EDRO DYNAWASH®

PROGRAMMING – OPERATION PARTS REFERENCE MANUAL

DYNATROL HMI TOUCH SCREEN CONTROL

For DynaWash Washer-Extractors
Includes DynOzone Programming and Operation

HMI Code 1.00

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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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
- Technical Information and Troubleshooting
- 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.
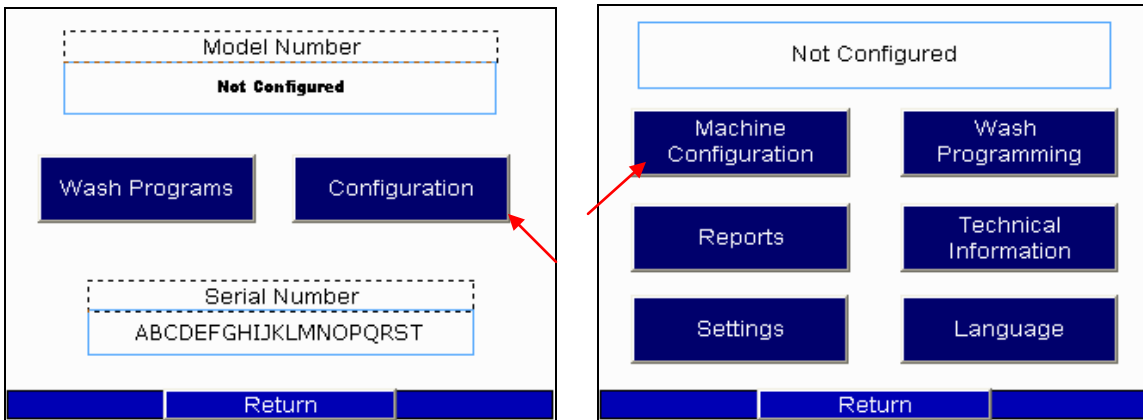
Once you have entered Machine Configuration, you will need to assign a machine series type:
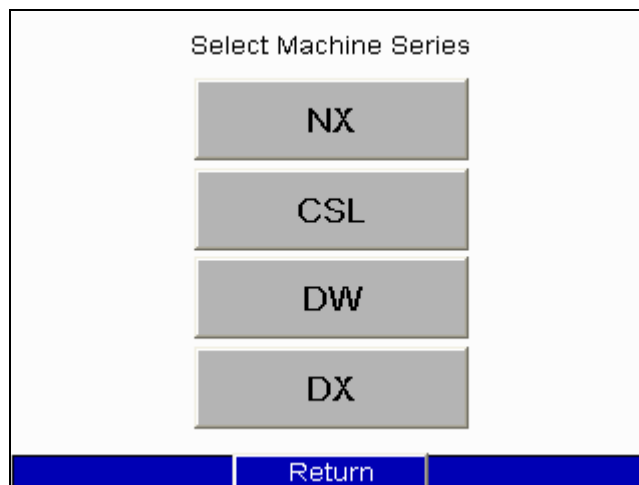
Select a model:

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.

    DX85

    DX125

    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:
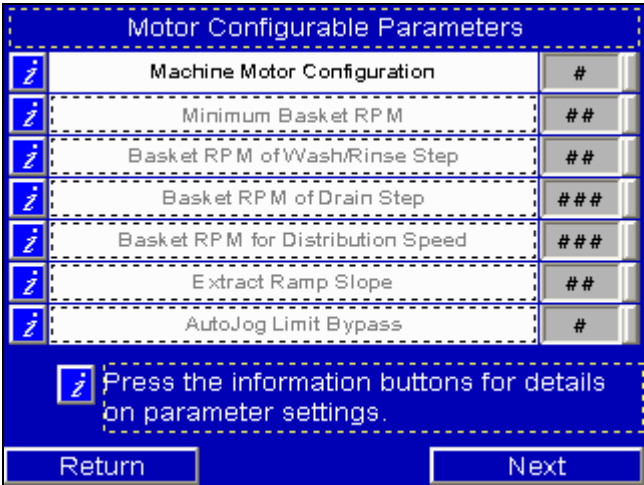
- Motor Setup
- Water Level Setup
- Ozone / Signal Setup
- Timers Setup
- Miscellaneous Configurable Parameters

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.
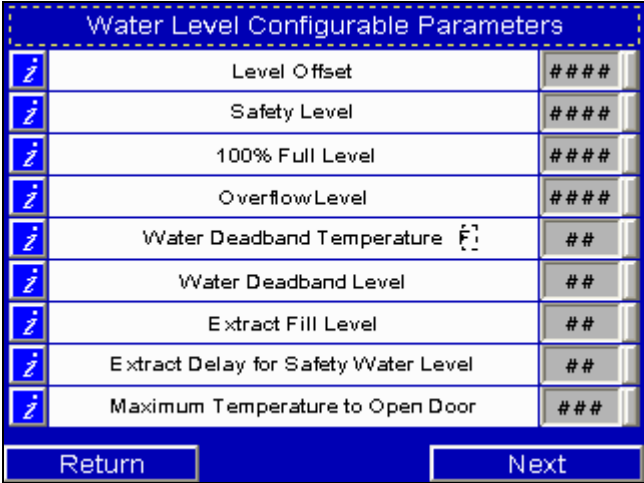
MOTOR SETUP
Configures motor design and speed settings for the machine.

Motor Configurable Parameters	
Machine Motor Configuration	#
Minimum Basket RPM	##
Basket RPM of Wash/Rinse Step	##
Basket RPM of Drain Step	###
Basket RPM for Distribution Speed	###
Extract Ramp Slope	##
AutoJog Limit Bypass	#

i Press the information buttons for details on parameter settings.

Return   Next

WATER LEVEL SETUP
Configures values which are affected by level sensing.

Water Level Configurable Parameters	
Level Offset	####
Safety Level	####
100% Full Level	####
Overflow Level	####
Water Deadband Temperature F	##
Water Deadband Level	##
Extract Fill Level	##
Extract Delay for Safety Water Level	##
Maximum Temperature to Open Door	###

Return   Next

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 F	###
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			Timer Configurable Parameters	
i	Signal Buzzer ON Time at End of Program	##	*i*	PowerCell Alarm Timer	##
i	Signal Buzzer OFF Time at End of Program	###	*i*	Ozone Pump Alarm Timer	##
i	Door Lock Pin Time	##	*i*	Low Air Alarm Timer	##
i	Brake Time from Extract Speed	###	*i*	Safety Timeout Timer	##
i	Extract Agitate Time	##	*i*	Maximum Fill/Drain Timer	##
i	Extract Distribution Time	###	*i*	Maximum Heating Timer	##
i	Extract Time to Open Drain	##	*i*	Water Level Adjust Timer	##
i	Extract Delay for Speed Ramp	##	*i*	Maximum Water Reuse Fill Timer	##
i	Service Maintenance Timer	####	*i*	Default Drain Time	##

