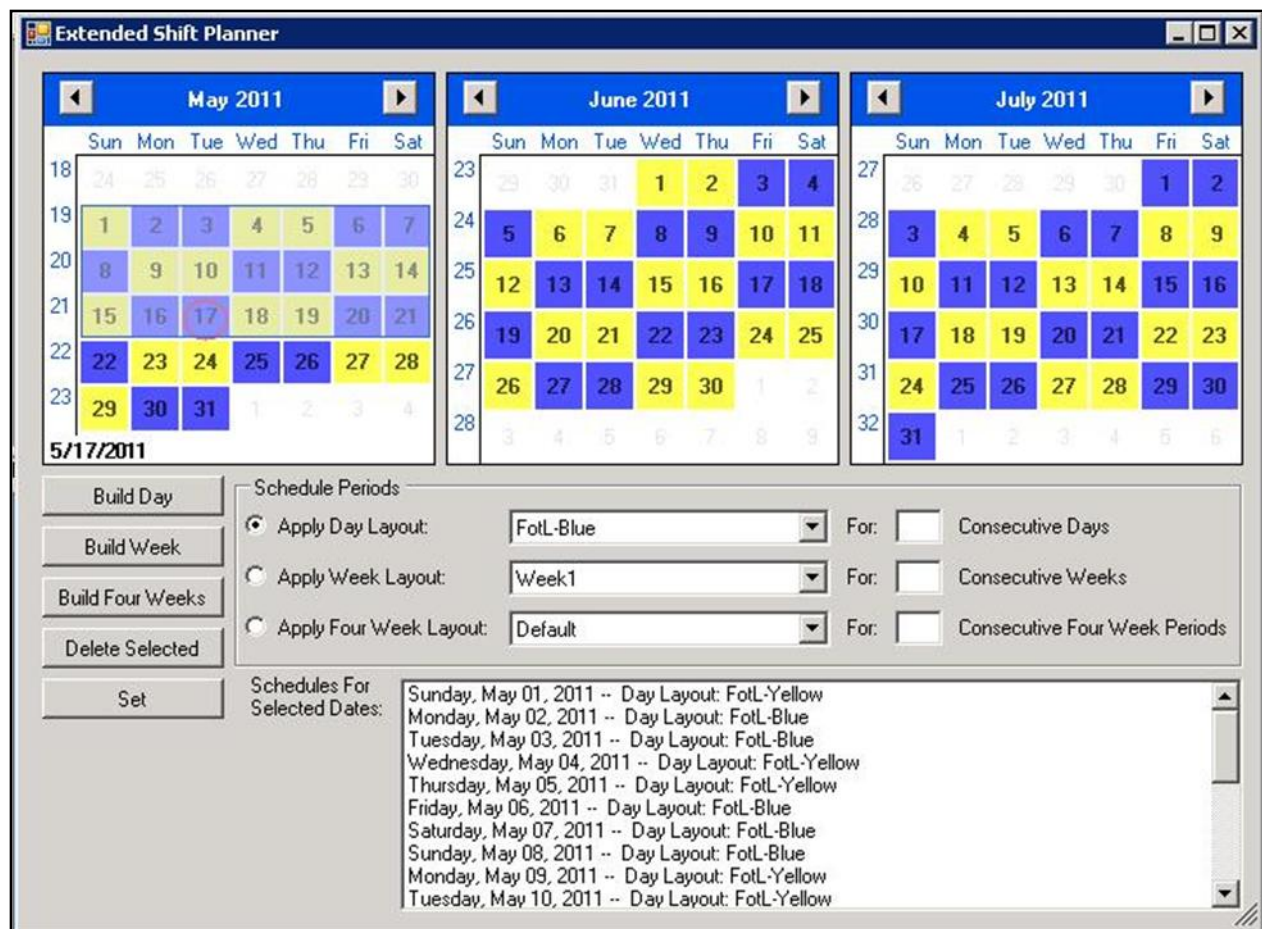


Figure 15: Extended Shift Planning Window

Begin by 'building days'. Click on the 'Build Day' button. The day layout constructor is displayed. (See Figure 16) To create a new shift, click 'New'. After entering the name of the day, you must enter the shift data. There can be up to four shifts in one day. If you only have 2 shifts, only select 'Active' on the first and second shift. Select the start and end time of each shift and the group of knitters that will be working that shift. Finally, click on the day color to select a custom color for that day. Click 'Save' to save the day. To create more days, click 'New' again.

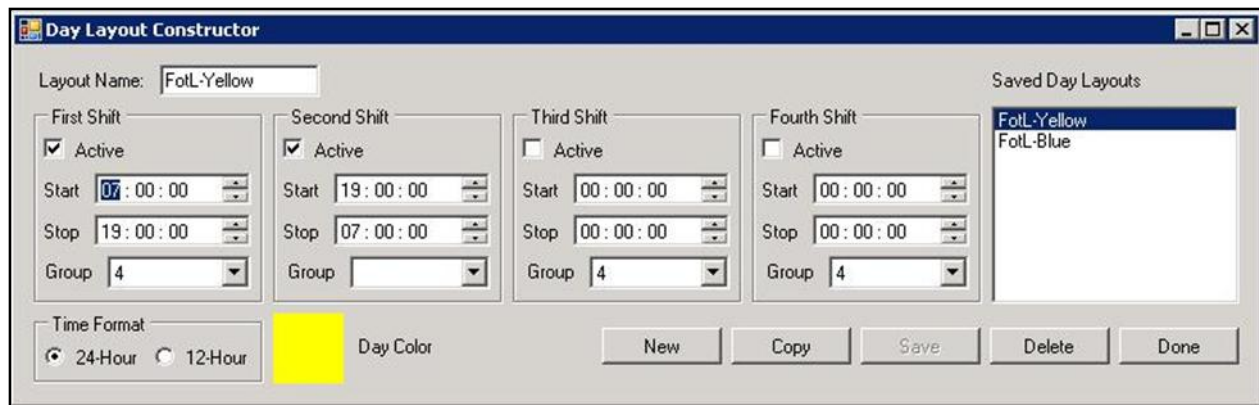


Figure 16: Build Day Window

Now that we have build days, we can build weeks with those days. From the main schedule window click the 'Build Week' button to display the week layout constructor. (See Figure 17) To create a new week, click the 'New' button. After naming the week, you must populate the week with previously build days. Click 'Save' to save changes. If not every week is the same, create additional weeks. (If you are on a four week rotation, you need four weeks. If on a two week rotation, you need 2 weeks.)

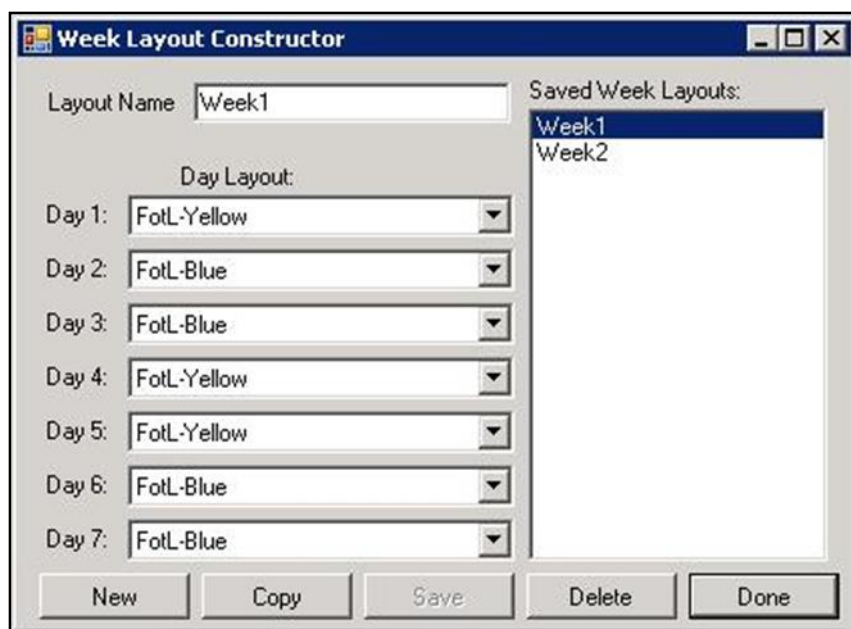


Figure 17: Build Week Window

Now that we have build days and weeks, we can build four week segments. Click on 'Build Four Weeks' to display the four week layout constructor. (See Figure 18) Similarly to building days and weeks, to create a new four week layout, click 'New'. If you are on a four week rotation, select week1, week2, week3, and week4. If on a two week rotation, select week1, week2, wee1, week2. Click 'Save' to save the layout.

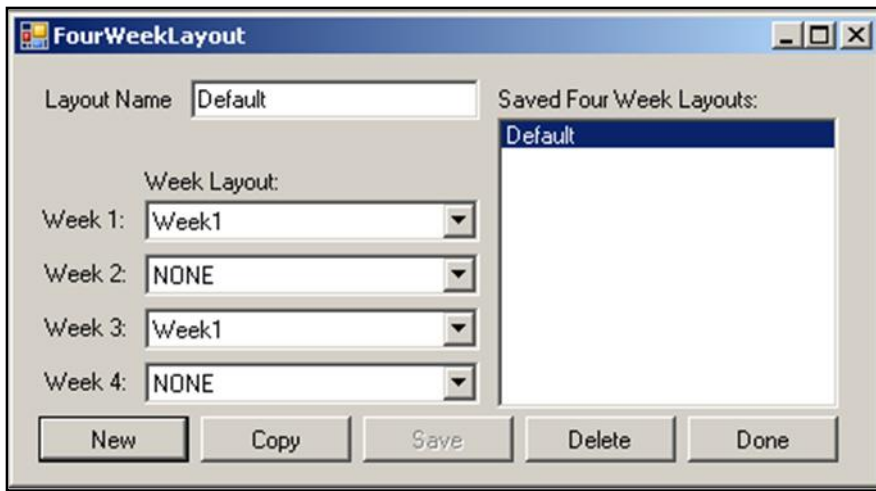


Figure 18: Build Four Week Layout Window

Once the layouts have been constructed, return to the main schedule window and select the radio button beside the layout you want to apply. Next select the number of consecutive layouts you want to apply. Finally click 'Set' to apply the layout. For example if you want to set 'Day1' for 10 days, click the days radio button, select 'Day1' then input 10 into the number of days. If you want to apply a 2 week rotation for a year, select the four week radio button, select your four week layout, then input the number of four week periods in a year. (About 12) Hit set. You can even schedule for 10 years, just input 120 instead of 12.

After you have the general structure of your schedule, you can make small changes by double clicking on the day and altering it, or selecting single or multiple days and clicking delete. Details about selected days are displayed below in the list box.

3.3 Display Menu

The display menu contains the machine icon display options: 'Shift Efficiency', 'Knitter Efficiency', 'Log Status', and 'Style Information'. It also contains a link to the 'Declarations' window and the 'Display Setup' submenu. The display setup submenu contains links to 'Efficiency Parameters', 'Declaration Colors', and 'Fault Colors'. (See Figure 19)

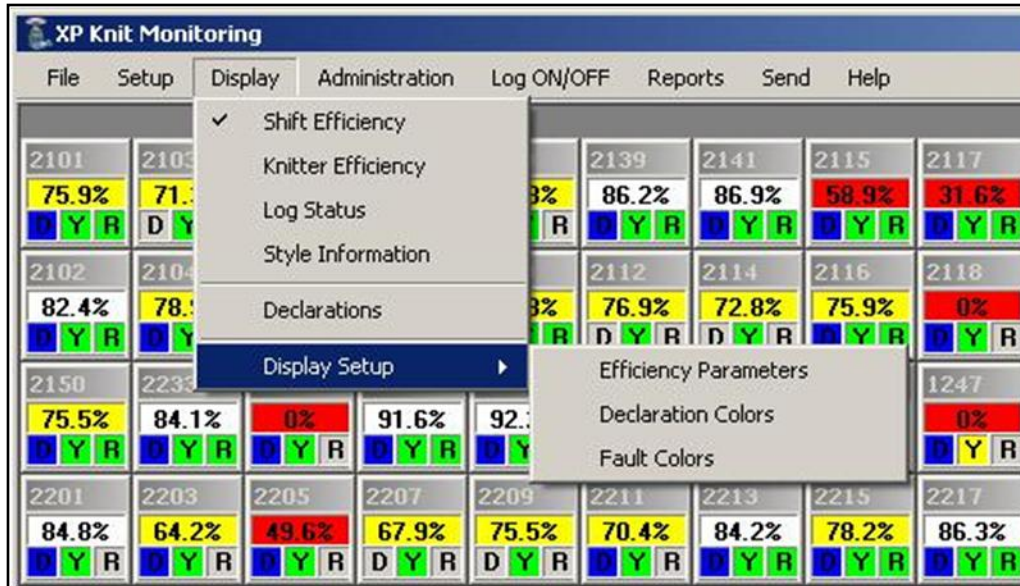


Figure 19: Display Menu

3.3.1 Shift Efficiency

Selecting this option causes the machine icons to display the shift efficiency in the main display panel and the knitter efficiency, log status, and style information in the tool tip. (See Figure 20)

