

ProHelp Millennium™

Production Monitoring System

**Cell Controller
Operator's Manual**

Release 3.x

MANUAL # 710-0094

02/11/02

ATTENTION

The information contained within this manual is critical to the proper operation of the MATTEC ProHelp Millennium System. Please review this manual completely **BEFORE** starting your system.

In addition, while function keys are used to invoke various menu items, use of a mouse is also integrated, and typically the statement "Touch [Fx]" can be interpreted as "click on" or "press".

Resolve any questions immediately with the MATTEC Customer Service Department.

IMPORTANT MATTEC PHONE NUMBERS

MATTEC Customer Service Department.....(513) 683-1075

All Other Departments.....(513) 683-1802

TABLE OF CONTENTS

1. INTRODUCTION.....	1-1
2. RELATED DOCUMENTS	2-1
3. MAIN MENU ITEMS.....	3-1
3.1 Select the Current Machine.....	3-2
3.2 Down Time Reason.....	3-4
3.3 Enter Scrap	3-6
3.4 Machine and Tool Maintenance.....	3-10
3.5 Call for Help	3-15
3.6 Operator Login and Logout	3-16
3.7 Job Control	3-20
3.7.1 Next Job	3-21
3.7.2 Next Component (Son).....	3-21
3.7.3 Suspend Component (Son)	3-22
3.7.4 Change Cavities.....	3-23
3.7.5 Setup Material	3-23
3.7.6 Material Lot Number.....	3-23
3.7.7 Percent Regrind	3-24
3.8 View Job Descriptor.....	3-25
3.9 View Real Time Screen	3-27
3.10 Setup Sheets	3-29
3.10.1 Machine, Tool, and QC Setup Sheets.....	3-30
3.11 Graphs.....	3-32
3.11.1 X-Bar Range Chart.....	3-33
3.11.2 Profile Graphs	3-36
3.11.3 SPC Histogram Graph	3-40
3.11.4 Intra Cycle Graphs.....	3-42
3.11.5 Last 100 Line Chart.....	3-44
3.11.6 Last 100 Distribution Chart.....	3-47
3.12 ProStat (SPC)	3-49
3.12.1 Variable Data Entry.....	3-50
3.12.2 Enter Attribute Data	3-52
3.12.3 Initiate a Manual Sample.....	3-54
3.12.4 Automatic SPC Limits Calculation.....	3-55
3.12.5 View SPC Samples.....	3-56
3.12.6 SPC Graphs	3-58

3.13 Miscellaneous Functions	3-59
4. STARTING AND STOPPING THE CELL CONTROLLER.....	4-1

TABLE OF FIGURES

Figure 1 - Main Cell Controller Screen	3-2
Figure 2 - Select Machine Popup	3-3
Figure 4 - Down Time	3-5
Figure 5 - Scrap Entry	3-6
Figure 6 - Scrap Entry	3-7
Figure 7 - Numeric Keypad.....	3-9
Figure 8 - Maintenance Log On/Off.....	3-10
Figure 10 - Machine Maint Codes.....	3-11
Figure 11 - Begin Machine Maintenance Result	3-12
Figure 12 - End Mach. Maintenance Result	3-12
Figure 14 - Tool Maint. Codes	3-13
Figure 15 - Begin Tool Maintenance Result.....	3-13
Figure 16 - Updated Maintenance Log On/Off	3-14
Figure 17 - Call for Help	3-15
Figure 18 - Operator Log On/Off.....	3-17
Figure 19 - Efficiency/Tracking Login Result.....	3-18
Figure 20 - Tracking Login Result	3-18
Figure 21 - Operator Log On/Off Results.....	3-19
Figure 22 - Job Control	3-20
Figure 23 - Alpha-Numeric Keyboard.....	3-24
Figure 24 - Job Descriptor Screen.....	3-25
Figure 25 - View Real Time Screen	3-27
Figure 26 - Filter Screen.....	3-28
Figure 27 - Setup Sheets Screen.....	3-29
Figure 28 - Setup Sheets Main Screen.....	Error! Bookmark not defined.
Figure 29 - Graphs Screen	3-32
Figure 30 - ProStat Chart	3-33
Figure 31 - ProStat Chart Popup	3-34
Figure 32 - Profile Graph Screen	3-36
Figure 33 - Injection Pressure Profile.....	3-37
Figure 34 - Velocity Profile.....	3-38
Figure 35 - Position (Distance) Profile.....	3-39
Figure 36 - ProStat Histogram Screen.....	3-40
Figure 37 - Intra Cycle Graph	3-42
Figure 38 - Intra Cycle Graph Popup	3-43
Figure 39 - Last 100 Line Chart	3-44
Figure 40 - Last 100 Line Popup.....	3-45
Figure 41 - Last 100 Line Graph.....	3-46
Figure 42 - Last 100 Distribution Chart	3-47
Figure 43 - Last 100 Dist. Popup	3-48
Figure 44 - ProStat (SPC).....	3-49
Figure 45 - Variable Data Entry	3-50
Figure 46 - Attribute Data Screen	3-52
Figure 47 - SPC Results	3-53
Figure 48 - SPC Unsaved Results.....	3-53
Figure 49 - SPC Samples Screen.....	3-56
Figure 50 - SPC Samples Popup	3-57
Figure 51 - Miscellaneous Pop Up	3-59

Figure 52 - Service Display Screen3-60
Figure 53 - MIU Pop Up3-61
Figure 54 - Logout Screen4-1

1. Introduction

MATTEC Corporation's ProHelp Millennium Production Monitoring System is specifically designed for real time monitoring of all types of production equipment. It is used extensively in the plastics, extrusion, aluminum die casting, and metal stamping industries. The basis behind the benefits from the ProHelp Millennium System is the rationale that plant managers and operational people will take corrective actions to solve problems on production equipment when they are aware of such problems. ProHelp Millennium is the device to alert employees to problems immediately when the problems occur. Therefore, tremendous savings can occur in increased productivity and decreased scrap parts.

The ProHelp Millennium System is a combination of computer hardware, computer software, and Machine Interface Units (MIUs) that are combined into an efficient system to provide real time production monitoring, production reports, process alarms, plant scheduling aids, and SPC process and part capability analysis. Floor personnel can make use of the machine mounted terminals to signal different departments for help, to view production results at the machine site, and to enter downtime reasons or scrap reasons. Production, downtime, and scrap reports may be generated on a shift and daily basis, or the user may generate these reports for extended time periods by specifying a start and end date for the desired report. Job history data is continuously summarized and available for management's review.

ProHelp Millennium is built on top of the Open Unix operating system. Open Unix is a UNIX System V, Release 5 operating system from Caldera, Inc. It can easily be connected to virtually any Ethernet or Token Ring network, utilizing TCP/IP as a communications protocol.

This manual will describe how to operate the Cell Controller MIU (PC MIU) from MATTEC. The Cell Controller MIU is an approved IBM-compatible PC that can monitor cycle times and process parameters for one to eight machines.

2. Related Documents

MIU Operator's Guide 710-0037

ProHelp Operator's Manual 710-0092

3. Main Menu Items

To start the Cell Controller application, double-click on the Cell Controller icon on the Windows desktop of the Cell Controller. The Main Cell Controller Screen will now display.

A blue rectangular button with the word "Close" written in white text.

Throughout the Cell Controller program, utilize the “*Close*” button to close an application and return to the *Main Cell Controller Screen*.

The next screen displayed is the main menu of the Cell Controller application.

You will notice in the *Main Cell Controller Screen* that the majority of the buttons are italicized with a light fuzzy label. This indicates a non-active button.

A blue rectangular button with the word "Machines" written in white text.

These buttons cannot be activated until a “*Machine*” has been designated.

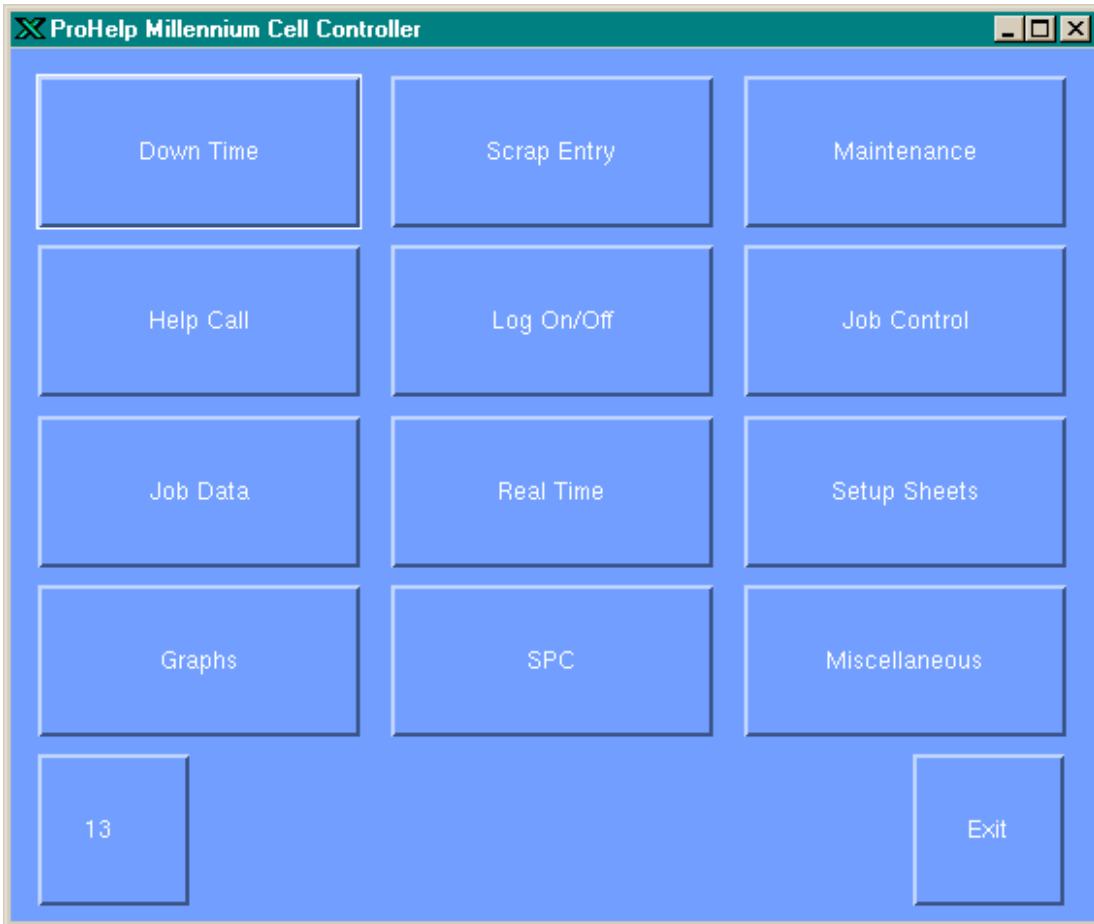


Figure 1 - Main Cell Controller Screen

3.1 Select the Current Machine

The Cell Controller MIU is capable of monitoring one to eight machines simultaneously. Most functions require that you select the machine before you may continue. For example, to enter scrap for the job running on Machine 01, you must first tell the Cell Controller that you are working on Machine 01.

From the main menu Figure 1 - Main Cell Controller Screen

Touch: *Machines*

If a machine has already been selected, the machine number will be displayed in place of the word "Machines" Figure 2 - Select Machine Popup. A picklist of machines that are being monitored by the Cell Controller will be displayed.



Figure 2 - Select Machine Popup

To select a machine:

Click: *“on the machine name or number”*

Touch: *Apply*

You may also double-click on the machine name or number which will automatically accept the selected machine and return you to the *Main Cell Controller Screen*. The *Main Cell Controller Screen* will now allow all buttons to be utilized - Figure 1 - Main Cell Controller Screen.

The selected machine will now be the active machine for down time reasons, scrap entry, etc.

3.2 Down Time Reason

The down time function allows you to select a down time reason for the status of a particular machine.

From the main menu Figure 1 - Main Cell Controller Screen:

Touch: *Down Time*

The screenshot shows a window titled "DOWNTIME" with a close button in the top right corner. The window has a blue background and contains the following information:

Machine #: 13 Job #: 2402 Part #: 442310

Run Time: 3.69 Hours
Down Time: 0.65 Hours

IN PRODUCTION	Q.C.
MOLDSET	UNSCHED
MATERIAL	NO OPER
TOOLING	P.M.
MACHINE	UNKNOWN

SETUP : 0.00 Hours
MOLDSET : 0.00 Hours
MATERIAL : 0.00 Hours
TOOLING : 0.00 Hours
MACHINE : 0.00 Hours
Q.C. : 0.00 Hours
UNSCHED : 0.00 Hours
NO OPER : 0.65 Hours
P.M. : 0.00 Hours
UNKNOWN : 0.00 Hours

CLOSE

Figure 3 - Down Time



Figure 4 - Down Time

The currently selected machine number and machine status will be displayed.

Touching a down time button sets a down time reason. The selected down time will be accumulated and displayed in “**BOLD**” letters while the machine is not in production. No down time reason is selected by:

Touch: In Production

If the machine is not in production, then down time is accumulated in “unknown” category.

To activate your choice:

Touch: “a reason button”

The system will display real time values for hours run, hours down, and hours down for each reason on the left-hand side of the display.

For the down time reason to be accepted, the non-production limit defined in the job descriptor must first be reached, otherwise the reason will be ignored.

The system will automatically go back into production when the Cell Controller registers a cycle signal from the machine, unless the down time reason that has been selected has been defined as a Non-Production Cycle (e.g., Setup) by the ProHelp Millennium System Manager.

Close and return to Figure 1 - Main Cell Controller Screen

3.3 Enter Scrap

The scrap entry function allows you to enter the quantity of scrap parts to a specific scrap reason for a single job. Scrap will be entered for the currently running job and the present shift. Reference the *ProHelp Millennium Operator's Manual, #710-0092*, for information on entering scrap parts for a previous shift.

From the main menu Figure 1 - Main Cell Controller Screen:

Touch: Scrap Entry

The screenshot shows a window titled "SCRAP ENTRY" with a close button in the top right corner. The window has a blue background and contains the following information:

Machine #: 13 Job #: 2402 Part #: 442310

Total Good: 133 PARTS
Total Scrap: 79 PARTS

SPLAY :	0 PARTS	SPLAY	CONTAMIN
BURNS :	0 PARTS	BURNS	WELDLINE
BUBBLES :	0 PARTS	BUBBLES	SH.SHOT
SINKS :	0 PARTS	SINKS	FLASH
COLOR :	0 PARTS	COLOR	CUTS
CONTAMIN :	0 PARTS		
WELDLINE :	0 PARTS		
SH. SHOT :	0 PARTS		
FLASH :	0 PARTS		
CUTS :	0 PARTS		

At the bottom of the screen, there are four buttons: "Next", "Good Parts", "Close", and "UNITS".