Return   Next   Return   Next

MISCELLANEOUS CONFIGURABLE PARAMETERS

Configures miscellaneous parameters.
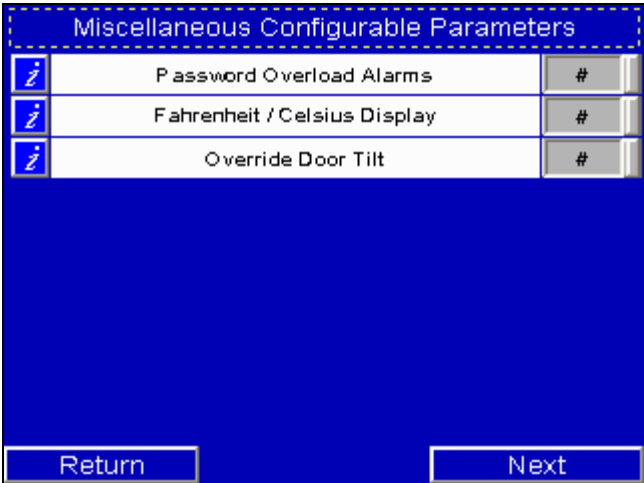
LANGUAGE SETUP

To choose Language, press the Configuration button from the Home screen. Then select the Language button. A level 4 password is required to enter.
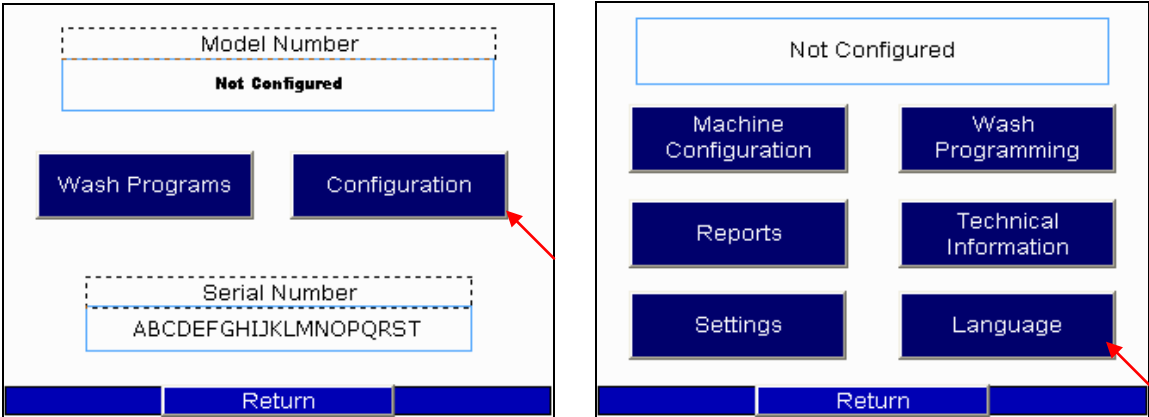

Select an available language. This will change all screens except technical information screens to the selected language. Technical information screens are by default English.
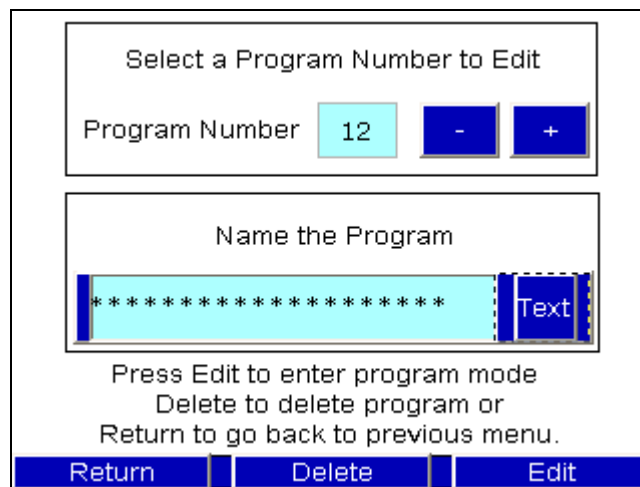
PROGRAMMING

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.
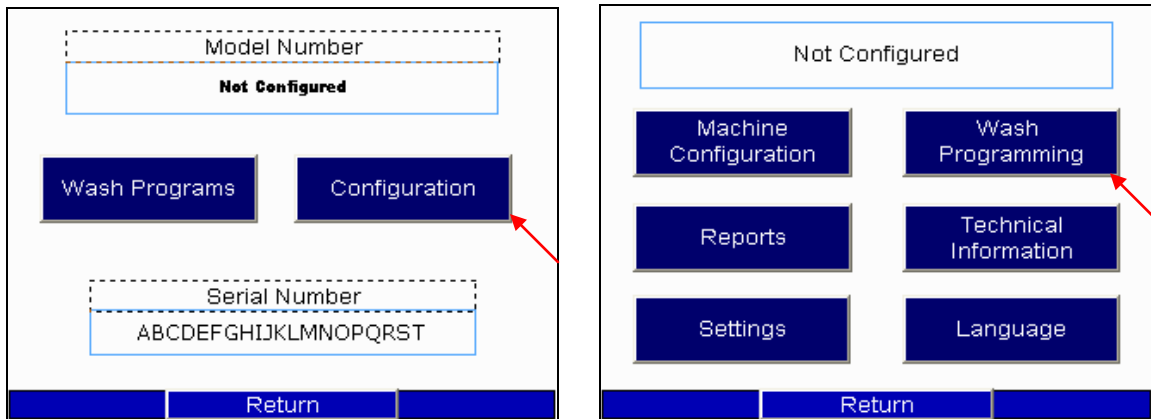
Begin by selecting a wash program number. Use the + / - buttons to scroll. Program names appear in the text box. Twenty factory programs are preloaded. These may be edited, deleted or re-loaded. To edit name, press the text box.
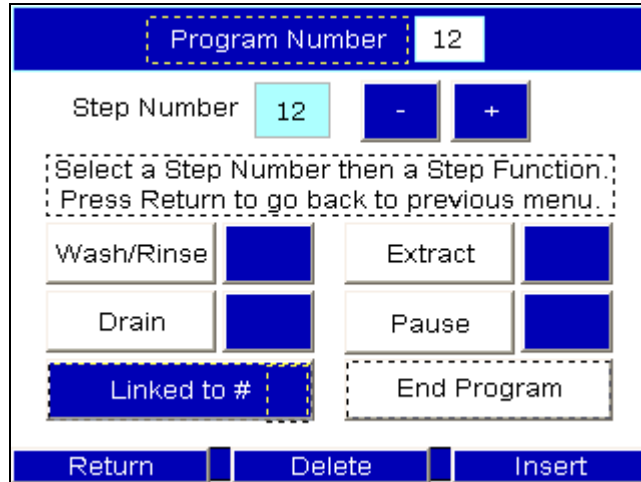
From this screen you can select a program, change program name, return to previous menu, delete program, or edit program. To delete, press delete button. This action cannot be undone. To begin or edit program, press edit for programming options.

