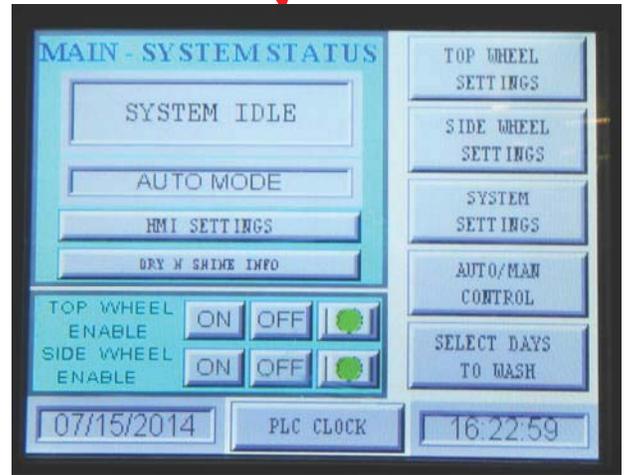


Pic #63 Dry N'Shine Control Box



Pic #64 HMI

Your **DRY 'N SHINE™** has an **AUTOMATIC WASH** and **DRY CYCLE** that can also be programmed using the HMI. The wash and dry cycles can be set to cycle at night allowing your **DRY 'N SHINE™** to be ready for the next day. It has a **WASH CYCLE**, a **RINSE CYCLE** and a **DRY CYCLE**. Most operators may program only the rinse cycle once a week or every two weeks and not use the wash cycle at all. Or use the wash and rinse cycle but only once a month. The **DRY 'N SHINE™** brushes may get dirty while picking-up whatever dirt or soil left on the vehicle after the wash. Finding the proper process for the laundering cycles may have to be determined further later after operating your **DRY 'N SHINE™** for a while and adjusting the programming according to the specificity of your wash. Commercial laundry detergent can be used for the wash cycle.



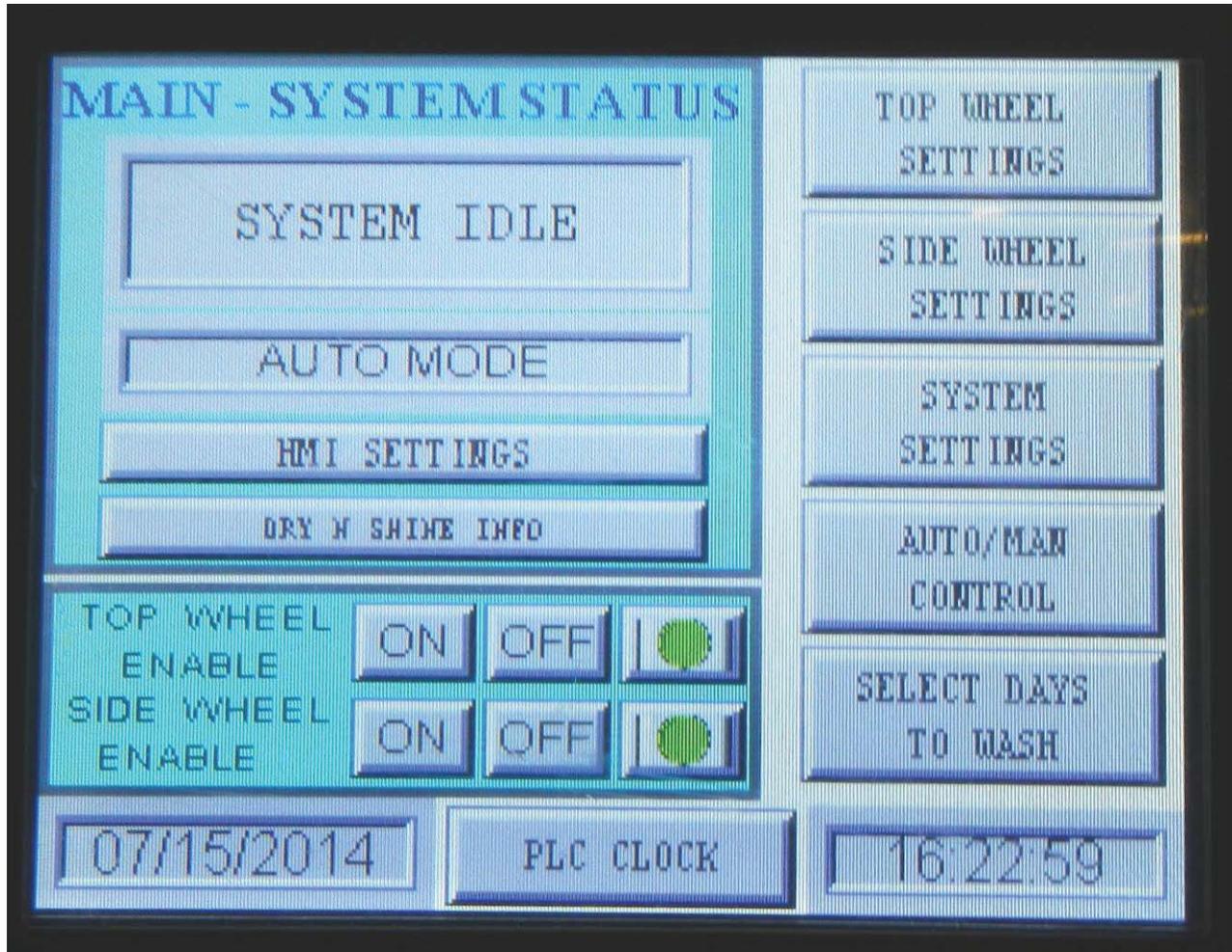
IMPORTANT NOTE:
USE ONLY NEUTRAL DETERGENT FOR WASH CYCLE
DO NOT USE ANY DEGREASER OR SOLVENT BASED PRODUCT

The **DRY 'N SHINE™** has also a programmable **SPIN DRY CYCLE** that can be programmed thru the **HMI** to run between cars, allowing the brushes to spin at a faster **RPM** for a period of time and then increase its **RPM**, forcing the brush material to hit the **BEATER BAR** extracting water of the brush.

