



*PROGRAMMING - OPERATION
PARTS REFERENCE MANUAL*

**DYNATROL HMI
TOUCH SCREEN CONTROL**



*For DynaWash Washer-Extractors
Includes DynOzone Programming and Operation*

Technical specifications are based on the latest information available
at the time of printing and are subject to change without notice.

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TABLE OF CONTENTS

	<u>Page</u>
Machine Configuration	2
Motor Setup	4
Water Level Setup	4
Ozone/Signal Setup	5
Timers Setup	5
Programming	6
Wash/Rinse Step	7
Drain Step	9
Extract Step	9
Pause Step	10
Link Program	10
End Program	10
Operation	11
Load and Start a Program	11
AutoStart	12
Wash Screen	12
Override Mode	13
Drain Screen	13
Extract Screen	14
Program Complete	14
Alarms and Warnings	15
Reports	16
Alarms	17
Counters	18
Program History	19
Settings	20
Passwords	20
Copy Program	21
Reset Factory Programs	21
Clear Program Names	21
Transfer Programs	22
Default Factory Programs	22
HMI System	23
Set System Time	23
Calibrate Screen	23
Download Port	23
Backlight	23
HMI Configuration Settings	23
Parts Reference	24

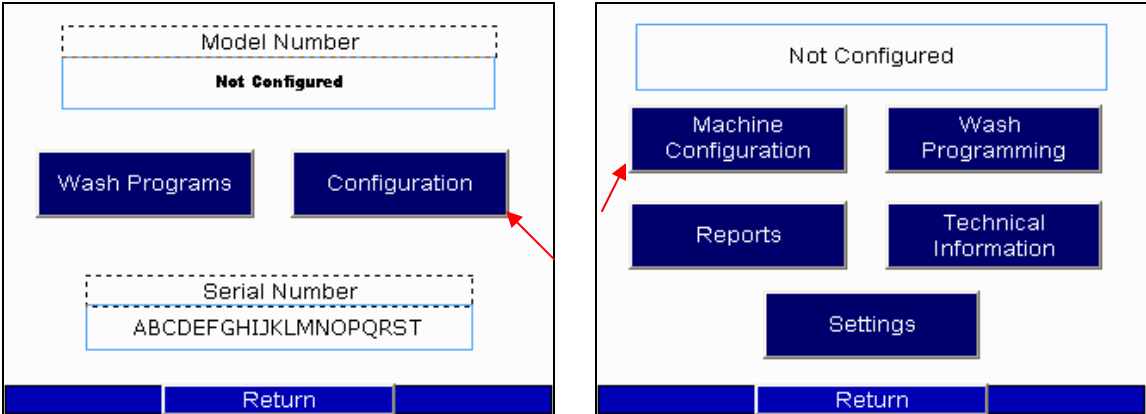
The DynaTrol touch screen control features the latest HMI (Human Machine Interface) control technology. It is based on a Programmable Logic Controller using ladder logic code. Use of DynaTrol can be broken down into the following categories:

- Machine Configuration
- Wash Formula Programming
- Operation: Worker and Supervisor Modes
- Managerial Reports on Operation
- Settings

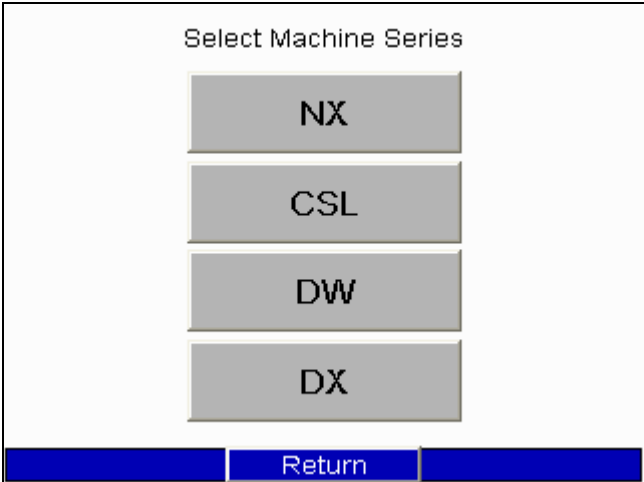
The DynaTrol touch screen control can be setup to work on any DynaWash® washer-extractor. It must be properly configured to take full advantage of its capabilities.

MACHINE CONFIGURATION

To enter Machine Configuration, press the Configuration button from the Home screen, then select Machine Configuration. You will need a Level 3 password to continue.



Once you have entered Machine Configuration, you will need to assign a machine series type:



Select a model:

Select Machine Model and press Next to continue or Return to go back to previous menu.

- 1 = NX40P6
- 2 = NX60P6
- 3 = NX100P6
- 4 = NX140P6

##

Return Next

Select Machine Model and press Next to continue or Return to go back to previous menu.

- 21 = CSL35
- 22 = CSL60
- 23 = CSL110
- 24 = CSL175
- 25 = CSL225
- 26 = CSL350
- 27 = CSL450

##

Return Next

Select Machine Model to continue or Return to go back to previous menu.

DX125SM

DX250SM

Return

Select Machine Capacity

100

150

200

300

400

Return Select

Select Machine Model and press Next to continue or Return to go back to previous menu.

- 41 = DW100
- 51 = DW100SM
- 61 = DW100PT
- 71 = DW100PTSM

##

Return Next

Select Machine Model and press Next to continue or Return to go back to previous menu.

- 42 = DW150
- 52 = DW150SM
- 62 = DW150PT
- 72 = DW150PTSM

##

Return Next

Select Machine Model and press Next to continue or Return to go back to previous menu.

- 43 = DW200
- 53 = DW200SM
- 63 = DW200PT
- 73 = DW200PTSM

##

Return Next

Select Machine Model and press Next to continue or Return to go back to previous menu.

- 44 = DW300
- 54 = DW300SM
- 74 = DW300PTSM

##

Return Next

Select Machine Model and press Next to continue or Return to go back to previous menu.

- 45 = DW400
- 55 = DW400SM
- 75 = DW400PTSM

##

Return Next

The next screens contain information on specific machine parameters which provide unique model characteristics. They are broken down into the following sub sections:

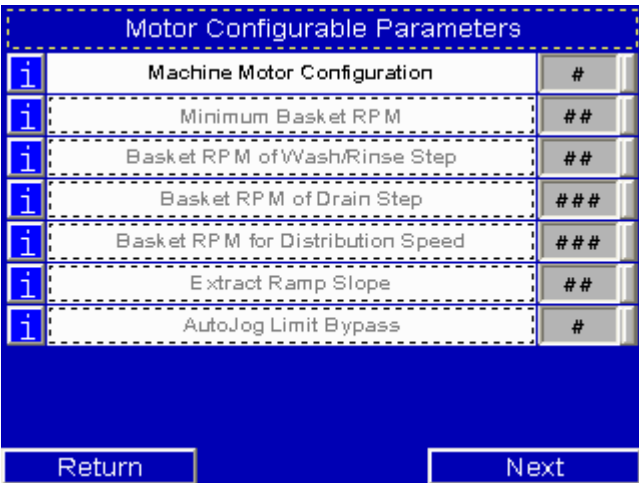
- Motor Setup
- Water Level Setup
- Ozone / Signal Setup
- Timers Setup

A help button is located next to each parameter which further describes the necessary input or provides a means to set the value.

