

Accutrac 360-i In-bay

Start-Up Manual



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1. Prior to Powering Up the 360-i Controller:

1.1. Obtain Information from Owner/Operator:

- Wash package names, order, pricing, options and POS buttons used.
- Which chemicals that will be used and in what dilution ratios.
- Who will receive email/SMS notifications of Major faults, Wash Advisories, and Daily Wash Reports.
- Wash bay door operations.

1.2. Turn off all power:

- Incoming power to 360-I panel – Off
- 360-i Internal circuit breakers and motor disconnects- Off
- Incoming power to pump stations (VFDs or motor starters)- Off
- Incoming power to Dryers (VFD's or motor starters)-Off

1.3. Verify Proximity Sensor Adjustment

- Verify the proximity sensors have been adjusted from the shipping position to the 3/16" to ¼" needed from the target flags.
 - (6) Proximity Sensors total: Bridge Entrance & Exit, D.S. Trolley Extend & Retract & P.S. Trolley Extend & Retract.

1.4. LAN Connections

- The 360-i control panel needs (1) Cat5 Ethernet cable connected to the LAN. (Local Area Network)
- The HMI needs (1) Cat5 Ethernet cable connected to the LAN.
- If for some reason the LAN is not available, a temporary Cat5 cable can be connected between the HMI and the Ethernet switch in the 360-i control panel. This would allow for testing without a proper network being setup.

1.5. Check for Correct wiring of Incoming Power

Identify what supply voltage is onsite, whether its 208v Wye or 230v or high leg Delta. Verify correct wiring for 4-wire 208V Wye versus 230V Delta. **Note: Delta system requires a separate 120V feed and removal of jumper wire to L1A (refer to wiring schematics).**

2. Input Tests:

2.1. Power up the 360-i Control Panel

- Turn on incoming power to the 360-i control panel
- Confirm correct voltage at the Line Inputs
- Turn on CB1 in the 360-i Control Panel - (120VAC to the PLC & DC power supply)
- Turn on CB4 in the Control Panel – (24VDC+ power to all external devices)

2.2. Test all Inputs

Turn on the HMI, Windows should open with default profile, “User” automatically logged in. If that doesn’t happen, then login to Windows as “User” with no password. Accuview will automatically start once Windows finishes loading. Once Accuview opens, click on the banner at the top of the screen. Select “Log On” and log in as “Owner” and password “Owner”. Then select Maintenance mode on the onscreen rotary switch. Click the banner again and select the “I/O View” or the “I/O View 2” button. Using this screen, verify the correct “On”/“Off” transition of each input. Work down the list from Input 1000 to Input 1034 testing one at a time. Push/Pull the E-Stop. Block and unblock the photo-eyes. Move the breakaways until impact sensors light up and send a signal. Put a metal target in front of the proximity sensors so they will signal, etc.

When: E-Stop is out = Input “On”

Proximity Sensor is near metal target = Input “On”

Photo Eyes are clear = Input “On”

Spray Arm is Vertical, Impact Proximity Sensor = Input “OFF”

Spray Arm is pushed Frt/Rear or Lft/Rt 10° off vertical (1’ movement at floor) then Impact Proximity Sensor = Input “On”

3. Output Tests



Before starting the Output Test: Verify that Bridge End Stops are installed

3.1. Power & Air

Turn on the remaining circuit breakers & motor disconnect switches inside the 360-i Control Panel. Turn on the air to the Fluid Distribution Module (FDM) and set the pressure regulator to 75-85 psi. Push the red manual override button on each of the Air solenoids and verify that the mini pressure regulators on the Tri-Foam, Top, and Sides Air inject solenoid valves are set to 50 psi.

3.2. Test Machine Movement



Ensure the bay is clear, and that the bridge and trolleys are able to move freely all the way to their limits. Impacts to the T-bars can cause the shear bolts to break and T-bars to fall off.