NAVIGATING YOUR HMI:

The **HMI** or **Human-Machine Interface** allows the user to monitor your Dry N'Shine thru a graphic based visualization of different screens, messages and warning lights as well as changing default values related to the functioning of your equipment, customizing the behavioral aspect, enabling or disabling specific functions per user preferences. Your Dry N'Shine HMI comes already with default values already programmed sufficient for initial start-up: Your Dry N'Shine control is ready to go "out-of-the-box"!

MAIN SCREEN:



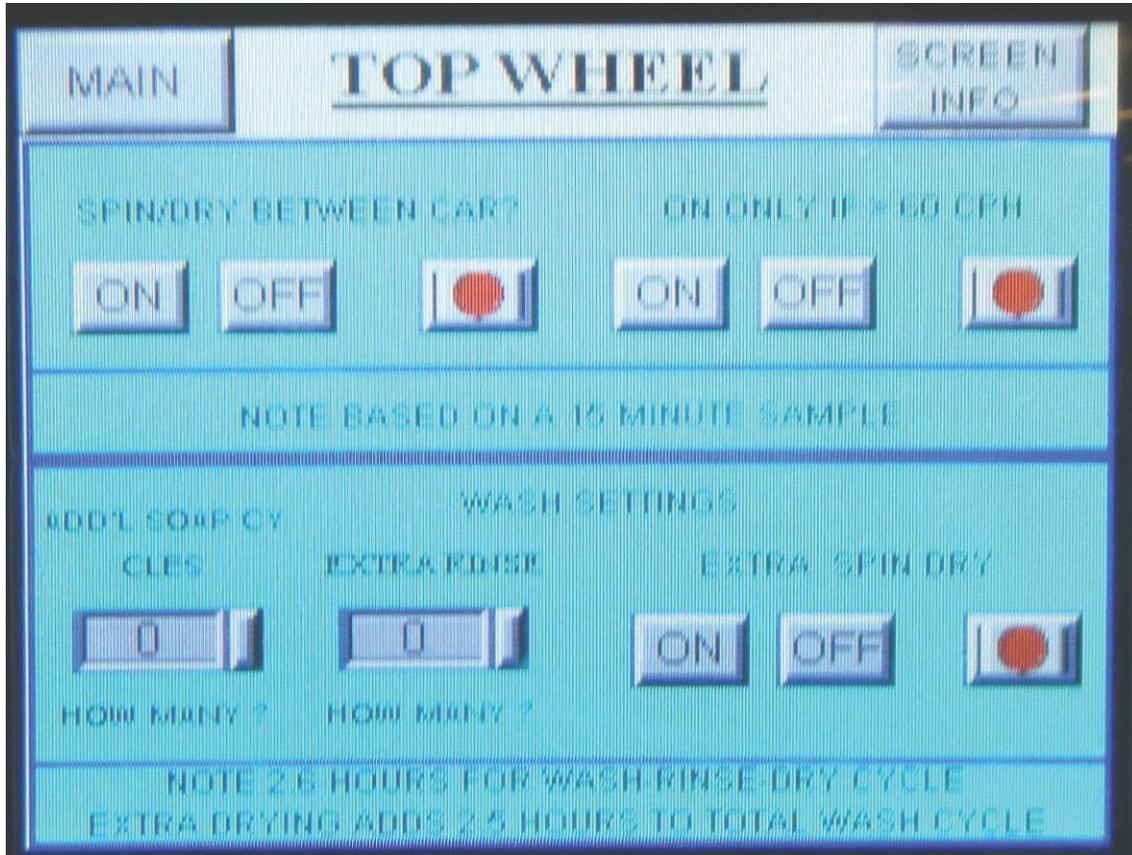
Pic #65 HMI Main Screen

This is the default screen that is shown at power-up. The screen displays the different screen you may navigate to as well as **DRY N'SHINE STATUS INFORMATION**: is the equipment is drying a car or spinning between cars or other. It also displays selector buttons for **TOP WHEEL** and/or **SIDE WHEEL ENABLE**. Pushing the OFF button for either brush will **DISABLE** the brush and put it in idle mode. These buttons may be used to disable one equipment at a time for testing or repair purpose for example. The pilot light located to the right of the OFF buttons reflects the status of the equipment: **GREEN = ENABLE, RED = DISABLE**.

The HMI screen:

- Allow the user to **NAVIGATE** to other screen: **TOP WHEEL SETTING, SIDE WHEEL SETTING, SYSTEM SETTINGS, AUTO/MAN CONTROL, SELECT DAYS TO WASH, HMI SETTING** and finally **PLC CLOCK**.
- Allow the user to **ENABLE/DISABLE** top wheel and/or side wheels
- Display your Dry N'Shine status: **SYSTEM IDLE** or **SYSTEM STOPPED** or **DRYING MODE** ect.
- Display time and date.