Figure 5 - Scrap Entry

Machine #: 13		Job #: 2402		Part #: 442310	
Total Good:	126 PARTS	Scrap 11	Scrap 16	Scrap 12	Scrap 17
Total Scrap:	79 PARTS				
Scrap 11:	78 PARTS	Scrap 13	Scrap 18	Scrap 14	Scrap 19
Scrap 12:	1 PARTS				
Scrap 13:	0 PARTS	Scrap 15	Scrap 20	Close	UNITS
Scrap 14:	0 PARTS				
Scrap 15:	0 PARTS				
Scrap 16:	0 PARTS				
Scrap 17:	0 PARTS				
Scrap 18:	0 PARTS				
Scrap 19:	0 PARTS				
Scrap 20:	0 PARTS				

Figure 6 - Scrap Entry

The currently selected machine number, job number, and total scrap already entered for this job will be displayed. Total good production and total scrap for the job and counts for the individual scrap reasons are displayed on the left side of the screen.

The *Next* button switches between primary scrap reasons one to ten and eleven to twenty.

To enter scrap

Touch: “a reason button”

A numeric keypad popup will appear in which you can enter a scrap name or number. This same type of keypad will be displayed throughout this manual Figure 7 - Numeric Keypad. The top left hand side of the keypad will always describe the process taking place. The top right hand side of the keypad will display the number entered. The keypad or keyboard (*refer to Section 3.7*) will time-out if there is no operator input for a period of time. Keypad time-outs abort the current operation.

The keypad consists of three control buttons:



By touching the *Clear* button you erase the entered number and can then start again.

Cancel will take you out of the screen.

Enter will apply the information designated and take you back to the main entry screen for that particular field.

Enter any denomination by continuously touching a single digit. Likewise enter decimal places by touching the “period” button , or minus the figure with the “-/+” button.

Touch: “*a keypad number(s)*”

Touch: *Enter*



Figure 7 - Numeric Keypad

As you enter the scrap reasons and quantity of scrap parts, the main scrap menu screen Figure 5 Scrap Entry will automatically update.

If the currently running job is a family job, you must select the son (component) job when you click on the **Scrap Entry** menu button from the main menu.

The following buttons will become active only if the “parts hold” feature is enabled. *Reference ProHelp Millennium Operator's Manual #710-0092 Section 5.*

Click: UNITS

To modify the units of scrap that will be entered. For example, it is possible to select to enter scrap parts or scrap cases for a particular job. Reference the *ProHelp Millennium Operator's Manual, #710-0092*, for additional information.

Click: GOOD PARTS

To move hold parts to good parts if you are using the hold parts option. Reference the *ProHelp Millennium Operator's Manual, #710-0092*, for additional information.

Close and return to Figure 1 - Main Cell Controller Screen

3.4 Machine and Tool Maintenance

The maintenance function allows an operator to login or logout of the Cell Controller when performing machine or tool maintenance for the currently selected machine. Machine and Tool maintenance histories are kept for up to 5 operators for each activity (machine or tool) per machine.

From the main menu Figure 1 - Main Cell Controller Screen:

Touch: *Maintenance*

MAINTENANCE LOG ON/OFF

Machine #: 13 Operator ID:

Begin Mach. Maintenance Begin Tool Maintenance

End Mach. Maintenance End Tool Maintenance Close

Operator ID	Login Time	Code	Reason

No operators logged in.			

Figure 8 - Maintenance Log On/Off

A list of maintenance operators that are logged into the machine will be displayed at the bottom of the screen. A numeric Operator ID must be entered before activating Start Machine or Tool Maintenance buttons. To activate an Operator ID:

Touch: *Operator ID*

The numeric keypad will appear Figure 7 - Numeric Keypad

Enter: *Operator ID #*

Touch: *Enter*

From Figure 8 - Maintenance Log On/Off
Touch: *Begin Mach. Maintenance*

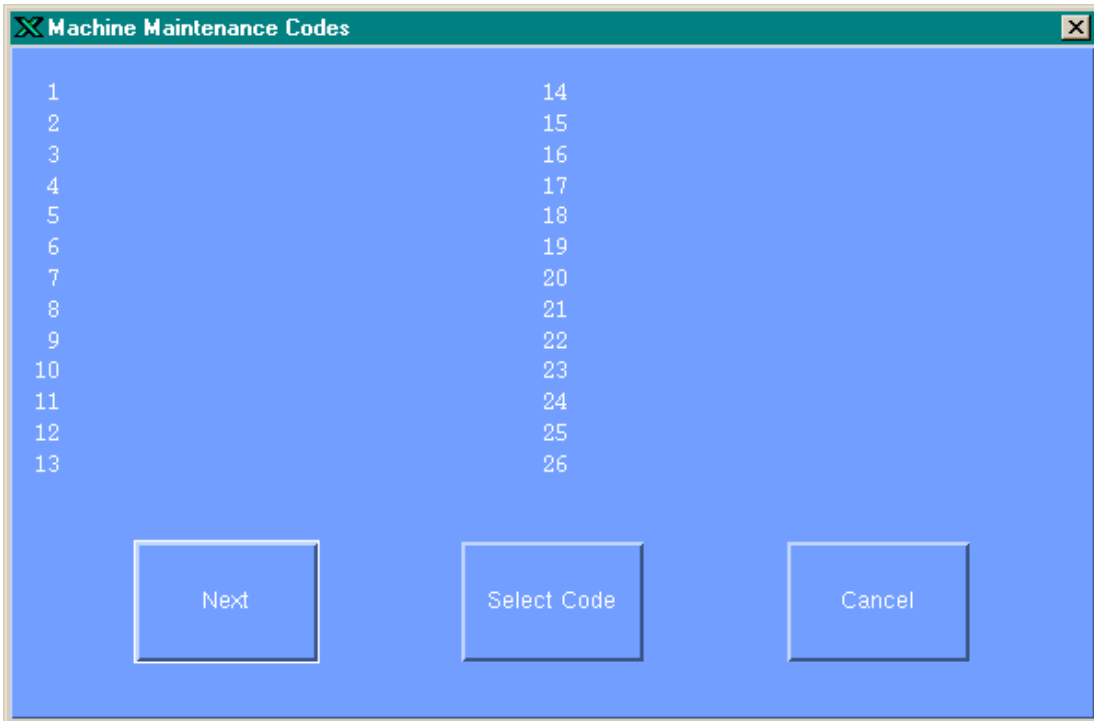


Figure 10 - Machine Maint Codes

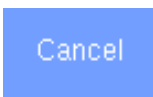
The screen codes must be defined. The screen is numbered 1 through 100 with no text (see figure 10). The buttons at the bottom of the screen operate as follows:



Next toggles between screens to show all available machine maintenance codes.



Select Code must be touched to select the numbered machine maintenance code. This button will pop up the numeric keypad for entry of the particular code.



Cancel will void all selections and return to Figure 8 - Maintenance Log On/Off screen.

Upon selection of a Machine Maintenance Code the following screen will appear:

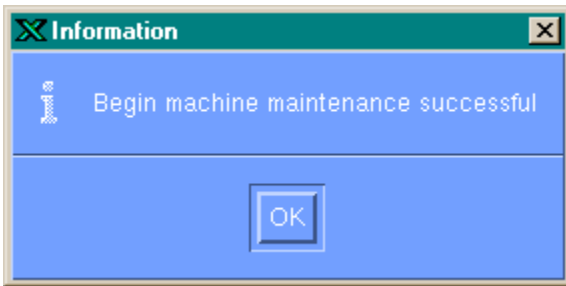


Figure 9 - Begin Machine Maintenance Result

Touch: *OK*

This *code reason* will appear at the bottom of the screen Figure 8 - Maintenance Log On/Off

To end machine maintenance for the current Operator ID.

Touch: *End Mach. Maintenance*

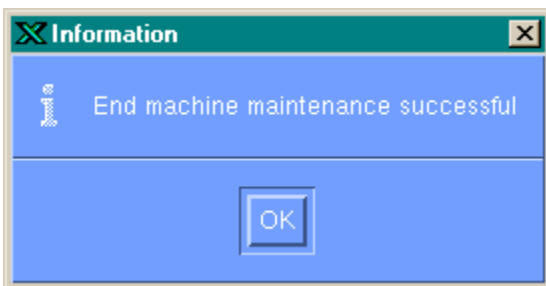


Figure 10 - End Mach. Maintenance Result

Touch: *OK*

From Figure 8 - Maintenance Log On/Off
Touch: *Begin Tool Maintenance*

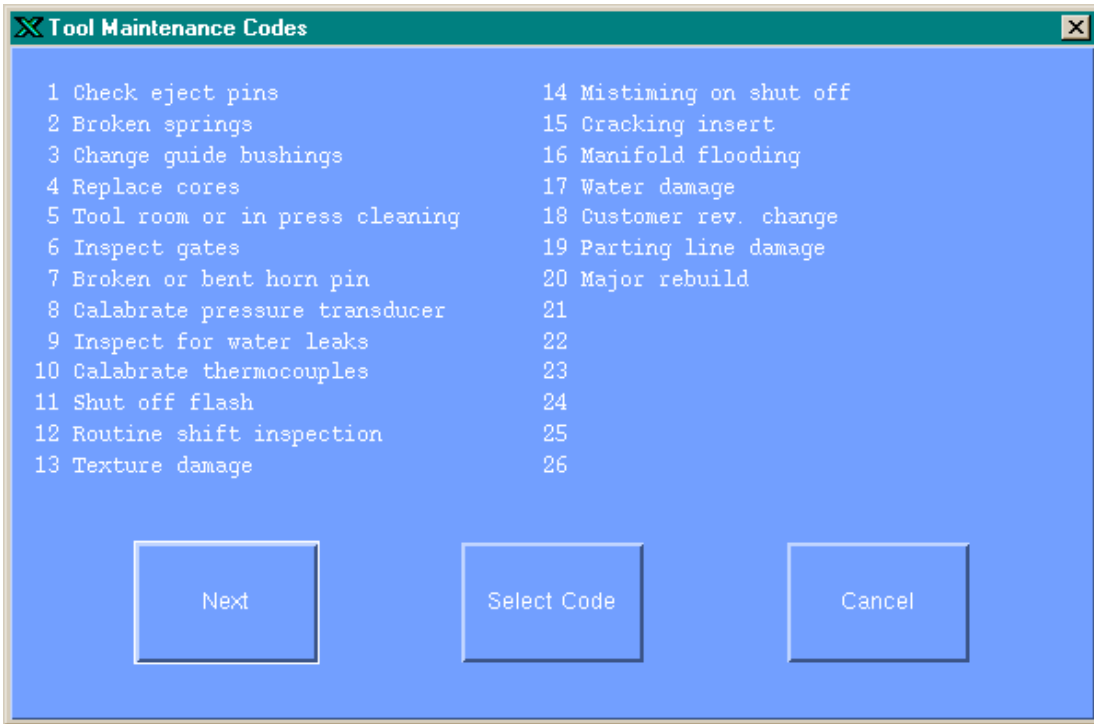


Figure 11 - Tool Maint. Codes

Upon selection of a Tool Maintenance Code the following screen will appear:

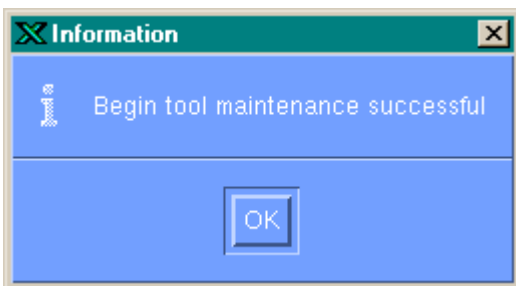


Figure 12 - Begin Tool Maintenance Result

The *tool maintenance* activity will appear at the bottom of the screen Figure 8 - Maintenance Log On/Off

To end tool maintenance for the current Operator ID.

Touch: *End Tool Maintenance*

Close and return to Figure 1 - Main Cell Controller Screen

As you have been entering data, the Maintenance Log On/Off screen Figure 13 - Updated Maintenance Log On/Off has been automatically updating. The “End Mach. Maintenance” and “End Tool Maintenance” buttons which were non-active in Figure 8 - Maintenance Log On/Off are now active based on the fact that machine and tool codes have been selected..

The screenshot shows a window titled "Maintenance Log On/Off" with a blue background. At the top, it displays "Machine #: 13" and "Operator ID: 589" in a text box. Below this are four buttons: "Begin Mach. Maintenance", "Begin Tool Maintenance", "End Mach. Maintenance", and "End Tool Maintenance". To the right of these is a "Close" button. At the bottom, there is a table with the following data:

Operator	Login Time	Type	Code	Reason
000000589	08/17/96 23:51	Tool:	020	Major rebuild

Figure 13 - Updated Maintenance Log On/Off

3.5 Call for Help

The call for help function allows the machine operator to select a help call reason that can be seen on every real time screen throughout the plant. If ProHelp Millennium Voice Feature is installed, this help call will be announced as a voice message.

Touch: *Help Call*

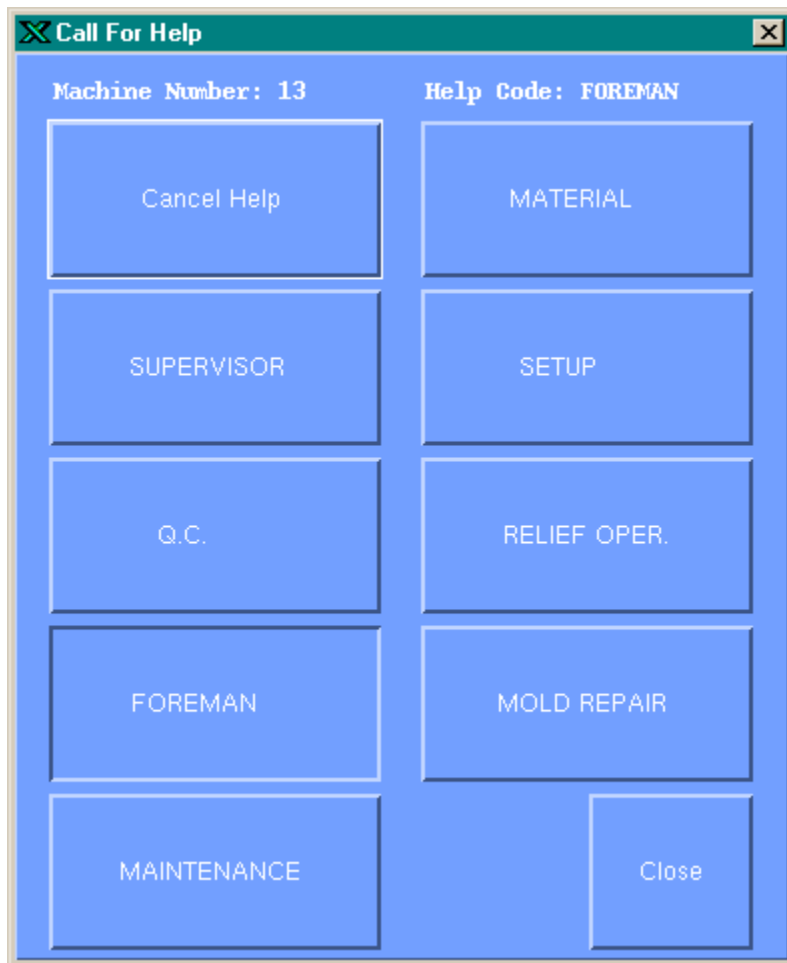


Figure 14 - Call for Help

The currently selected machine number and help call reason will be displayed at the top of the screen.