Enter or change a value by pressing the corresponding number box on the right side of the screen. A popup window will appear with the current parameter value. Enter a new value and press ENT to accept, CLR to clear and the to return without saving.

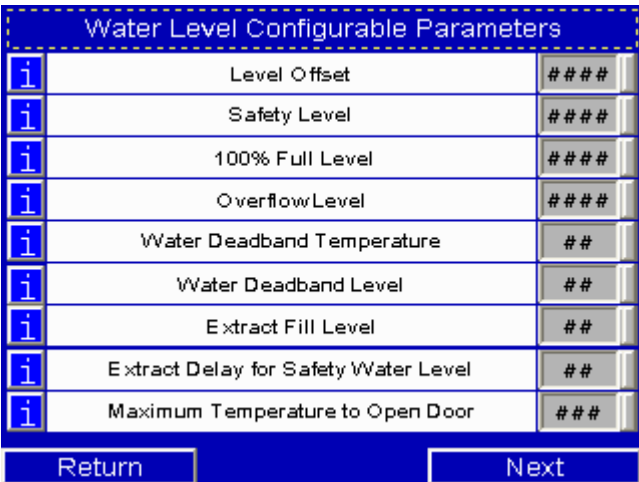
MOTOR SETUP

Configures motor design and speed settings for the machine.



WATER LEVEL SETUP

Configures values which are affected by level sensing.



OZONE/SIGNAL SETUP

Configures DynOzone system and signals working parameters:

Ozone/Signal Configurable Parameters		
i	Number of PowerCells	#
i	Number of DynOzone Pumps	#
i	DynOzone Step Start Parameter	#
i	DynOzone Maximum Operating Temperature	###
i	Number of Signals	#
i	Default Signal Time	##
i	Signal Step Start Parameter	#

Return Next

TIMERS SETUP

Configures values which are affected by timers.

Timer Configurable Parameters		
i	Signal Buzzer ON Time at End of Program	##
i	Signal Buzzer OFF Time at End of Program	###
i	Door Lock Pin Time	##
i	Brake Time from Extract Speed	###
i	Extract Agitate Time	##
i	Extract Distribution Time	###
i	Extract Time to Open Drain	##
i	Extract Delay for Speed Ramp	##
i	Service Maintenance Timer	###

Return Next

Timer Configurable Parameters		
i	PowerCell Alarm Timer	##
i	Ozone Pump Alarm Timer	##
i	Low Air Alarm Timer	##
i	Safety Timeout Timer	##
i	Maximum Fill/Drain Timer	##
i	Maximum Heating Timer	##
i	Water Level Adjust Timer	##
i	Maximum Water Reuse Fill Timer	##
i	Default Drain Time	##

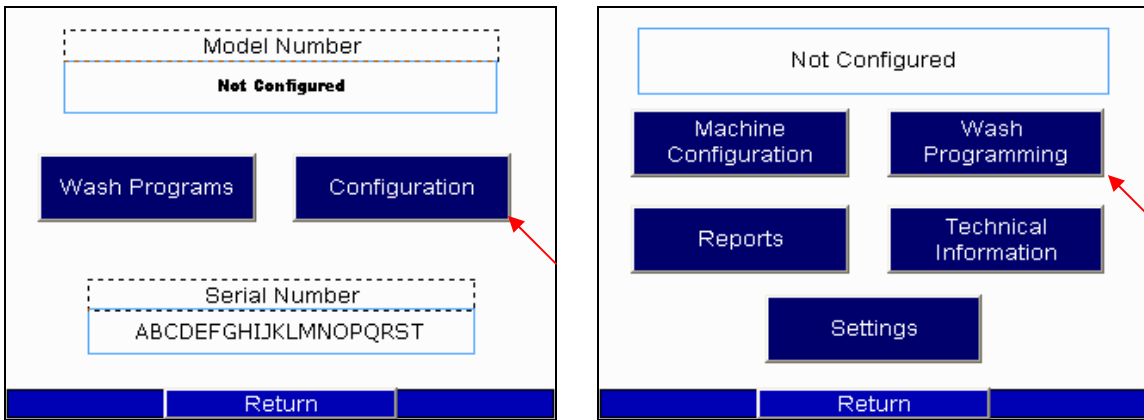
Return Next

PROGRAMMING

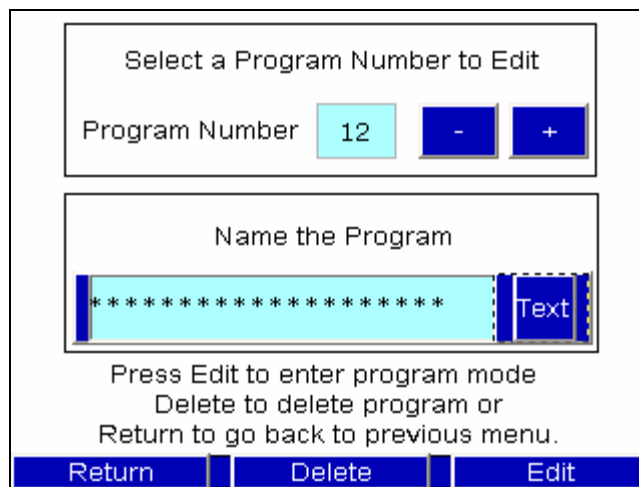
The DynaTrol touch screen allows for the entry of up to 50 wash programs with 25 steps per program, as well as the ability to link programs. Wash programs may contain any of the following:

- Wash / Rinse Step
- Drain Step
- Extract Step
- Pause Step

To enter Wash Programming, press the Configuration button from the Home screen. Then select the Wash Programming button. A Level 2 password is required to enter.



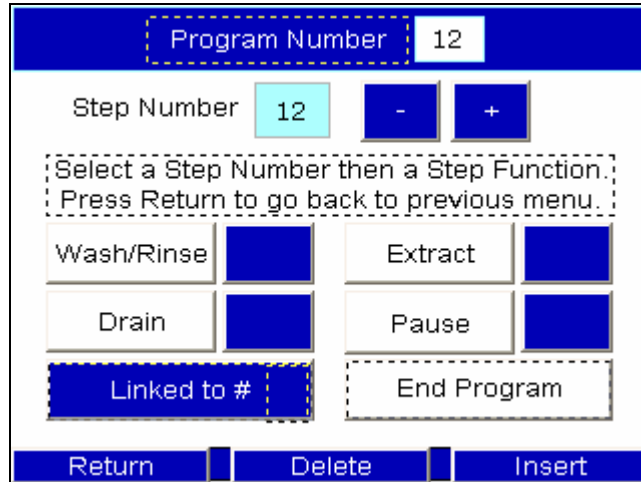
Begin by selecting a wash program number. Use the + / - buttons to scroll. Program names appear in the text box. Twenty factory programs are preloaded. These may be edited, deleted or re-loaded. To edit name, press the text box.



From this screen you can select a program, change program name, return to previous menu, delete program, or edit program. To delete, press delete button. This action cannot be undone. To begin or edit program, press edit for programming options.

