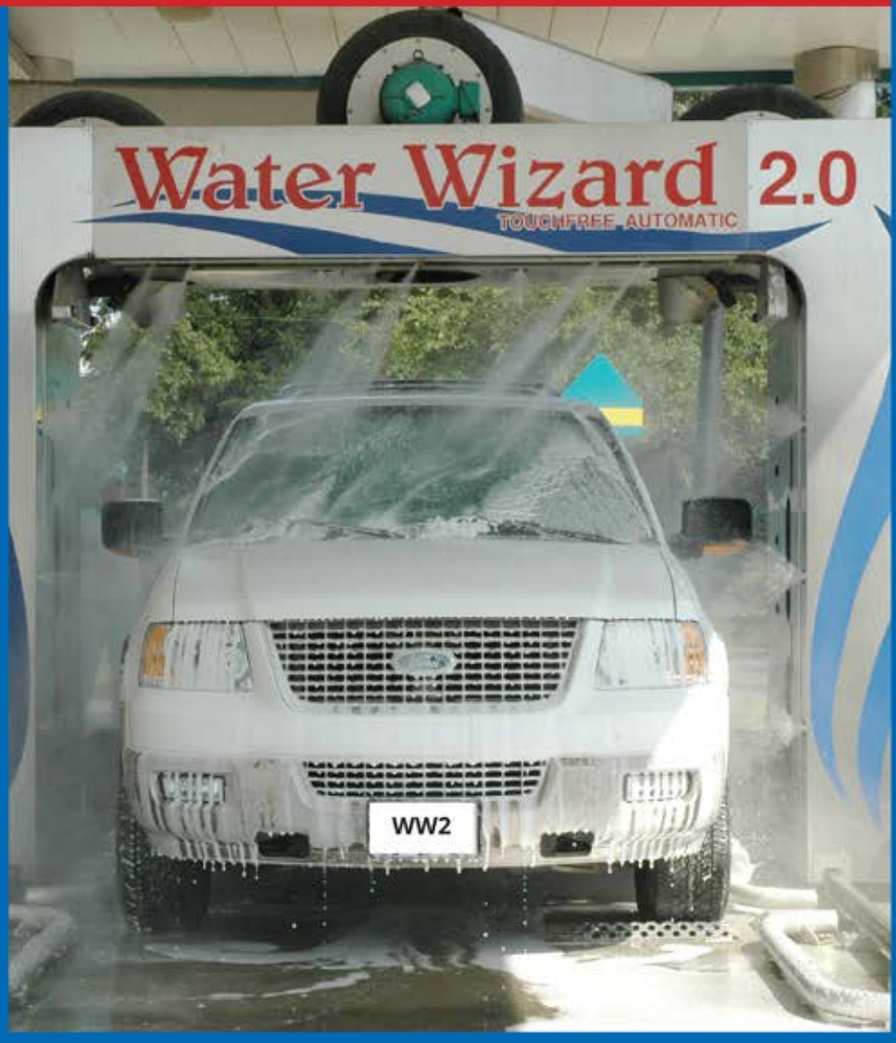
Water Wizard
TOUCHLESS AUTOMATIC 2.0

Installation Manual



COLEMAN HANNA
CARWASH SYSTEMS LLC

AN O'HANRAHAN COLEMAN COMPANY

WATER WIZARD 2.0

INSTALLATION PROCEDURE

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INSTALLATION KIT FOR THE WATER WIZARD 2.0

This list is included in the owner's manual so you can verify what should be in your shipment.