Touch: *"a help call reason"*

Notice that "**Cancel Help**" does not resemble the other buttons which are all upper case. "Cancel Help" is an activity button which cancels an existing help call reason for this machine.

Close and return to Figure 1 - Main Cell Controller Screen

3.6 Operator Login and Logout

Two types of operator histories are maintained within ProHelp Millennium

1. operator efficiency history
2. operator tracking history

In order for either type of history to be recorded, operators must login and logout at the MIU by entering a unique identifying number.

Efficiency history is kept for up to five operators per machine. There is no per-machine limit on the number of operators for which tracking history may be kept. Efficiency and tracking reports are available.

Efficiency report Shows who logged in and how many parts they made. Average cycle time and yield is kept per operator.

Tracking report Shows only those who have logged in or out and at what time. No parts production is kept.

Reference the *ProHelp Millennium Operator's Manual, #710-0092*, for additional information.

The operator functions allow an operator to login or logout of the Cell Controller for the currently selected machine or for all machines connected to the Cell Controller.

From Figure 1 - Main Cell Controller Screen

Touch: *Log On/Off*

A description of this screens buttons and functions is as follows:

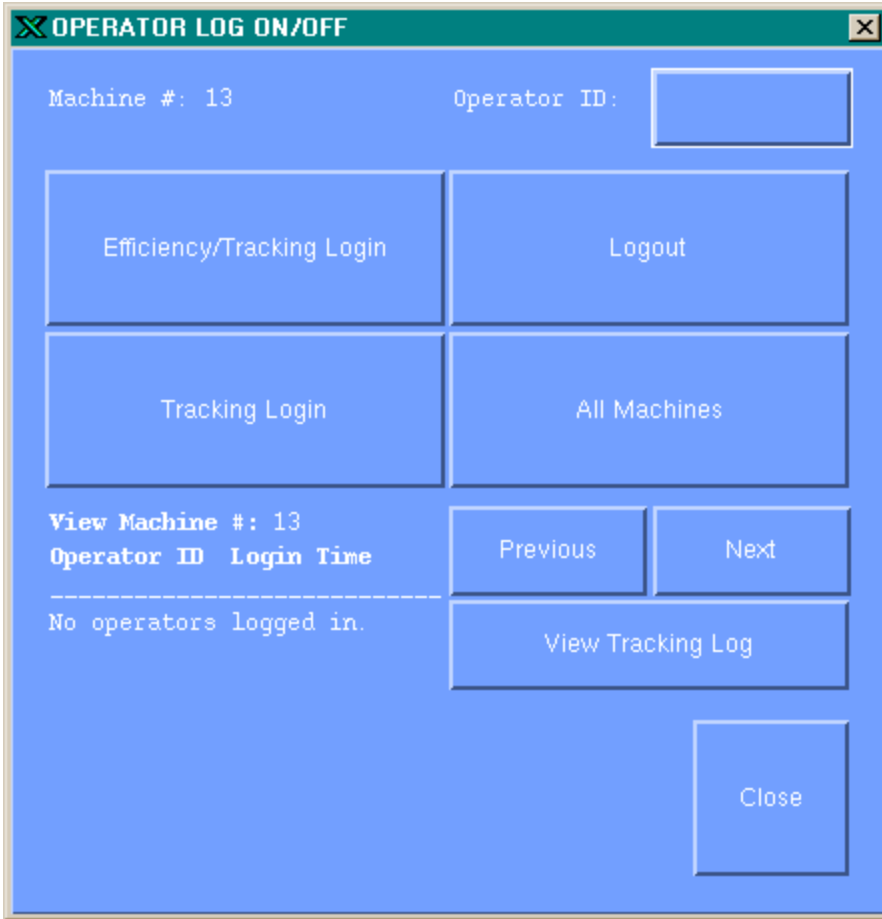


Figure 15 - Operator Log On/Off

The current machine number and all operators that are logged into the machine for efficiency will be displayed on the bottom of the screen. To view the operators that are logged into the other machines that are connected to the Cell Controller.

Touch: Previous or Next



To enter the operator number of the machine operator that is logging in or out.



Touch: Operator ID (button)

The numeric keypad will appear Figure 7 - Numeric Keypad

Enter: Operator ID #

Touch: Enter

To log the operator in or out of all of the machines that are connected to the Cell Controller.

Touch: *All Machines*

This toggles between single machine mode and all machine mode

All Machines

To login the operator into the selected machine(s) with efficiency tracking.

Touch: *Efficiency/Tracking Login*

Efficiency/Tracking Login

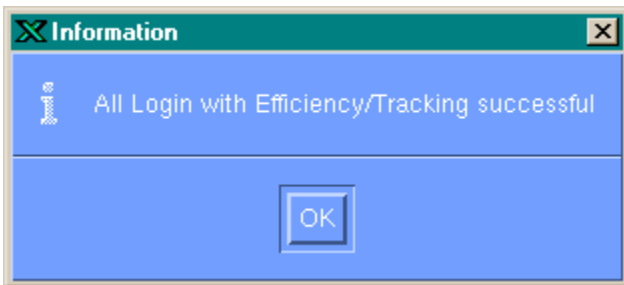


Figure 16 - Efficiency/Tracking Login Result

The Efficiency/Tracking Login will log in the operator in Operator Efficiency as well as Operator Tracking system. Up to five (5) operators can be logged in for Efficiency/Tracking. All operators logged on a machine for Efficiency/Tracking are displayed in the lower half of the window Figure 15 - Operator Log On/Off

To login the operator into the selected machine(s) for tracking only (no efficiencies).

Touch: *Tracking Login*

Tracking Login

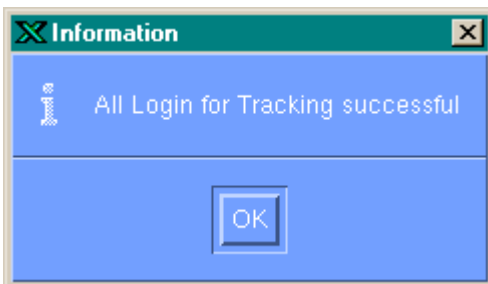
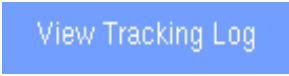


Figure 17 - Tracking Login Result

Any number of operators can be logged in the system. Operators logged in for tracking are not displayed in Figure 15 - Operator Log On/Off. However, an Operator Tracking report is displayed by the View Tracking Log.



The View Tracking Log displays Operator Tracking Report for the machine number displayed at the top of Figure 15 - Operator Log On/Off

To logout the operator from the selected machine(s).

Touch: *Logout*

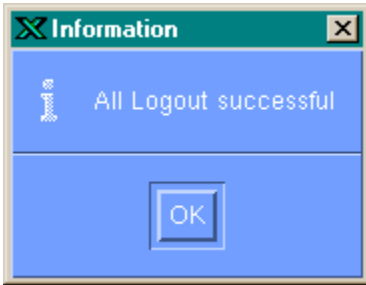


Figure 18 - Operator Log On/Off Results

This function will remove the operator from the displayed list at the bottom of the screen. This button will also write an entry in Operator Tracking System.

Close and return to Figure 1 - Main Cell Controller Screen

3.7 Job Control

To perform various job control functions from the Cell Controller, follow these steps.

From the main menu Figure 1 - Main Cell Controller Screen:

Touch: *Job Control*

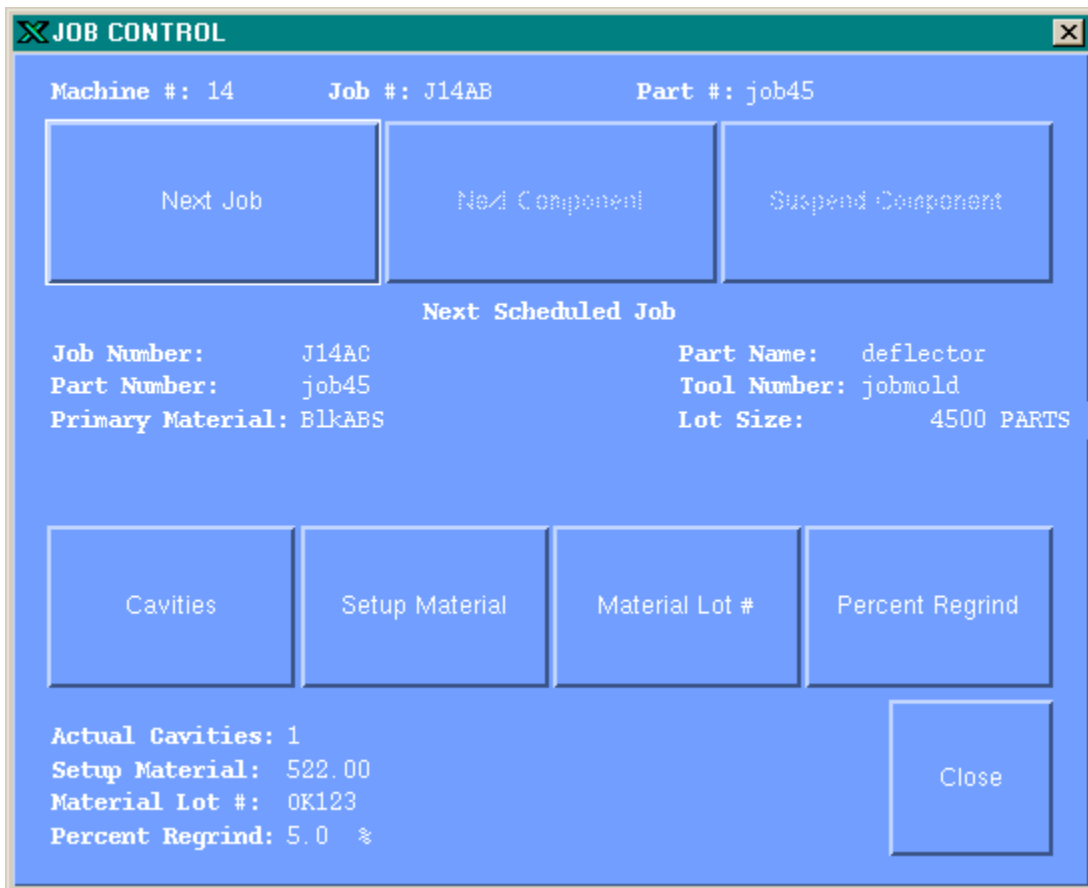


Figure 19 - Job Control

Information about the currently running job and the next scheduled job will be displayed on the screen.

Close and return to Figure 1 - Main Cell Controller Screen

The **Job Control** functions are further described in the following sections.

From the main menu Figure 1 - Main Cell Controller Screen:

Touch: *Job Control*

The *Next Component Son* and *Suspend Component Son* functions are only available on systems with the optional Family Molding software and when a family job is running on the machine.

The following functions are for “job control” of the Job Control Screen:

3.7.1 Next Job

To end the currently running job and start the next job in the machine's schedule, follow these steps:

From Figure 19 - Job Control

Touch: *Next Job*

The currently running job will be ended and the next job in the machine's schedule will be started. Information on this job will appear in the center of the screen under “Next Scheduled Job”. The *Next Job* button is disabled if there is no job scheduled for the machine.

Next Scheduled Job	
Job Number:	None
Part Number:	
Primary Material:	
Part Name:	
Tool Number:	
Lot Size:	

3.7.2 Next Component (Son)

To end a currently running son job (if a family job is running on the machine) and start a pending son job, follow these steps:

From: Figure 19 - Job Control

Touch: *Next Component*

Select the running son job to be ended.

Touch: *Apply*

The next son component in the schedule will be started.

3.7.3 Suspend Component (Son)

To suspend a currently running son job (if a family job is running on the machine) and start the next son job in the job descriptor, follow these steps:

From Figure 19 - Job Control:

Touch: *Suspend Component*

Select the son job to suspend.

Touch: *Apply*

The selected job will be suspended and the next son job in the job descriptor will be started.

Suspend Component (Son) is only available for a rate machine running two sons. This function is used to toggle between jobs running two different stock keeping units (SKU's).

The following functions are for “material selection” of the Job Control Screen:

3.7.4 Change Cavities

To change the number of cavities for the current job, follow these steps:

From Figure 19 - Job Control



Cavities

Touch: *Cavities*

Enter the number of cavities being used.

Touch: *Enter*

The new number of cavities being used may not exceed the standard number of cavities in the job descriptor.

3.7.5 Setup Material

Setup Material is active when setup material is defined in the Job Descriptor. To add to the amount of setup material that has been used for the current job, follow these steps:

From Figure 19 - Job Control



Setup Material

Touch: *Setup Material*

Enter the amount of setup material that has been used.

Touch: *Enter*

Setup material, when running a family mold is entered for each component job. You must select the son to enter scrap.