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.
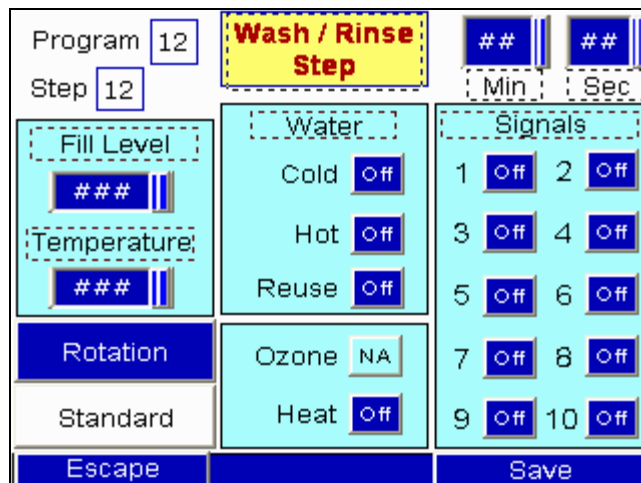

WATER FILL

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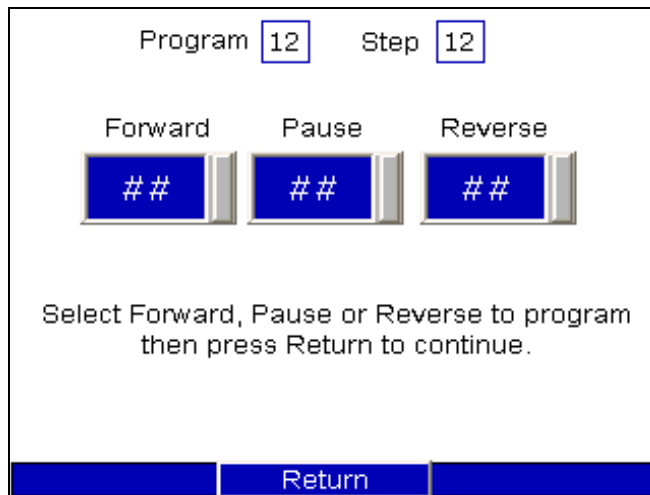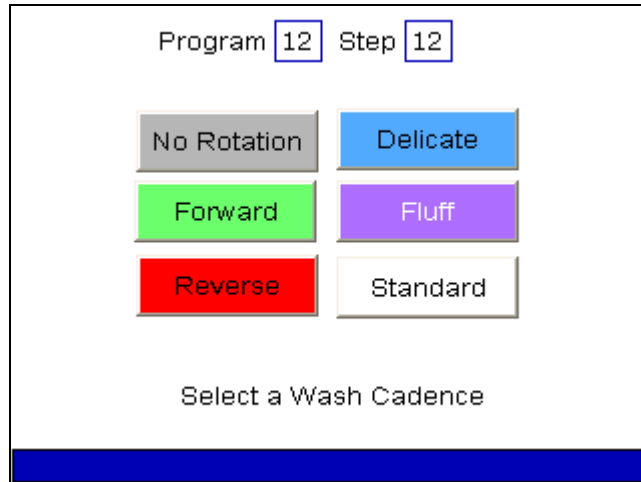
DYNOZONE CONTROL
Selecting the Ozone button will activate the DynOzone system during the wash step. System will start based on the configured step start parameters and continue for the duration of step.

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.
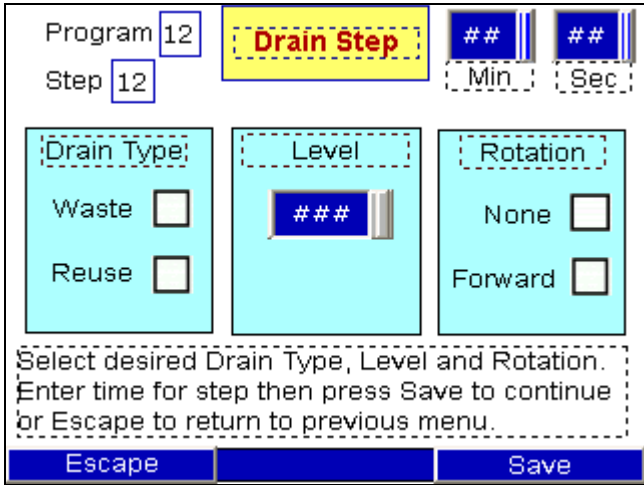
DRAIN CONTROL
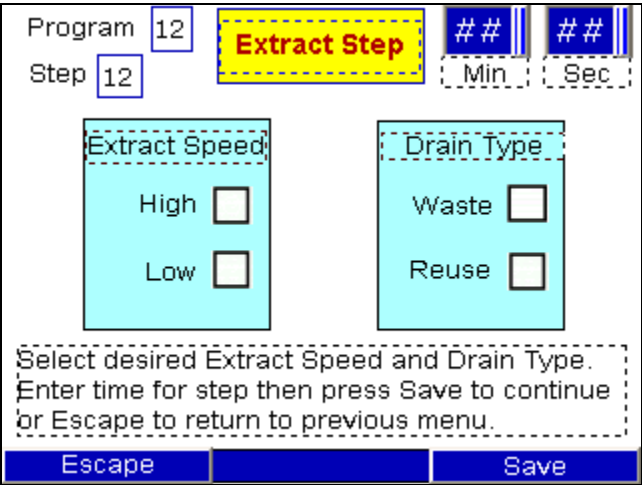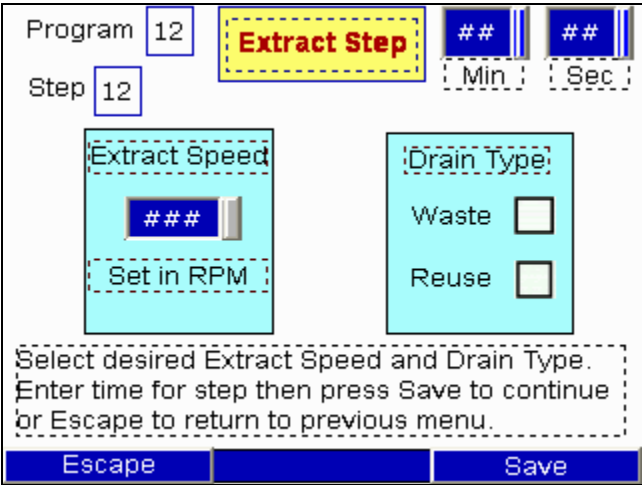Select either sewer drain or reuse Drain (option).

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).

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

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

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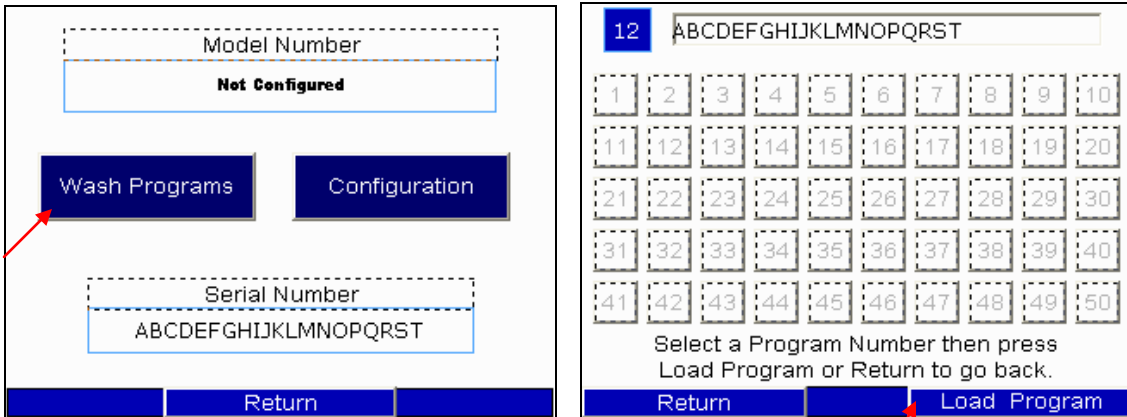
Press the Load Program button to go to Start screen. On Start screen, all function keys
are active. Select the appropriate operation.