The main wash programming screen contains six operations:

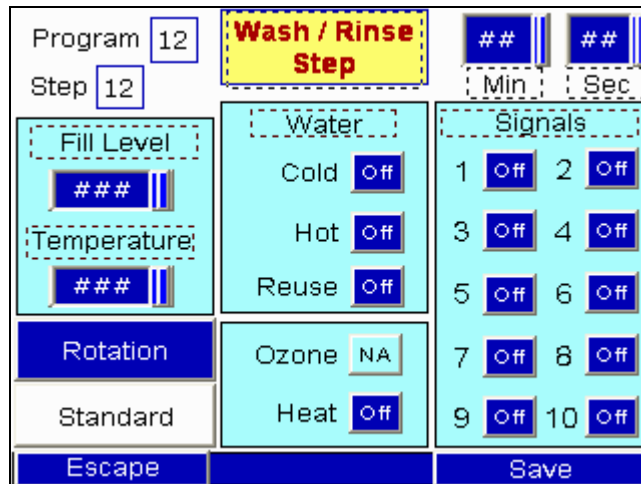
- Wash / Rinse
- Extract
- Drain
- Pause
- Link Program
- End Program



Press the blue box button next to the operation you wish to perform. A blue operation box indicates the current step function. From this screen you can press the return button which will load a program summary screen, delete button which will delete a step, insert button which will insert a step, or edit button to edit the step.

WASH / RINSE Step

A Wash / Rinse step may contain the following operations: Water fill, temperature control; rotation control; DynOzone control; and signal control. A time must be entered for any wash / rinse step.



WATER FILL

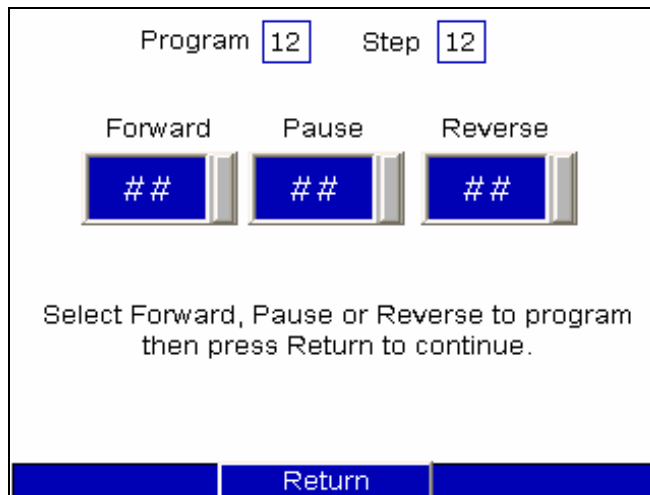
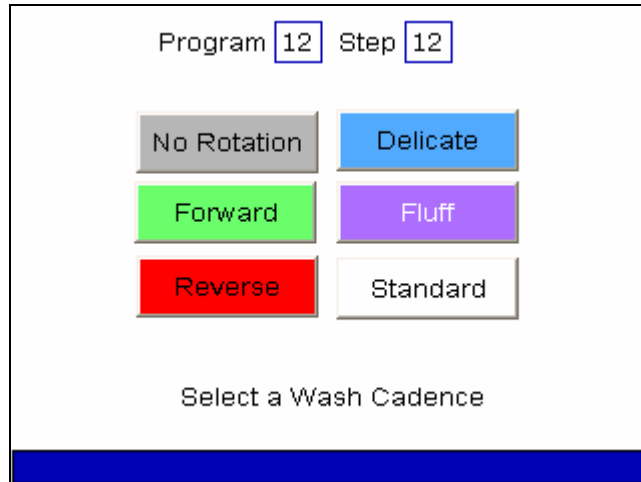
Press Cold to activate cold valve; Hot for hot valve, and Reuse for optional reuse valve. Water fills can be programmed to level and temperature with level being the determining completion factor.

TEMPERATURE CONTROL

Programming a temperature and the Heat button will activate the heating device. This setting will be maintained for the duration of the step.

ROTATION CONTROL

The step programmable wash cadence is set to a default standard wash rotation. By pressing the Rotation button a screen with six options will appear. The setting is step local. Available selections include: Standard Wash; Delicate Wash; Fluff; Forward Only; Reverse Only; No Rotation. When selecting Standard Wash, Delicate Wash, or Fluff a new screen will popup with default settings which can then be accepted or modified.



DYNOZONE CONTROL

Selecting the Ozone button will activate the DynOzone system during the wash step. System will start based on the configured step start parameters and continue for the duration of step.

SIGNAL CONTROL

Up to 10 signal outputs (depending on model) may be programmed per step. A popup screen allows for global naming of the signal as well as time entry. A signal time cannot exceed step time.

DRAIN Step

A Drain step may contain the following operations: Sewer Drain; Reuse Drain (option); Rotation control. A time may be entered for a drain step.

DRAIN CONTROL

Select either sewer drain or reuse Drain (option).

LEVEL CONTROL

Program a time and select level 0% or select a water level without time to drain to a set point.

EXTRACT Step

An Extract step may contain the following operations: Speed selection; Sewer Drain; Reuse Drain (option). A time must be entered for an extract step.

SPEED SELECTION

Depending on motor configuration, select a speed for extraction.

DRAIN CONTROL

Select either sewer drain or reuse Drain (option).

PAUSE Step

A Pause step may contain the following operations: Pause; Door Open; Sewer Drain; Reuse Drain (option).

Program 12

Step 12

Programmed Pause Step

Will the door need to be opened during this step?

Yes No

Select Yes or No then press Save to continue or Escape to return to previous menu.

Escape Save

If door open is selected, a drain must be selected;

Which Drain Type should be used if the water level is too high?

Waste Reuse

LINK PROGRAM

Pressing the Link Program button create a program link to any program in memory.

12 ABCDEFGHIJKLMNQRST

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

Select a Program Number to link then press Save or Remove Link to return to previous menu.