3.7.6 Material Lot Number

To change the material lot number being used for the current job, follow these steps:

From Figure 19 - Job Control



Material Lot #

Touch: *Material Lot #*

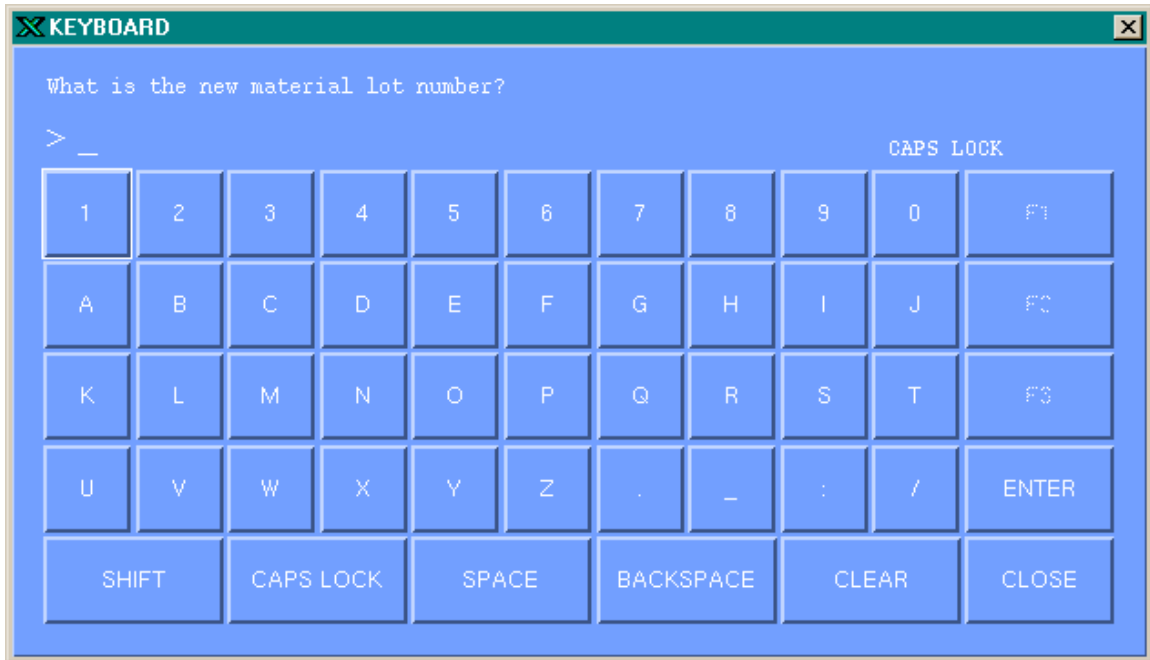


Figure 20 - Alpha-Numeric Keyboard

Enter the new material lot number that is being used. Figure 20 - Alpha-Numeric Keyboard works identical to a regular keyboard. The shift key will allow symbols to be utilized.



Touch: *Enter*

3.7.7 Percent Regrind

To change the percent of regrind material being used for the current job, follow these steps:

From Figure 19 - Job Control



Touch: *Percent Regrind*

Enter the percent of regrind material that is being used

Touch: *Enter*

Close and return to Figure 1 - Main Cell Controller Screen.

3.8 View Job Descriptor

A job descriptor is a shop order production record that is stored at the main computer. Each job descriptor active in the system has a unique number and provides current and historical information related to the production of a part. ProHelp Millennium job descriptors report on parts made, machine cycles, hours run, hours down, tool usage, and material usage. ProHelp Millennium jobs also report on when, where, and how well they were run.

To view the job descriptor for the currently selected machine, follow these steps:

From the main menu Figure 1 - Main Cell Controller Screen:

Touch: Job Data

The job descriptor for the running job will be displayed in a new window.

If family mold pick list of sons are displayed, select son then job will be displayed.

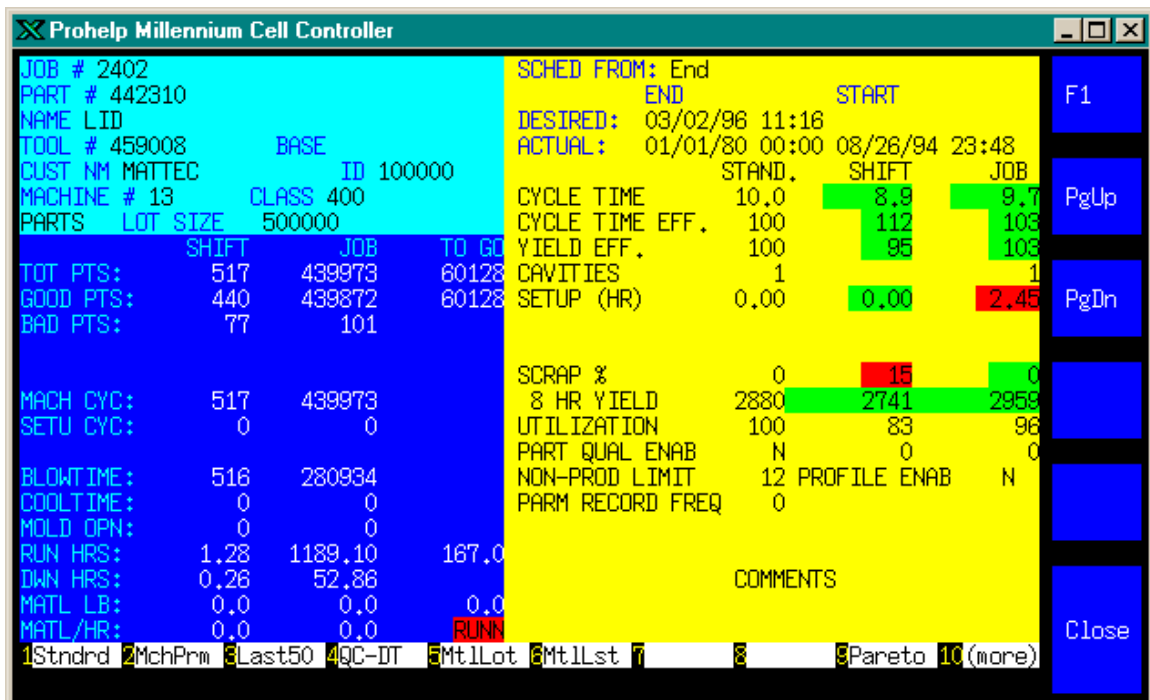




Figure 21 - Job Descriptor Screen

When the first page of the job descriptor is displayed, the system puts up a new menu of function keys on the screen. The function keys located at the bottom of the screen will work, however, the use of these keys is not intended for the Cell Controller with **touch screen**. The new menu provides the ability to select more detail about the job history. For additional information about job descriptors, reference the *ProHelp Millennium Operator's Manual, #710-0092*.

Press the , , **(Home)**, and **(End)** keys to see additional jobs that are scheduled on the currently selected machine.

To exit the job descriptor window and return to Figure 1 - Main Cell Controller Screen:

Press: *Escape*

or

Click: *Close* 

3.9 View Real Time Screen

To generate a real time screen of all of the machines being monitored by the Cell Controller, follow these steps:

From the main menu Figure 1 - Main Cell Controller Screen:

Touch: Real Time

The standard MATTEC real time screen will be displayed in a new window.

MACH NUMBER	JOB NUMBER	H PROD	GOOD PR	TO GO	HOURS TO GO	STD SPEED	ACT SPEED	YLD EFF	STD CAV	ACT CAV	MACHINE PARAMETERS
01	*01	1286	369780	2075.8	20.00	20.00	99	1	1	1	ABCD12345678
02	02	0	10329	57.4	20.00	0.00	0	1	1	1	Dept1 D.481.7
03	tandd	1274	- 47313	0.0	20.00	20.00	100	1	1	1	ABCD12345678
04	04	0	10377	57.7	20.00	0.00	0	1	1	1	Dept1 D.481.7
05	05	1274	- 85779	0.0	20.00	20.00	100	1	1	1	ABCD12345678
06	06	1274	- 89277	0.0	20.00	20.00	100	1	1	1	ABCD12345678
07	07	1274	- 89272	0.0	180.0	180.0	100	1	1	1	ABCD12345678
26	26	1274	- 85406	0.0	20.00	20.10	100	1	1	1	ABCD12345678
99	PTR782	0	68871	382.6	3.00	0.00	0	1	1	1	Dept1 D.369.5
MIU01	JOB0101	1274	- 18526	0.0	20.00	20.10	100	1	1	1	ABCD12345678
MIU02	JOB0202	1274	- 18526	0.0	20.00	20.10	100	1	1	1	ABCD12345678
MIU03	JOB0303	1274	- 18526	0.0	20.00	20.10	100	1	1	1	ABCD12345678
MIU04	JOB0404	1274	- 18526	0.0	20.00	20.10	100	1	1	1	ABCD12345678
MIU05	JOB0505	1274	- 18526	0.0	20.00	20.10	100	1	1	1	ABCD12345678
oliver	*SERVICE	0	9884	54.9	20.00	0.00	0	1	1	1	Dept1 D.319.3
Dept: Dept02 Shift 2 08/20/96											
08		0	0	0.0	0.00	0.00	0	1	0	0	Unknown 317.7
09		0	0	0.0	0.00	0.00	0	1	0	0	Unknown 465.4
10		0	0	0.0	0.00	0.00	0	1	0	0	Unknown 197.2
11	11	0	4681	27.3	21.00	0.00	0	1	1	1	Unknown 483.6

Figure 22 - View Real Time Screen

When the real time screen is initially generated, only the machines that are connected to the Cell Controller will be displayed. To see all of the machines in the plant, one department, etc., select an appropriate filter Figure 23 - Filter Screen by:

Click: **1**Filter

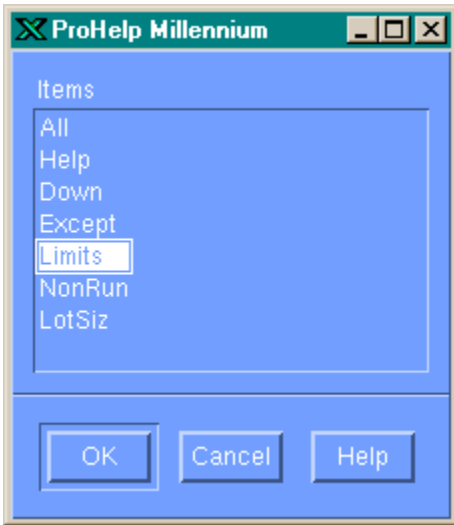


Figure 23 - Filter Screen

Click: *“on filter item”*

Touch: *OK*

Information on the real time screen is color coded in the following ways:

COLOR	DESCRIPTION
GREEN	The machine is running within acceptable limits for all processes being monitored. Green is good .
RED	The machine is not running within the set standards. For machine processes such as cycle time or pressures , red means actual values are above the standard set in the system. Timings shown in red are too slow . Pressures or temperatures in red are too high .
WHITE	The machine is not running within the set standards. Timings shown in white are too fast . Pressures or temperatures in white are too low .
YELLOW	A machine and job number shown in yellow indicates that the machine is not cycling . The reason for the machine being down is shown on the standard real time screen in the Machine Parameters column.
CYAN (blue)	A machine number shown in cyan indicates that no job is currently running on the machine. A job number will not be displayed.
MAGENTA (purple)	A machine number shown in magenta indicates that the MIU is not communicating with the Host computer. If you can not resolve this situation, please contact the MATTEC Customer Service Department immediately.
"GHOST" RED	A machine number or a channel of machines shown in "ghost" red (the machine number is red on a black background and no other information is shown) indicates a communication failure with the monitoring node that the machine is connected to. Reboot the monitoring node that the machine is connected to, or contact the MATTEC Customer Service Department for assistance.

To exit the real time screen and return to Figure 1 - Main Cell Controller Screen

Press: *Escape*

or

Click: *Close* 

Reference the *ProHelp Millennium Operator's Manual, #710-0092*, for additional information regarding the standard and custom real time screens.

3.10 Setup Sheets

A setup sheet is 99 pages of user-defined text that can describe any process that the user desires. ProHelp Millennium allows several different types of setup sheets, including *Machine*, *Tool*, and *QC* setup sheets.

Scanned images can be inserted into a setup sheet and viewed by clicking on the image's name.

To view or modify a setup sheet for the currently running job, follow these steps:

From the main menu Figure 1 - Main Cell Controller Screen:

Touch: Setup Sheets

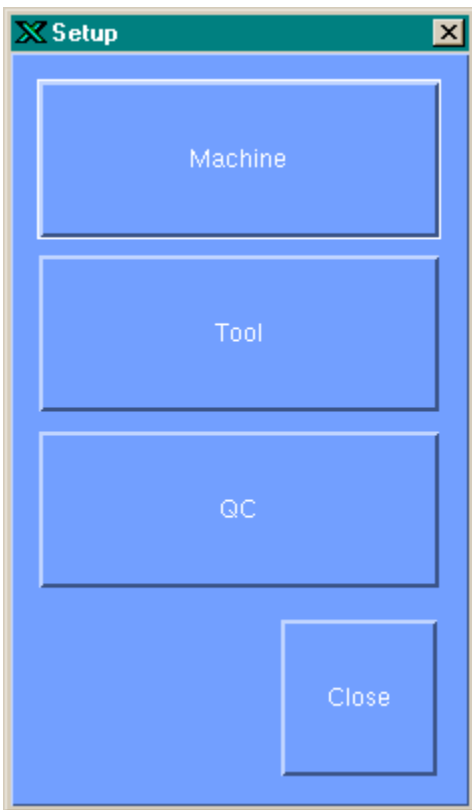


Figure 24 - Setup Sheets Screen

Select the type of setup sheet to be viewed or modified. The appropriate setup sheet will be displayed.

The different setup sheets are further described in the following section. You must:

```
Press Y to create setup sheet, any other key to continue N
```

At this point, the *touch screen* does not provide support for entering text for setup sheets. A real PC keyboard will be needed for entering text.

3.10.1 Machine, Tool, and QC Setup Sheets

To view or modify the machine, tool or QC setup sheets for the currently running job, follow these steps:

From the main menu Figure 1 - Main Cell Controller Screen

Touch: *Setup Sheets*

From the Setup screen

Touch: *Machine or Tool or QC*

Notice the screen layout for Machine, Tool, and QC Setup sheets. The second column from the left is the identifier for that particular screen.

Job	Mach	Setup Sheet	tandd	R: 1	C: 1	Edit	Page	1
-----	------	-------------	-------	------	------	------	------	---


Machine Setup Sheet


Text in the setup sheet may be displayed in different colors. Text in white is protected and may not be overwritten. All other text is unprotected and may be overwritten at the Cell Controller.

If a scanned image has been inserted into the setup sheet, the image name will be displayed on a blue background. **Click** on the image name to view the scanned image. Once the image has been viewed,

Click on the Window Menu Button  in the upper left-hand corner of the screen.

Click: *Close* to exit the image.

Click the  key to view or create additional pages of information.

Click the  key to view previous pages of information.

To exit any of the above mentioned setup sheets and return to the Setup screen.