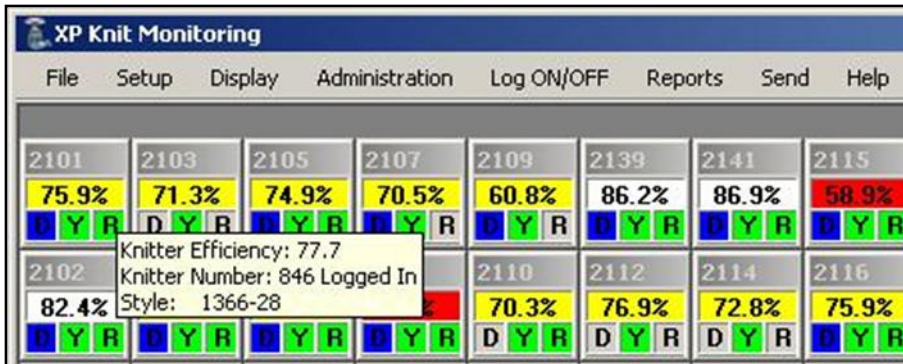


Figure 20: Display and Tooltip with Shift Efficiency Selected

3.3.2 Knitter Efficiency

Selecting this option causes the machine icons to display the knitter efficiency in the main display panel and the shift efficiency, log status, and style information in the tool tip. (See Figure 21)

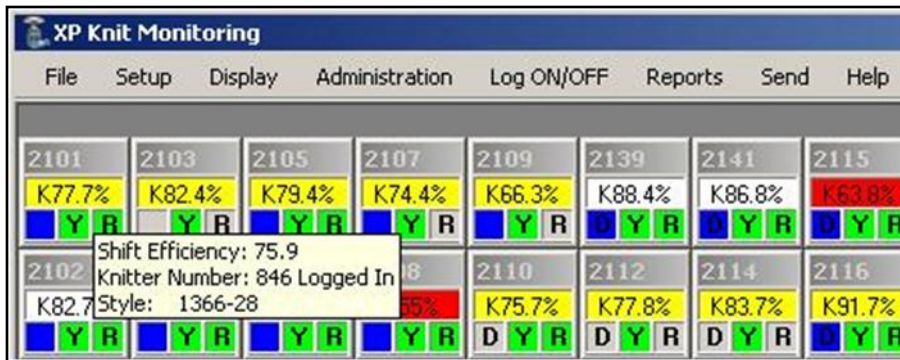


Figure 21: Display and Tooltip with Knitter Efficiency Selected

3.3.3 Log Status

Selecting this option causes the machine icons to display the log status in the main display panel and the shift efficiency, knitter efficiency, and style information in the tool tip. (See Figure 22)

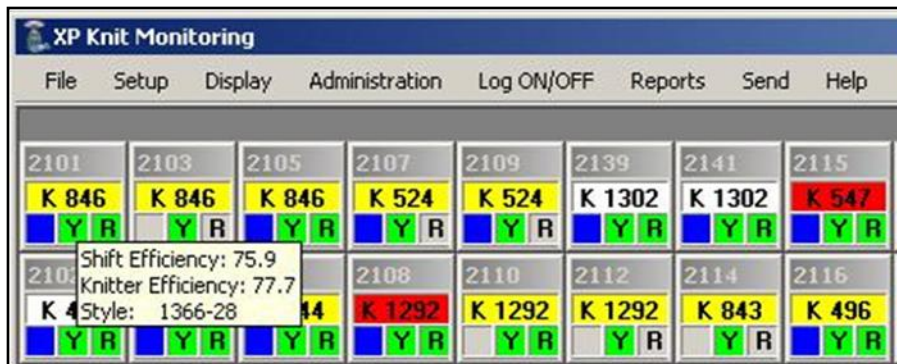


Figure 22: Display and Tooltip with Log Status Selected

3.3.4 Style information

Selecting this option causes the machine icons to display the style information in the main display panel and the shift efficiency, knitter efficiency, and log status in the tool tip. (See Figure 23)

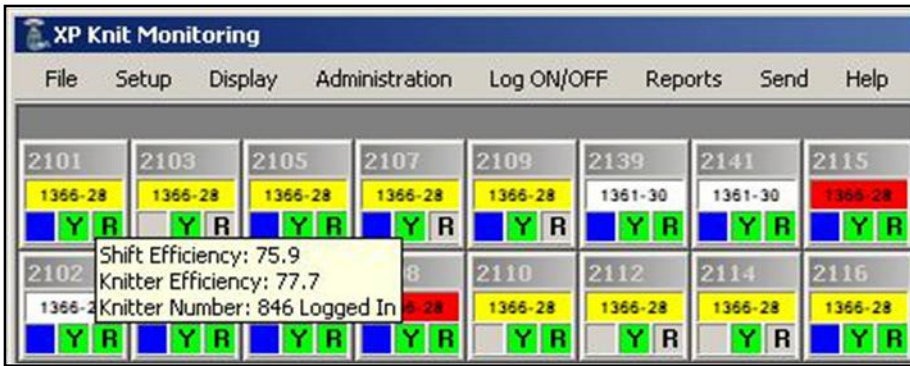


Figure 23: Display and Tooltip with Style Information Selected

3.3.5 Current Declarations

Clicking the 'Declarations' button displays a window with all the current declarations in the plant. (See Figure 24)

MACHINE	DECLARATION	START_TIME	KNITTER	FIXER	DOWN_TIME
2103	Press off	1899-12-30 19:07:00	846	NONE	67
2110	Press off	1899-12-30 19:45:00	1292	550	29
2112	Press off	1899-12-30 19:46:00	1292	NONE	28
2114	Press off	1899-12-30 19:58:00	843	NONE	17
2118	Other	1899-12-30 15:17:00	518	NONE	71582788
2120	Press off	1899-12-30 18:19:00	1083	731	116
2127	Press off	1899-12-30 19:43:00	1140	NONE	32
2207	Press off	1899-12-30 19:28:00	1415	NONE	46
2209	Press off	1899-12-30 20:00:00	1415	NONE	15
2311	Press off	1899-12-30 20:12:00	736	NONE	2

Figure 24: Current Declarations Screen

3.3.6 Efficiency Parameters

Clicking the 'Efficiency Parameters' button displays the current efficiency parameters. This window controls the shift efficiency percentage below which the background color of a machine window will change color to a color you choose. Click on the colored box to change the color.



Figure 25: Efficiency Parameters Window

3.3.7 Declaration Colors

Custom colors can be set for each declaration, but this is not required. To set a single declaration's color, click the colored box beside it. To set multiple colors simultaneously, check the box beside the declaration and click 'Set'. Choose the color and hit 'OK'. (See Figure 26)

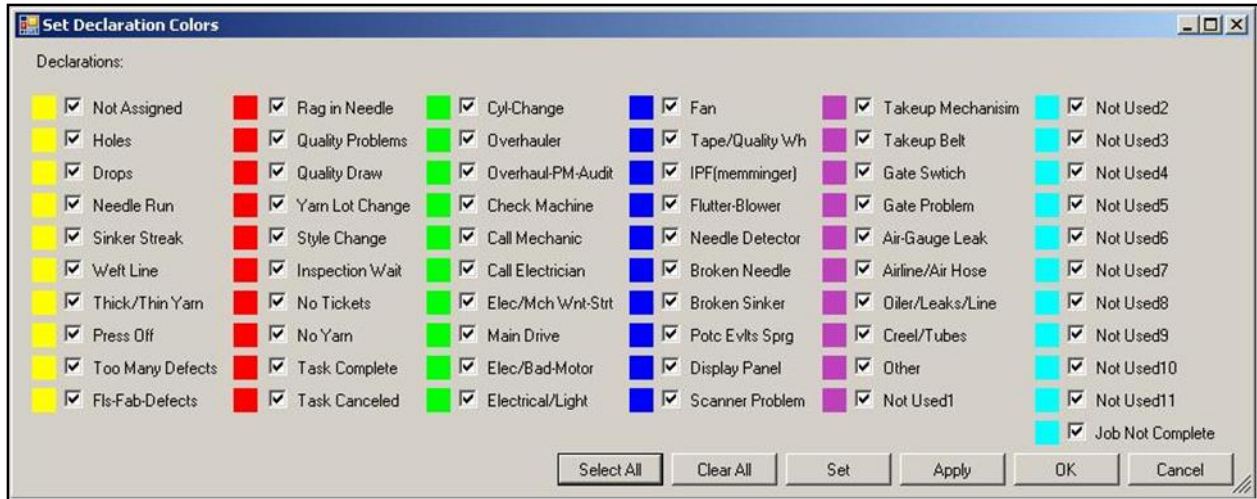


Figure 26: Declaration Colors Window

3.3.8 Fault Colors

Custom colors can be set for machine faults exactly the same as declarations. (See 3.3.7 Declaration Colors, Figure 1)

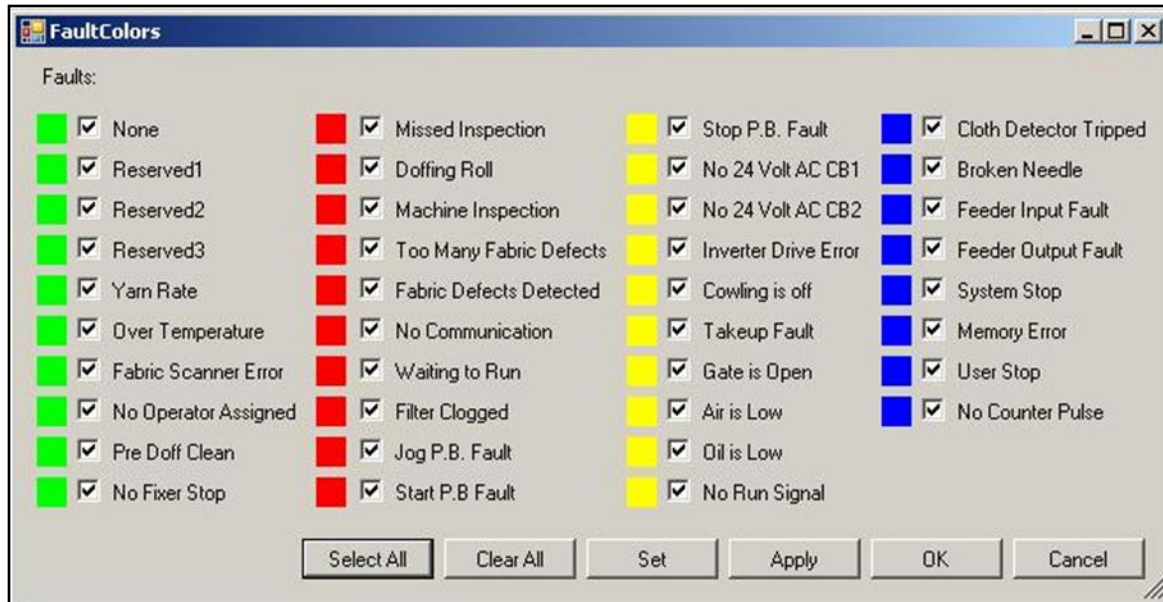


Figure 27: Fault Colors Window

3.4 Administration Menu

This menu contains links to knitters sets, machine sampling, PM logging, and security. (See Figure 28)

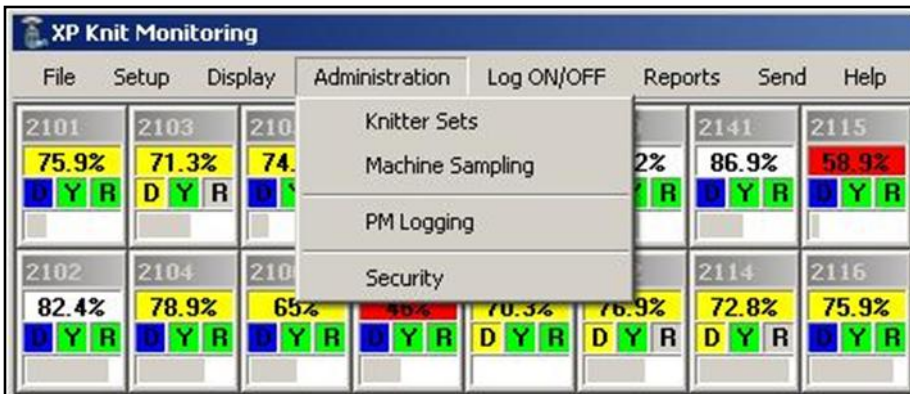


Figure 28: Administration Menu

3.4.1 Knitter Sets

Clicking the knitter sets menu option transforms the main window into a knitter set planning window. (See Figure 29) Knitter sets assign knitters, styles and priorities to specific machines during a specific group's shift.