3.2.1. Bridge, Trolley, and Oscillators

From the Home screen, select the machine reset button to clear any existing faults (while machine is in maintenance mode, reset button will clear faults without machine movement). Next click the top banner and select **“Setup”** then **“VFD Type.”** Look inside the control panel and on the HMI select the correct VFD type for each motor. Note: The Bridge & Trolley VFDs will either be Altivar 312, Nissei Corporation (Brother) VF-nC3M or Toshiba S15. The Oscillator VFDs will either be Altivar 312, Altivar 320. Next, click the top banner and select **“Maintenance Menu”**, then **“Output Overrides”**. Go to the last page of overrides, and move **“Bridge Run”** switch from **“Auto”** to **“Man”** (Manual). Click the speed box, and enter a 1000 RPM as a starting speed. Click the reverse button and verify the machine moves towards the entrance and stops when the Bridge wheel is 1-2” from end stop. Then click forward and verify forward movement to the other end of the rails. Now test both the DS & PS Wash Arms. **“Extend”** moves Spray Arm towards center of bay and **“Retract”** moves them towards outside of bay. Next test the individual Spray Arm Oscillators in the same manner. Note that the override speeds can be adjusted by simply clicking the box for manual speed and entering a new number.

3.2.2. Spray Arm Rotation

While still on the “**Output Overrides**” page, go to the 2nd page and force on “**Wash Front of Car**”. Verify the indicator lights on Din Connectors correspond on the FDM. Then check the wash bay to see that the Spray Arms have rotated to wash the front of a vehicle. Select Auto and “**Force on**” “**Wash Rear of Car**”. Now verify that Spray Arms have rotated to wash the rear of a vehicle. If Spray Arms do not rotate correctly, check air pressure and proper air line connections.

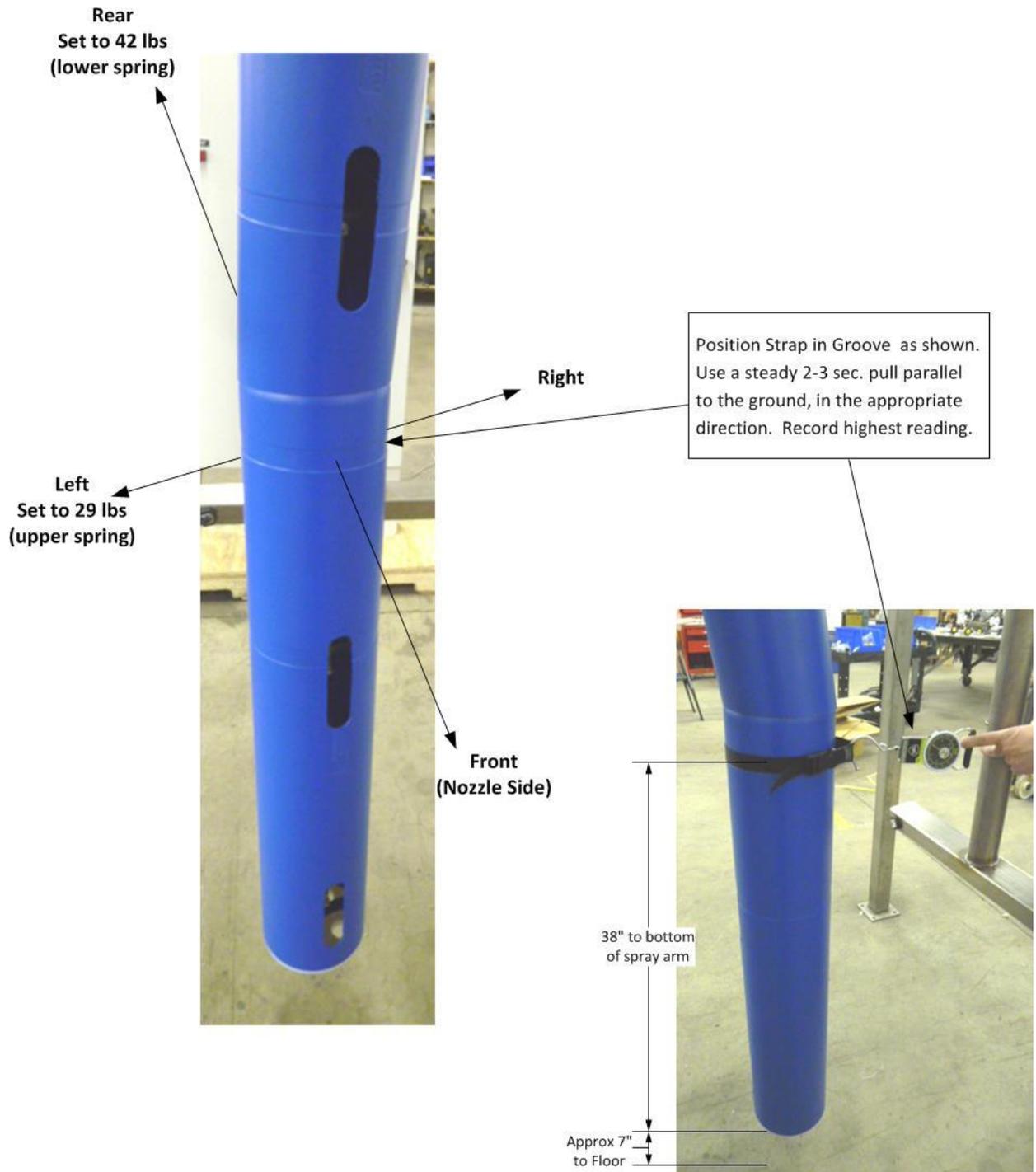
3.2.3. Verify the Spray Arm Breakaway Setting