TOP WHEEL SETTING SCREEN:



Pic #66 Top Wheel Wash Settings Screen

This screen is used to set **TOP WHEEL SPIN/DRY CYCLES** between cars and **AFTER HOURS WASHES CYCLES**.

SPIN/DRY CYCLES:

This function enables the top wheel to spin thru a succession of different speed cycles on the specially design “**BEATER BAR**” between cars allowing the top wheel to maintain a level of “dryness” for proper operation. When the “**SPIN/DRY ON**” button is pushed, the brush will spin between cars starting after the first car, between all the cars and independently of the throughput. This option may be desired if the temperature in the Dry N’Shine area is low and the ambient air is very humid or if the daily throughput is important. When the “**ON ONLY > 60CPH**” button is pushed, the brush will now start to spin between cars only and only when the throughput reaches 60 CPH based on the total amount of **SONAR READY SIGNAL** over a period of **15 MIN**.

AFTER HOURS WASHES CYCLES:

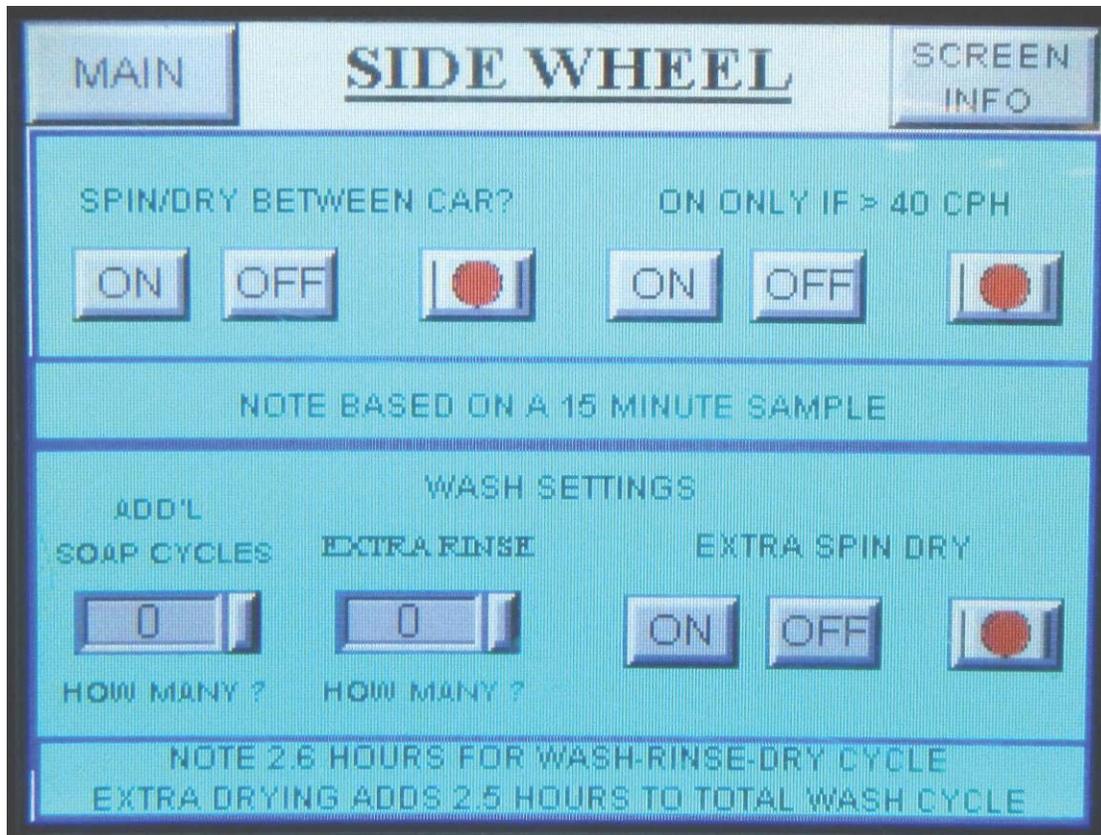
Remember, your **DRY ‘N SHINE™** brushes will get dirty and will pick-up soil left on the vehicle after the wash process. The **WASH** and **RINSE CYCLE** will clean the brushes on a periodic base. The **WASH** and **RINSE CYCLES** are fully programed and some customizing is allowed to accommodate user’s requirements. Using the two counters on the bottom left side of the screen; you may add **ADDITIONAL SOAP CYCLES** as well as **EXTRA RINSE CYCLES** to the Top Wheel night wash cycle. Depending on the “dryness” of your wash environment, you may want to add an additional **SPIN/DRY CYLE** to your Top Wheel night wash cycle.

IMPORTANT NOTE:

A WASH CYCLES TAKES ABOUT 2.6 HOURS INCLUDING SPIN/DRY CYCLE. ADDING EXTRA SOAP OR EXTRA RINSE WILL NOT INCREASE SIGNIFICANTLY WASH CYCLE TOTAL TIME. HOWEVER, AN EXTRA DRYING WILL ADD 2-1/2 HOUR TO A COMPLETE CYCLE.