To create a knitter set for specific day and group, that day and group must already be scheduled using the schedule planner. (See 3.2.8 Shift Schedule) To select a day, use the date time picker. Then use the drop down box to select the group that you want to plan for that day.

Now you must assign a knitter, priority, and style to each machine you want to plan. It is not important the order you assign them. You can also do partial plans that do not include every machine or plans that only have style and priority and not knitter.



Figure 29: Knitters Sets Window

To assign a knitter, select the knitter in the drop down box. (If a knitter outside of the scheduled group is needed, check the box 'Show all knitters'.) Once the knitter is selected, click the 'assigned knitter' panel of every machine that knitter will run. (See Figure 30) A random color will be assigned to that knitter to help distinguish them from other nearby knitters. To unassigned a knitter, right click on the assigned

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knitter panel. To assign a different knitter, simply select them and left click the assigned knitter panel. The knitters 'value' is displayed along with his current assigned value. If his assigned value exceeds his set value, his assigned value turns red. Machine values are displayed at the bottom of their icon.

Styles are added in the same way as knitters. Simply select the style and click the style panel of the machine icon. To un-assign a style, right click it. To assign another style, select the new style and left click the style panel.

Priorities are applied in the same manner as knitters and styles. Simply click the colored box of the priority you want to apply and click the priority panel of the machine icon.

Once a machine is fully defined, the style panel's background turns from white to green.

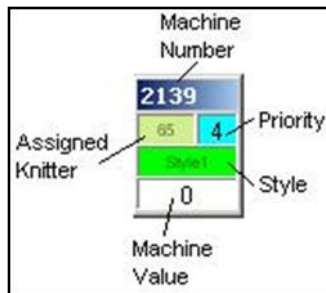


Figure 30: Knitter Set Machine Icon

To speed up the creation of knitter sets, you are able to copy and paste them. If you complete a knitter set for a certain group, you can click 'Copy Set' to save the set into memory. You can then select a new day and group and hit 'Quick Paste' to insert the set once. Alternatively, you can click 'Multi Paste' to paste the set for multiple days quickly. (See Figure 31)

Simply select a range of days and a shift and click 'Add'. When you have added all the days and shifts you want to paste to, click 'Paste'.



Figure 31: Multi Paste Window

3.4.2 Machine Sampling

Machine sampling settings control how the machine samples real time data. (See Figure 32) Number of seconds between samples is defaulted to 300. (5 minutes) Days to maintain old samples is defaulted to 365. (1 year) Hour interval of weekly average updates is defaulted to 1 hour. This means the server will update the average efficiency and RPM of the previous 7 days using samples taken in that time interval every hour. Machine window connection timeout is the amount of time (in minutes) that a machine will appear to still be connected after it has last checked in.

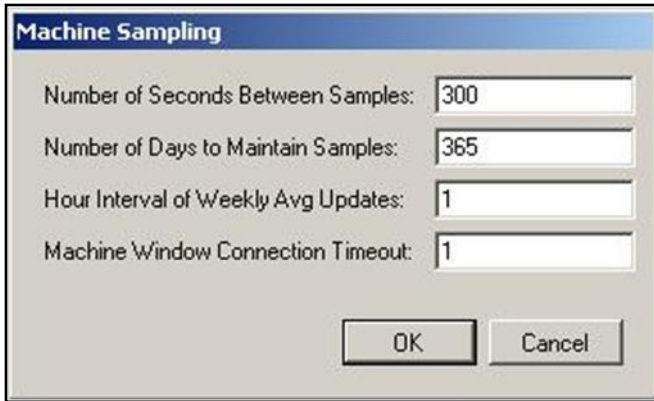


Figure 32: Machine Sampling Window

3.4.3 PM Logging

The PM logging window allows for the documentation of PMs performed on machines. When you select a machine number, the current number of revolutions are populated in the 'Revs:' textbox. The number of revolutions can be changed in case the PM was performed earlier. Select the fixer that performed the PM from the fixer database and the date the PM was performed. Finally, select the description of the PM that was performed from the PM database. 'Vendor' and 'Notes' are optional. Click 'Save' to save changes. (See Figure 33)



Figure 33: Periodic Maintenance Logging Window

3.4.4 Security

The security window allows administrators to manage client users. New users can be added, existing users can be removed, existing users can have their security profile changed, passwords can be reset, and security profiles can be defined and changed.

3.4.4.1 Add Users

The add users tab allows new users to be added. (See Figure 34) Each user must have a unique username. To add a new user, input the username, select the desired security profile, input their password and retype the password to confirm it. Finally, click add user. If the desired user security profile is not present or there are no user security profiles, see section: 3.4.4.5 Manage Security Profiles.

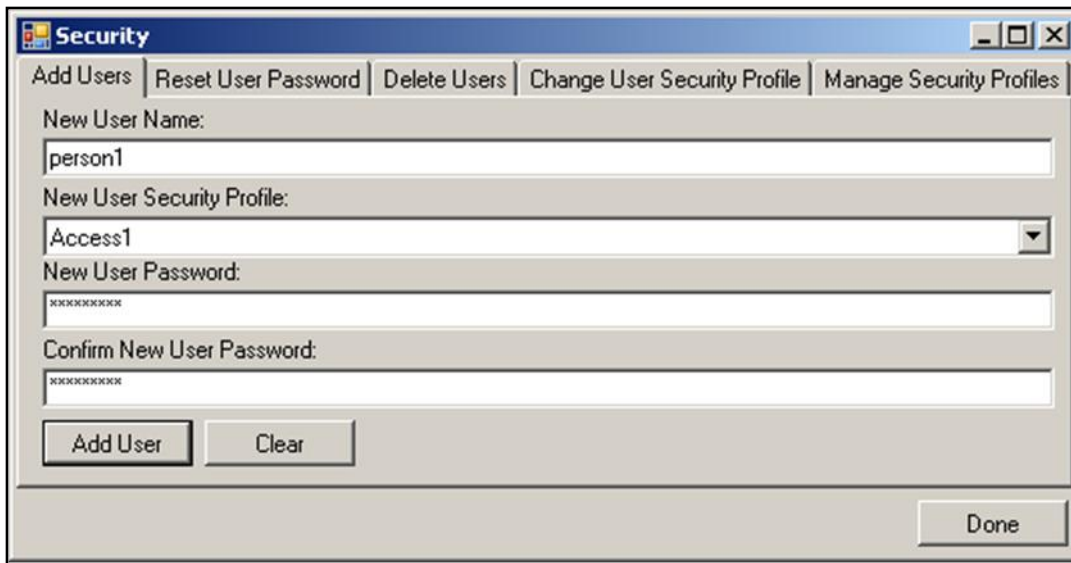


Figure 34: Security Window; Add Users Tab

3.4.4.2 Reset User Password

To reset an existing user's password, navigate to the reset user password tab of the security panel and select the username from the list box. Next type in the new password and retype it to confirm and click reset. (See Figure 35)



Figure 35: Security Window; Reset User Password Tab

3.4.4.3 Delete Users

To delete existing users, simply navigate to the 'Delete Users' tab and select the username to delete. Click 'Delete'. (See Figure 36)

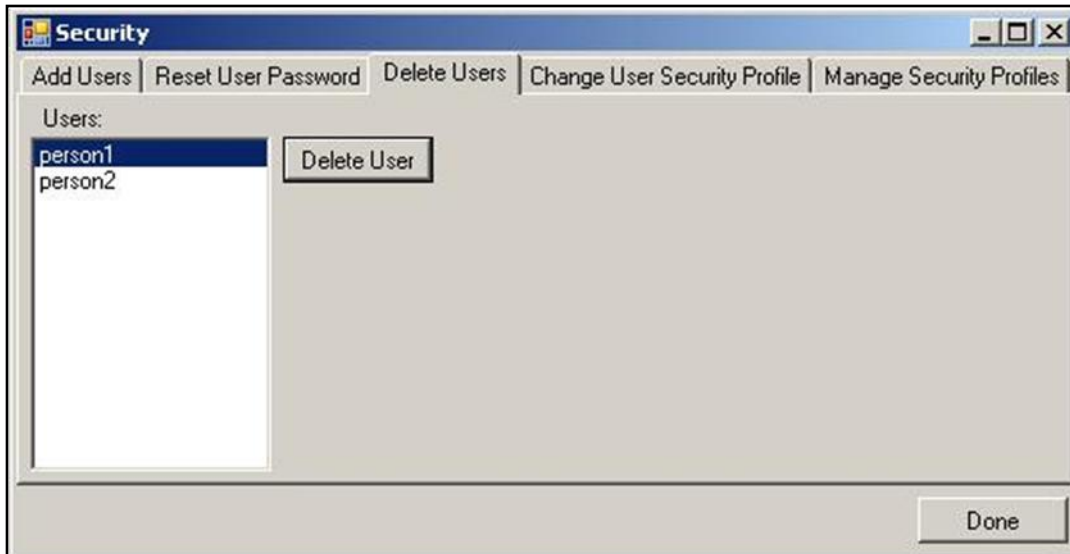


Figure 36: Security Window; Delete Users Tab

3.4.4.4 Change User Security Profile

To change a user's security profile, navigate to the 'Change User Security Profile' tab. Select the desired username and then select the desired security profile. Click 'Save'. (See Figure 37)



Figure 37: Security Window; Change User Security Profile Tab

3.4.4.5 Manage Security Profiles

To create and modify security profiles, navigate to the 'Manage Security Profiles' panel. To add a new security profile, type its name into 'New Profile Name' and click 'Add'. To delete an existing security profile, select the profile in the list box and click 'Delete'. To change the permissions associated with a security profile, select the Profile from the list boxes next to areas available to that profile. (See Figure 38 next Page)

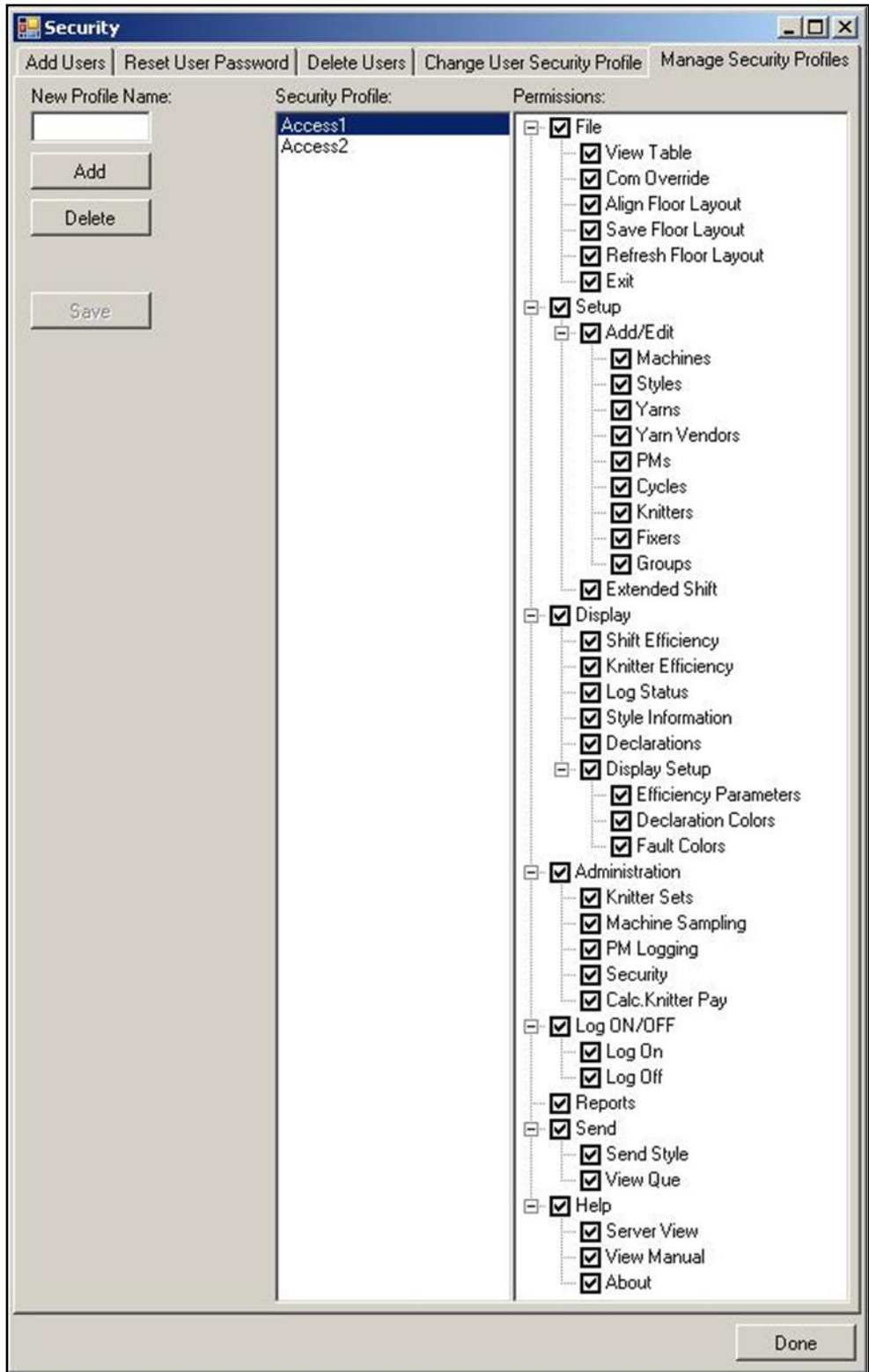


Figure 38: Security Window; Manage Security Profiles Tab

3.5 Log ON/OFF Menu

The log on/off menu allows users to log on or off. (See Figure 39)