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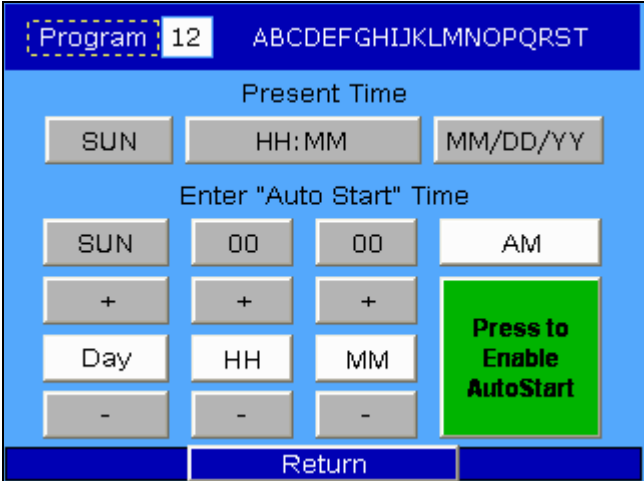
WASH SCREEN
The header indicates the program number, program name, step number and step status. The body contains bar graphs indicating current water level and current temperature with a grey bar for programmed set points. Flashing indicators illuminate for water fill valves, heating, DynOzone operation,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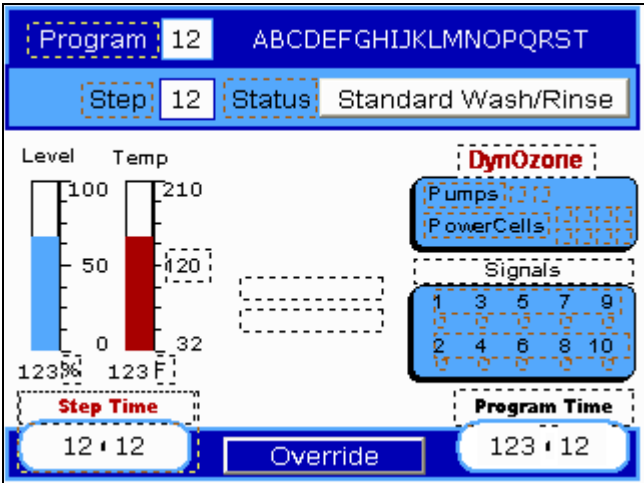
The Override button allows changes to the following functions:

- 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.
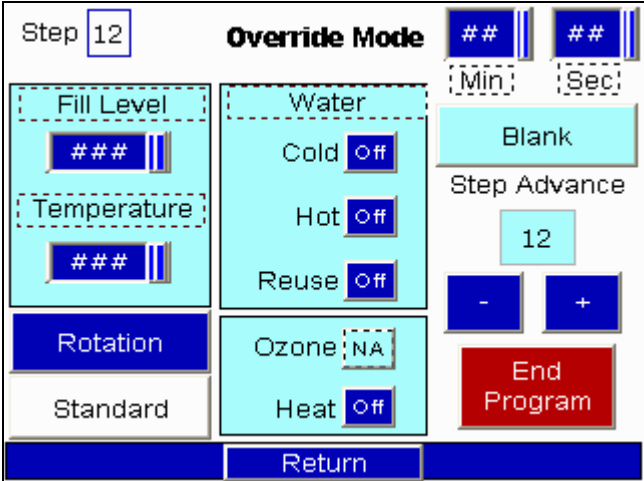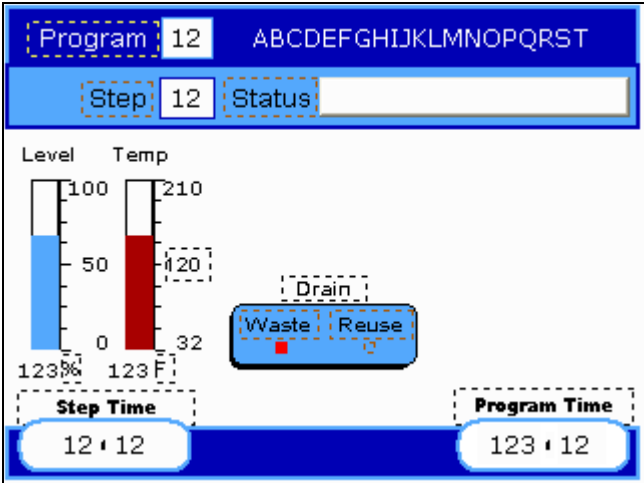

DRAIN SCREEN
The header indicates the program number, program name, step number and step status. The body contains bar graphs indicating current water level and current temperature with a grey bar for programmed set points. The footer indicates step time and program time. Times indicate remaining time. 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.
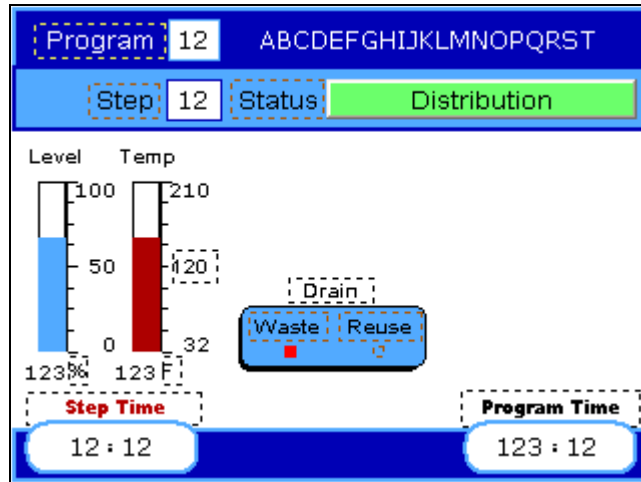
PROGRAM COMPLETE
At end of program, a Program Complete screen will appear and buzzer will sound. After safety brake time and safe mode conditions are meet the door can be opened and goods removed. Return button on Program Complete screen goes to Load Program screen with most recent run program pre-loaded. Door function key is active on Program Complete screen.
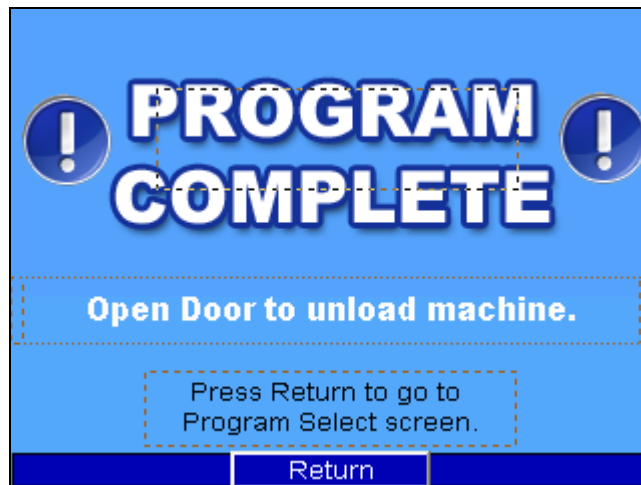
ALARMS AND WARNINGS
During operation safety alarms will appear if a malfunction occurs. Alarms are fatal and will abort program. Warnings can be reset, by-passed or aborted. Follow screen instructions for appropriate action required.