INSTALLATION KIT FOR WATER WIZARD 2.0

JOB:_____ **AKO**_____

LOCATION:_____ **DATE**_____

BUILT BY:_____ **DOUBLE CHECK BY:**_____

	QTY	DESCRIPTION	SHIPPED	BACK ORDERED
BOTTOM OF BOX:				
	1	BOOM PLATE		
	1	BACK-UP PLATE		
	4	EYE BOXES WITH LIDS		
	2	PROX TARGETS (for Home & End o Trk)		
	1	TREADLE PLATE		
	1	DISCONECT BOX		
	400	SHIMS		
	2	HOLD DOWN BRKTS		
	2	UNDERCAR RAMPS		
	100	5 1/2" X 1/2" CONCRETE BOLTS		
	4	1 1/4 PILLOW BEARINGS VPS120		
PANEL ROOM:				
	1	GEA INSTALL KIT		
	1	THERMOSTAT		
HOSE DEPT:				
	70'	12/5 S.O. CORD		
	70'	12/3 S.O. CORD		
	70'	4/4 S.O. CORD FOR BLOWER		
	1	BOX 3/4 CLEAR HOSE		
	30'	3/8" GRAY P/L HOSE (for Air)		
	30'	3/8" GREEN P/L HOSE (for Tire Cleaner)		
	30'	1/2" BLUE P/L HOSE (for Presoak)		
	30'	1/2" RED P/L HOSE (for Two Step Presoak)		
	30'	1/2" BLACK P/L HOSE (for Triple Shine)		
	30'	1/2" RED P/L HOSE (for L.P. Hot Wax)		
	30'	3/4" BLUE (for Spot Free Rinse)		
	1	1" X 15' H.P. WIRE BRAID HOSE		
	1	1" X 28" WIRE BRAID		
	1	1" X 45" WIRE BRAID		
	1	1" X 60" WIRE BRAID		
	35'	1/2" WIRE BRAID HOSE		
	25'	1" SPIRAL WRAP		
	15'	2" SPIRAL WRAP		
	1	BOX OF HARDWARE		
MISC:	1	OWNERS MANUAL		
	1	VINYL BOOM COVER		

DOOR KIT _

FOR TWO STEP _

GAS WINTER WIZARD_

ELECT. WINTER WIZARD_

CIRCULATING P.S. ___

LOW PRESS. HOT WAX___

MECHANICAL TREADLE_

INSTALLATION PROCEDURES

The Water Wizard 2.0 Electrical Control Center and gantry are pre-plumbed and pre-wired at the factory. This makes the installation a fairly easy and straightforward operation. The only special tools needed for the installation are a hammer drill and bits for installing the track and other bay equipment and a forklift for setting the gantry on the track. The installation can be accomplished by following a simple step-by-step procedure.

The steps you will need to perform are:

1. Install the equipment in the equipment room.
   - **a.** Set the pump stand.
   - **b.** Set the Water Wizard 2.0 Electrical Control Center.
2. Install the equipment in the automatic bay.
   - **a.** Set the track
   - **b.** Set the guide rails.
   - **c.** Set the Gantry.
   - **d.** Install the Boom Assembly.
   - **e.** Install the plumbing from the pump stand to the gantry.
   - **f.** Set the treadle plate, entrance and treadle plate eyes
   - **g.** Set the undercarriage bar and ramps.
   - **h.** Set the 2-position sign and the 10-position sign (If applicable)
3. Install the electrical from the Water Wizard 2.0 Electrical Control Center to the gantry.
4. Wire the Spot-free to the Self-Serve pump stand.
5. Wire the Stand-alone Dryers.
6. Wire the Freeze Thermostat
7. Wire the Bay Doors.
8. Install the plumbing from the incoming water supply to the pump stand.
   NOTE: Use a licensed plumber for this step.
9. Install the electrical from the breaker panels to the WW ECC.
   NOTE: Use a licensed electrician for this step.
10. Set the Auto Cashier.
11. Set the Clearance Bar

STEP 1: SETTING THE EQUIPMENT IN THE EQUIPMENT ROOM

a) SET THE PUMP STAND:

Pump Stand With Control Panel Mounted on the End

Take the pumping unit with electrical box still mounted on the end into equipment room. When you set the unit in place, leave at least 18" between the wall and pumping plant. The 18" clearance allows access behind the unit for plumbing and service work. You need to position the unit on the wall closest to the gantry and in a place so that the electrical box can be removed and mounted to the wall; keep in mind that the 1¼" seal tight is only 6' long. For this reason, the cabinet needs to be mounted next to pumping unit.

After the pumping unit has been set in place with at least 18" of clearance between the wall and pumping unit, level the pumping plant by placing a level on 2" frame and turning leveling legs either up or down to obtain levelness.