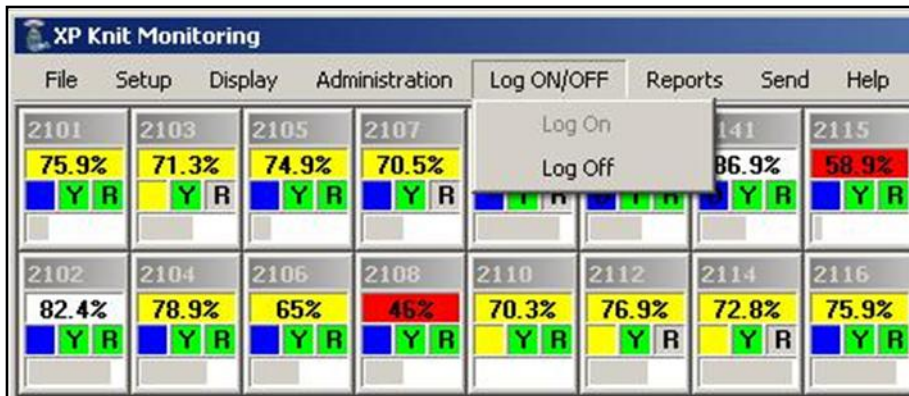


Figure 39: Log ON/OFF Menu

3.5.1 Log On

The log on menu item is only selectable if no user is currently logged in. To log in as a different user, the current user must log off. (See 3.5.2 Log Off) The log on window automatically appears when the program starts or when a user logs off. (See Figure 40) If closed, it can be reopened with the log on menu item.



Figure 40: Log ON Window

3.5.2 Log Off

The log off option is only available when a user is logged on. This menu item logs a user off and allows another to log on.

3.6 Reports

Clicking the reports menu item brings up an open file dialogue that asks you to choose the desired report file. (See Figure 41) Once the desired report is selected, click 'Open' and the report will be opened.

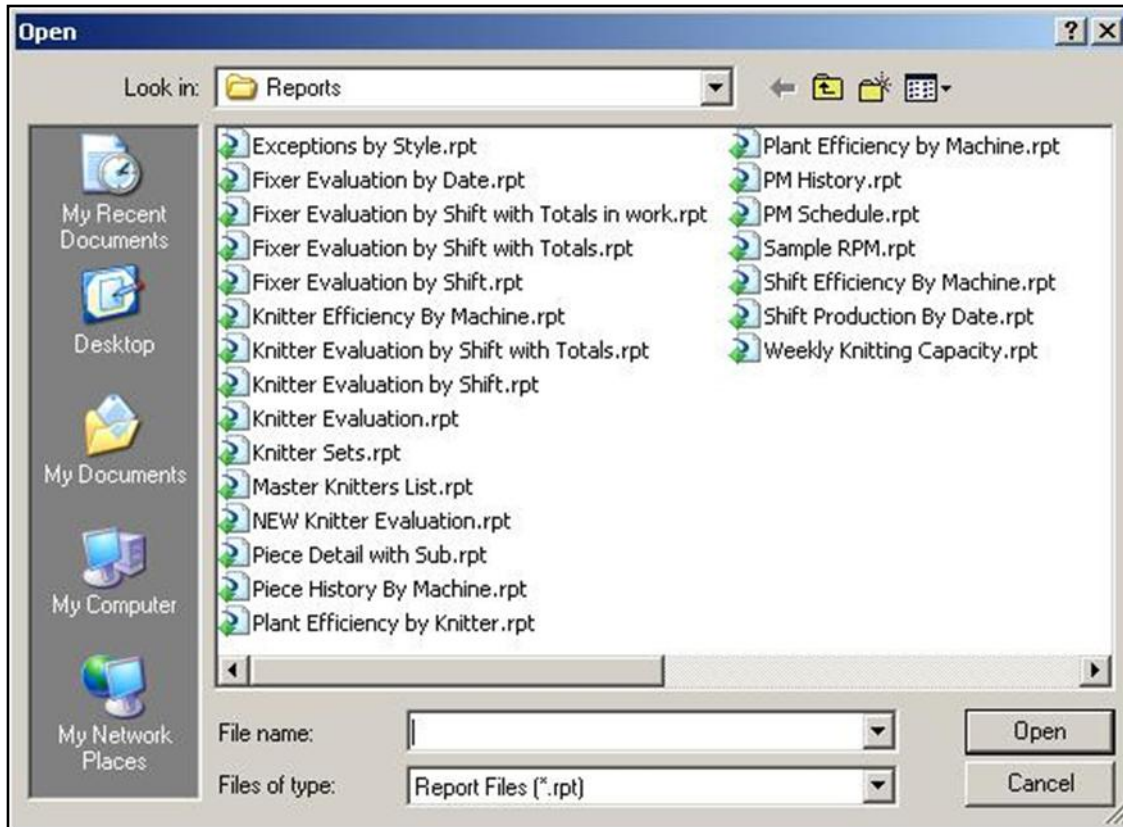


Figure 41: Open File Dialogue for Reports

If there is any information required by the report, you will be asked to input it at this time. Afterward, the report will be displayed in the 'Report Viewer'. An outline of the current report's main groups are listed to the left of the report and can be clicked on as short cuts to their location in the report. The report can have many pages and can be navigated by using the arrows at the top of the window. The report can be refreshed to update it as new information comes in from machines. The report's print option can also be found at the top of the screen. Clicking the menu item 'Open Report' will allow you to open a new report from within the current report viewer.

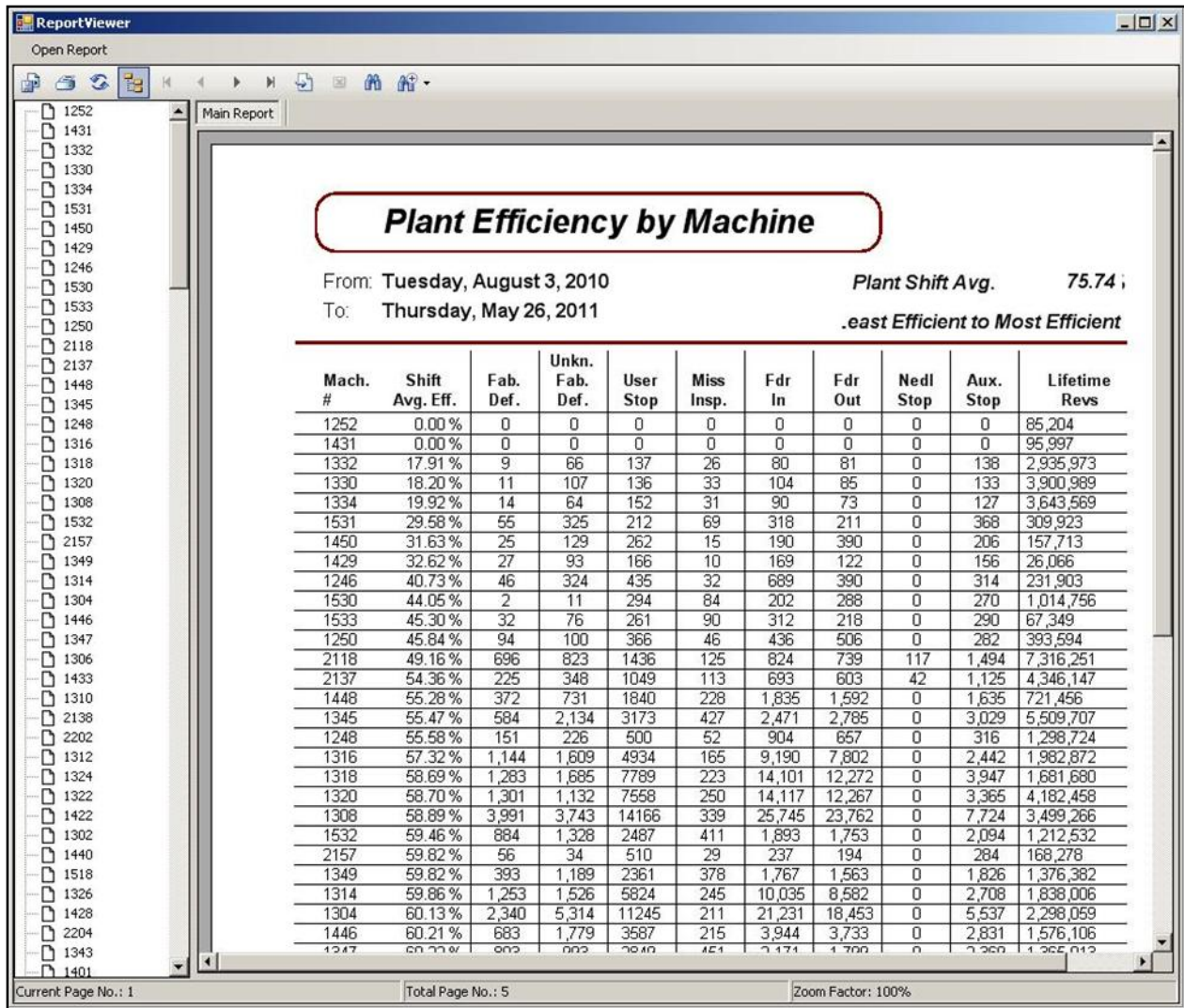


Figure 42: Report Viewer Window

3.7 Send Menu

The send menu has the option to open the send style window and to view the current send style queue. (See Figure 43)

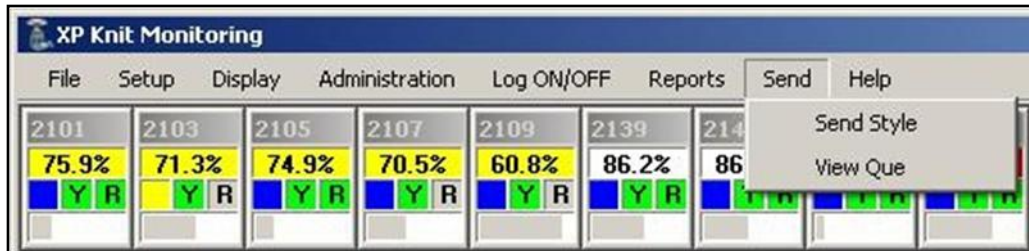


Figure 43: Send Menu

3.7.1 Send Style

The send style window is very similar to the add/edit style window except the style data is not able to be modified. (See Figure 44) Once the desired style to be sent is displayed, you can either send the style to one machine by clicking 'Send Once' or several at the same time by clicking 'Send Many'.