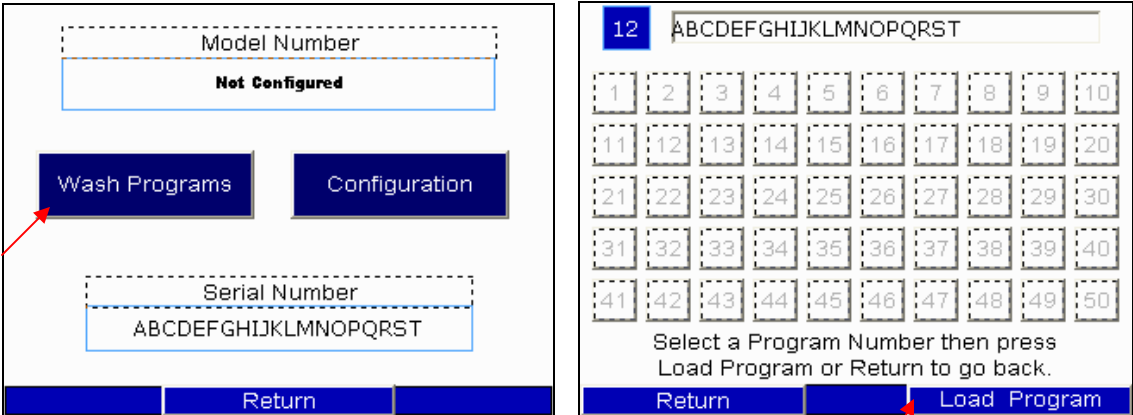
Remove Link Save

END PROGRAM

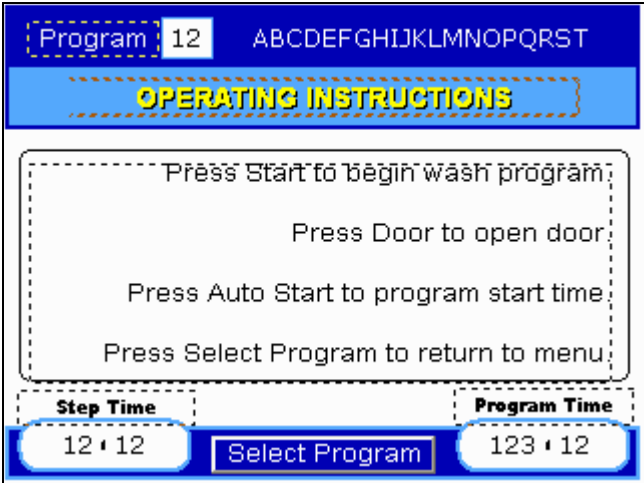
Pressing the End Program button will delete all latter steps of the program. When the Return button is pressed from the main wash programming screen, a program summary will appear detailing all programmed steps. Press Next to scroll through all 25 steps or Program Select to return to Configuration menu.

OPERATION

To begin wash operation, select the Wash Programs button from the home screen. This will load the available wash program screen. An available wash program is one that has already been programmed. Corresponding numbers and program names will appear in the text box when selected. On this screen, the function key Door is active to allow opening of the door for loading machine.



Press the Load Program button to go to Start screen. On Start screen, all function keys are active. Select the appropriate operation.

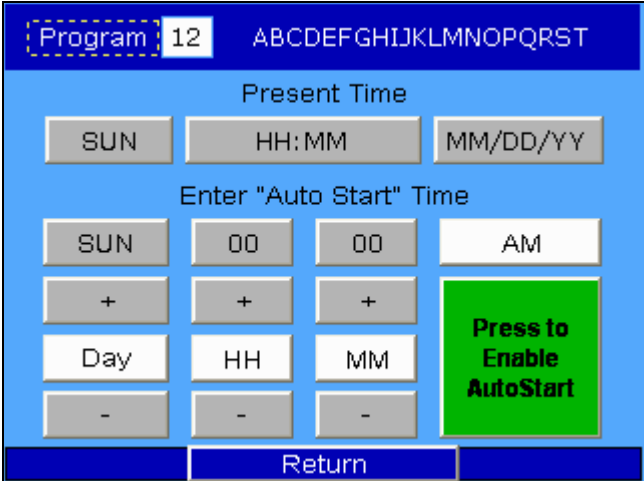


- START begins program operation.
- STOP pauses machine operation.
- AUTOSTART allows for starting the machine at a time in the future. A popup screen contains date and time and activation key.
- DOOR activates door lock.

Three pocket, PassThru and tilting models have additional control screens for the jog, Clean / Soil side controls, AutoSwing Door and tilting features.

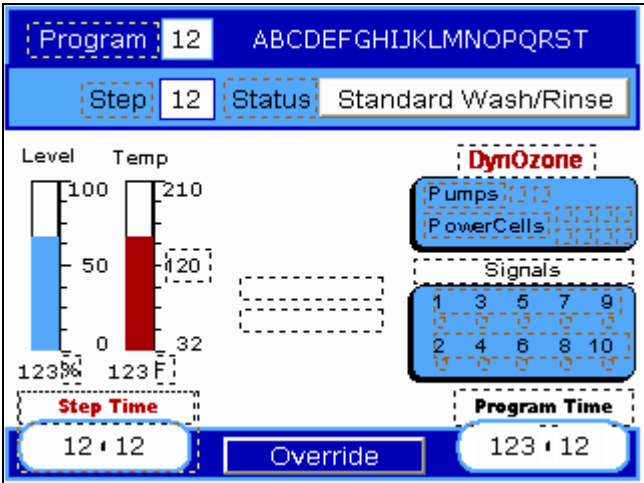
AUTOSTART

The header includes current loaded program and program name. The body contains present system time and settings for AutoStart time. Select a day, hour and minute (AM/PM) and press ENABLE to activate. Press Return to go back to Start screen.



WASH SCREEN

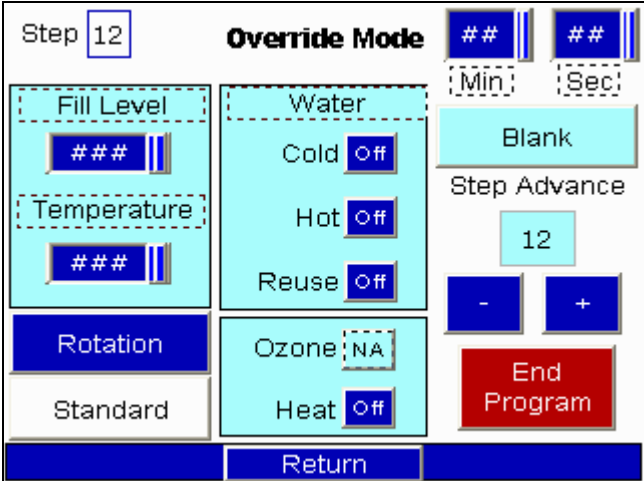
The header indicates the program number, program name, step number and step status. The body contains bar graphs indicating current water level and current temperature with a grey bar for programmed set points. Flashing indicators illuminate for water fill valves, heating, DynOzone operation, and signal outputs. The footer indicates step time and program time. Pressing step time pops out a step view window. Times indicate remaining time.



The Override button allows changes to the following functions:

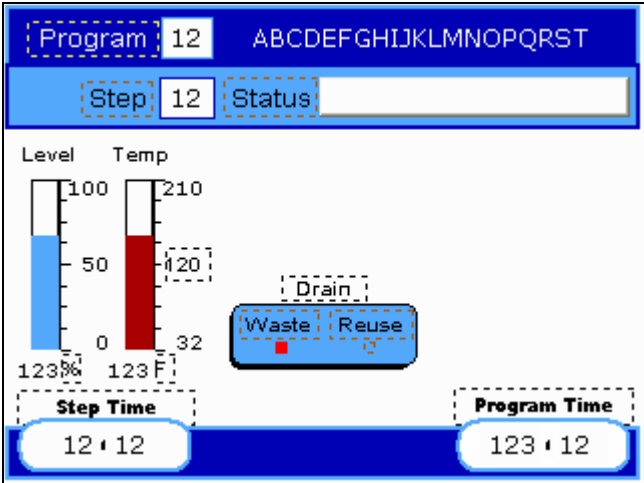
- water level
- temperature
- DynOzone
- heating
- rotation
- step time
- step up or down
- end program

Access to these functions requires a Level 1 password. The machine is in a pause mode during override function and requires the return button and start key to continue or end program or stop button to abort.