Press: *Escape*

or

Click: *Close* 

3.11 Graphs

To generate a graph at the Cell Controller, follow these steps:

From the main menu Figure 1 - Main Cell Controller Screen:

Touch: Setup Sheets

From the Setup screen

Touch: Graphs

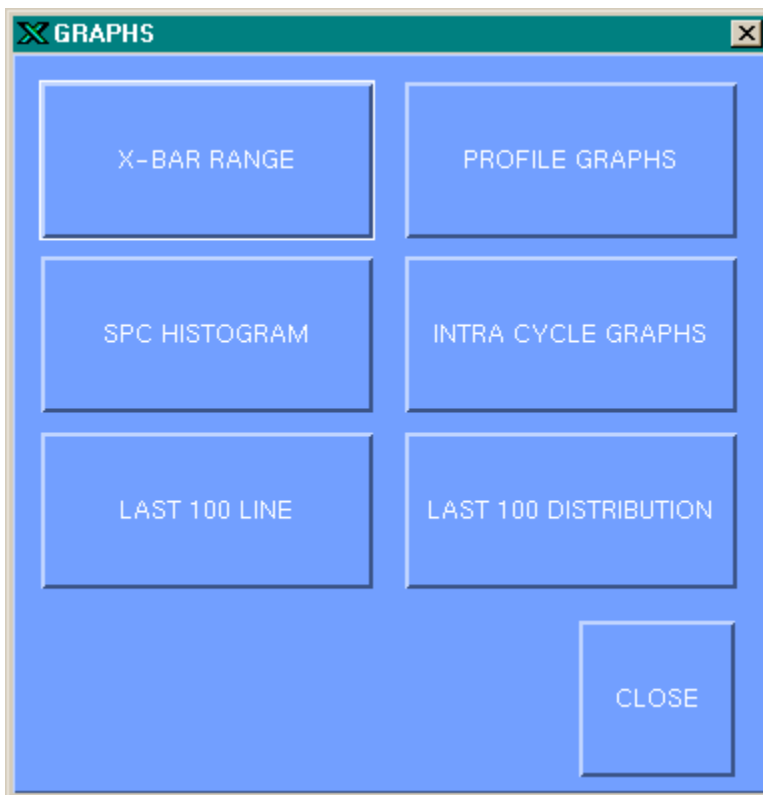


Figure 25 - Graphs Screen

Select the appropriate graph to generate. The various graphs that are available at the Cell Controller are described in the following sections.

Close and return to Figure 1 - Main Cell Controller Screen from Figure 29 – Graph Screen

3.11.1 X-Bar Range Chart

The X-Bar Range chart function allows the user to display a chart of a specified SPC sample data subset at the Cell Controller.

The following charts may be generated:

XbarR charts

Moving Range (*MRx*) chart The Moving Range (MRx) chart displays the range of observations within a moving range. A moving range size of two to nine is allowed.

Chart of Individuals (*X*) chart The Chart of Individuals (X chart) displays the individual observations in each sample. If SPC data is collected with more than one observation per sample, then each observation is plotted in the order in which it was collected.

If the field "Moving Range" is set to Y(es), both the *MRx* and *X* chart will be generated.

To generate an *XbarR* chart, Moving Range (*MRx*) chart, or a Chart of Individuals (*X*) for automatic, manual, or variable SPC data, follow these steps:

From Figure 25 - Graphs Screen

Touch: X-BAR RANGE

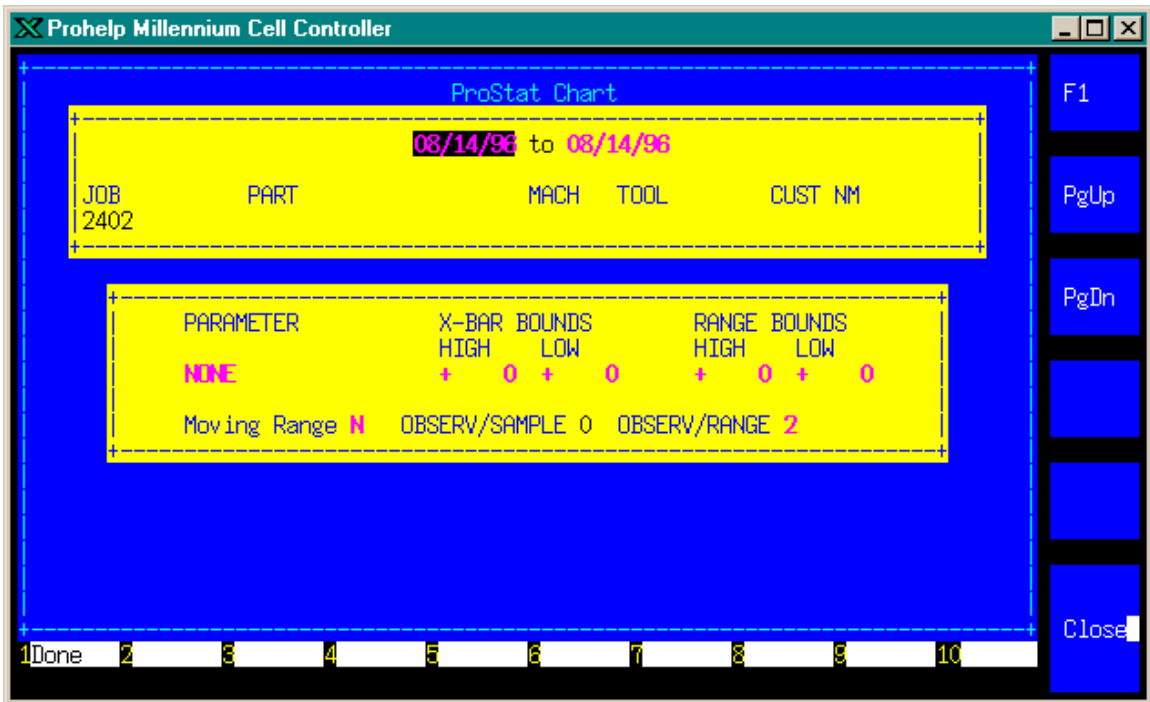


Figure 26 - ProStat Chart

Move through this screen via the arrow keys on your keyboard.

By default, the chart will be generated for the current day. Enter the start and end dates
Click: Enter

Move to the Parameter column
Press: "spacebar"



Figure 27 - ProStat Chart Popup

The above window will appear. Select the parameter to graph

Touch: OK

The available choices include:

- Automatic
- Manual
- Variable

SPC data.

To generate a Moving Range (*MR_x*) and Chart of Individuals (*X*), set the "Moving Range" field to Y(es).

Moving Range 



The "OBSERV/RANGE" field defines the number of observations grouped together for the moving range chart or the size of the moving range. Range sizes between two and nine can be entered. The default range size is two.

OBSERV/RANGE 2

The *MR_x* chart displays the moving range chart where "x" is the range size. If selected, the range chart does not start until the first "x" number of observations has been collected. A value on the range chart represents the range of range size observations at and before the point.

The "OBSERV/SAMPLE" field is for display purposes only and displays the number of observations per sample when the SPC data was collected.

OBSERV/SAMPLE 0

Click:  or 
and the chart will be generated.

To exit the graph and return to the ProStat Chart screen from within the graph

Click: *File*

Click: *Close*

To exit the ProStat Chart screen and return to the *Graphs* screen

Press: *Esc*

or

Click: *Close*

Close and return to the main menu.

3.11.2 Profile Graphs

The optional ProfileGraphs feature allows the user to view profile graphs for the last cycle's:

- Injection Profile
- Velocity Profile
- Position Profile

A standard profile graph may be saved for each of the graph types. Profile graphs require analog signal 5 and analog 6 be installed and enabled in the MIU setup screen.

To view a profile graph for the currently running job, follow these steps:

From Figure 25 - Graphs Screen

Touch: Profile Graphs

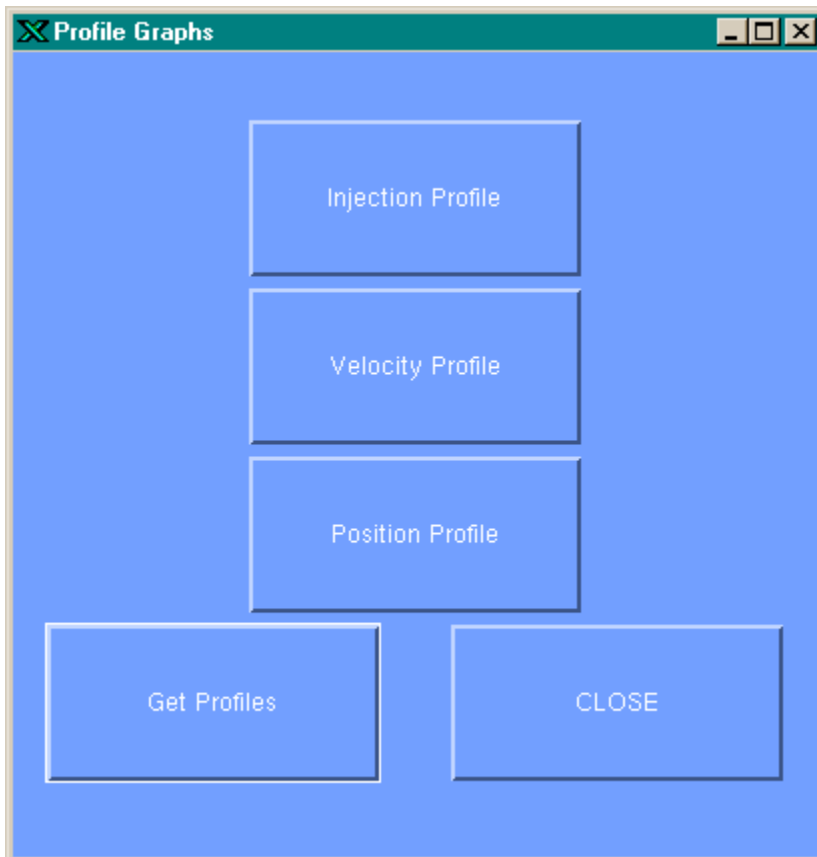


Figure 28 - Profile Graph Screen

Initiate the **Get Profiles** button to collect profile data for one complete machine cycle. After profile data is acquired, **Injection Profile**, **Velocity Profile** and **Position Profile** buttons will become active. Selecting any of these buttons will display the chart with previously collected data. To acquire new profile data, again select **Get Profiles**.

To collect profile graph data for the next machine cycle.

Touch: Get Profiles

Once the MIU has collected the profile graph data, you may select to view any of the profile graphs.

Injection Pressure Profile

To view the last cycle's Injection Pressure Profile graph.

Touch: Injection Profile

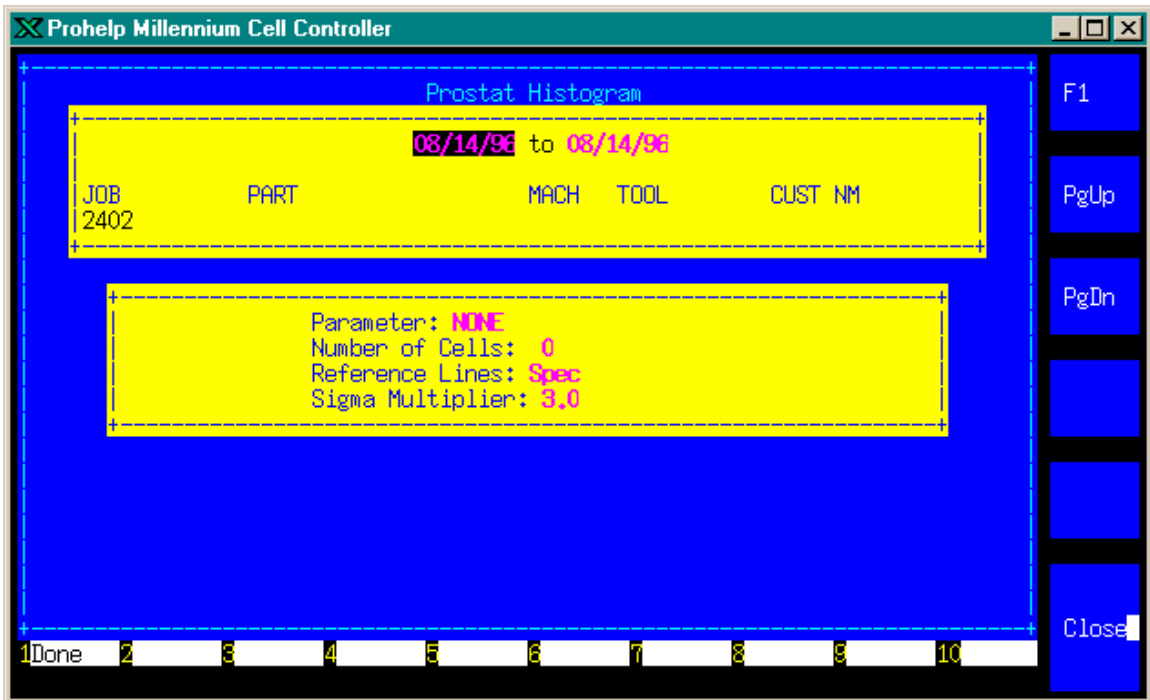


Figure 29 - Injection Pressure Profile

Velocity Profile

To view the last cycle's Velocity Profile graph.

Touch: *Velocity Profile*

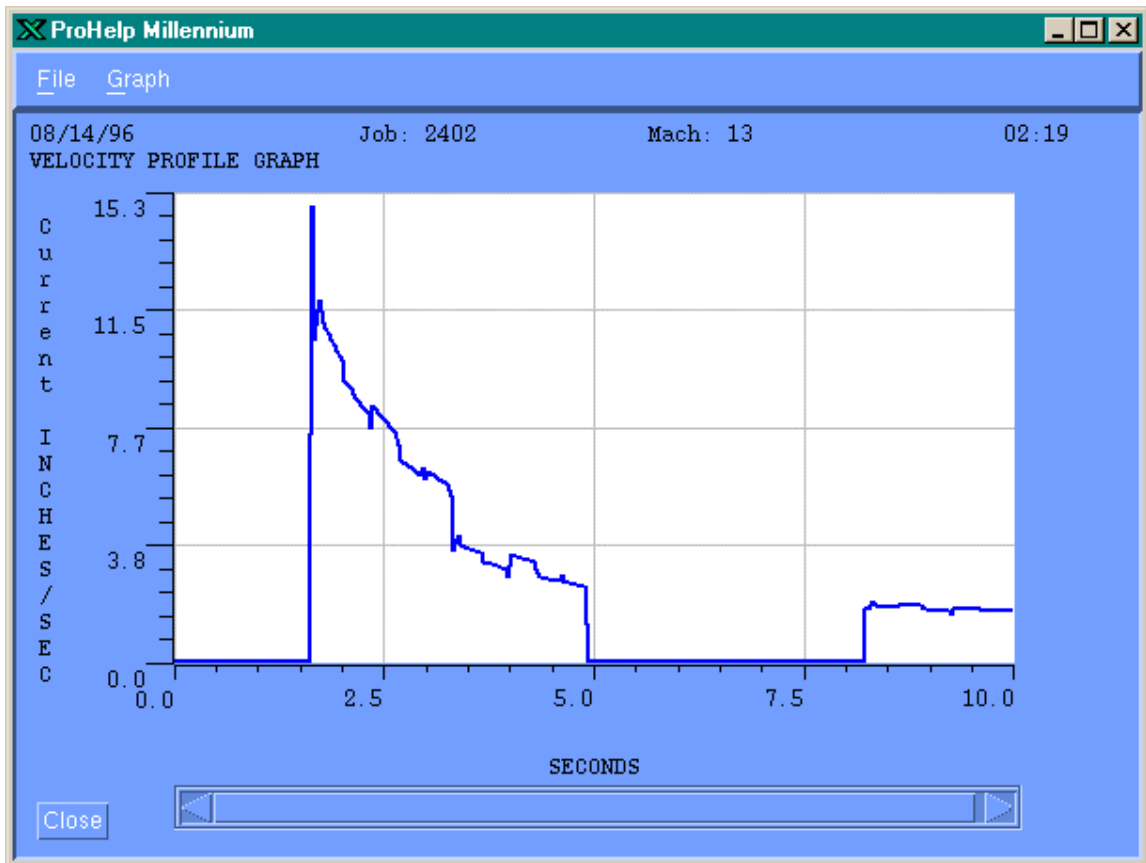


Figure 30 - Velocity Profile

Position (Distance) Profile

To view the last cycle's Position (Distance) Profile graph.