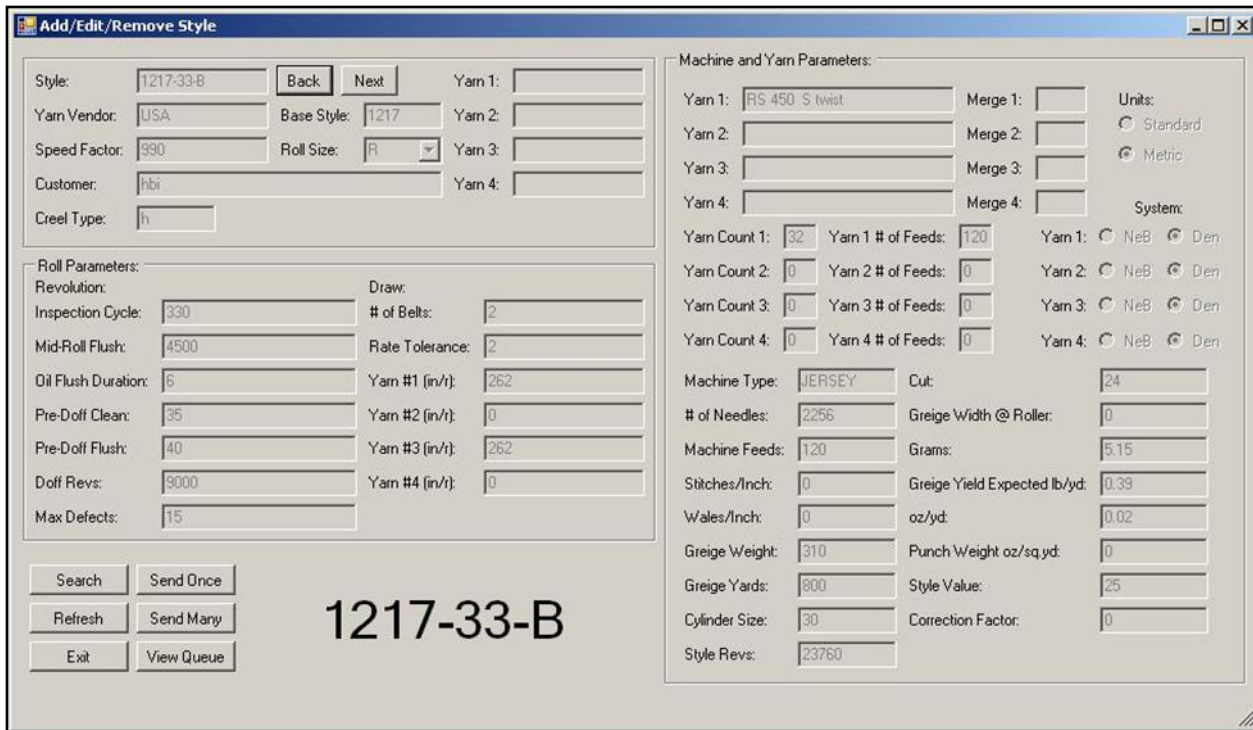


Figure 44: Send Style Window

Clicking the 'Send Once' button brings up the send once dialog. (See Figure 45) Only machines that are setup for the selected style will be available. If no machines are displayed, then there are no matching machines in the database. Select the machine and click 'Send'.



Figure 45: Send Style Once Window

Clicking the 'Send Many' button brings up the send many dialog. (See Figure 46) Only machines that are setup for the selected style will be available. If no machines are displayed, then there are no matching machines in the database. Select several machines by holding down 'CTRL' and clicking them or select a range of machines by holding 'SHIFT' and clicking the beginning and of the range. When all desired machines are selected, click 'Send'. The sent machines should then appear in the queue.

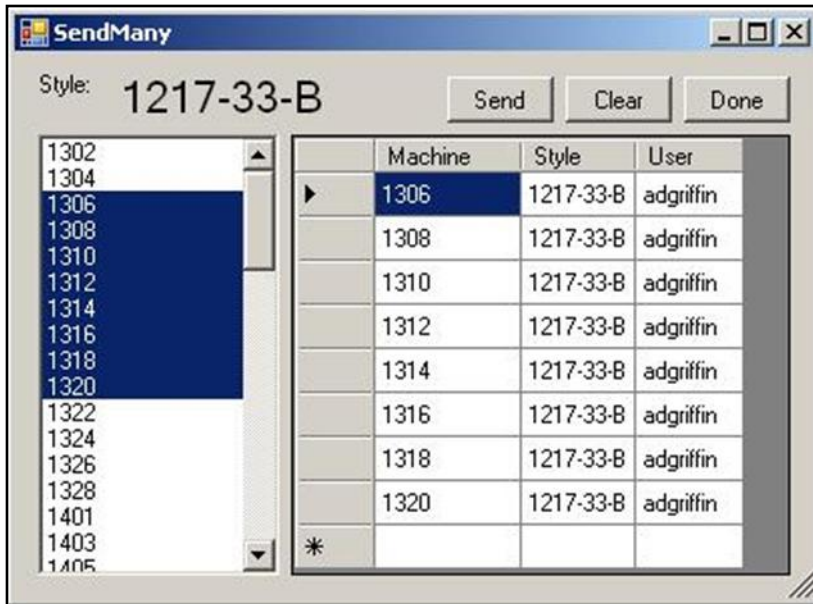


Figure 46: Send Style Many Window

3.7.2 View Queue

The view queue menu option displays the current send style queue. (See Figure 47) This is the list of styles waiting to be sent to specific machines. Styles are sent as soon as the machine tries to communicate, so if a machine stays on this list for an extended period of time there may be a connection error. The list is set to auto refresh by default, but if this lags the system, the auto refresh can be deactivated by un-checking the box and manually refreshing with the 'Refresh' button. To delete a style before it is sent, select it and click 'Delete'.

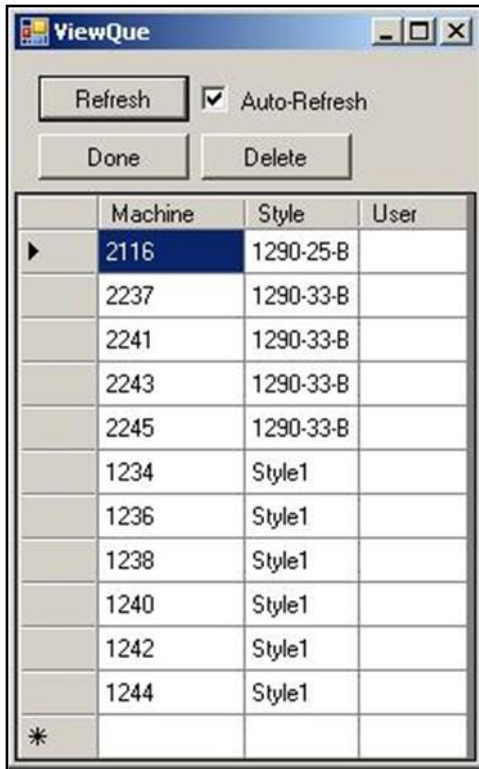


Figure 47: View Queue Window

3.8 Help Menu

The help menu currently contains only the 'View Manual' option. (See Figure 48)

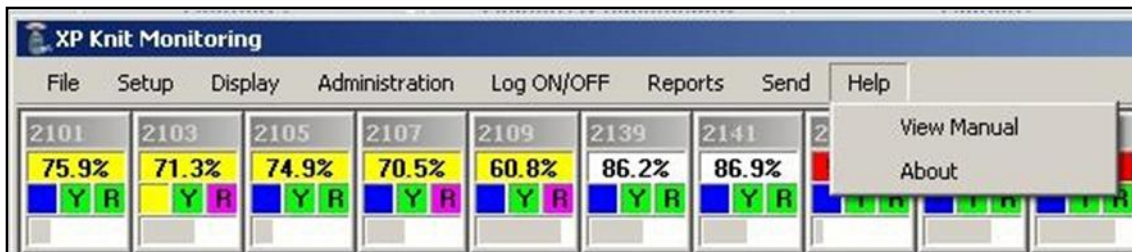


Figure 48: Help Menu

3.8.1 View Manual

The view manual menu item displays this manual.

3.8.2 About

The 'About' window displays version info about the software. (See Figure 49)



Figure 49: About Window

4 First Time Startup

Many features of the knit monitoring software have prerequisites from other areas of the software. For example, to create a style, you must have yarns and yarn vendors input already. As a result, the first time the software is used several areas must be initialized in a specific order.

4.1 Security Profiles

It is possible to restrict certain areas of the software from lower level users. You must first determine how many different security profiles you need. Each profile corresponds to a certain level of access that the administrator defines. If you want everyone to have the same level of access, only one profile is needed. However, if you want administrators to have full access, fixers with slightly limited access, and knitters with very limited access, you would need three different profiles.

Once you determine the number of profiles needed, they must be created using the manage security profiles tab of the security window. (See 3.4.4.5 Manage Security Profiles) Create each security profile and assign them their corresponding permissions.

4.2 Users

Now that security profiles have been created, users must now be added. Each user must be added before they can use the software. To add users, see '3.4.4.1 Add Users'.

4.3 Styles

Now that yarn types and yarn vendors have been fully populated, styles can be created. To create a style, see '3.2.2 Add/Edit Styles'. Styles are required to create knitter sets and track style data for reports.

4.4 PMs

PMs or periodic maintenance descriptions must be created before they can be assigned to machines and tracked or logged as completed. (See '3.2.3 Add/Edit PMs')

4.5 Cycles

Machine cycle presets must be created before they can be assigned to machines. (See '3.2.4 Add/Edit Cycle')

4.6 Machines

Machines data can now be fully added to the database. (See '3.2.1 Add/Edit Machines')

4.7 Align Machine Icons

Once all machines have been created, they appear in a stack in the upper left corner of the window and must be arranged on the virtual knitting floor. (See '3.1.2 Floor Layout')

4.8 Knitters

Knitters must be created before knitter sets can be made. (See '3.2.5 Add/Edit Knitters')

4.9 Fixers

Fixers must be created before they can log PMs. (See '3.2.6 Add/Edit Fixers')

4.10 Groups

Groups must be created before shifts can be scheduled. (See '3.2.7 Add/Edit Groups') After the groups are created, add the appropriate knitters to each group.

4.11 Schedule

Now that groups have been created, the shift schedule must be created. Create the shift schedule according to '3.2.8 Shift Schedule'.

4.12 Knitter Sets

Now that knitters, groups, styles, machines, and schedules have been created, knitter sets can be created. Create knitter sets according to '3.4.1 Knitter Sets'.

4.13 Colors

Verify that alert colors are appropriate according to '3.3.6 Efficiency Parameters', '3.3.7 Declaration Colors', and '3.3.8 Fault Colors'.

4.14 Machine Sampling

Verify that machine sampling settings are appropriate according to '3.4.2 Machine Sampling'.

APPENDIX A – Report Examples

Piece History by Machine

From: Thursday, July 15, 2010

Machine: 2102

To: Thursday, July 15, 2010

<u>Roll UPC ID</u>	<u>End Date</u>	<u>STYLE</u>	<u>Total Revs</u>	<u>Defect Count</u>
71331219	15-July-2010	1290-33-BT	10,102	5
71331235	15-July-2010	1290-33-BT	10,102	4
71332100	15-July-2010	1290-33-BT	10,101	5
71332118	15-July-2010	1290-33-BT	10,101	4

*** End of Report ***

8/23/2010

9:09:37AM

Records reported:

4

Piece Detail by UPC

Piece UPC Num	Machine	STYLE	Doff Revs.	Total Known	Date
71331219	2102	1290-33-BT	10,102	5	7/15/10

Stops

In Count	Out Count	Needle Count	Aux. Count	Yarn Count	User Count	Missed Insp.
4	3	0	19	0	0	1

Defects

Needle Run	Drop Stitch	Hole	Press Off	Oil Spot	Slub Hole	Thick / Thin	Lint	Closed Latch
0	1	4	0	0	0	0	0	0

Defect Location

Revolution	Code	Description
6,483	3	HOLE
6,650	3	HOLE
8,719	3	HOLE
9,104	2	DROP STITCH
9,333	3	HOLE

*** End of Report *** 8/23/2010 9:17:47AM

Plant Efficiency by Machine

From: Friday, July 16, 2010

Plant Shift Avg.