Note: The Front of the Spray Arm is defined as the Nozzle Side.

- Attachment point for checking the breakaway tension is halfway between the two center nozzles or 45” above the ground. (bottom of Spray Arm is 8” above floor)
- Use the provided luggage scale to verify the spring heights below, which will result in the correct breakaway force. **Over tightening the spring will cause structural damage.**

Note: For shipping the Lower Spring was set to 1-15/16” height.

- Upper Spring (Left/Right): 1-7/8” (1-14/16”) spring height = **29 lb. to the left & 20 lb. to the right.**
- Lower Spring (Front/Rear): 1-13/16” spring height = **42 lb. to the rear & 20 lb. to the front.**
- **Note: The elastomer spring will take a set, and then need re-tensioned 24-48hrs after the initial setting. Double check the breakaway and set again if necessary.**



NOTE:

DO NOT SET BREAKAWAY FORCE IN FRONT OR RIGHT DIRECTION. Breakaway force toward the front (approx 24 lbs) is significantly less than toward the rear. Breakaway force toward the right (approx. 21 lbs) is also less than toward the left.

Breakaway Tension Measurement
Dwg./Part #:
Date: 11-14-14
Petit Auto Wash, Inc

3.3. Test Outputs #0010-0063

Note: All Output #'s, Terminal #'s, and External wire #'s all match in the control panel, on the FDM, and on the machine.

These steps should be performed without any water to the LP Pump (and FDM), Weep, or the Pump stations. Click on the banner, select "**Maintenance Menu**", and select "**Output Overrides**". Starting with 0010 select "**Force on**" and verify it works correctly. One by one "**Force On**" each output all the way down through the list. After verifying each one, select "**Auto**" before moving to the next.

Note: Outputs 0010 – 0017, 0035-0036, 0043-0044 are dry contacts and require external feed power from the individual devices. Consult the Accutrac 360-i Schematics and the manual to each device for additional information on voltages required.

3.3.1. Outputs 0019-0041 - Fluid Distribution Module (FDM)

The FDM has chemical injectors, high and low pressure solenoid valves, and air solenoid valves. Notice the first 10 override buttons are listed with the A1-A5 and B1-B5 call out. This corresponds with the A&B Solenoid banks on the FDM. All of the cord sets have indicator lights on them. Test all of these outputs one at a time, verifying each on the FDM. Note that Weep valve, Output # 0037, is a normally open valve, and you must select "**Force Off**" to test it. **At this time, skip testing Output 0042 and 0043 until later.**

3.3.2. Output 0044 - Dryers

Select "**Force on**" and verify the signal is received at the Dryer VFD Panel or Dryer motor starters. Also verify the correct rotation of dryer motors. If not correct, switching any two legs will reverse the rotation.

3.3.3. Output 0046-0063 - Lighted Bay Signs and LED Light Bar (if equipped)

Select "**Force on**" for each, one at a time, and verify the proper sign is illuminated. If equipped with a LED Light bar, verify the LED Light bar also illuminates on the proper light outputs. Return each to "**Auto**" or select clear all forces, and move to the next output.

3.4. Pump Testing



Be sure to close all electrical boxes in equipment room before testing any pumps or other devices that use water!!