Touch: Position Profile

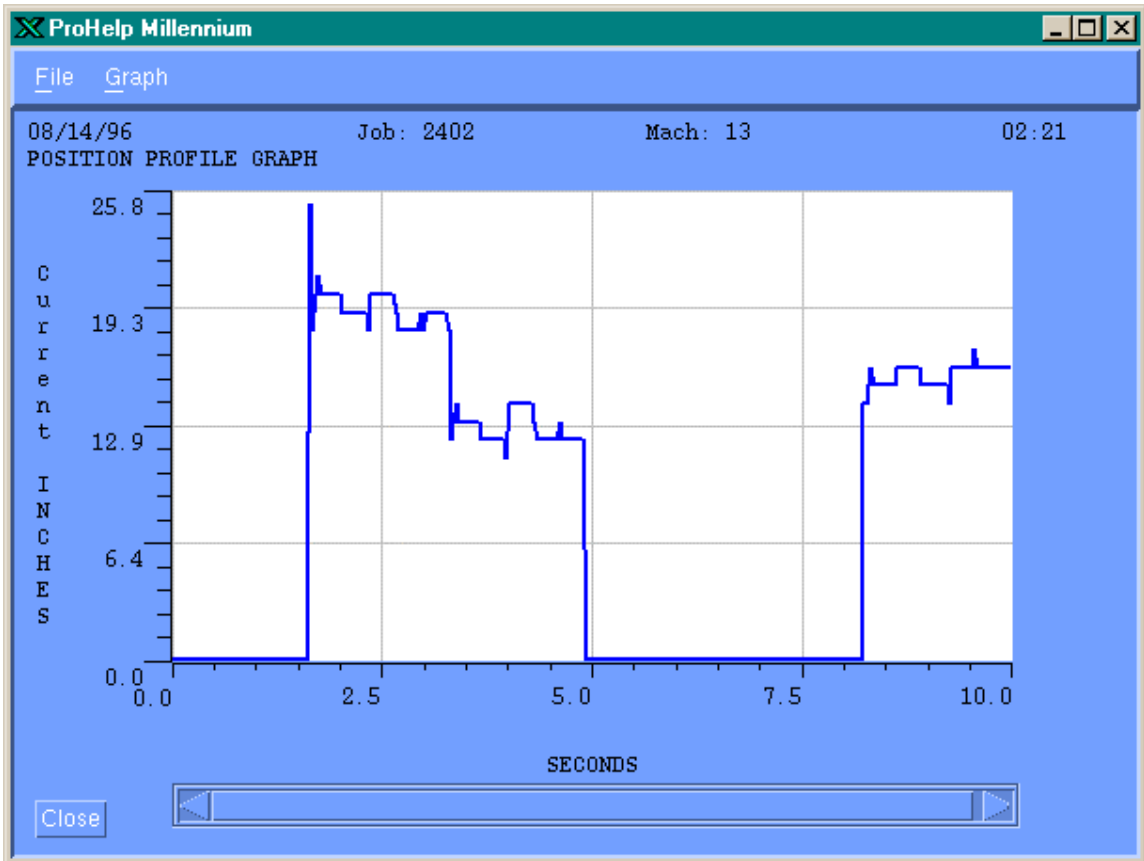


Figure 31 - Position (Distance) Profile

To exit any of the above graphs and return to the Profile Graphs screen from within the graph

Click: File

Click: Close

To exit the Profile Graphs screen and return to the *Graphs* screen.

Touch: Close

Close and return to Figure 1 - Main Cell Controller Screen

ProHelp Millennium Operator's Manual #710-0092 for more information on Graphs.

3.11.3 SPC Histogram Graph

Histograms may be generated for automatic, manual, and variable SPC data. The user may specify that the histogram be generated based on the specification limits or on specified Sigma limits. The number of cells (i.e., classes) for the histogram may be modified by the user from 1 to 30. When 0 is selected, the system automatically calculates the cell size.

To generate a histogram for the currently running job, follow these steps:

From Figure 25 - Graphs Screen

Touch: SPC Histogram

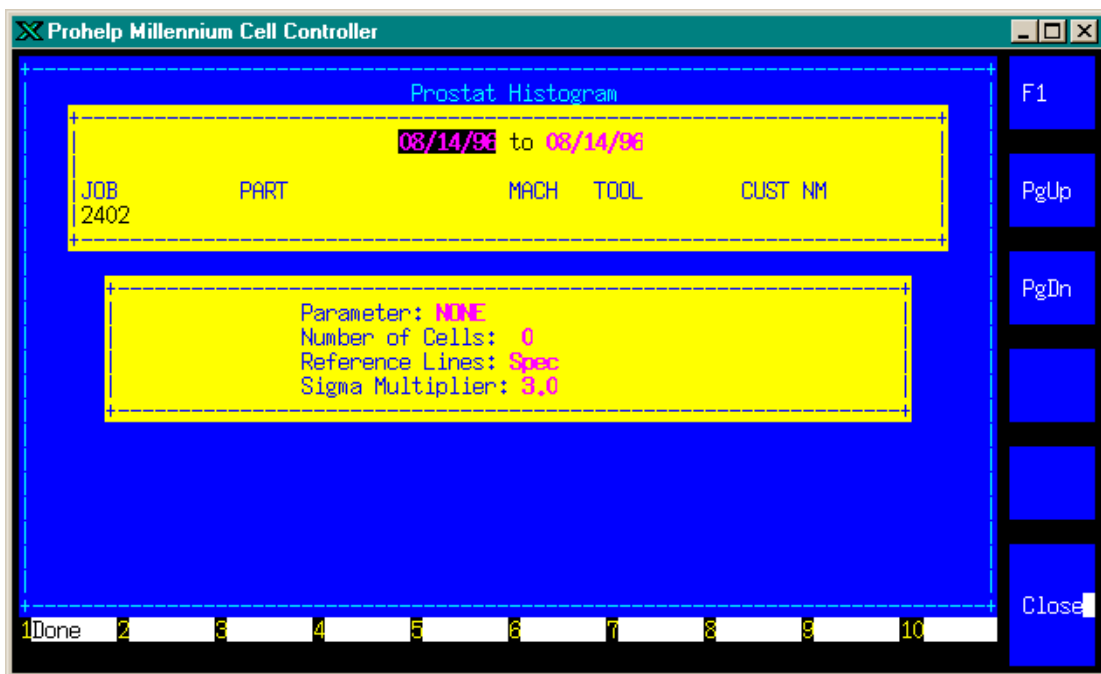


Figure 32 - ProStat Histogram Screen

By default, the chart will be generated for the current day. Enter the start and end dates

Click: Enter

Move to the Parameter column



Press: "spacebar"

Select the parameter to graph

Click: Enter

The available choices include:

- Automatic
- Manual
- Variable SPC data

Click:  or 
and the chart will be generated.

To exit any of the graphs and return to the ProStat Histogram, Parameter Graphing Last 100, or Distribution Chart Last 100 screen from within the graph

Click: *File*

Click: *Close*

To exit the ProStat Histogram, Parameter Graphing Last 100, or Distribution Chart Last 100 screen and return to the *Graphs* screen.

Press: *Esc*

or

Click: *Close*

Close and return to Figure 1 - Main Cell Controller Screen

If family, select the son to chart.

3.11.4 Intra Cycle Graphs

The Intra Cycle graph feature allows the user to view a graph of any of the last cycle's analog parameters (Signals 6 through 13).

To generate an Intra Cycle graph for the currently running job, follow these steps:

From Figure 25 - Graphs Screen

Touch: *Intra Cycle Graphs*

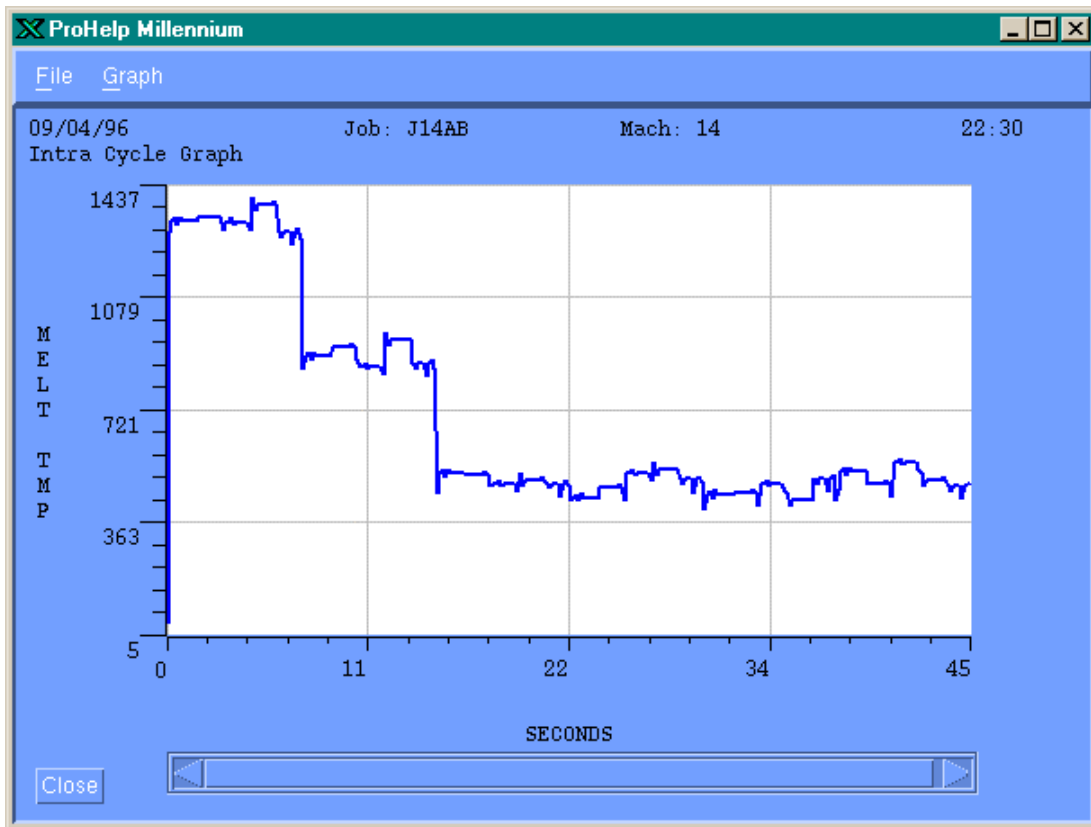


Figure 33 - Intra Cycle Graph

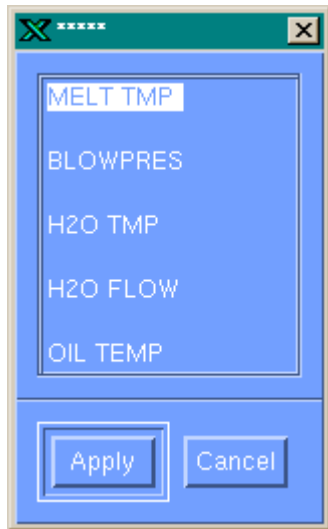


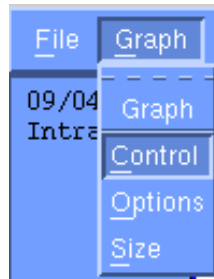
Figure 34 - Intra Cycle Graph Popup

Select the process parameter to graph

Touch: *Apply*

Valid choices include any analog parameters (Signals 6 through 13) that have been enabled for the MIU. There will be a pause while data for the next cycle is collected, then the chart will be displayed.

To exit the graph and return to the *Graphs* menu from within the graph



Click: *File*

Click: *Close*

CLOSE and return to Figure 1 - Main Cell Controller Screen

3.11.5 Last 100 Line Chart

The Last 100 Line Chart function is used to generate and display a graph of one selected machine process parameter for the currently running job.

To view the Last 100 Line Chart for the currently running job, follow these steps:

From Figure 25 - Graphs Screen

Touch: *Last 100 Line*

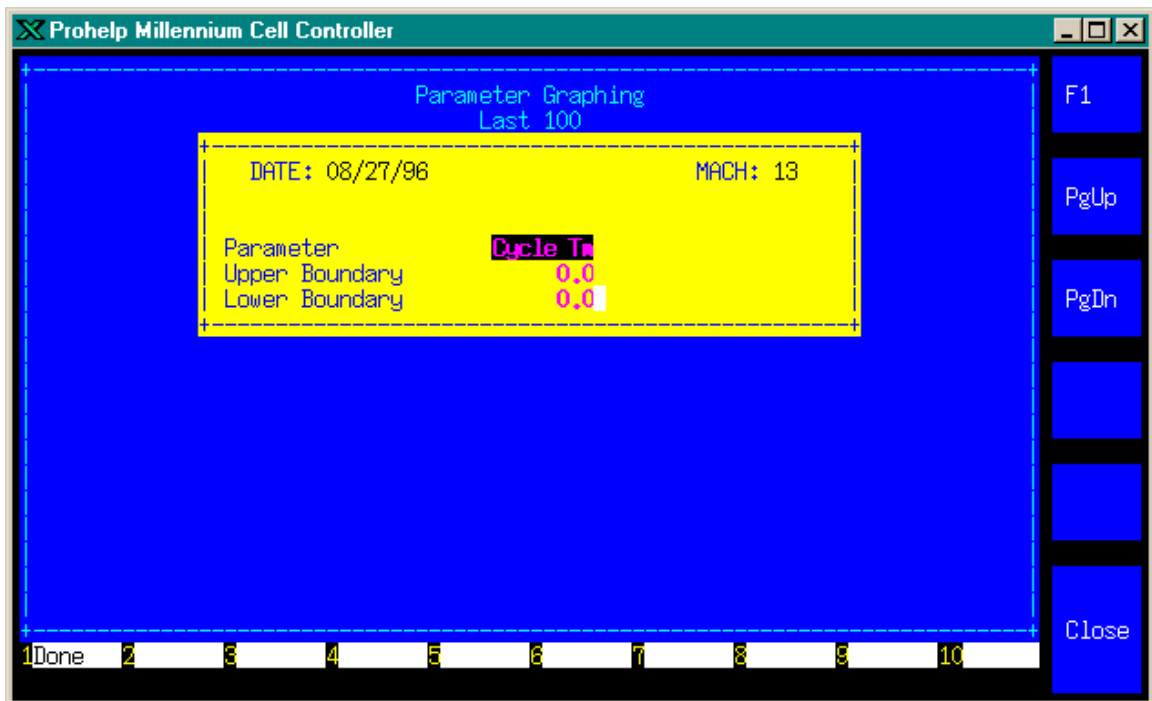


Figure 35 - Last 100 Line Chart



Figure 36 - Last 100 Line Pop-up

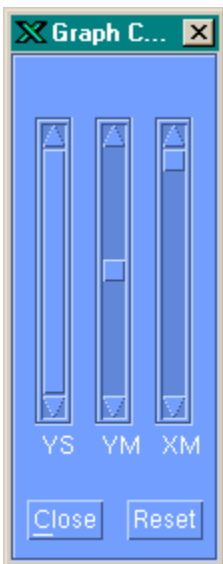
Move to the Parameter column by utilizing the arrows on the keyboard or by moving and clicking the mouse key.