80.27 %

To: Friday, July 16, 2010

Least Efficient to Most Efficient

Mach. #	Shift Avg. Eff.	Fab. Def.	Unkn. Fab. Def.	User Stop	Miss Insp.	Fdr In	Fdr Out	Nedl Stop	Aux. Stop	Lifetime Revs
2129	2.20 %	0	1	19	0	8	3	1	14	7,685,553
1306	38.33 %	8	159	122	6	118	80	0	89	724,165
1316	42.15 %	17	29	42	6	83	51	0	23	665,674
1304	46.35 %	5	26	34	8	43	61	0	33	635,156
2217	50.20 %	35	27	38	6	48	47	3	52	7,266,469
1312	61.70 %	13	16	59	10	41	75	0	36	1,030,752
2133	66.30 %	9	8	7	1	8	6	0	10	6,476,980
1302	72.15 %	29	67	84	3	110	127	0	54	13,311,556
2212	74.10 %	20	17	54	2	63	68	3	49	4,673,124
2219	75.20 %	55	36	50	2	56	69	2	68	5,119,614
1320	75.80 %	44	10	67	3	98	70	0	45	593,224
2205	76.55 %	53	118	50	0	82	66	0	71	7,964,885
2218	76.85 %	29	66	58	1	47	42	3	63	4,451,460
2216	78.05 %	31	46	65	3	36	46	1	51	4,655,318
2213	78.35 %	56	25	53	4	42	61	1	64	7,798,369
2130	78.70 %	12	50	31	7	36	42	3	59	4,097,327
2215	79.25 %	32	74	32	0	49	40	2	44	5,341,916
2203	79.75 %	49	46	54	0	92	73	1	56	8,526,051
2211	80.10 %	49	5	30	8	42	46	1	40	8,439,196
2104	80.25 %	42	43	24	3	24	19	1	68	7,064,314
2315	80.35 %	64	71	54	3	42	48	0	89	2,817,449
2228	81.05 %	36	12	29	0	20	24	1	51	3,726,191
2307	81.55 %	64	41	49	5	36	27	1	72	2,704,653
2223	81.80 %	33	37	41	3	31	49	2	55	6,790,715
2126	82.05 %	52	30	46	4	31	28	2	82	6,475,867
1310	82.70 %	10	36	56	12	59	31	0	52	898,248
2112	82.75 %	30	61	23	3	31	38	2	61	5,923,320
2214	82.75 %	30	4	32	7	69	59	0	38	4,617,620
2120	82.80 %	35	21	28	3	24	36	1	39	4,440,271
1314	82.95 %	17	25	47	1	105	65	0	38	589,225
2224	82.95 %	36	7	33	1	53	65	1	41	4,063,747
2209	83.10 %	56	16	36	6	40	56	0	44	7,923,419
2109	83.15 %	58	32	45	5	28	33	1	75	6,387,670
2317	83.65 %	29	31	35	5	17	33	1	52	2,045,533
2131	83.70 %	69	72	33	3	18	22	1	83	6,874,330
2107	83.75 %	26	50	46	1	31	22	3	83	6,539,346
2103	84.10 %	46	40	27	2	30	26	3	57	6,922,747
2222	84.25 %	45	11	40	1	62	51	0	63	4,965,873
2101	84.45 %	53	13	32	2	36	38	1	67	6,914,607
2221	84.50 %	37	28	28	2	65	54	0	51	6,044,523
2111	84.60 %	60	49	33	2	17	23	0	61	6,475,986
2128	84.65 %	18	15	29	11	34	46	1	47	6,845,314
2319	84.70 %	16	47	34	2	30	24	2	44	1,977,479
2102	85.15 %	28	4	30	3	47	45	1	60	7,100,094
2321	86.00 %	35	23	27	5	25	27	4	53	2,000,369
2303	86.05 %	17	102	29	12	23	19	0	53	3,105,313
2220	86.20 %	41	16	18	10	35	39	0	47	1,835,674
2108	86.40 %	39	64	21	4	27	16	1	69	5,948,909
2115	86.40 %	31	70	24	2	24	26	0	51	5,841,914

Monday, August 23, 2010

Page 1 of 2

Shift Efficiency by Machine

From: Thursday, July 15, 2010

To: Thursday, July 15, 2010

1302	<u>Shift</u>	<u>Knitter</u>	<u>Efficiency</u>	<u>Date</u>
	1	498 benyan wu	76.1 %	7/15/10
	2	518 yulin xu	78.5 %	7/15/10
	Machine Average:		77.30 %	

1304	<u>Shift</u>	<u>Knitter</u>	<u>Efficiency</u>	<u>Date</u>
	1	498 benyan wu	30.0 %	7/15/10
	2	518 yulin xu	75.7 %	7/15/10
	Machine Average:		52.85 %	

1306	<u>Shift</u>	<u>Knitter</u>	<u>Efficiency</u>	<u>Date</u>
	1	526 changfang ma	54.7 %	7/15/10
	2	515 jingbo li	4.0 %	7/15/10
	2	515 jingbo li	44.7 %	7/15/10
	Machine Average:		34.47 %	

1310	<u>Shift</u>	<u>Knitter</u>	<u>Efficiency</u>	<u>Date</u>
	1	736 jiali liu	66.1 %	7/15/10
	2	507 mei li	84.0 %	7/15/10
	Machine Average:		75.05 %	

1312	<u>Shift</u>	<u>Knitter</u>	<u>Efficiency</u>	<u>Date</u>
	1	736 jiali liu	87.5 %	7/15/10
	2	507 mei li	84.9 %	7/15/10
	Machine Average:		86.20 %	

1314	<u>Shift</u>	<u>Knitter</u>	<u>Efficiency</u>	<u>Date</u>
	1	655 yanping liu	83.8 %	7/15/10
	2	447 shiyun min	84.3 %	7/15/10
	Machine Average:		84.05 %	

1316	<u>Shift</u>	<u>Knitter</u>	<u>Efficiency</u>	<u>Date</u>
	1	655 yanping liu	83.2 %	7/15/10
	2	306 Lili Wu	75.9 %	7/15/10
	Machine Average:		79.55 %	

1320	<u>Shift</u>	<u>Knitter</u>	<u>Efficiency</u>	<u>Date</u>
	1	547 weiqin dai	68.5 %	7/15/10
	2	803 chunfeng qian	73.4 %	7/15/10
	Machine Average:		70.95 %	

KNIT MONITORING SOFTWARE

NEW SOFTWARE INSTALLATION SETUP

After the new installation of the software certain parameters need to be set in order for the software to work correctly.

Many features of the knit monitoring software have prerequisites from other areas of the software. Such as entering the knitting operators name and or ID number, creating the shift schedule, adding fixers, adding styles and machine data.

Note: As a result, the first time the software is used several areas must be initialized in a specific order.

First Time Startup

Start by clicking on the icon VPL DB icon from the desktop computer and a screen will appear as follows.



Click the Log On/Off drop down box and enter in the user name and password that was given when purchasing the software.

After entering the default user name and password; this will give full access to all the menus.



Log On/Off

Start by entering machine data.

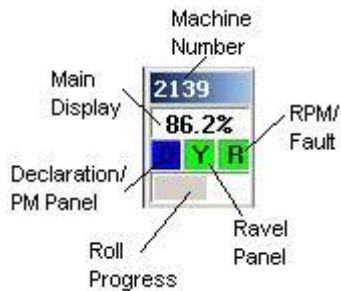
Add/Edit Machines

The screenshot shows the 'Machine2' software window. On the left, there are input fields for: Asset # (0), Serial # (54171), Manufacturer (Vanguard), Model (SJ4A/D12), Type (JERSEY), Cylinder Size (22), Cut (24), # of Needles (1656), # of Feeds (98), RPM Tol (2), and Mach Value (0). The top right shows Machine Number (1236), Current Style (8519-22-63), Current RPM (63.1), and Life Counter (6771011). Below these are buttons for Refresh, New, Print, Show Machine On Floor, Delete, Save, and Exit. The main area contains a 'Periodic Maintenance' table and 'Cycle Settings'.

	Last PM Date:	Last PM Revs:	PM Cycle Count:	Revs Until PM:	Warning Revs:	Description:	Stop at Negative Count Active:	Count:
PM1	1/1/2010	0	6000000	-771011	100000		<input type="checkbox"/>	0
PM2	1/1/2010	0	1	-6771010	100000		<input type="checkbox"/>	0
PM3	1/1/2010	0	1	-6771010	100000		<input type="checkbox"/>	0
PM4	1/1/2010	0	1	-6771010	100000		<input type="checkbox"/>	0

The 'Cycle Settings' section includes a 'Cycle Preset' dropdown, a 'Cycle' button, and input fields for: Pre-Off Clean (0), Pre-Off Flush (0), Max Defects (0), Inspection Cycle (0), Mid-Roll Flush (0.00), Oil Flush Duration (0), RPM Tolerance (0), and Ravel Tolerance (0).

At the bottom, there is a 'Yarn / Belt Matching' section with four checkboxes and dropdowns for Belt 1, 2, 3, and 4 Use Yarn #.



All machines that will be monitored must first be entered into the database using this window.

To add new machines, click 'New'. You will be prompted to enter the machine number and Serial Number. After this is entered, you will be shown the newly created machine's blank entry that must be populated. After entering in the machine's data, click 'Save'. The machine data window contains several fields that must be populated for full functionality of the knit monitoring software. The left side of the window contains several general pieces of data about the machine: Manufacturer (Vanguard, etc.), Models (SJ4A, SJ3A), Type (Jersey, Rib), Cylinder Size (Inches), Cut, Number of Needles, Number of Feeds, RPM Tolerance (How much the machine can deviate from the prescribed RPM before it shuts down.), Roll Weight (Pounds), Speed Factor and Machine Value (For Knitter assignments).

The machine window also contains four individual PM counters. These counters decrease with each revolution of the machine it is associated with. Each PM counter has a warning count level, a negative count level, a run prevention selection and a description associated with it.

When any of the PM counters drop below its respective warning level count, a declaration is triggered. The declaration indicator on the associated icon turns blue. If the pointer arrow is over the indicator, a pop-up caption will be displayed. The caption will display 'PM Needed' with the counter number and description of the PM level as entered in the machine database. When any of the PM cycle counters drop to zero the 'D' in the declaration indicator flashes.

When any of the PM cycle counters drop below their respective negative level count with the run prevention selection checked, that particular machine is stopped until the PM is taken care of and correctly logged into the PM Logging window. The machine database also has a selection for showing or hiding the machine icon on the screen. When adding machines to the knit monitoring floor layout, the 'Show Icon' must be check marked. The check mark can be removed to remove the icon from the floor layout.

The PM descriptions are custom preset PMs that are created by you. If you have no selectable PM descriptions or the one you want is not an option, you must add that PM with the Add/Edit PMs window.

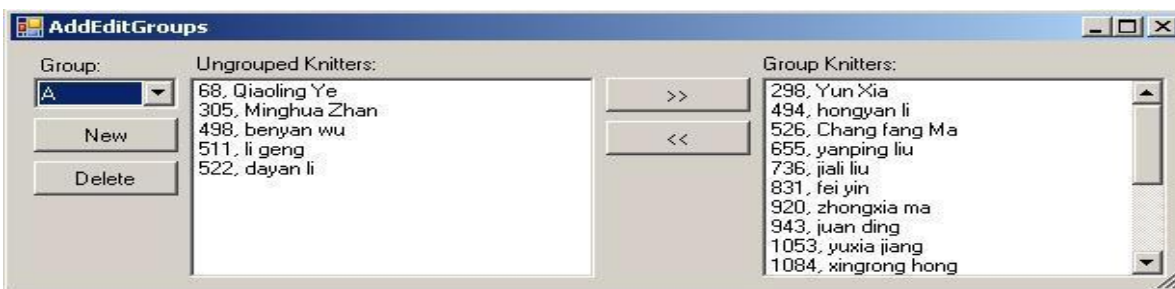
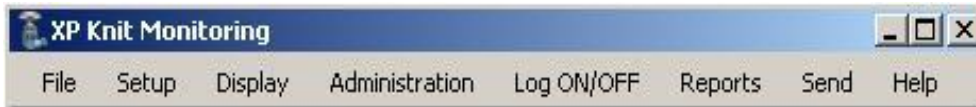
The machine window also displays cycle presets. These cycle presets are settings that you create with the Add/Edit Cycles window. If no cycles are selectable or the desired cycle is not an option, you must create it.

Finally the machine must be setup for Yarn/Belt matching. There can be up to 4 belts and 4 yarns. Multiple belts can use the same yarn type but only one yarn type can be put on a belt. For example if you want YARN1 to be used on belts 1 and 2 and YARN2 to be used on belt 3 and belt 4 is out of use, check belts 1, 2 and 3 and select YARN 1 for belts 1 and 2 and select YARN 2 for belt 3.

GROUPS

Groups must be created before shifts can be scheduled. After the groups are created, add the appropriate knitters to each group.

Click on the setup menu then scroll down to groups.



Groups can be created and saved in this menu. Start by selecting "New" then enter groups.

Example: Groups 1, 2, 3, 4 or A, B, C and D.

Use this window to organize knitters into shift groups. To create a new group, click 'New' and input the group name. It will appear in the dropdown box. Add knitters to the group by selecting the group, then selecting knitters and clicking the '>>' button. To ungroup a knitter, select a knitter and click the '<<' button. To delete a group, select it and click 'Delete'. All knitters in a deleted group will be ungrouped.

Add/Edit Knitters

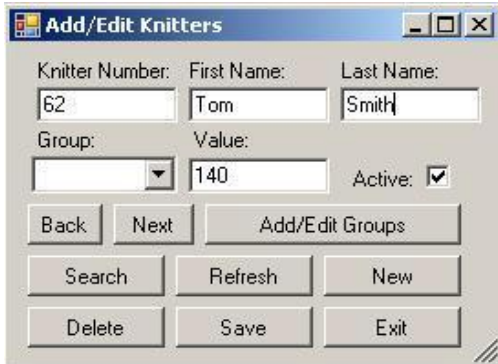
Click the setup drop down box and select Add/Edit Knitters.



Add/Edit Knitters

Use this window to control the knitter database. Typed data must be saved by clicking 'Save'. Knitters must be added to groups to be scheduled in knitter sets. If no groups are selectable, or the desired group is not an option, go to add/edit groups to create and modify groups.