3.4.1. Top HP Pump

- Verify the Top HP Pump's high-pressure lines are connected to the correct fitting on the FDM and that the high-pressure line from the FDM is connected to the Top Trough Manifold.
- Turn on the Top HP Pump circuit breaker only.
- Verify there is water in the Top HP Pump tank and the fill valve is open.
- Reduce the pressure regulator to the lowest psi setting. (Typically turn it CCW)
- From the "Test Wash Passes" page, set the Top HP Pump manual speed to **10Hz**. Run momentarily and verify correct motor rotation. (Accutrac 25HP motor should turn CCW when facing the shaft)
- Now set the Top HP Pump to **53Hz** and set the pressure to **1,100 psi**.

Note 1: Use the "Test Wash Passes" screen to disable the **low-pressure alarms** and set the HP pump's manual test speed. Once finished setting the HP Pump pressure(s), re-enable the low-pressure alarms.

Note 2:

To change 3-phase motor rotation, reverse any 2 leads between the VFD and the Motor. Switching leads going into the VFD will not change rotation.

3.4.2. Side HP Pump

- Verify the Sides HP Pump's high-pressure lines are connected to the correct fitting on the FDM and that the high-pressure line from the FDM is connected to the Side Trough Manifold.
- Turn the circuit breaker off for the Top HP Pump and turn on the circuit breaker for the Sides HP Pump only.
- Verify there is water in the Sides HP Pump tank and the fill valve is open.
- Reduce pressure regulator to lowest psi setting. (Typically turn it CCW)
- Set the HP Side Pump manual speed to **10Hz**. Run it momentarily and verify correct motor rotation. (Accutrac 25HP motor should turn CCW when facing the shaft)
- Set the Side Pump speed to **60Hz** and enable the T.V. (Tall Vehicle) Nozzles. Adjust pressure to 1,100 psi.
- Change speed to **48Hz**. Run HP pump again without the T.V. nozzle enabled and verify it still produces **1,100 psi**.

3.4.3. Low Pressure pump (Output 0042)

Turn on the hot water valve to the LP pump. On the “**Output Overrides**” page “**Force on**” output 0042 momentarily to verify correct motor rotation. (The rotation of Sta-Rite is CW viewed looking at motor shaft with end cap removed. The optional GrundFos pump should be CCW when facing the fan) Once correct rotation is obtained then navigate to “**Test Wash Passes**” page and select “**Presoak 1 Top A1**” and set the pressure regulator to **200-225 psi**.

3.4.4. Spot Free Pump (Output 0043)

Verify the Spot Free Rinse System is operational and there is plenty of water in the holding tank. On the “**Output Overrides**” page “**Force on**” output 0043 momentarily to verify correct motor rotation. (GrundFos pump should be CCW as viewed from fan side) Once correct rotation is obtained then navigate to “**Test Wash Passes**” page and select “**Spot Free Top**” and “**Spot Free Sides**”. This will enable both the pump and the solenoid valves. Then set the pressure regulator to **225-275 psi** with both valves enabled

3.4.5. Weep (Freeze Protection)

Turn on water supply to the Weep Solenoid and open all the ball valves on the weep manifold. On the “**Output Overrides**” page, select “**Force off**” for override 0037 and verify weep water flow from bay equipment. Using the labeled valves on weep manifold, adjust the weep flow so that water stream projects at least 2 ft. from each set of nozzles. This is a good starting point to prevent freezing without excessive use of water.

Note: The Weep solenoid valve is a Normally Open (N.O.) valve. This means water flows when no power is applied. Selecting “**Force Off**” opens the valve, “**Force On**” closes it.

4. Programming

4.1. User Levels

- **Operator (Default Level)**
Base level profile with access to “**Queue**” page, can issue washes and “**Test Wash Passes**” page. Does not have access to wash reports or access to any setup screens.
- **Manager**
Includes above level with additional access to “**Delivered Washes**” and “**Free Washes**” reports, all the maintenance screens including “**Input/Output Overrides**”, and most setup screens
- **Owner**
Includes all the above and the ability to create and edit User Profiles.