Press: "spacebar"

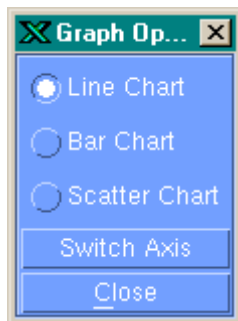
Select the parameter to graph

Click: Done

Use the Upper Boundary and Lower Boundary fields, if desired, to limit the scaling of the parameter graph. If no boundary is entered (value of 0), the graph is scaled to the greatest and least values in the sample base. Enter your boundaries by using the spacebar and keyboard.



Control



Options



Size

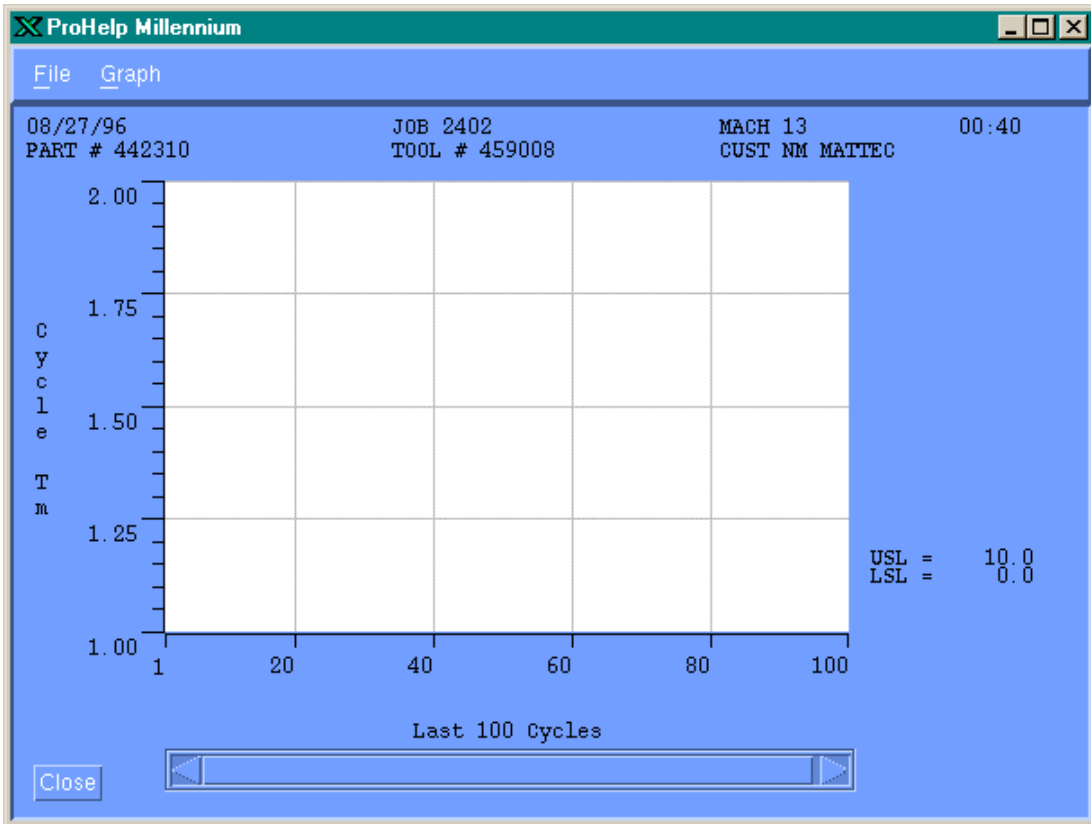


Figure 37 - Last 100 Line Graph

3.11.6 Last 100 Distribution Chart

A distribution chart is similar to the histogram chart except that it graphs the value of any process parameter for the last 100 cycles. The number of cells (i.e., classes) for the distribution graph may be modified by the user from 1 to 30. When 0 is selected, the system automatically calculates the cell size.

To generate a distribution chart for the currently running job, follow these steps:

From Figure 25 - Graphs Screen

Touch: *Last 100 Distribution*

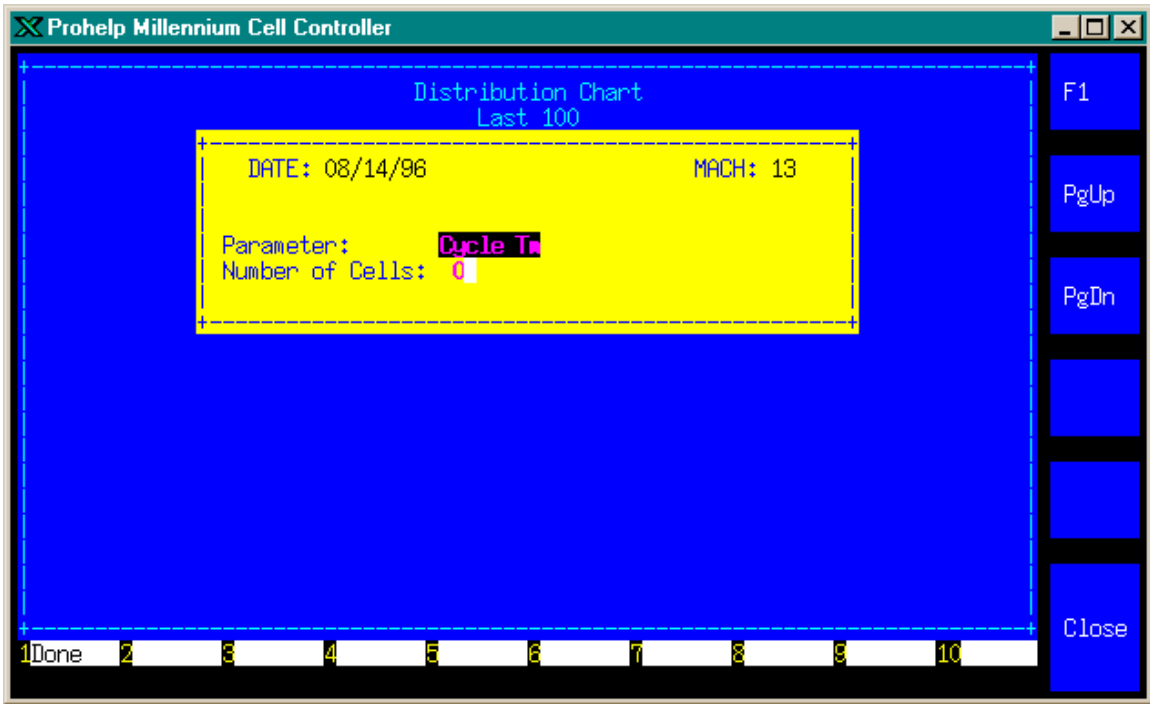


Figure 38 - Last 100 Distribution Chart

Move to the Parameter column by utilizing the arrows on the keyboard or move and click the mouse key.

Press: "spacebar"

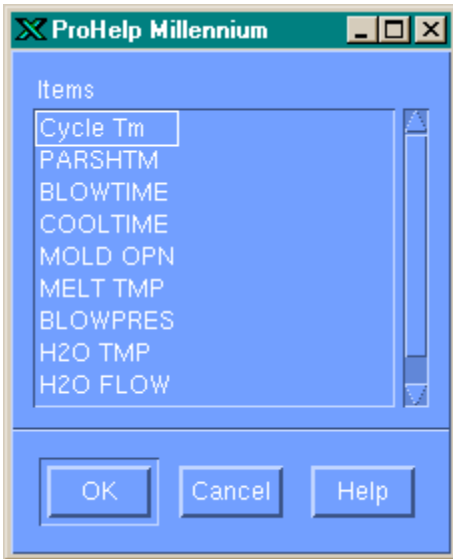


Figure 39 - Last 100 Dist. Popup

Select the parameter to graph

Touch: *OK*

The available choices include any machine signals that have been enabled.

Utilizing the arrow keys on your keyboard or click with your mouse to enter next cell range. Specify the number of cells to use

Click: *Enter*

If a cell size of 0 is entered, the system will automatically calculate the cell size.

3.12 ProStat (SPC)

ProStat is MATTEC's optional statistical control program. For additional information on ProStat, reference the *ProHelp Millennium Operator's Manual, #710-0092*.

To access the various SPC functions from the Cell Controller, follow these steps:

From the main menu Figure 1 - Main Cell Controller Screen

Touch: *SPC*

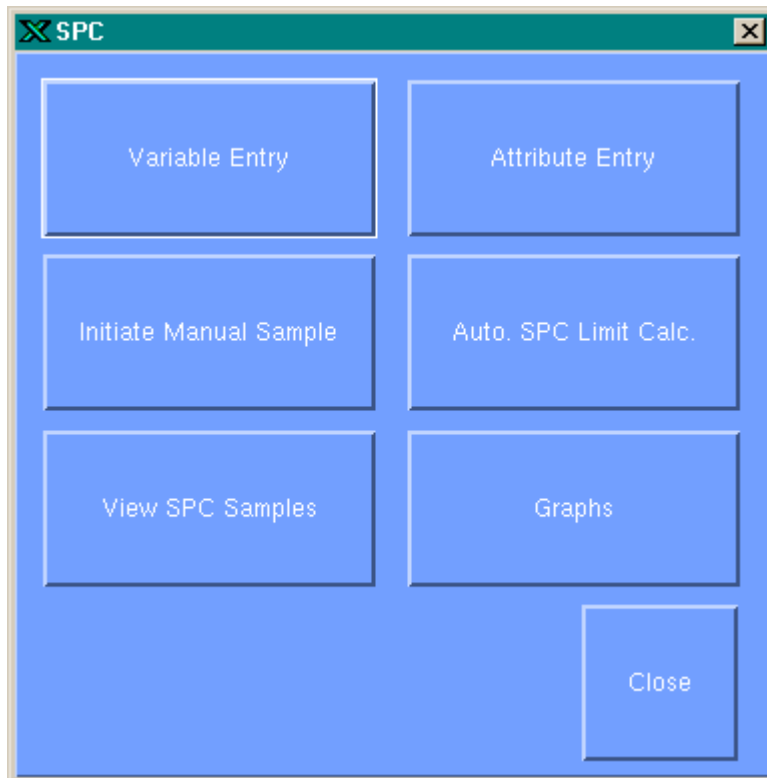


Figure 40 - ProStat (SPC)

To exit the SPC window and return to the main menu.

Touch: *Close*

The SPC functions available at the Cell Controller are further described in the following sections.

3.12.1 Variable Data Entry

The Cell Controller allows variable data entry for the current job and for the current date only.

To enter variable SPC data from the Cell Controller, follow these steps:

From Figure 40 - ProStat (SPC)

Touch: *Variable Entry*

	WGHT 1	WGHT 2	WGHT 3	O.D. 1	O.D. 2
#1					
#2					
#3					

Figure 41 - Variable Data Entry

By default, the Cell Controller assumes that the sample was taken at the current date and time. Time for the variable samples can be changed by:

Time: 23:43

Touch: *Time field*

Press: *Enter*

Touch: *variable field*

Enter the value for the variable for this sample

Press: *Enter*

Up to five (5) variables are displayed at a time . To page through the list of variables that are defined for the current job.

Touch: *Next Page and Prev. Page*

Note: *Next Page*  and *Prev. Page*  become light and fuzzy when they have reached their limits.

Once data entry is complete it should be saved. “*Store*” saves the variable data. Once the data is stored it cannot be modified. Previously stored data is displayed as light colored numbers. A variable with all blank observations represents “no data”.

To save the sample and return to the SPC screen

Touch: *Store*

To discard the current sample information and return to the SPC screen

Touch: *Close*

Note: Closing variable data entry without saving the date will display “data is lost” message.

Close and return to Figure 40 - ProStat (SPC)

3.12.2 Enter Attribute Data

To enter attribute SQC data from the Cell Controller, follow these steps:

From Figure 40 - ProStat (SPC)

Touch: *Attribute Entry*

WARP

SWIRL

COLOR

TINT

FINISH

O SPOT

BURS

CHIPS

SEAMS

MISC.

Inspec.

SQC Attributes

Date: 08/28/96

Time

Total Defects: 0

Figure 42 - Attribute Data Screen

By default, the Cell Controller assumes that the sample was taken at the current date and time. Time for the variable samples can be changed by:

Time

Touch: *Time field*

Press: *Enter*



Note the “*Store*” button is light and fuzzy which indicates an inactive button. This button will become active upon entry of values in the Attribute Field. The “*Store*” button will return to the inactive state once the information has been saved.

Touch: *Attribute field*

Enter the value for the attribute for this sample

Press: *Enter*

Once data entry is complete it should be saved. “*Store*” saves the variable data. Once the data is stored it cannot be modified. Previously stored data is displayed as light colored numbers. A blank label represents “no data”.

To save the sample and return to the SPC screen

Touch: *Store*

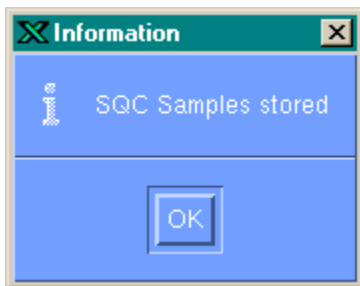


Figure 43 - SPC Results

To discard the current sample information and return to the SPC screen

Touch: *Close*

Note: Closing variable data entry without saving the date will display “data is lost” message.