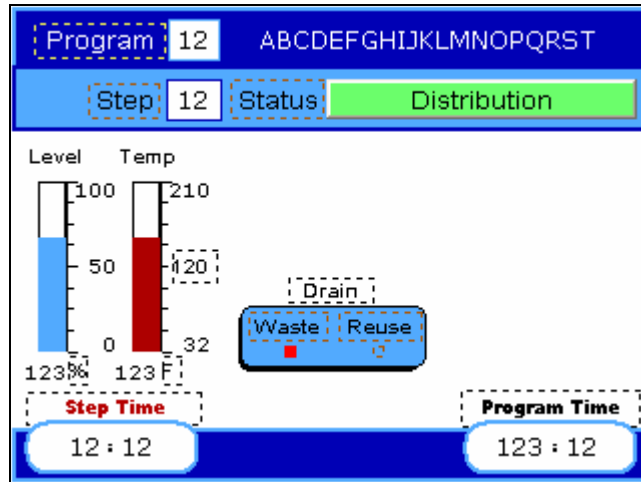
DRAIN SCREEN

The header indicates the program number, program name, step number and step status. The body contains bar graphs indicating current water level and current temperature with a grey bar for programmed set points. The footer indicates step time and program time. Times indicate remaining time. The override function is not available in a drain step.



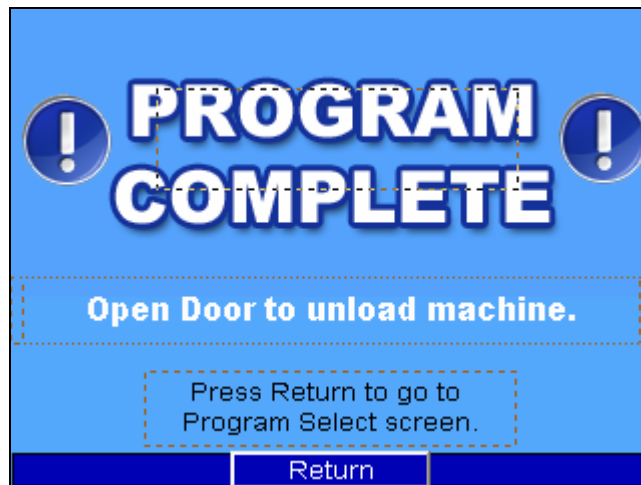
EXTRACT SCREEN

The header indicates the program number, program name, step number and step status. The body contains bar graphs indicating current water level and current temperature, and indicator for drain type. A display indicates basket speed. The footer indicates step time and program time. Times indicate remaining time. The override function is not available in an extract step.



PROGRAM COMPLETE

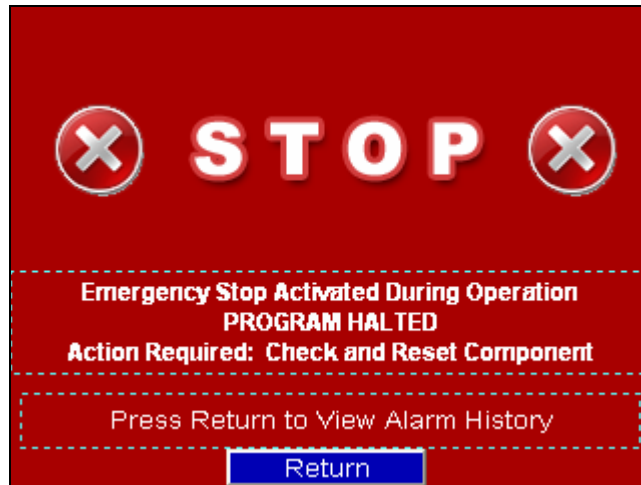
At end of program, a Program Complete screen will appear and buzzer will sound. After safety brake time and safe mode conditions are met the door can be opened and goods removed. Return button on Program Complete screen goes to Load Program screen with most recent run program pre-loaded. Door function key is active on Program Complete screen.



ALARMS AND WARNINGS

During operation safety alarms will appear if a malfunction occurs. Alarms are fatal and will abort program. Warnings can be reset, by-passed or aborted. Follow screen instructions for appropriate action required.

Sample Alarm: E-Stop engaged. Machine sent to safe mode. Reset component. Alarm History screen appears with list of last 100 alarms.



List of Alarms:

- Emergency Stop
- Wash Motor Overload
- Extract Motor Overload
- VFD Overload
- Door Open During Operation
- Low Air Supply
- Ozone Pump #1 Failure
- Ozone Pump #2 Failure
- PowerCell bank less than 50%
- Out of Balance Failure

Sample Warning: Water Level Timeout. Machine sent to pause mode. Reset timer, or override warning.



List of Warnings:

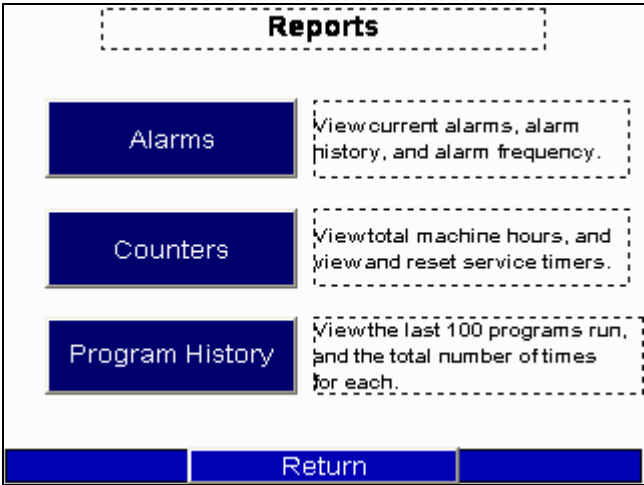
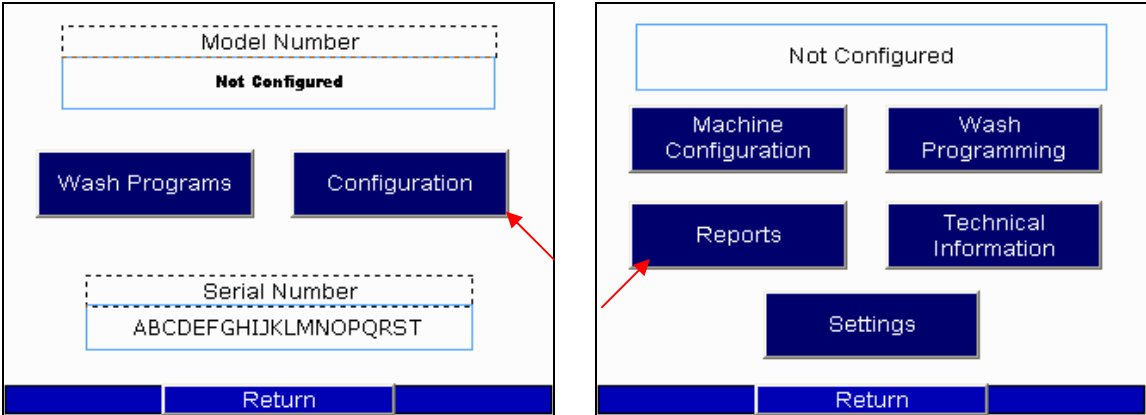
- Temperature Timeout
- Water Level Timeout
- High Temperature in Wash Tub
- High Water Level in Wash Tub