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.
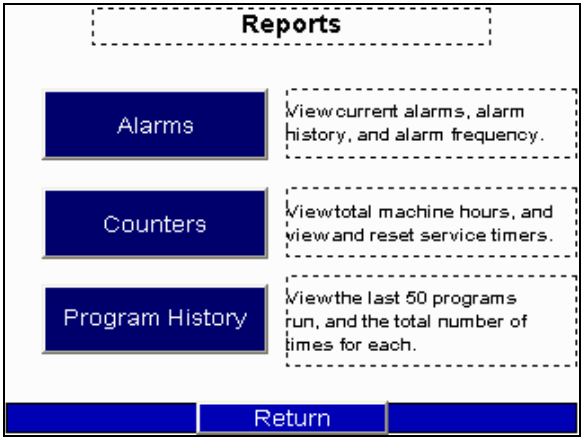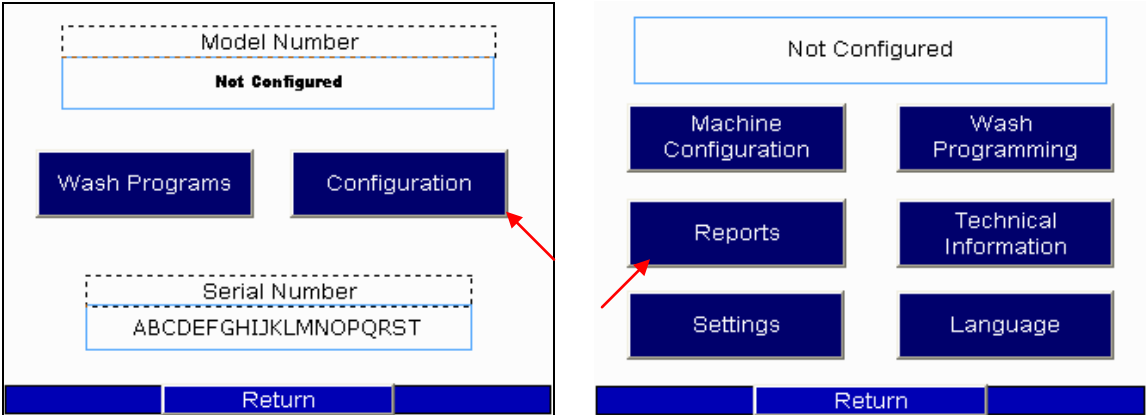

List of Warnings:
- Temperature Timeout
- Water Level Timeout

- 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.

MM/DD/YY	Current Alarms	HH:MM:SS

hh:mm:ss mm/dd/yy   000

Return		Next

MM/DD/YY	Alarm History	HH:MM:SS

hh:mm:ss mm/dd/yy   000

Return		Next

MM/DD/YY	Alarm Frequency	HH:MM:SS

000

Return	
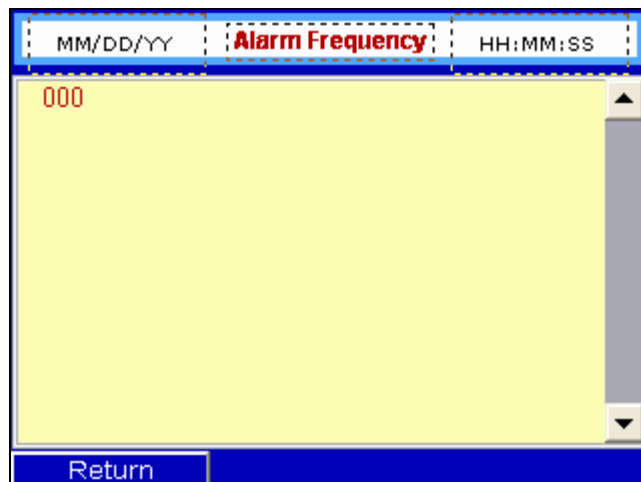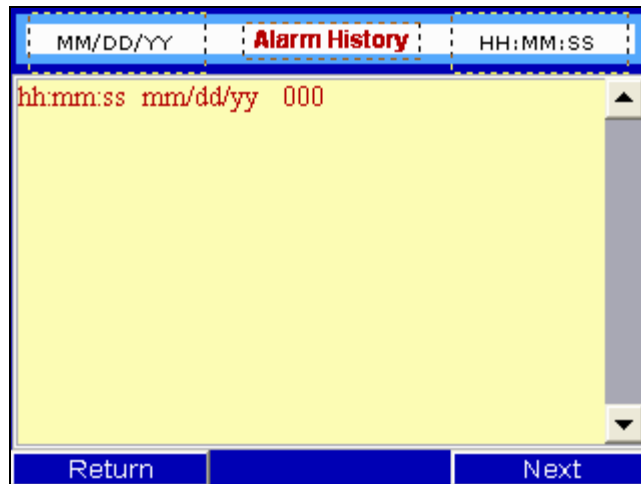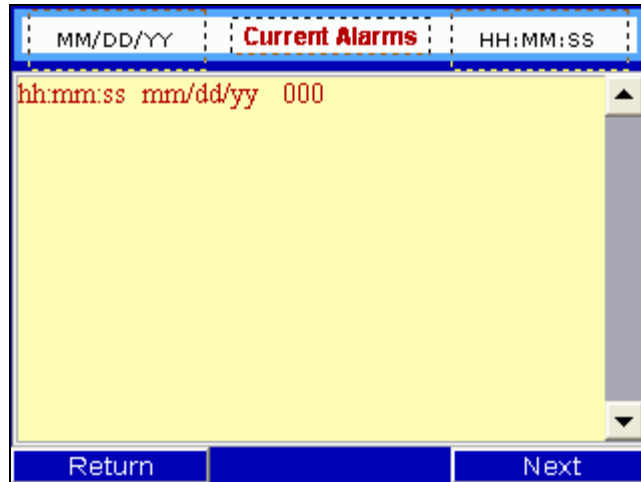
COUNTERS
There are three counters. These cannot be reset.
Total Machine Run Time counts hours of machine operation
Total Programs Run counts total programs
Power Cycles count On/Off.
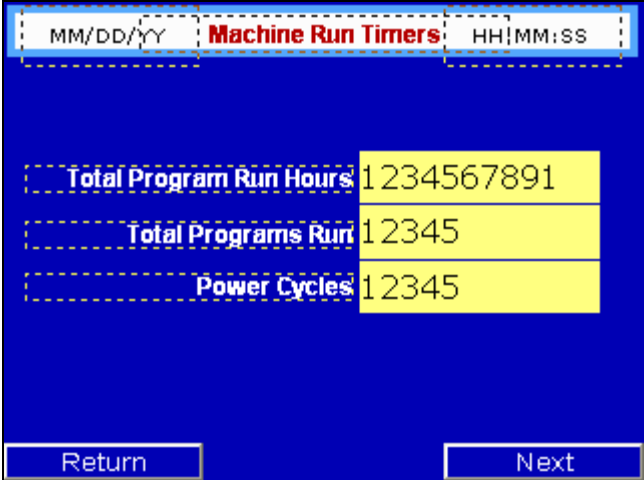
Service Timers count the hours of operation from the last reset. These timers are tied
into the service maintenance pop up screens and are re-settable with password security.

PROGRAM HISTORY
View the last 50 programs run with a time stamp, and the total number of times for each.