4.2. Wash Packages

- Up to 8 separate wash packages are available with up to 8 passes in each package.
- Verify the “Enable” check box is selected on all active packages. Disable any that aren’t used.
- A “Pass” is either from Front to Rear or from Rear to Front. Odd # passes beginning with #1 move from Front to Rear and even # passes are always Rear to Front.
- User selectable Dwell time is available for the first three passes on each package. This timer pauses machine movement at front or rear of the car. Timer values are listed in seconds.
- Spot Free is always the final pass in a package, and is only available on an even # pass (#’s 4, 6, or 8). Once Spot Free is selected no other passes can be selected for that package. The “Slow Spot Free” check box will enable the “Slow Spot Free” speed. This is selectable per wash package.
- Presoak 1 & Presoak 2 have check boxes to optionally slow the trolley motion while on the front of the vehicle or the rear of the vehicle.
- High Pressure pass also has check boxes to optionally slow the machine motion Front, Rear, or during the entire pass.

4.3. Email

- Select the email address where alarm messages (advisories & major faults) will be sent. Use the test button to verify the address.
- Alarms can be sent to multiple locations by adding email addresses in the Cc and Bcc fields. More than one address can be placed in each box, however, the additional email addresses need separated by a semi-colon.
- Emails can be sent as text messages by using the appropriate address per your cell phone carrier (e.g. enter your phone number here 1234567890@vzwpx.com for Verizon). Select the “Cell phone MMS” button for additional examples of different phone carriers. If your specific carrier is not listed, send a text message from your phone to your email. Check your email for the message, the header of the email will display your specific email to text address. Then type that into the HMI screen.
- Set the address that the Daily Wash report will go to and select the time of day that it will be sent.
- Both the wash advisories and daily wash report has a test button to verify the addresses are correct. Also, if desired the email function can be disabled.

4.4. Doors

The doors can be controlled from the Home screen or the “**Door Setup**” Screen. On the Home screen, there are also Door Closed indicators showing the position of the doors. This would require an additional switch. On the Door Setup Page, all door options can be configured. There are multiple door operational modes, with 2 separate temperature set points that define 3 temperature ranges (Warm, Cold, & Very Cold). There are a variety of options that can keep either Entrance or Exit door, both or neither closed during the wash cycle. Select the mode of operation desired for each of the three temperature ranges, and as the temperature changes, the 360-i will automatically switch to the appropriate door mode.

The doors use the Underbody and Dryer photo eyes by default. The Entrance Door normally closes after the vehicle clears the Underbody photo eye, but there is a check box option to enable waiting until the vehicle properly parks before closing the entrance door. The Exit door closes when the vehicle clears the Dryer photo eye. Additional photo eyes can be added to control the doors. To enable these additional photo eyes, check the correct box and terminate the signal wires on #1039 (Ent Door) and #1040 (Ext Door). The doors can also be operated on a time schedule, only while the wash is not being used. While the machine is washing, the door modes take priority.

4.5. Machine Speeds

Verify the following parameters are set to the default values as listed below. Click on the banner, select "Setup Menu", and select "Speeds". Verify all parameters, paying particular attention to HP pump speeds!

2:32:18 PM
Accu-View 360i
10/15/2018

Site Name: Test Rack 1
 Current User: owner
 Current Recipe: Default

SPEED CONFIG

Note: All Speeds are entered in ft/sec unless otherwise noted.
 $rpm = ft/sec * 1800 / 1.5708$
 $ft/sec = 1.5708 * rpm / 1800$

ft/sec	rpm		
0.00	=	0	

Minimum = 0.3 ft/sec
Maximum = 1.57 ft/sec
Max Super Clean = .75 ft/sec

1.25	Presoak1 - Wash Pass Speed
0.80	Presoak1 - Slow Across Front of Car Speed
0.80	Presoak1 - Slow Across Rear of Car Speed

1.25	Presoak2 - Wash Pass Speed
0.80	Presoak2 - Slow Across Front of Car Speed
0.80	Presoak2 - Slow Across Rear of Car Speed

1.00	Hi Pressure - Wash Pass Speed
0.70	Hi Pressure - Slow Wash Pass Speed
0.70	Hi Pressure - Slow Across Front of Car Speed
0.70	Hi Pressure - Slow Across Rear of Car Speed
0.70	Hi Pressure - Super Clean Wash Pass Speed
0.50	Hi Pressure - Super Clean Front/Rear Speed