SIDE WHEELS SETTING SCREEN:



Pic #67 Side Wheels Wash Settings Screen

This screen is used to set **SIDE WHEELS SPIN/DRY CYCLES** between cars and **AFTER HOURS WASHES CYCLES**. It is essentially identical to the **TOP WHEEL SETTING SCREEN**. This screen is operational only if you have a Three Wheels Dry N'Shine system, obviously!

SPIN/DRY CYCLES:

This function enables the side wheels to spin thru a succession of different speed cycles on the specially design **"BEATER BAR"** between cars allowing the side wheels to maintain a level of "dryness" for proper operation. When the **"SPIN/DRY ON"** button is pushed, the brushes will spin between cars starting after the first car, between all the cars and independently of the throughput. This option may be desired if the temperature in the Dry N'Shine area is low and the ambient air is very humid or if the daily throughput is important. When the **"ON ONLY > 60CPH"** button is pushed, the brush will now start to spin between cars only and only when the throughput reaches 60 CPH based on the total amount of **SIDE WHEEL READY SIGNAL** over a period of **15 MIN**.

AFTER HOURS WASHES CYCLES:

Remember, your **DRY 'N SHINE™** brushes will get dirty and will pick-up soil left on the vehicle after the wash process. The **WASH** and **RINSE CYCLE** will clean the brushes on a periodic base. The **WASH** and **RINSE CYCLES** are fully programed and some customizing is allowed to accommodate user's requirements. Using the two counters on the bottom left side of the screen; you may add **ADDITIONAL SOAP CYCLES** as well as **EXTRA RINSE CYCLES** to the Top Wheel night wash cycle. Depending on the "dryness" of your wash environment, you may want to add an additional **SPIN/DRY CYCLE** to your Top Wheel night wash cycle.

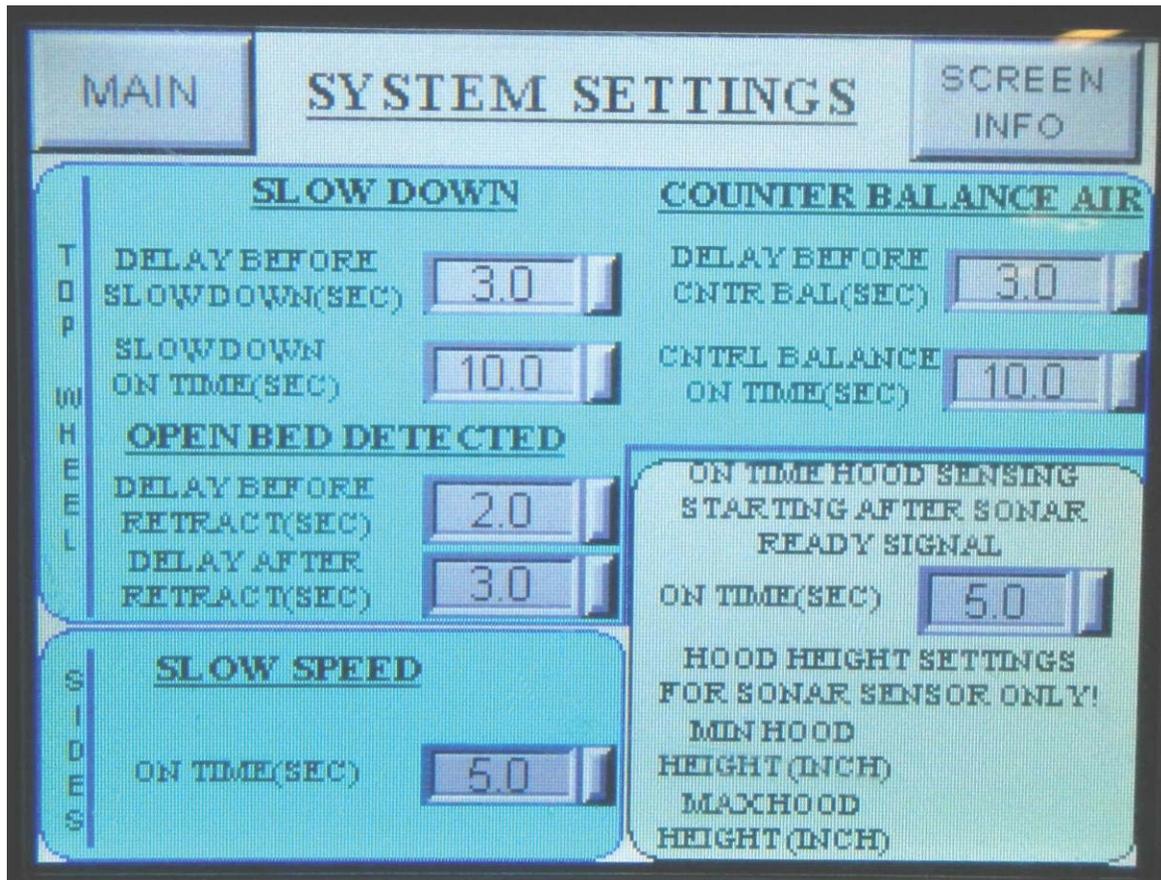
 **IMPORTANT NOTE:**
A WASH CYCLES TAKES ABOUT 2.6 HOURS INCLUDING SPIN/DRY CYCLE. ADDING EXTRA SOAP OR EXTRA RINSE WILL NOT INCREASE SIGNIFICANTLY WASH CYCLE TOTAL TIME. HOWEVER, AN EXTRA DRYING WILL ADD 2-1/2 HOUR TO A COMPLETE CYCLE.