REPORTS

The following reports categories are available for viewing the machine's history of operation:

- Alarms
- Counters
- Program History

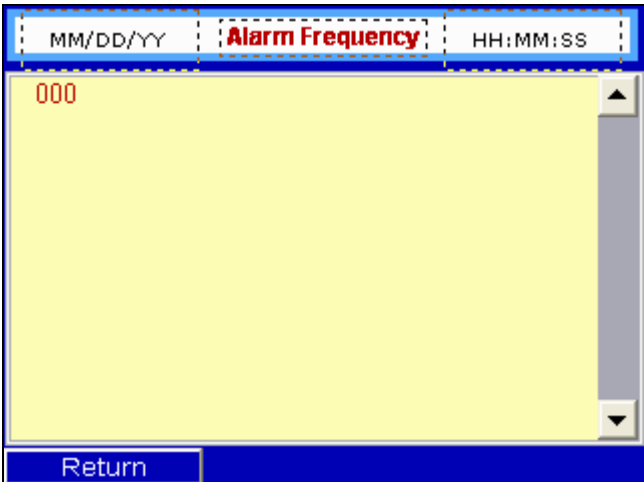
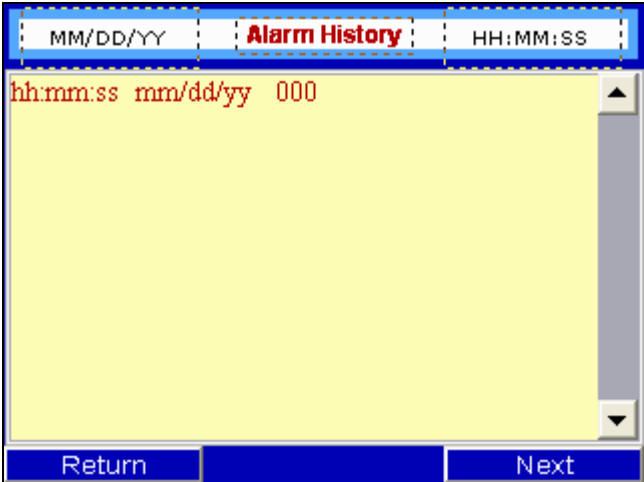
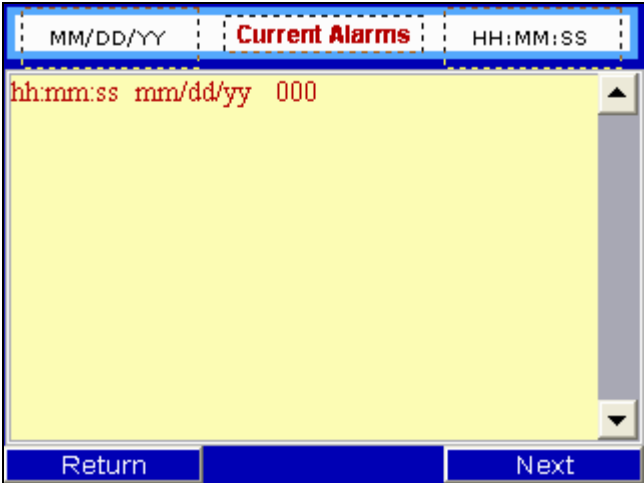
To view Reports, press the Configuration button from the Home screen, then select the Reports.



ALARMS

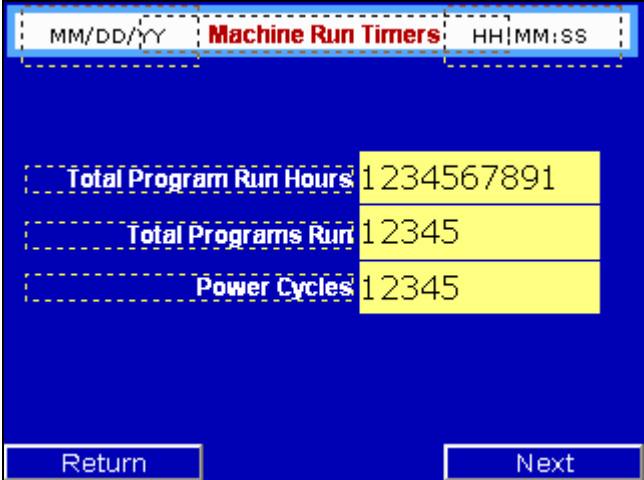
There are three alarm reports:

- Current Alarms are active machine alarms.
- Alarm History contains the last 100 alarms.
- Alarm Frequency details the number of times a particular alarm occurred.

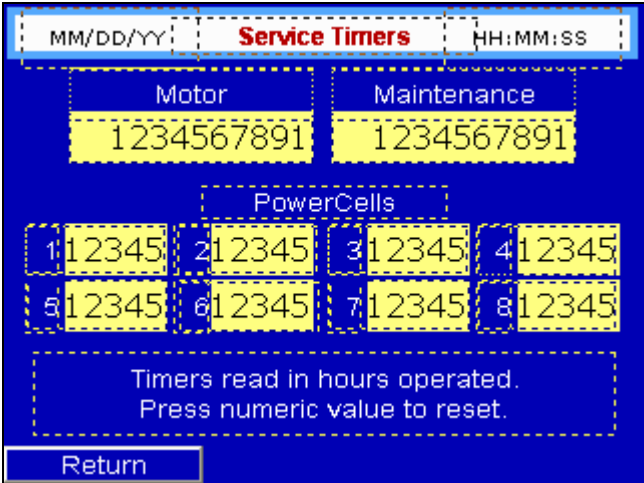


COUNTERS

There are three counters. These cannot be reset.
Total Machine Run Time counts hours of machine operation
Total Programs Run counts total programs
Power Cycles count On/Off.