MM/DD/YY	**Program Run Log**	HH:MM:SS

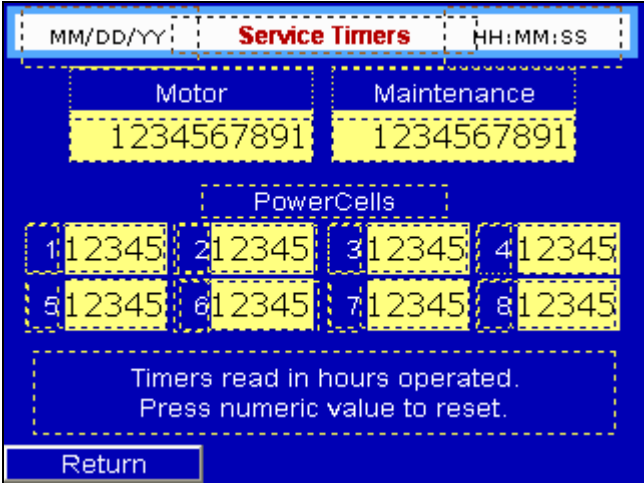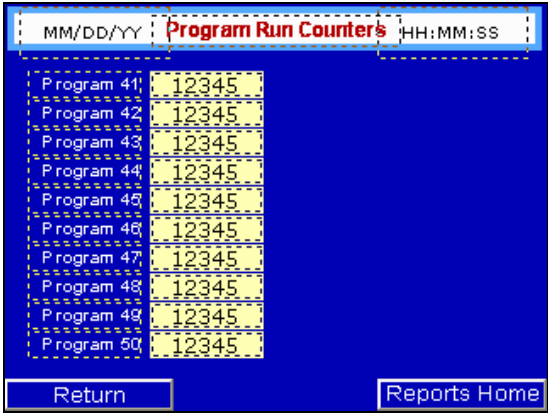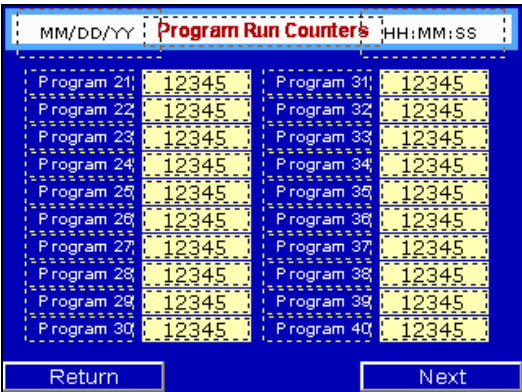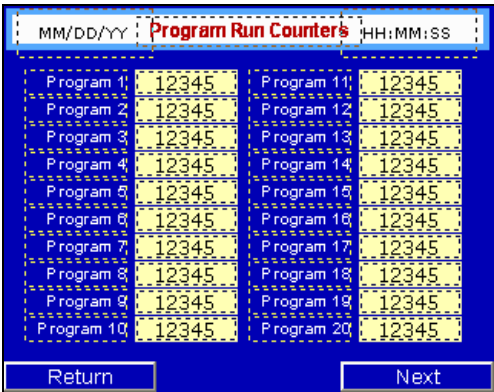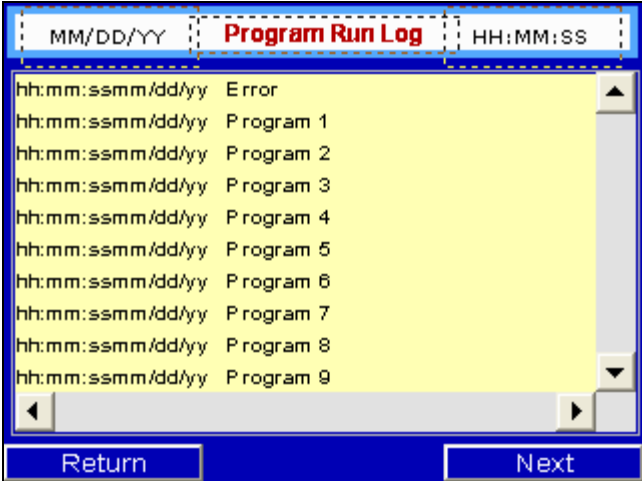|	
hh:mm:ssmm/dd/yy	Error
hh:mm:ssmm/dd/yy	Program 1
hh:mm:ssmm/dd/yy	Program 2
hh:mm:ssmm/dd/yy	Program 3
hh:mm:ssmm/dd/yy	Program 4
hh:mm:ssmm/dd/yy	Program 5
hh:mm:ssmm/dd/yy	Program 6
hh:mm:ssmm/dd/yy	Program 7
hh:mm:ssmm/dd/yy	Program 8
hh:mm:ssmm/dd/yy	Program 9

Return	Next

MM/DD/YY	**Program Run Counters**	HH:MM:SS

Program 1	12345	Program 11	12345
Program 2	12345	Program 12	12345
Program 3	12345	Program 13	12345
Program 4	12345	Program 14	12345
Program 5	12345	Program 15	12345
Program 6	12345	Program 16	12345
Program 7	12345	Program 17	12345
Program 8	12345	Program 18	12345
Program 9	12345	Program 19	12345
Program 10	12345	Program 20	12345

Return	Next

MM/DD/YY	**Program Run Counters**	HH:MM:SS

Program 21	12345	Program 31	12345
Program 22	12345	Program 32	12345
Program 23	12345	Program 33	12345
Program 24	12345	Program 34	12345
Program 25	12345	Program 35	12345
Program 26	12345	Program 36	12345
Program 27	12345	Program 37	12345
Program 28	12345	Program 38	12345
Program 29	12345	Program 39	12345
Program 30	12345	Program 40	12345

Return	Next

MM/DD/YY	**Program Run Counters**	HH:MM:SS

| Program 41	12345
Program 42	12345
Program 43	12345
Program 44	12345
Program 45	12345
Program 46	12345
Program 47	12345
Program 48	12345
Program 49	12345
Program 50	12345

Return	Reports Home

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

TECHNICAL INFORMATION

DynaTrol provides several means for technical assistance and troubleshooting. First, each machine is configured with the Model Number and Serial Number on the Home screen. Use this information whenever contacting EDRO technical support for assistance. To enter DynaTrol's technical information section, press the Configuration button from the Home screen. Then select the Technical Information button. A password is not required to continue.
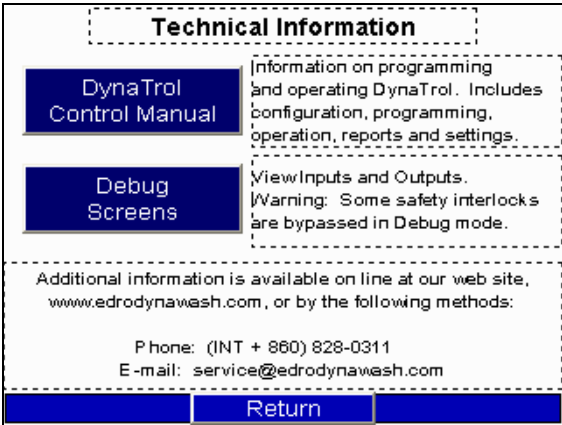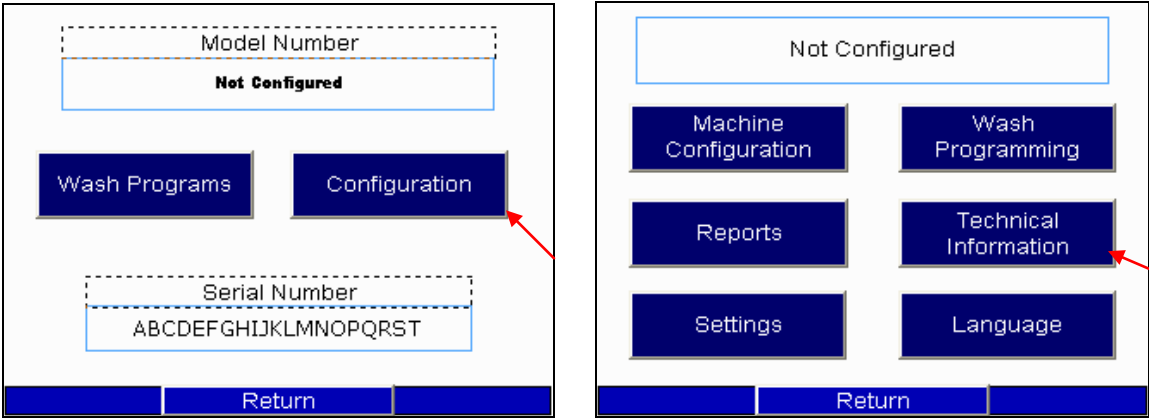
ON SCREEN CONTROL MANAUL
Select the DynaTrol Control Manual button to proceed.
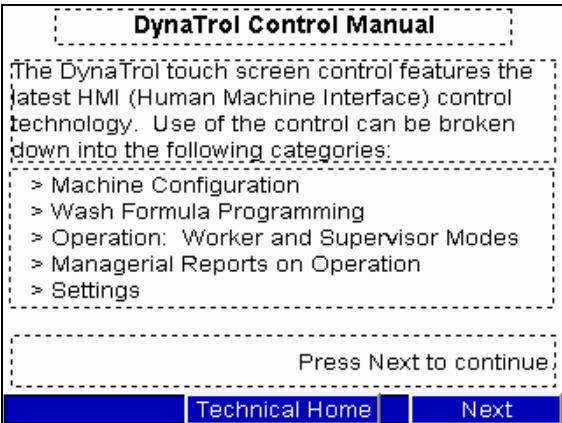
DEBUG SCREENS