1.25	Presoak3 - Wash Pass Speed
1.50	Triple Foam - Wash Pass Speed
1.25	Lp Chem3 - Wash Pass Speed
1.30	Foam Waterfall - Wash Pass Speed
1.00	Soak - Wash Pass Speed
1.57	Reposition - Wash Pass Speed
1.57	Med Pressure - Wash Pass Speed
0.90	Spot Free - Wash Pass Speed
0.70	Spot Free - Slow Wash Pass Speed

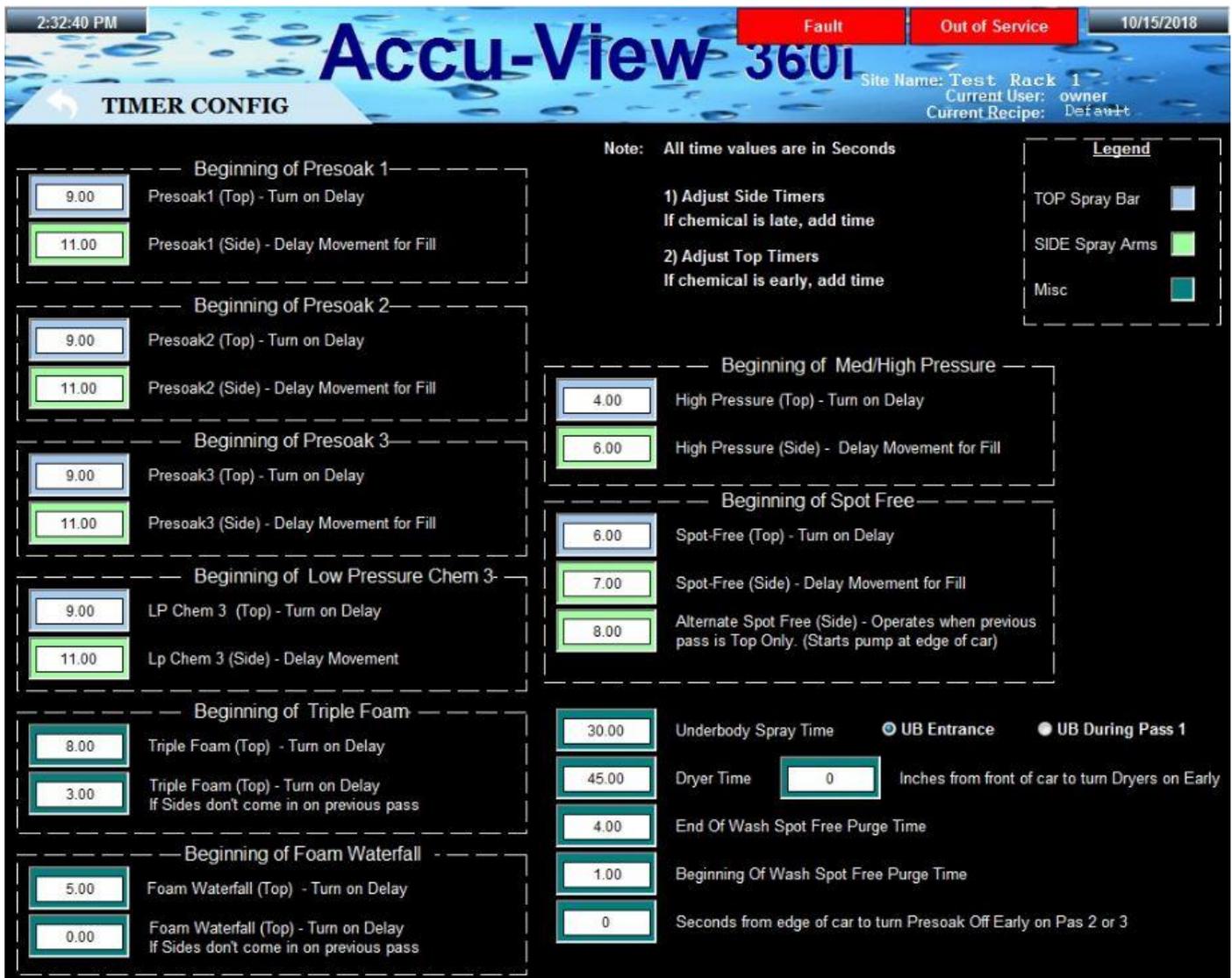
HP Pump Speeds

30 Hz	Top Medium Pressure Pump Speed
30 Hz	Side Medium Pressure Pump Speed
48 Hz	Side High Pressure Pump Speed (normal)
60 Hz	Side High Pressure Pump Speed (tall)
25 Hz	Side High Pressure Pump Speed (underbody)