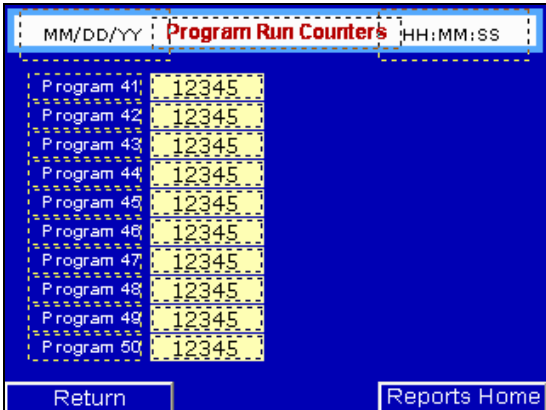
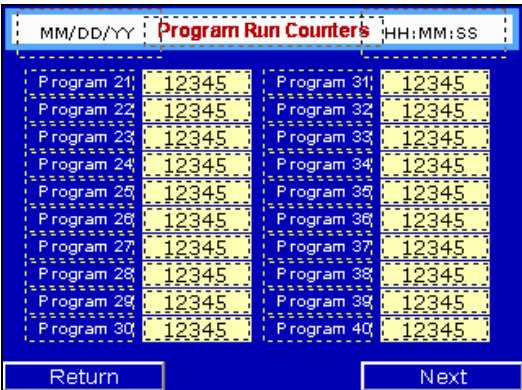
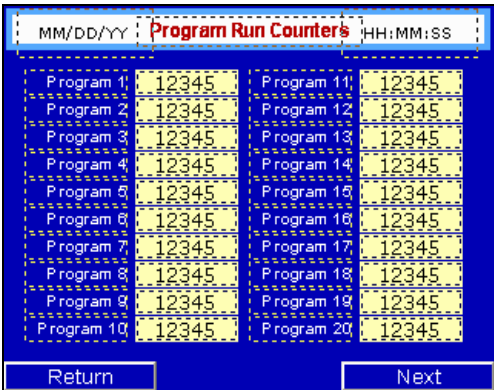
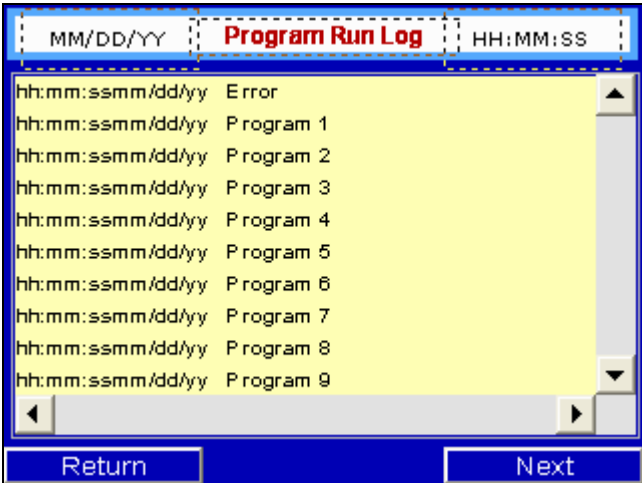


Service Timers count the hours of operation from the last reset. These timers are tied into the service maintenance pop up screens and are re-settable with password security.



PROGRAM HISTORY

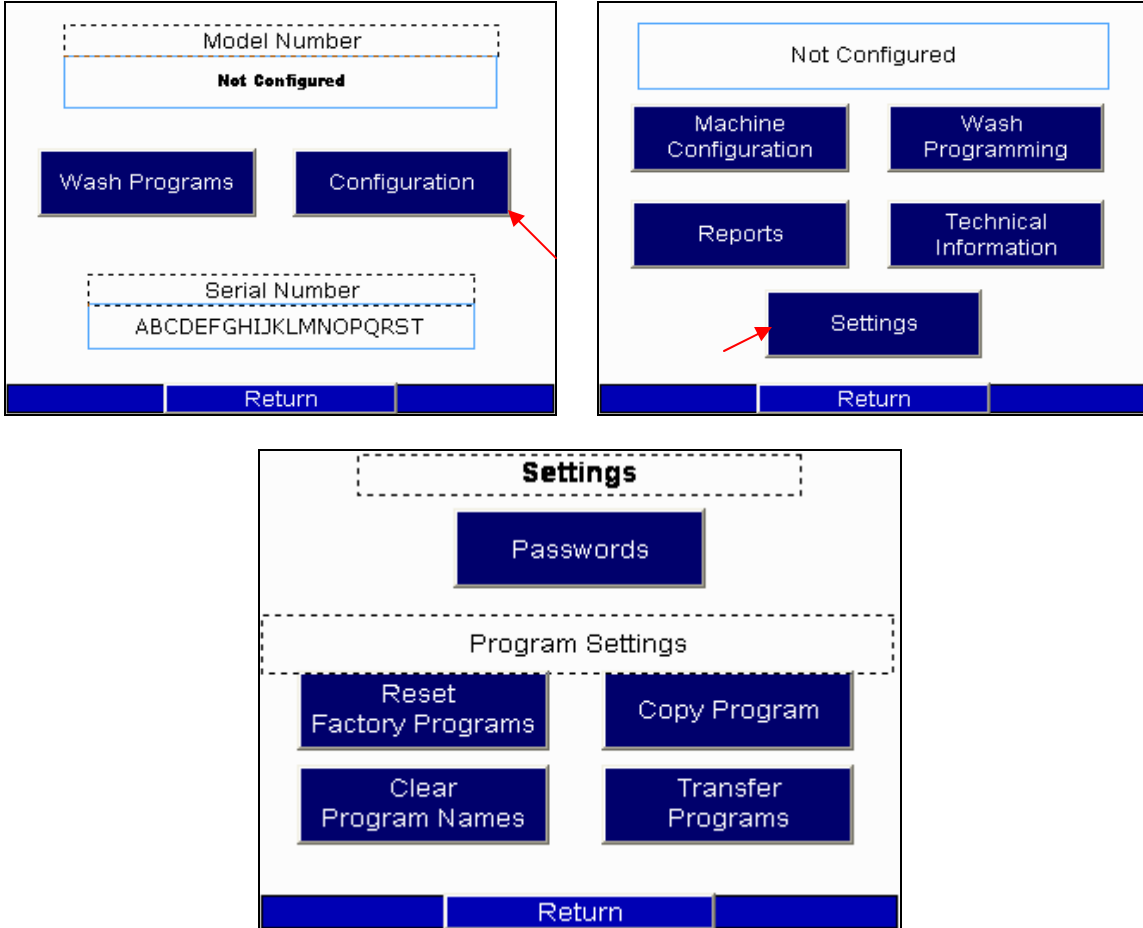
View the last 100 programs run with a time stamp, and the total number of times for each.



Program Run Counters may be reset to zero by pressing the program count number and entering a Level 2 password.

SETTINGS

There are two setup features for DynaTrol: DynaTrol code and HMI code. To enter DynaTrol code settings, press the Configuration button from the Home screen. Then select the Settings button. A password is not required to continue.



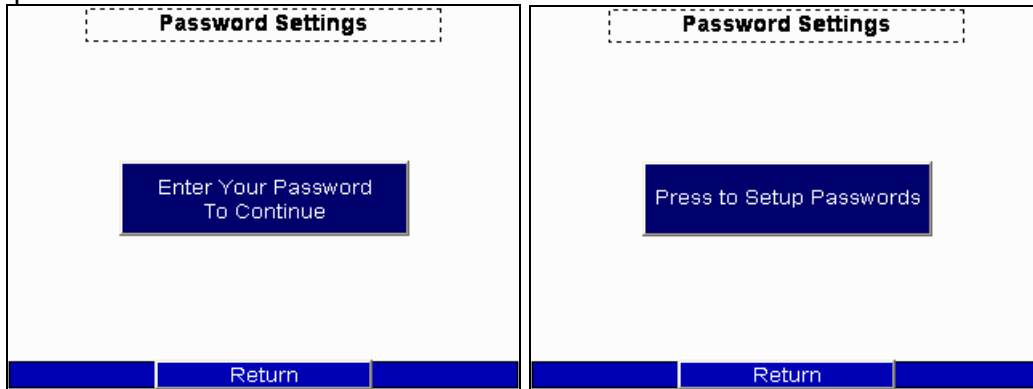
DynaTrol code settings allow for Password settings, Copy Program, Resetting Factory Programs and Clearing Program Names.