IMPORTANT NOTE:

THE SIDE BRUSHES MAY GET WET AND/OR CONTAMINATED WITH DIRT AND SOIL QUICKER THAN THE TOP BRUSH BECAUSE OF THE AREA COVERED: WHEELS, TIRES, WHEEL WELL, RUNNING BOARD, ECT. YOU MAY HAVE TO SPIN BETWEEN CARS AND/OR WASH CYCLES THE SIDE BRUSHES MORE OFTEN THAN THE TOP BRUSH

SYSTEM SETTING SCREEN:



Pic #70 System Setting Screen w/Default Values

This screen is used to program and adjust different safety features for both **TOP** and **SIDE WHEELS**.

TOP WHEEL:

The **SLOWDOWN** feature slows the top wheel down to a safer RPM while drying the front grill area, the hood and most importantly the windshield wiper area. Two adjustable timers are used for this feature: **DELAY BEFORE SLOWDOWN** which is the time delay before the front of the car reaches the brush after it crosses the **SONAR READY SIGNAL PHOTO-EYES**. The counter is typically set at 3 seconds from the factory and seems to be sufficient for most car washes. The second counter **SLOWDOWN ON TIME** adjusts the duration of the slowdown. This timer is pre-set at 10 seconds from the factory, which is typically satisfactory for an average line speed up to 120 CPH but may vary according to your car wash line speed: faster the line speed = lower value (in seconds).

The **COUNTER BALANCE AIR** feature “counteract” the overall down pressure of the top wheel cylinder for a controlled period of time, allowing the brush to be “balanced” and “very light” over the hood and the wipers area. This feature has a **DELAY BEFORE CNTRBAL** timer that adjust the delay before the car reaches the top brush, allowing the brush to properly come down and be positioned in front of the car after the **TOP WHEEL READY SIGNAL** is applied. The timer is typically pre-set at 3 seconds from the factory and seems to be sufficient for most car washes. If the top brush stop short and doesn’t reach the bottom positive stop after a **TOP WHEEL READY**

SIGNAL has been applied, you may have to increase the time (in seconds) to a higher value. The second counter **CNTR BALANCE ON TIME** adjusts the duration of the counterbalance air pressure delivered to the cylinder. This counter is adjusted at 10 seconds from the factory (which is typically satisfactory for an average line speed up to 120 CPH but may vary according to your car wash line speed: faster the line speed = lower value (in seconds).



IMPORTANT NOTE:
DO NOT KEEP THE TOP WHEEL COUNTERBALANCED TOO LONG BEYOND THE WINDSHIELD. DOING SO MAY PREVENT THE TOP WHEEL TO COME DOWN ON THE TRUNK OF A SEDAN STYLE VEHICLE, IMPAIRING THE OVERALL PERFORMANCE OF YOUR DRY N'SHINE

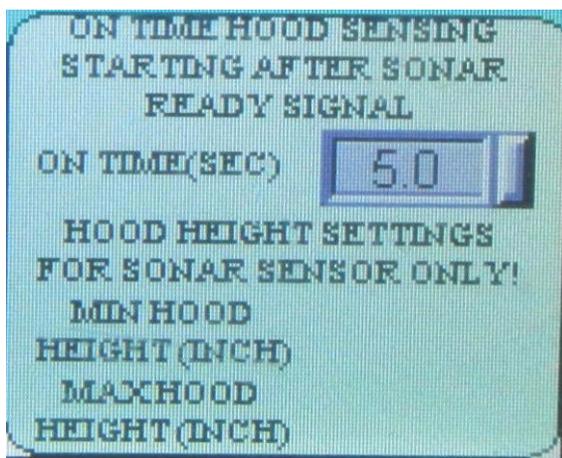
Both **OPEN BED DETECTED** timer delays the reaction time of the top wheel extends and retracts after an open bed is detected on a full size pick-up truck. The counters are pre-set at 2 seconds for **ON DELAY** and 3 seconds for **OFF DELAY** from the factory and is typically satisfactory for an average line speed up to 120 CPH but may vary according to your car wash line speed

SIDE WHEELS:

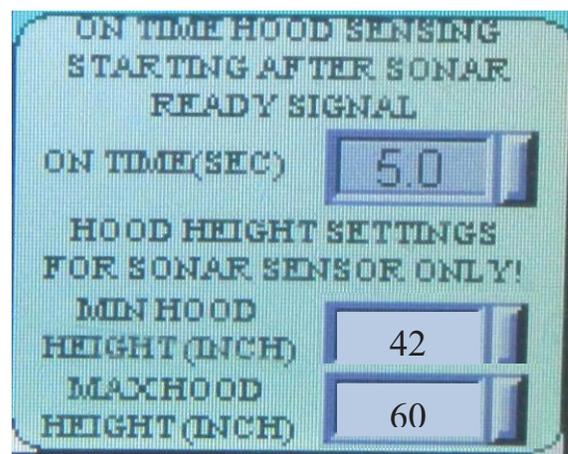
The **SLOWDOWN** feature slows the side wheels to a safer RPM while drying the antenna/mirror area. Only one adjustable timer is used for this feature: **SLOW SPEED** which is the duration of the slower speed from the time of the **SIDE WHEELS READY SIGNAL** is received to the area beyond the antenna/mirrors area. The timer is typically set at 5 seconds from the factory and seems to be sufficient for most car washes.