The Debug Screens are for advanced troubleshooting. A level 4 password is required to continue. These screens allow the service technician to view and activate most inputs and outputs for test purposees. Proceed with caution as interlocking safety features are disabled. Do not wash clothes using the Debug Screens.
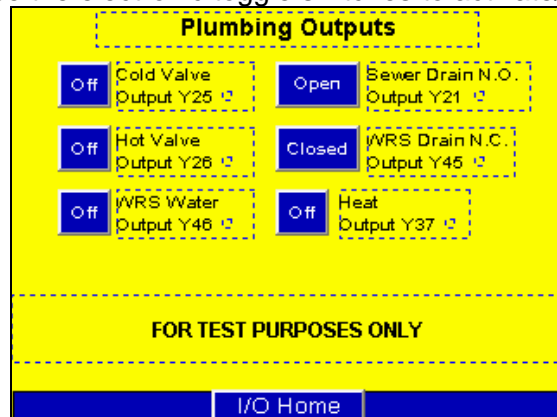

The Debug Screen home page. Select a range of inputs/outputs for troubleshooting.
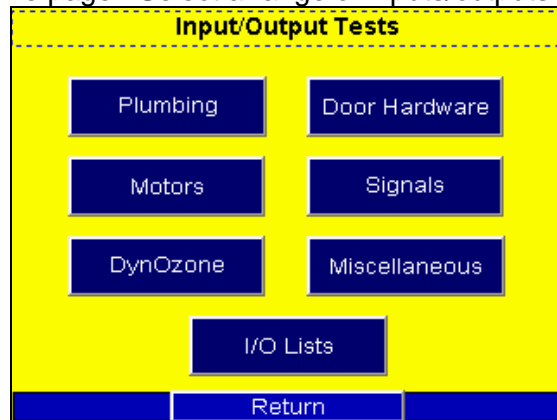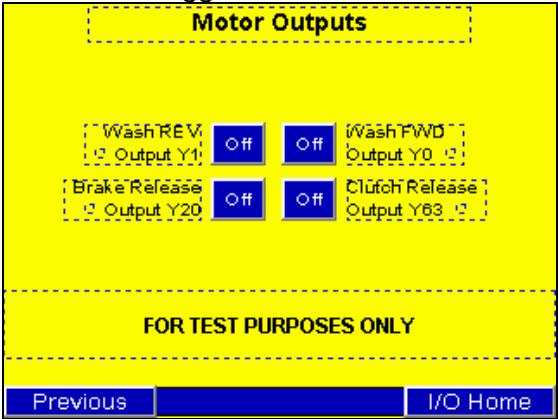

The I/O Lists button illustrates all inputs and outputs. A red light will appear next to the active ones. Refer to the machine schematic for X (input) and Y (output) descriptions.
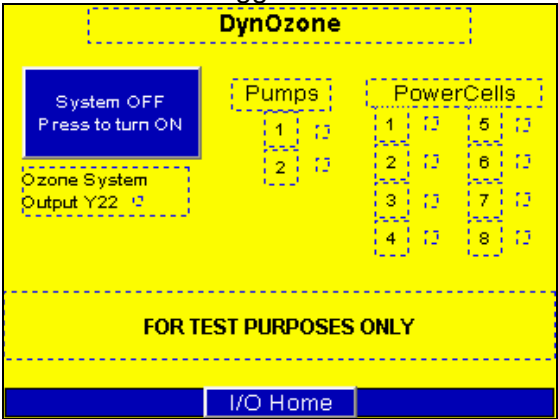
Plumbing Outputs. Use the electronic toggle switches to activate/deactivate outputs.
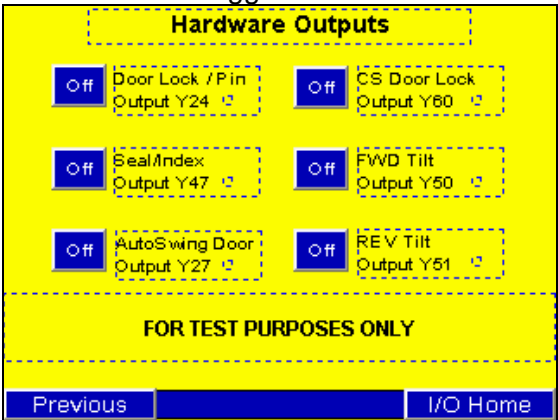

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Motor Outputs. Use the electronic toggle switches to activate/deactivate outputs.