Typed data must be saved by clicking 'Save'. Knitters must be added to groups to be scheduled in knitter sets. If no groups are selectable, or the desired group is not an option, go to Add/Edit Groups to create and Modify Groups.



When entering the knitters name and or ID number select the group that was created then check 'Active' and save.

If active is not checked the knitters name will not show up on the data base.

If the value of the knitter is Un-Know, then leave this window blank. This value will be determined by the work load of the machines.

Add/Edit Styles

All the fabric styles used on the Knitting Floor can be entered into the Fabric Styles Database using this window. To create a style, you must have the style name, the number of yarn types it uses, the stitch of each of those yarns, the type of each of the yarns and the vendor of each yarn. Click 'New' to create a new style. After entering the style name, you must populate the style data. Changes are saved automatically.

To send a fabric style to a machine, left-click the 'Send' button. The 'Send Style' window will be displayed. Select the machine (s) that are scheduled for a fabric style change. Click the '>>' button to add them to the list of machines to receive that style. Any machines mistakenly added can be removed by selecting them and clicking '<<'. Once you are satisfied with the list of selected machines, click 'Send' to populate the send style queue. These machines will be sent the new style next time they connect to the server.

Style Window

Add/Edit Yarn

Send Style Window

3.2.4 Add/Edit Vendors

Use this form to enter yarn vendor information including account number, address, phone number and notes. Data is saved automatically as you type. To create a new vendor, click 'New'. To delete a Vendor, select it and click 'Delete'. These Vendors are used to populate Yarn Vendor options in the style window.

Add/Edit Vendors Window

Add/Edit Vendors Window

3.2.5 Add/Edit PMs

Enter PM descriptions into this form to populate selectable PMs in the Add/Edit Machine Window. You must click 'Save' to save typed data.

Add/Edit PMs

Add/Edit PMs

3.2.6 Add/Edit Cycle

Use this window to pre-program cycles according to Table 1 below.

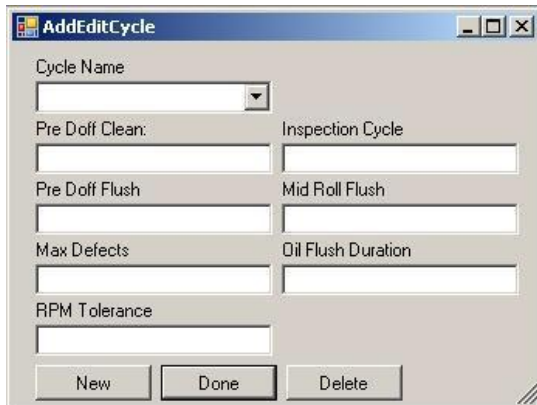


Figure 14: Add/Edit Cycle Settings

3.2.7 Add/Edit Knitters

Use this window to control the knitter database. Typed data must be saved by clicking 'Save'. Knitters must be added to groups to be scheduled in knitter sets. If no groups are selectable, or the desired group is not an option, go to Add/Edit groups to create and modify groups.

Available Style Parameters

Parameter Name	Range	Description
Inspection Cycle	0 – 99999	Cycle counter that indicates to the Knitter to inspect the machine. If the machine is not inspected by the second inspection cycle, the machine is stopped and a missed inspection is counted.
Mid-Roll Flush	0 – 99999	The piece revolutions that the machine will begin the oil flush in the middle of the roll.
Oil Flush Duration	0 - 99	The duration of an oil flush
Pre-Doff Clean	0 - 999	The number of revolutions before the end of the roll that the machine will be stopped and the machine will display the Pre-Doff Clean message.
Pre-Doff Flush	0 - 999	The number of revolutions before the end of the roll that begins the end of the roll oil flush.
Doff Revs	0 – 99999	The preset amount of revolutions in a piece.
Expected RPM	0 - 999	The expected RPM of the machine.
RPM Tolerance	0 - 9	The allowable amount of RPM tolerance.
Counts/12hr Shift	0 – 999999	The engineered amount of revolutions in a 12 hour shift.
# of Belts	1 - 4	Number of belts to measure the ravel.
Rate Tolerance	0 - 9	The allowable amount of ravel tolerance.
Belt #1 (in/r)	0 - 999	The expected ravel for Belt 1.
Belt #2 (in/r)	0 - 999	The expected ravel for Belt 2.
Belt #3 (in/r)	0 - 999	The expected ravel for Belt 3.
Belt #4 (in/r)	0 - 999	The expected ravel for Belt 4.
Max Defects/Roll	0 - 99	The maximum defects allowed per piece.

3.2.7 Add/Edit Knitters

Use this window to control the knitter database. Typed data must be saved by clicking 'Save'. Knitters must be added to groups to be scheduled in knitter sets. If no groups are selectable, or the desired group is not an option, go to Add/Edit Groups to create and Modify Groups.



Add/Edit Knitters Window

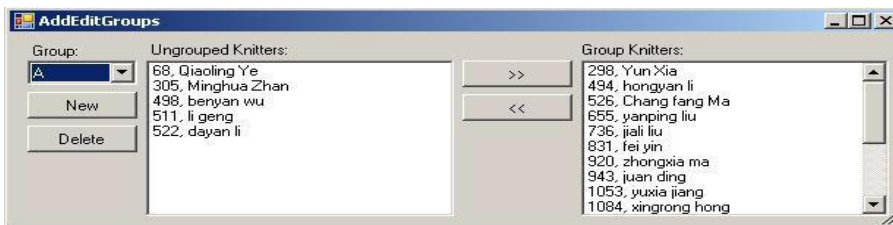
3.2.8 Add/Edit Fixers

Use this window to control the fixer database. This window operates similarly to the knitter window with the exception of groups. Typed data must be saved by clicking 'Save'.



3.2.9 Add/Edit Groups

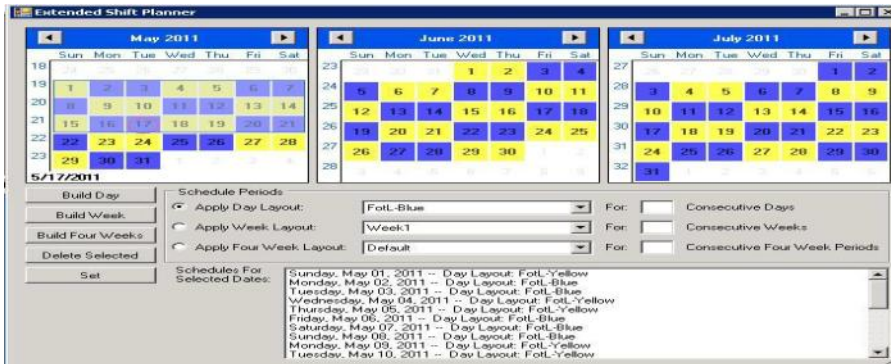
Use this window to organize knitters into shift groups. To create a new group, click 'New' and input the group name. It will appear in the dropdown box. Add knitters to the group by selecting the group, then selecting knitters and clicking the '>>' button. To ungroup a knitter, select a knitter and click the '<<' button. To delete a group, select it and click 'Delete'. All knitters in a deleted group will be ungrouped.



Add/Edit Groups Window

3.2.10 Shift Schedule

The 'Shift Schedule' window allows for the creation of a diverse plant schedule. The schedule is built in a modular format.



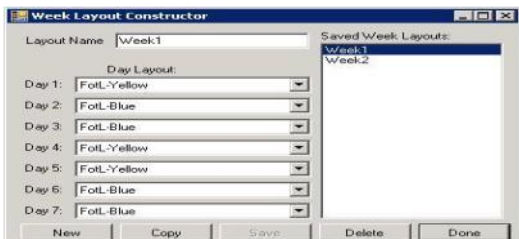
Extended Shift Planning Window

22 Begin by 'building days'. Click on the 'Build Day' button. The day layout constructor is displayed. To create a new shift, click 'New'. After entering the name of the day, you must enter the shift data. There can be up to four shifts in one day. If you only have 2 shifts, only select 'Active' on the first and second shift. Select the start and end time of each shift and the group of knitters that will be working that shift. Finally, click on the day color to select a custom color for that day. Click 'Save' to save the day. To create more days, click 'New' again.



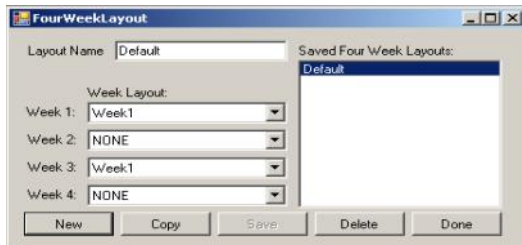
Build Day Window

Now that we have build days, we can build Weeks with those days. From the main schedule window click the 'Build Week' button to display the Week layout constructor. To create a new week, click the 'New' button. After naming the Week, you must populate the Week with previously build days. Click 'Save' to save changes. If not every Week is the same, create additional Weeks. (If you are on a four Week rotation, you will need four Weeks. If on a two Week rotation, you will need 2 Weeks.)



Build Week Window

Now that we have build Days and Weeks, we can build four Week segments. Click on 'Build Four Weeks' to display the four Week layout constructor. Similarly to building Days and Weeks, to create a new four Week layout, click 'New'. If you are on a four week rotation, select Week1, Week2, Week3 and Week4. If on a two Week rotation, select Week1, Week2, Week1 and Week2. Click 'Save' to save the layout.



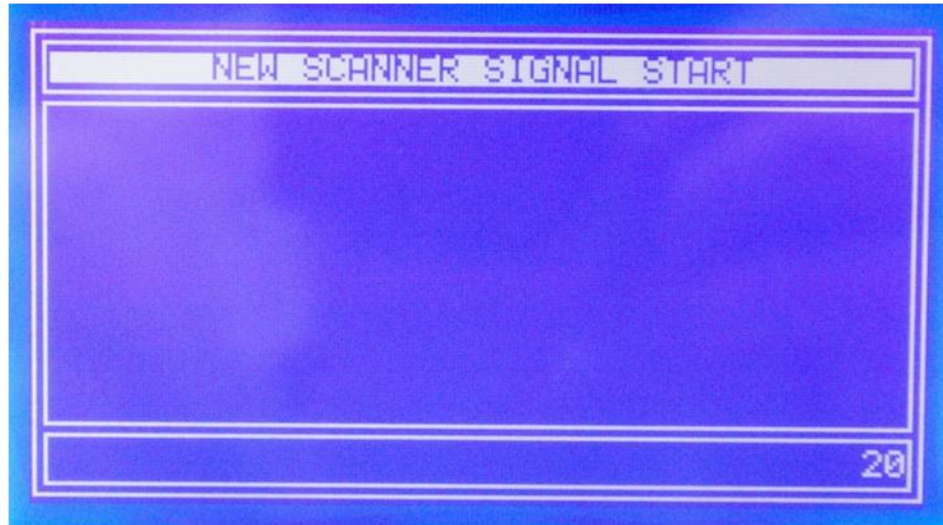
Build Four Week Layout Window

Once the layouts have been constructed, return to the main schedule window and select the radio button beside the layout you want to apply. Next select the number of consecutive layouts you want to apply. Finally click 'Set' to apply the layout. For example if you want to set 'Day1' for 10 days, click the days radio button, select 'Day1' then input 10 into the number of days. If you want to apply a 2 Week rotation for a Year, select the four Week radio button, select your four Week layout then input the number of four Week periods in a year. (About 12) Hit set. You can even schedule for 10 years, just input 120 instead of 12.

After you have the general structure of your schedule, you can make small changes by double clicking on the day and altering it, or selecting single or multiple days and clicking delete. Details about selected days are displayed below in the list box.

4.2.6.3.5 Signal Start Val:

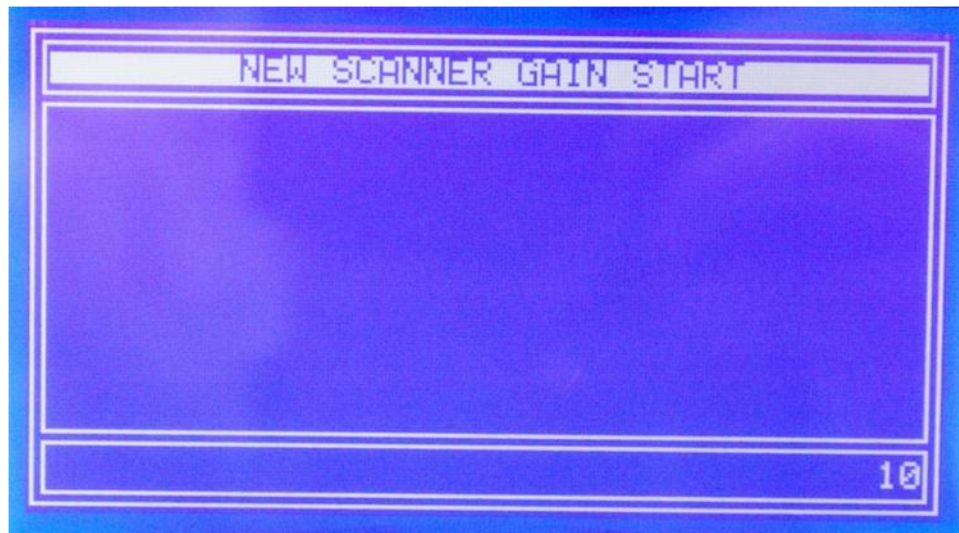
Choosing this option prompts you to enter a new value for the signal start value:



Input the value corresponding to the desired signal start value for auto calibration and press enter to proceed.