HOOD SENSING:

Your Dry N'Shine has two user selectable methods to detect the height of a tall front end (tall hood) on an oversized pick-up truck for example. The first one is using the **HOOD SENSOR PHOTO-EYES** and is typically the preferable one and also the default one from the factory. The **ON TIME** timer in the **HOOD SENSING BOX** (see Picture #70 and 71) determine the duration of the sensing of the hood (in the front of the vehicle) or how long (in seconds) the **HOOD SENSING PHOTO-EYES** will be enable in front of each vehicle before determining if the hood is high. During that period of a few seconds (5 seconds programmed below) if the photo-eye beam is broken, the photo-eye send a signal to an air solenoid valve located on the top wheel and raise the top wheel to a safer starting height preventing then the top wheel from getting stuck on the grill of a large pick-up truck. The counter is adjusted at 10 seconds from the factory (which is typically satisfactory for an average line speed up to 120 CPH but may vary according to your car wash line speed: faster the line speed = lower value (in seconds).



Pic #71: Hood Sensing Timer Box



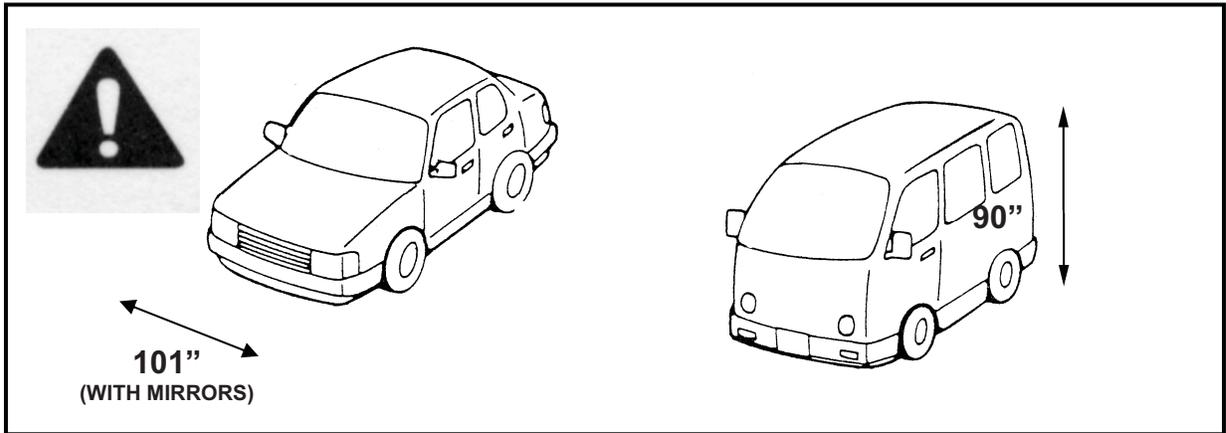
Pic #72: Sonar Sensing Distances Boxes



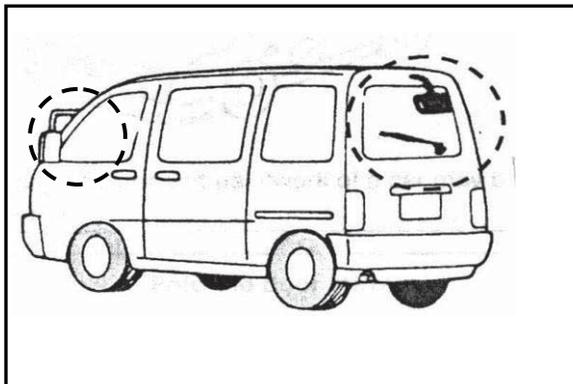
IMPORTANT NOTE:
ADJUSTING THE TIMER ON TOO LONG MAY HAVE THE TOP WHEEL TO RAISE ABOVE THE HOOD OF A REGULAR CAR WHEN THE HOOD SENSOR PHOTO-EYES BEAM IS OBSTRUCTED BY THE "A" PILLAR OF THE CAR

SONAR HEIGHT SENSING:

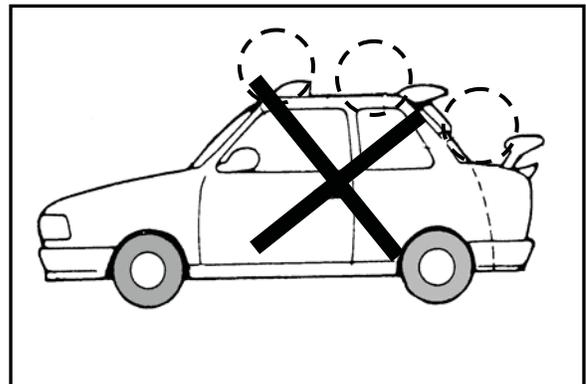
The Dry N'Shine can also use the sonar sensor to measure the height of the vehicle front. To do so, the input X20 has to be ON in the control box. To turn ON the input, connect a wire jumper from 0VDC terminal to the input on the PLC. The two **MIN HOOD HEIGHT** and **MAX HOOD HEIGHT** will appear on the screen (see Picture #72). The hood height sensing is now done using the sonar sensor instead of the hood sensing photo-eyes. The **ON TIME HOOD SENSING** still applies and need to be adjust to about 5 seconds but the maximum and minimum height (or hood height window) also has to be inputs. The example above shows a height window between 42 and 60 inches which should covers most oversized vehicles.