DynOzone system. Use the electronic toggle switch to activate/deactivate system.
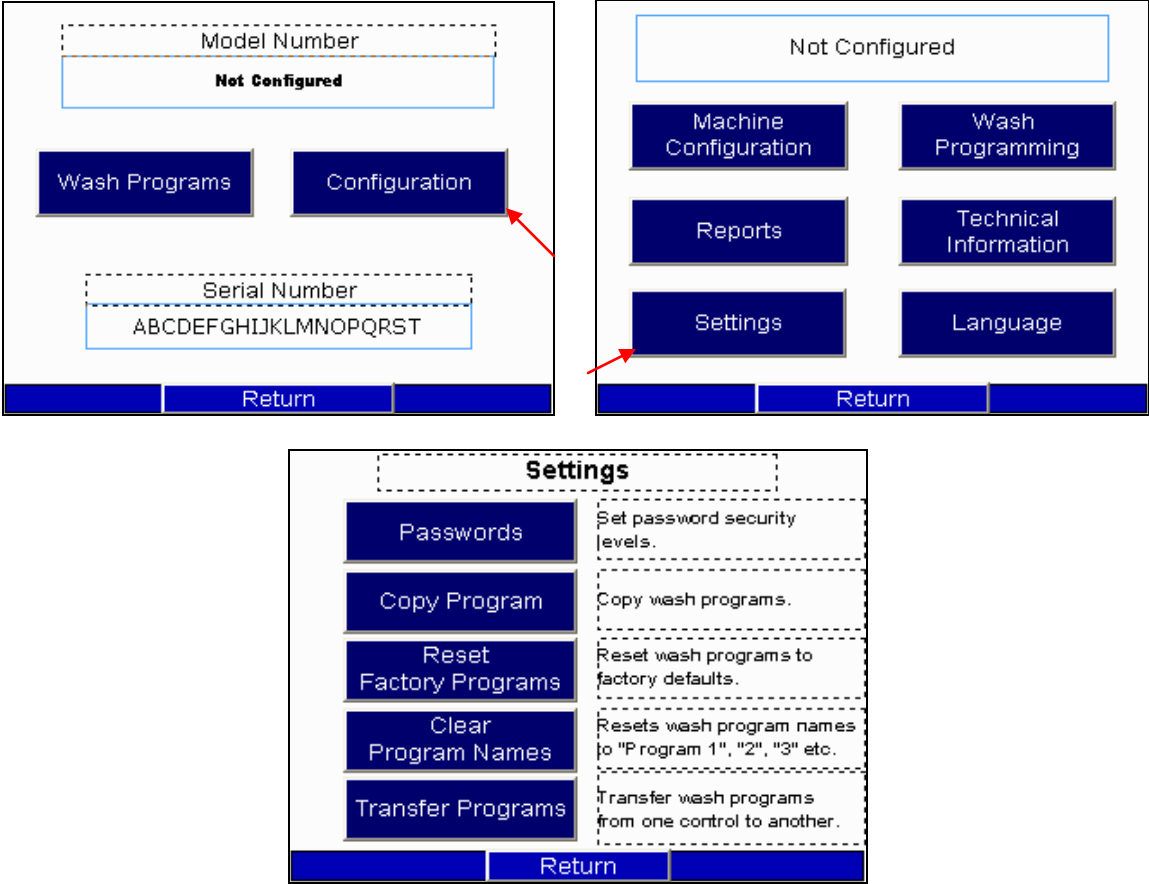

Hardware outputs. Use the electronic toggle switches to activate/deactivate outputs.

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:

Level	Description	Default Password	
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.

Password Settings

Enter Your Password
To Continue

Return

Password Settings

Press to Setup Passwords

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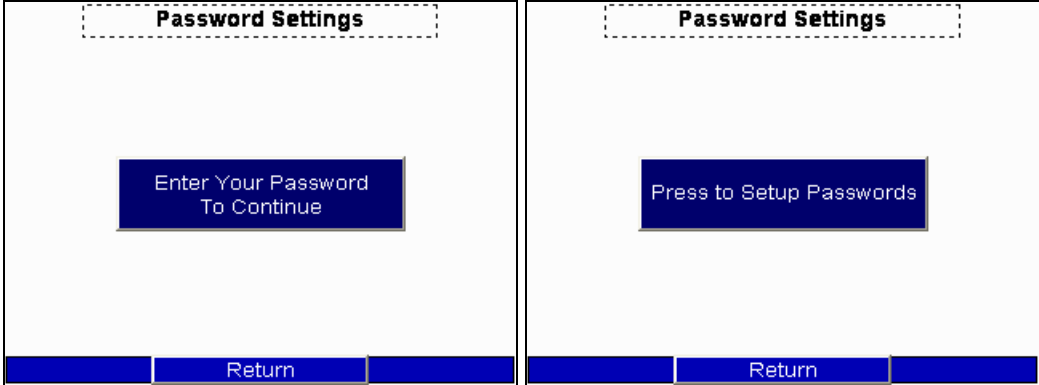
COPY PROGRAM
To speed programming of similar wash programs, select the copy program function. A
level 2 password is required.

Select a Program Number to Copy

Program Number   12   -   +

ABCDEFGHIJKLMNOPQRST

Select a Program Number to Paste

Program Number   12   -   +

Return   Copy
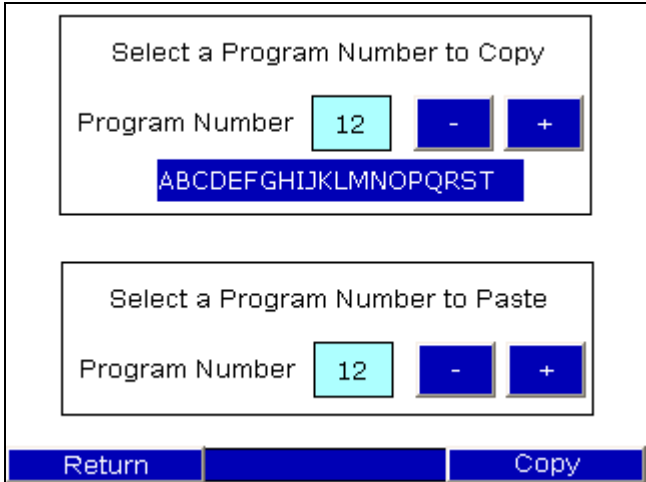
RESET FACTORY PROGRAMS
Resets wash programs to factory defaults. A level 2 password is required. This action
cannot be undone.

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.
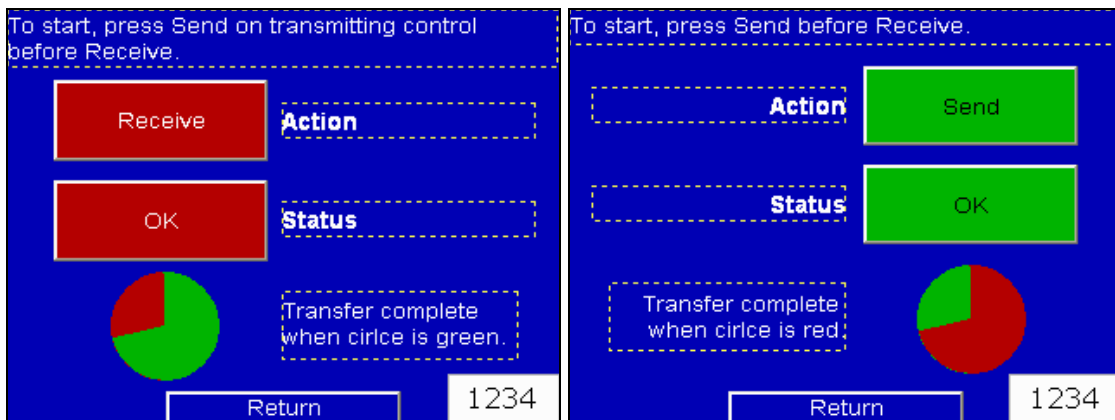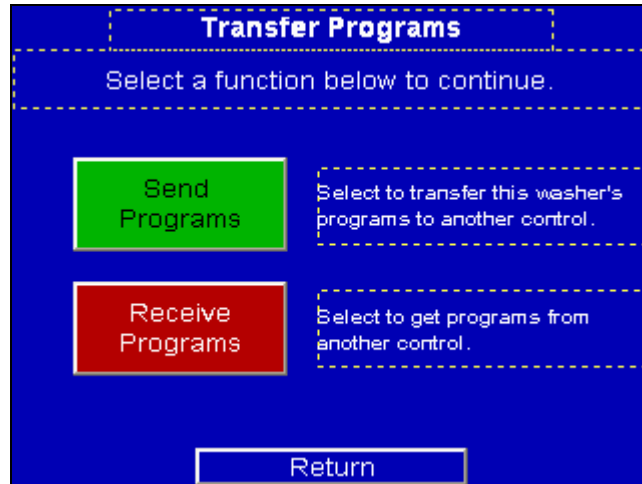
DEFAULT FACTORY PROGRAMS

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