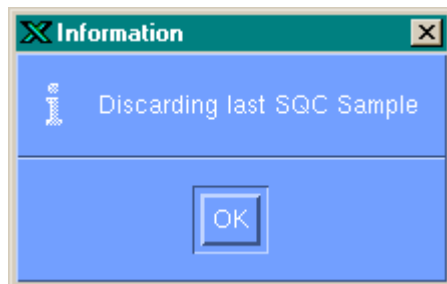


Figure 44 - SPC Unsaved Results

Close and return to Figure 40 - ProStat (SPC)

3.12.3 Initiate a Manual Sample

Manual process parameter sampling is initiated by an operator at the MIU. The collection of the process parameters begins during the active machine cycle and continues for the next number of cycles specified in the job descriptor.

To initiate a Manual SPC sample from the Cell Controller, follow these steps:

From Figure 40 - ProStat (SPC)

Touch: *Initiate Manual Sample*

If Manual SPC sampling has been enabled in the job descriptor, the Cell Controller will collect the appropriate number of SPC samples and automatically store the collected data at the Host computer.

Close and return to Figure 40 - ProStat (SPC)

3.12.4 Automatic SPC Limits Calculation

The automatic limits calculation function allows SPC data to be sampled at every cycle for a predefined number of cycles for a running job. The consecutive SPC data is then used to compute new SPC control limits. The new SPC control limits are automatically updated at the Host and the MIU. Normal SPC sampling at regular intervals as defined in the SPC setup of a job is resumed after automatic SPC limits calculations are completed. Automatic SPC limits calculations can be used for automatically setting the SPC control limits from a fixed number of consecutive SPC samples at the beginning of a job.

Starting consecutive SPC sampling for automatic SPC limits calculations is a two-step process.

Step One: Parameters for automatic SPC limits calculations are defined at the Host during the creation of a job or while a job is running.

Step Two: The automatic SPC limits calculation is initiated at the MIU any time while the job is running.

To initiate automatic SPC limits calculation from the Cell Controller, follow these steps:

From Figure 40 - ProStat (SPC)

Touch: *Auto. SPC Limit Calc.*

If automatic SPC limits calculation has been enabled in the job descriptor, the Cell Controller will collect the appropriate number of SPC samples, calculate new SPC control limits, and automatically store the new limits at the Host and the MIU.

Reference the *ProHelp Millennium Operator's Manual #710-0092* and *MIU Operator's Manual* for additional information.

Close and return to Figure 40 - ProStat (SPC)

3.12.5 View SPC Samples

To view previously collected SPC samples from the Cell Controller, follow these steps:

From Figure 40 - ProStat (SPC)

Touch: *View SPC Samples*

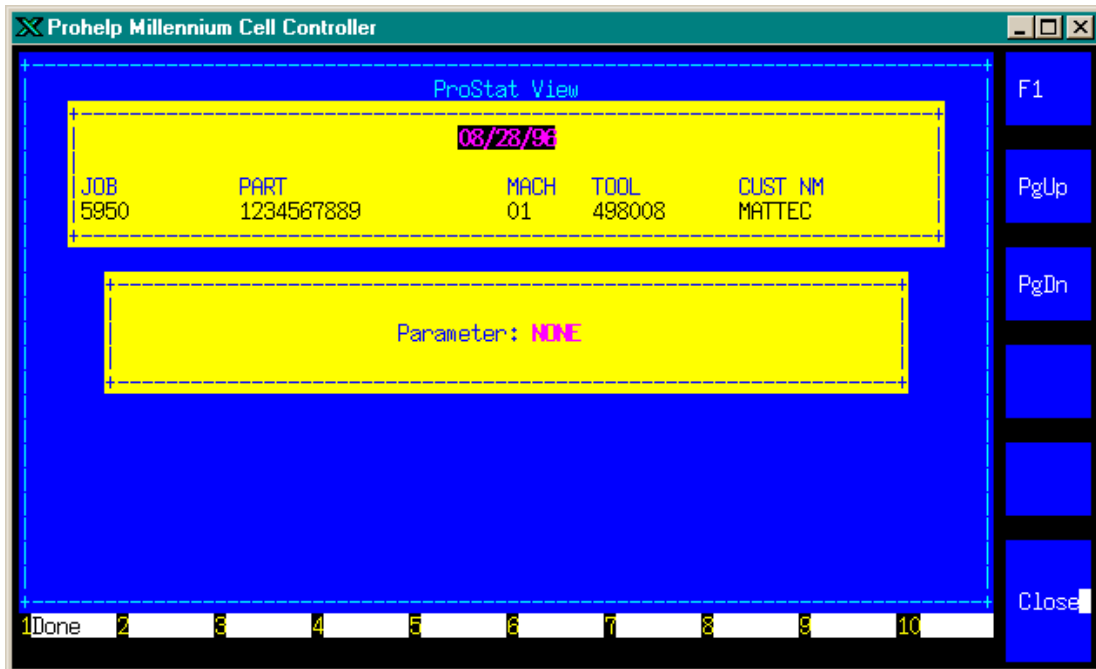


Figure 45 - SPC Samples Screen

Enter the date to view

Press: *Enter*

By default, SPC data will be displayed for the current date.

Move to the Parameter column

Press: *“spacebar”*

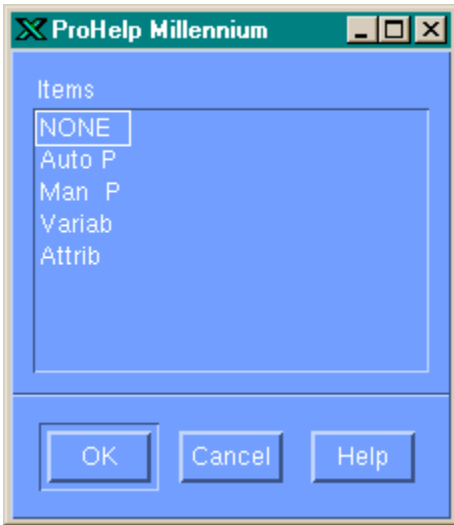




Figure 46 - SPC Samples Popup



Select the type of parameter to display

Press: *OK*

Choices include:

- Attribute
- Automatic
- Manual
- Variable Data

Click:  or 
The selected SPC data will be displayed.

Press the , , (Home), and (End) keys to move through the available data.

To exit the display and return to the ProStat View screen

Press: *Escape*

or

Touch: *Close*

Close and return to Figure 1 - Main Cell Controller Screen

3.12.6 SPC Graphs

The **Graph** button in Figure 40 - ProStat (SPC) will pop up *Graph Options*. *Graph Options* operates identical to the “**Graph**” button in Figure 1 - Main Cell Controller Screen.

Touch: Graphs

Select the appropriate graph to generate.

To exit the **Graphs** screen and return to the SPC screen

Touch: Close

Close and return to Figure 1 - Main Cell Controller Screen

3.13 Miscellaneous Functions

The Service Display screen is a diagnostic tool that is used by the MATTEC Customer Service Department.

To generate the Service Display, follow these steps:

From the main menu Figure 1 - Main Cell Controller Screen

Touch: *Miscellaneous*



Figure 47 - Miscellaneous Pop Up

Touch: *Service Display*

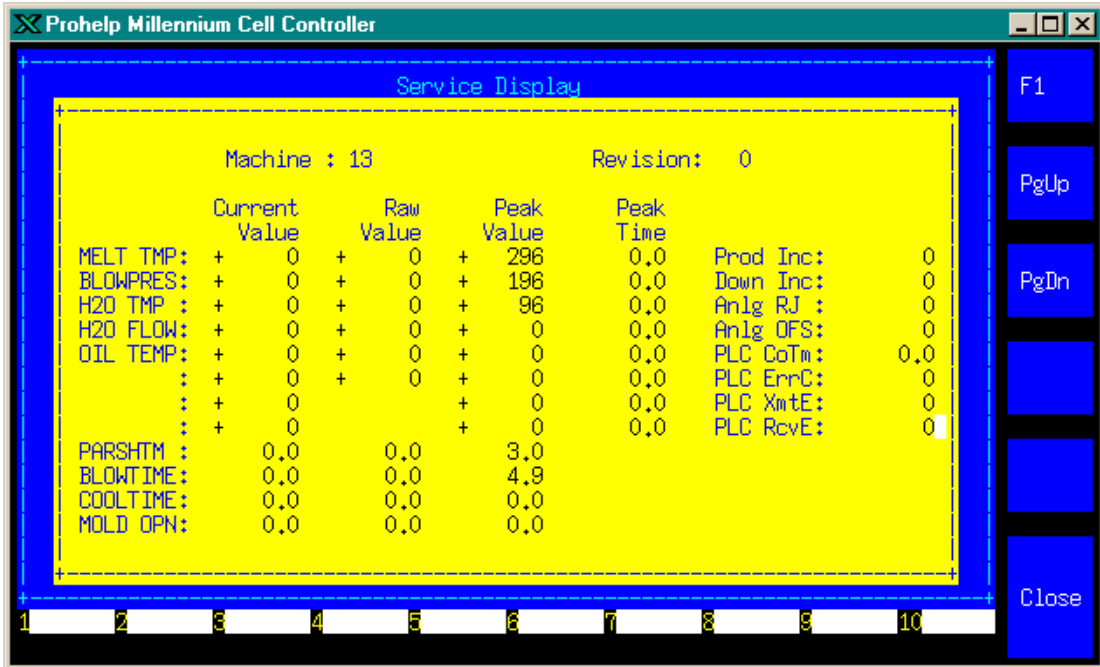


Figure 48 - Service Display Screen

The current values, raw values, peak values, and peak times for all monitored process parameters (analog and digital signals) for the currently selected machine will be displayed.

Following is a description of other values that are displayed on the Service Display screen:

VALUE	DESCRIPTION
Prod Inc	Production Increment. The cycle time in seconds.
Down Inc	Downtime Increment. The amount of downtime in seconds.
Anlg RJ	Analog RJ. An analog adjustment value.
Anlg OFS	Analog Offset. An analog adjustment value.
PLC CoTm	PLC Collection Time. The time required for the MIU to collect all data from the PLC.
PLC ErrC	PLC Error Count. The sum of all PLC errors.
PLC XmtE	PLC Transmit Errors. The total number of errors in MIU to PLC communication.
PLC RcvE	PLC Receive Errors. The total number of errors in PLC to MIU communication.

To exit the Service Display Screen and return to Figure 47 - Miscellaneous Pop Up

Press: *Escape*

or

Click: *Close*

To generate the *MIU Logs*, follow these steps:

From Figure 47 - Miscellaneous Pop Up

Touch: *MIU Logs*

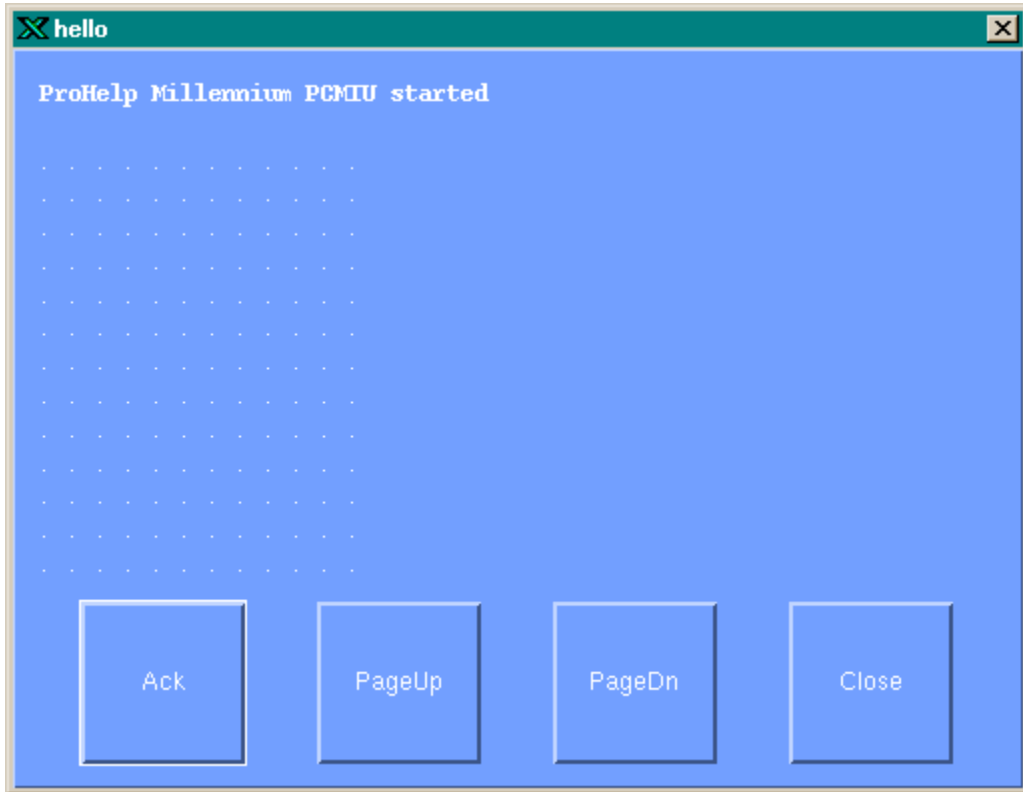


Figure 49 - MIU Pop Up

Close and return to Figure 1 - Main Cell Controller Screen

4. Starting and Stopping the Cell Controller Application

ProHelp Millennium, each MIU, and each Cell Controller are intended to run 24 hours per day, every day. When it does become necessary to end the Cell Controller application use the procedure described in this section.

To shutdown the Cell Controller application, follow these steps:

- Step 1. To exit from the Cell Controller application
From Figure 1 - Main Cell Controller Screen
Touch: *Exit*
Touch: *OK*

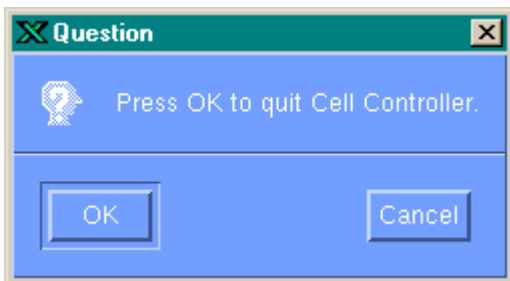


Figure 50 - Logout Screen

To start the Cell Controller application, follow these steps:

From the Windows desktop, you can start the Cell Controller application by double-clicking on the Cell

Controller icon. Throughout the Cell Controller program, utilize the “*Close*” button to close an application and return to the *Main Cell Controller Screen*.

The next screen displayed is the main menu of the Cell Controller application.