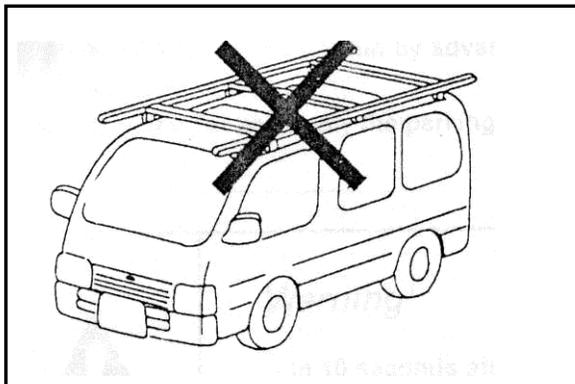
Maximum Overall Dimensions of Vehicles



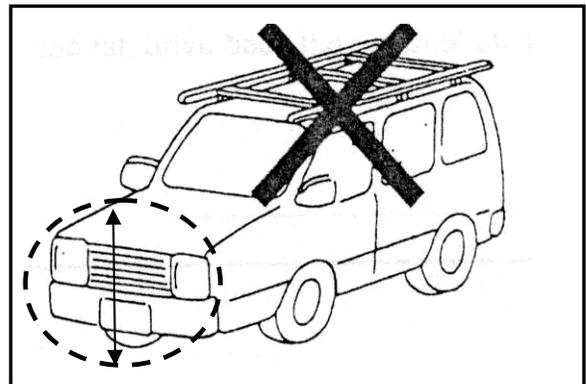
Folds in any Oversized Mirrors



Retract Top Wheel for Vehicles with Oversized Spoilers



Retract Top Wheel for Vehicles with Roof Rack

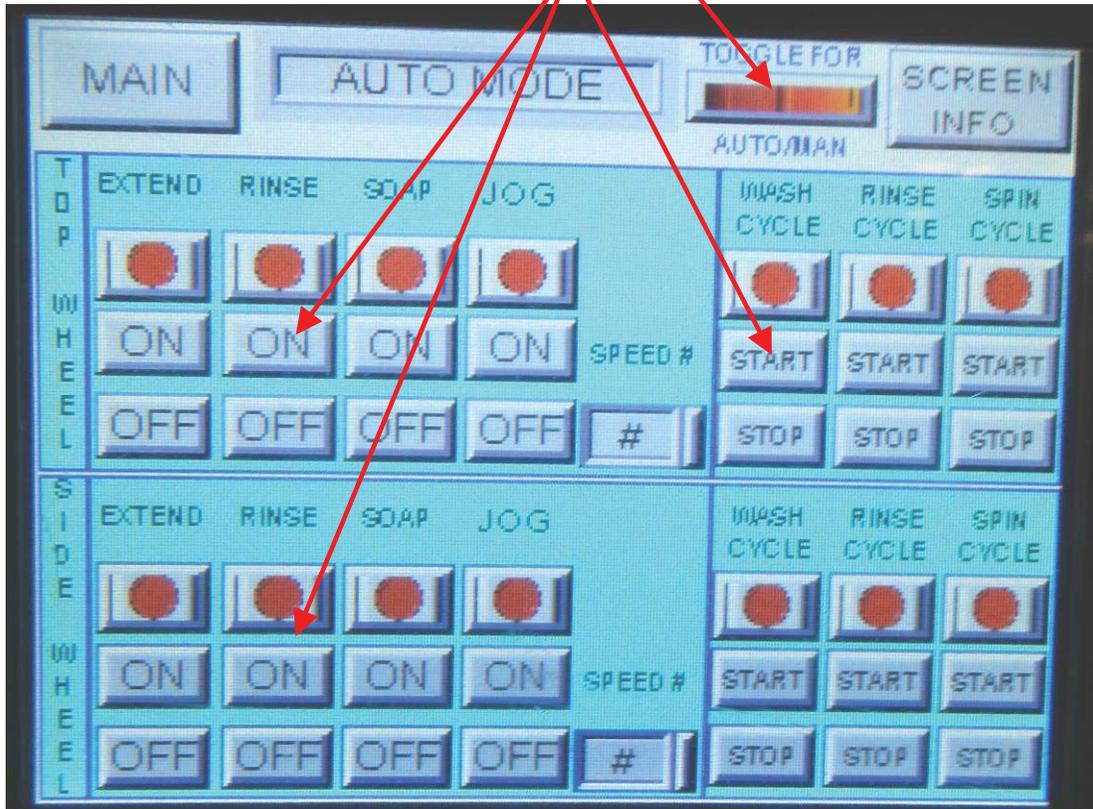


Retract Top Wheel for Vehicles with Front End Taller Than 60" Off the Ground

Pic #73 Vehicle Restrictions

AUTO/MANUAL CONTROL SCREEN:

This screen is used to force some of the Dry N'Shine functions. To turn **ON** any of the listed function, **PUSH** the **AUTO/MANUAL** button located on top right of the screen (see below). A beeper will now warn you of the imminent start of any of the function then push any of the function buttons.



Pic #74 Auto/Manual Screen



WARNING!

INSURE THAT ALL PERSONAL OR ANYONE ARE CLEAR FROM THE EQUIPMENT BEFORE FORCING ANY OUTPUT ON.

To **JOG ON** any of the brushes, toggle the ON button of the desired brush (TOP or SIDES) and then input a speed value in the **SPD#** window.