4.2.6.3.6 Gain Start

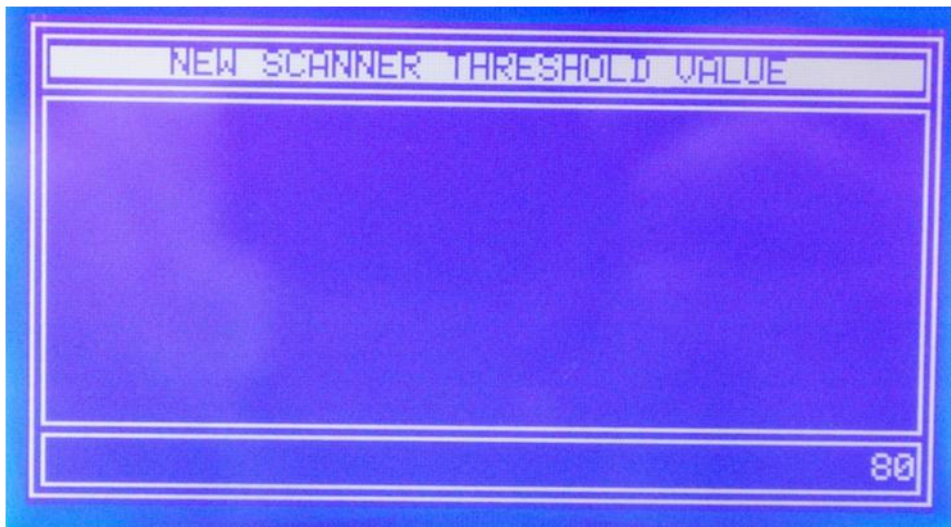
Choosing this option prompts you to enter a new value for the gain start value:



Input the value corresponding to the desired gain start value for auto calibration and press enter to proceed.

4.2.6.3.7 Threshold

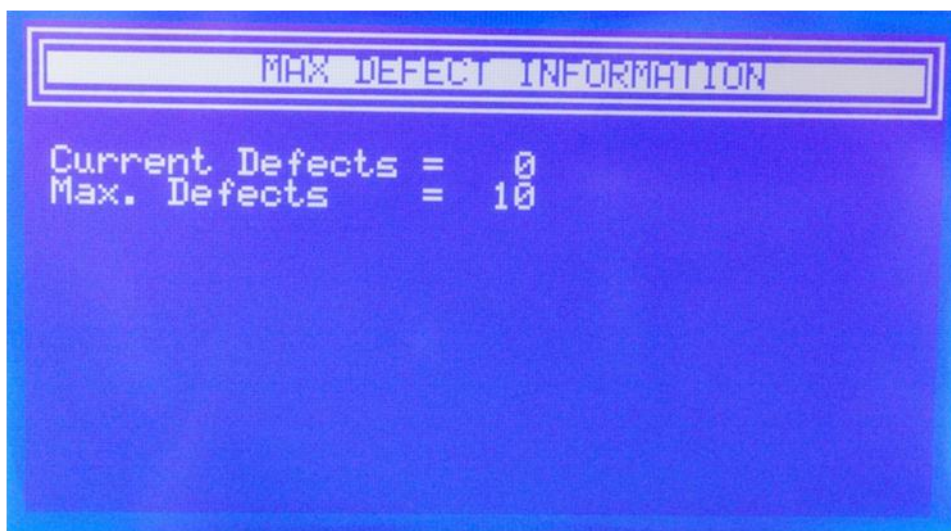
Choosing this option prompts you to enter a new value for the threshold value:



Input the value corresponding to the desired threshold value below which scanner values will not be displayed during manual calibration.

4.2.6.4 Add Max. De-

Choosing this option displays a screen with the number of defects on the current roll of cloth:



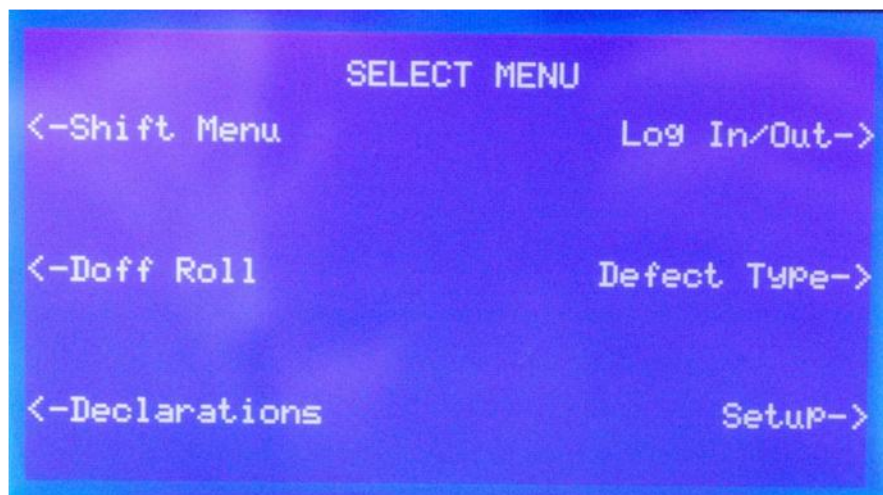
If the number of max defects has been reached, this option will add 5 to the number of defects allowed for the current roll. Otherwise, if the maximum number of defects per roll has not been reached, the screen only displays information about the current number of revolutions and defects in the current roll.

4.3 Start Auto Cal.:

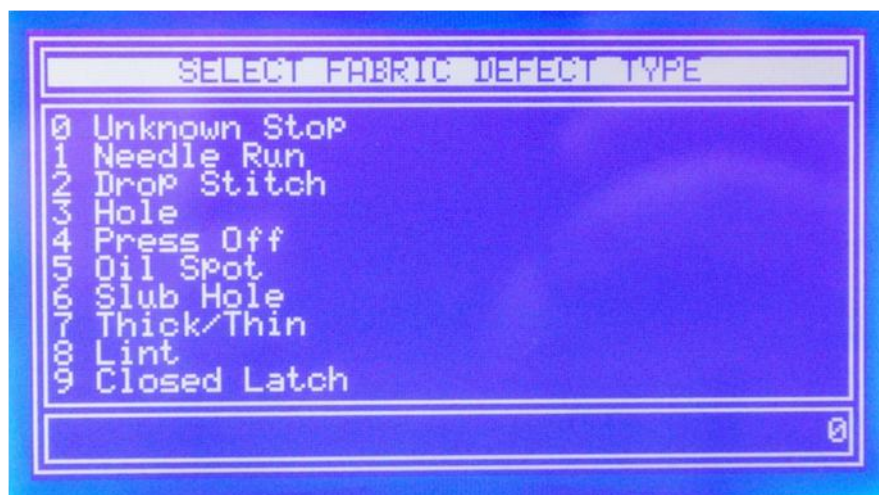
This option begins the scanner automatic calibration routine. By default, the scanner will automatically calibrate when each cloth roll has reached 200 revolutions without using this option. If that calibration fails, the display will show a “Scanner Err.” fault. The cloth will need to be manually inspected for defects and after confirmation of good cloth, use this option to attempt calibration again.

4.4 Defect Type:

This option is only visible in the place of auto calibration when a defect has been detected and the machine has stopped:



Choosing this option gives access to the fabric defect type menu:



Input the value corresponding to the observed defect and press enter to proceed.

5 Faults:

YRM X INCORRECT – “X” can be 1-4. Ravel length on belt number “X” is outside of tolerance.

OVER TEMP. – Machine temperature exceeds set point. (See 4.2.5 Temperature)

SCANNER ERR. – Scanner returning an error. Possible failed calibration. (See 4.3 Start Auto Cal.)

NO OPERATOR LOG – There is no knitter logged into the machine.

SER.STP.PM/OTHER – The server has stopped the machine, possibly for periodic maintenance.

PRE-DOFF CLEAN – The machine has been stopped to allow for pre-doff cleaning.

NO COUNTER PULSE – The machine is running but is not receiving counter pulses.

NO FIXER LOG – There is not fixer logged in to repair a declaration.

MISSED INSPECT – The number of revolutions for inspection has been doubled and the machine must now be inspected.

DOFF MACHINE – The cloth roll is complete and is stopped for doff.

INSPECT MACHINE – the number of revolutions for inspection has passed and the machine should now be inspected.

TOO MANY DEFECTS – The number of defects in this roll of cloth has exceeded the maximum allowable number of defects per roll for this style. (See 4.2.6.4 Add Max. Defects)

FABRIC DEFECT; ENTER DEFECT– The scanner has detected a fabric defect and must be entered. (see 4.4 Defect Type)

NO COM LINK – The panel has no established com link with the machine.

PRESS STOP P.B.; FOR RESET – The stop button must be pressed to reset the machine.

FILTER FLOW FILTER CLOGGED – The machine air filter is clogged.

JOG P.B. FAULT – The jog push button has faulted and must be reset. Press and release button to proceed.

START P.B. FAULT - The start push button has faulted and must be reset. Press and release button to proceed.

STOP P.B. FAULT - The stop push button has faulted and must be reset. Press and release button to proceed.

NO H24VAC POWER – The machine is not being supplied with high current 24 volt power.

NO 24VAC POWER – The machine is not being supplied with low current 24 volt power.

INVERTER FAULT – The inverter is faulting.

COWLING OFF – The machine’s cowling is not detected. Replace cowling to proceed.

TAKE/UP FAULT – Take-up rail arms are not latched correctly.

GATE IS OPEN – A machine gate is open. Close all gates to proceed.

LOW AIR WARNING – Machine is not receiving sufficient pressure from compressed air.

LOW OIL WARNING – Machine is not receiving sufficient oil flow.

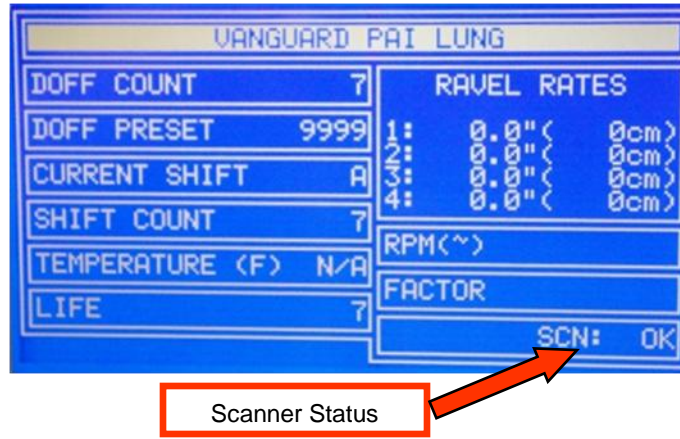
NO RUN SIGNAL – Machine is running but not receiving a run signal.

CLOTH DETECTOR – The cloth detector has been tripped. Confirm cloth is rolling in take-up correctly.

NEEDLE DETECTOR – Needle detector has tripped.

FEEDER INPUT – Feeder input detector has tripped. Check for a yarn break before feeder.

FEEDER OUTPUT – Feeder output detector has tripped. Check for a yarn break between feeder and machine.



Fabric Scanner Status

On the main screen the fabric scanner status will be displayed.

SCN: DIS = Fabric Scanner is disabled.

SCN: USER = Fabric Scanner has been manual set (Auto-calibration was not used)

SCN: KNIT = Fabric Scanner is waiting for the machine to run so that the auto-calibration can start or continue.

SCN: X = The "X" will rotate during auto-calibration.

SCN: OK = The Fabric Scanner has completed the auto-calibration and is monitoring the fabric.

SCN: ERR! = The Fabric Scanner is not communicating to the machine. Check the wiring of the Fabric Scanner head.

[6 Appendix A – VPL fabric scanner settings:](#)

VPL Fabric Scanner Settings

	Single Knit	Double Knit
SETPOINT	126	126
CAL. MIN	90	90
CAL MAX	95	95
SIGNAL START VAL.	30	26
GAIN START VAL	10	7
THRESHOLD	85	85

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