PASSWORDS

DynaTrol is equipped with 4 levels of security. A user can only operate screens granted by their security level. Higher level passwords control all functions and settings of lower level passwords. For example, a level 2 user has all the authority of level 2 and level 1 users, and ability to change both level 2 and level 1 passwords. Machines are shipped from the factory with the following passwords settings:

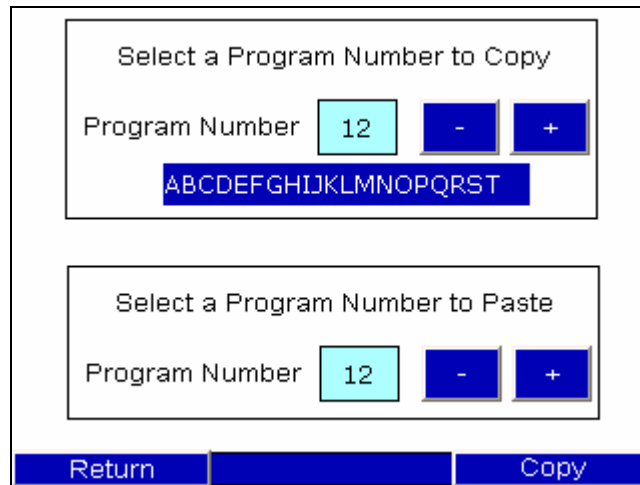
<u>Level</u>	<u>Description</u>	<u>Default Password</u>	
0	User	00000000	
1	Supervisor*	11111111	*Override Mode
2	Programmer	22222222	
3	Maintenance	33333333	
4	Owner	44444444	

To change your password, select Passwords from the Settings Home page and enter your password to continue. Follow screen instructions.



COPY PROGRAM

To speed programming of similar wash programs, select the copy program function. A level 2 password is required.



RESET FACTORY PROGRAMS

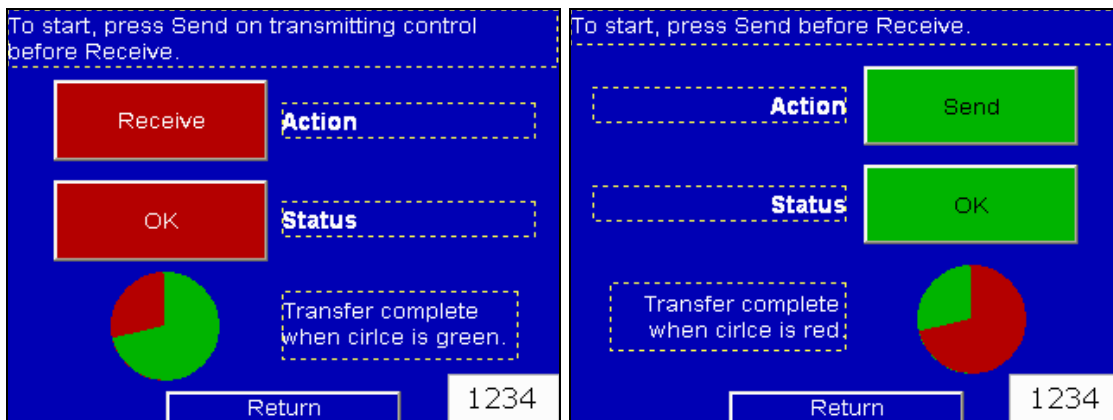
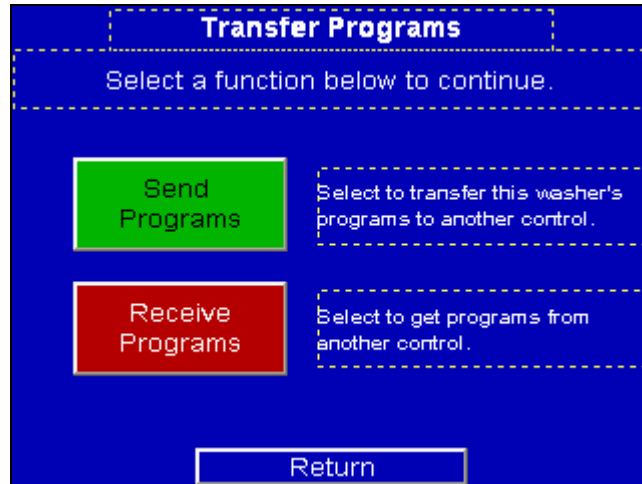
Resets wash programs to factory defaults. A level 2 password is required. This action cannot be undone.

CLEAR PROGRAM NAMES

Clears all wash program names and reverts to "Program 1", "Program 2", "Program 3", etc. A level 2 password is required. This action cannot be undone.

TRANSFER PROGRAMS

Transfers wash programs from one HMI control to another. Connect controls with cable prior to selecting Transfer Programs from Settings home screen. Requires separate cable hardware (p/n 6537-16). One control must be set to send and one control must be set to receive. Follow screen instructions.



DEFAULT FACTORY PROGRAMS

- | | |
|---------------------------|--------------------|
| 1. Light Soil – Ozone | 11. Light Soil |
| 2. Light Soil 2 – Ozone | 12. Light Soil 2 |
| 3. Medium Soil – Ozone | 13. Medium Soil |
| 4. Medium Soil 2 – Ozone | 14. Medium Soil 2 |
| 5. Heavy Soil – Ozone | 15. Heavy Soil |
| 6. Delicates – Ozone | 16. Delicates |
| 7. Delicates 2 – Ozone | 17. Delicates 2 |
| 8. 3 Hour Soak – Ozone | 18. 3 Hour Soak |
| 9. Rinse and Spin – Ozone | 19. Rinse and Spin |
| 10. Stain Buster – Ozone | 20. Stain Buster |

If the machine is not equipped with DynOzone or the ozone system is not functioning, run only programs 11 through 20.

HMI SYSTEM

Press and hold the SYSTEM function key for five seconds to enter HMI setup settings.

SET SYSTEM TIME

Sets the current system time for HMI and PLC.

CALIBRATE SCREEN

Performs a test which aligns the touch screen.

DOWNLOAD PORT

(not used)

BACKLIGHT

Sets the brightness and contrast of the display.

HMI CONFIGURATION SETTINGS

- Buzzer
 - Turns ON or OFF the beeping sound activated by touching the display.
- Screen Saver
 - Powers off the display after set amount of time
 - Feature does not turn off machine. Power light on display still active.
- Boot Delay
 - Set from factory do not adjust
- Language
 - 1 = English
- Print
 - Not used
- COM1
 - RS232 / 9600
- COM2
 - RS485 / 115200
- COM3
 - RS232 / 9600

To return to DynaTrol operation, press Run button.

PARTS REFERENCE

DynaTrol HMI touch screen is available in a 6 inch version and a 10 inch version.

6537-TS6 DISPLAY, DYNATROL (6")
6537-TS10 DISPLAY, DYNATROL (10")



6537-1 POWER SUPPLY, DYNATROL
6537-2 PLC, DYNATROL
6537-3 DIGITAL I/O MODULE, ELC, DYNATROL
6537-8 PRESSURE SENSOR, WATER LEVEL
6537-9 CABLE, HMI MALE/MALE RS232 DB9
6537-16 CABLE, CABLE, INTERCONNECT (TS)
 DYNATROL COMMUNICATIONS/PROGRAM TRANSFER