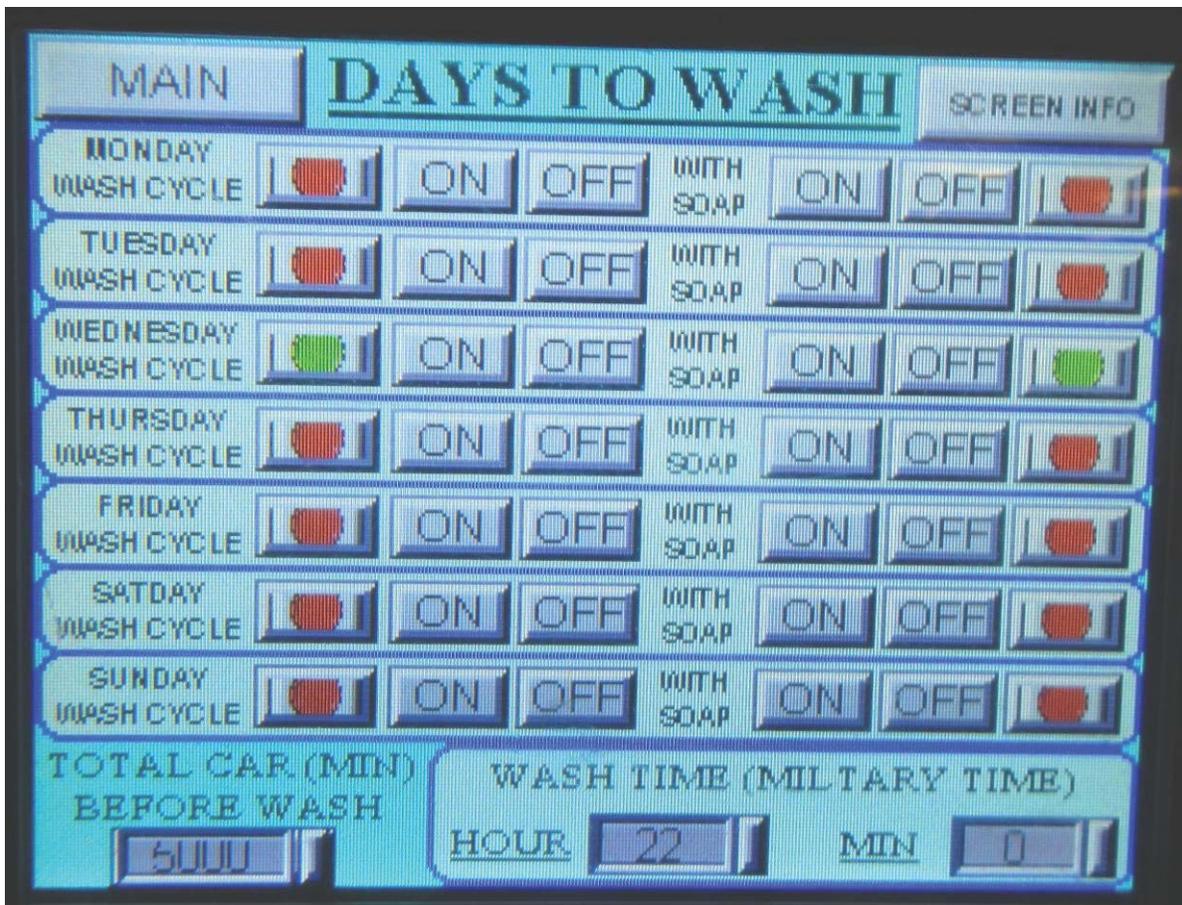
- SPEED #1 IS SLOWDOWN SPEED**
- SPEED #2 IS DRYING VEHICLE SPEED**
- SPEED #3 IS SPIN DRY SPEED**
- AND SPEED #4 IS BEATER BAR SPEED**



WARNING!

YOU CAN START A WASH OR RINSE CYCLE BY MANUALLY PUSH THE START BUTTON, HOWEVER INSURE THAT THE BRUSH WILL HAVE SUFFICIENT TIME TO SPIN/DRY BEFORE BEING OPERATIONAL.

SELECT DAYS TO WASH SCREEN:



Pic #75 Days To Wash Settings Screen

The **DAYS TO WASH SETTING SCREEN** is your wash cycles calendar screen allowing you to chose the time of the day, which days of the week laundering the brushes is desirable as well as how many car before “laundry day”. The time has to be entered “military time” example: 22:00 is 10:00 PM by night. If no wash is desired, you may not select any day or **set the TOTAL CAR BEFORE WASH** counter value to 0



WARNING!

BECAUSE OF THE AUTOMATED NATURE OF THE DRY N'SHINE AND ITS ABILITY TO RUN BETWEEN CARS EVEN AFTER THE CONVEYOR STOPS RUNNING, THE EMERGENCY STOP CIRCUIT OF THE DRY N'SHINE HAS TO BE TESTED AND FUNCTIONAL. PLEASE INSURE PROPER CONNECTION OF THE EMERGENCY CIRCUIT WITH THE CAR WASH CIRCUITRY!

PLC CLOCK SETTING SCREEN:

The **PLC CLOCK** setting screen is used to verify the time entered as well as modifying the time displayed on the **HMI MAIN SCREEN**. The time is military time. Save any change by pressing “**SET PLC CLOCK TO HMI CLOCK**” button like shown below.