Internet Explorer

4.6. Timers

Verify the following timers are set to these default values. Click on the banner, select **“Setup”** and then select **“Timers”**. These timers start when both photo eyes become clear at the front/rear of vehicle. Always set the Side “Delay for Fill” first, and once it is correct then adjust the “Top Turn on Delay”. Adjusting the Sides will affect how the Top Turn on Delay appears. Next adjust for any additional dwell at the front or rear times. Also from this screen configure the length of time the Underbody sprayer and the Dryers stay on.



Accu-View 360i Site Name: Test Rack 1
 Current User: owner
 Current Recipe: Default

TIMER CONFIG

Note: All time values are in Seconds

Legend:
 TOP Spray Bar (Blue)
 SIDE Spray Arms (Green)
 Misc (Cyan)

1) Adjust Side Timers
 If chemical is late, add time

2) Adjust Top Timers
 If chemical is early, add time

Category	Item	Value
Beginning of Presoak 1	Presoak1 (Top) - Turn on Delay	9.00
	Presoak1 (Side) - Delay Movement for Fill	11.00
Beginning of Presoak 2	Presoak2 (Top) - Turn on Delay	9.00
	Presoak2 (Side) - Delay Movement for Fill	11.00
Beginning of Presoak 3	Presoak3 (Top) - Turn on Delay	9.00
	Presoak3 (Side) - Delay Movement for Fill	11.00
Beginning of Low Pressure Chem 3	LP Chem 3 (Top) - Turn on Delay	9.00
	Lp Chem 3 (Side) - Delay Movement	11.00
Beginning of Triple Foam	Triple Foam (Top) - Turn on Delay	8.00
	Triple Foam (Top) - Turn on Delay If Sides don't come in on previous pass	3.00
Beginning of Foam Waterfall	Foam Waterfall (Top) - Turn on Delay	5.00
	Foam Waterfall (Top) - Turn on Delay If Sides don't come in on previous pass	0.00
Beginning of Med/High Pressure	High Pressure (Top) - Turn on Delay	4.00
	High Pressure (Side) - Delay Movement for Fill	6.00
Beginning of Spot Free	Spot-Free (Top) - Turn on Delay	6.00
	Spot-Free (Side) - Delay Movement for Fill	7.00
	Alternate Spot Free (Side) - Operates when previous pass is Top Only. (Starts pump at edge of car)	8.00
Underbody Spray Time	UB Entrance	30.00
	UB During Pass 1	0
Dryer Time	Inches from front of car to turn Dryers on Early	0
End Of Wash Spot Free Purge Time		4.00
Beginning Of Wash Spot Free Purge Time		1.00
Seconds from edge of car to turn Presoak Off Early on Pas 2 or 3		0

5. Wash a test Vehicle

5.1. Load a Wash Package

- Using the Auto Cashier, select a wash package.
- Verify the 360-i receives the wash and controls the gate if applicable. If using a gate, verify the queue length has been set and wash stacking functions correctly.

5.2. Pulling vehicle into bay

- Verify Wait/Go and Bay instruction signs illuminate correctly.
- Verify correct operation and timing of Underbody Spray. When vehicle leaves Underbody PE, Underbody spray should stop.
- Verify proper operation of the “Pull Forward”, “Back up”, and “Stop” signage.

5.3. Wash

- Verify correct amount of air inject in Presoak and Tri-Foam passes.
- Verify that machine tracks around vehicle correctly.
- Verify Bay Instruction Sign follows wash passes accurately.

5.4. Exiting Bay

- Verify dryer operation.
- Verify dryer signage and Countdown Timer illuminate correctly.
- Machine should perform an air purge of the spray nozzles once vehicle has left the T-bar photo eyes.
- Verify dryer photo eyes operation. When vehicle leaves the dryer PE, the dryers and timer should shut down.