b) SET THE WATER WIZARD 2.0 ELECTRICAL CONTROL CENTER

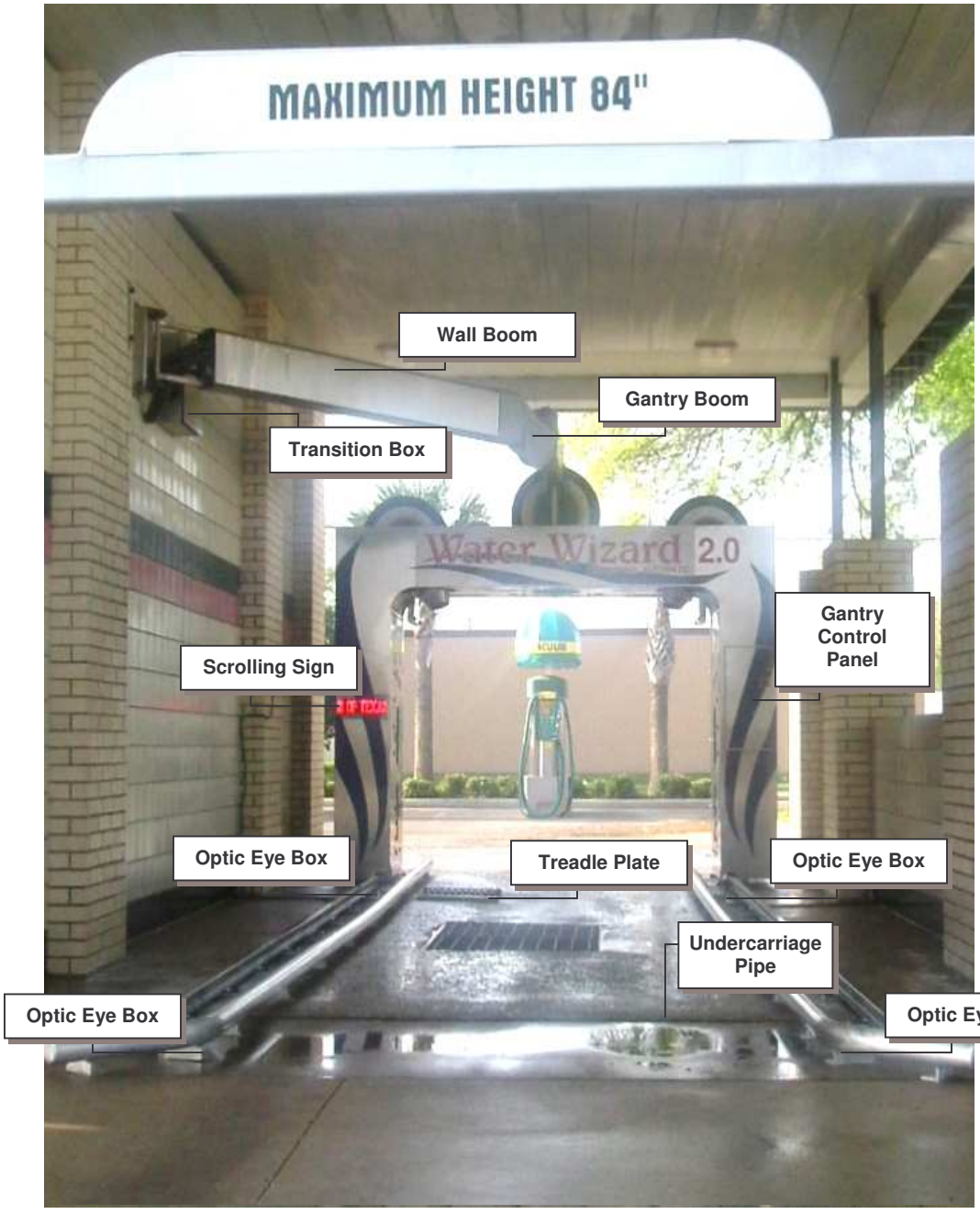
Water Wizard 2.0 Pump Stand

Electrical Control Center

Remove the electrical control center (ECC) from the pumping unit and mount to the wall using the proper mounting bolts according to the material of the wall.

NOTE: The ECC should not be left attached to the pumping unit because the vibration of the pumps and motors could cause problems with the computer devices and will void any warranties.

STEP 2: SET THE EQUIPMENT IN THE BAY



a) Set the Tracks:

You will need the blueprint labeled **"M1.0 & M1.A"** for setting the equipment in the bay. This gives the dimensions for the layout in the bay for the tracks and guide rails. It also gives the elevations for installing the boom and transition box.

Chalk a line 56 1/8" from the centerline of the bay to mark the center of the first track. Set one of the tracks at the center of this line. Level the track along its full length, using the shims you received in the shipment. If you run out of shims, use either 5/8" washers or some 3/4" galvanized pipe couplings as shims.

NOTE: When mounting the track, always mount one side completely, then you can measure from one track to the other so that you can set the second track at **112 1/4"** on center. This distance will allow the unit to run in the center of the wheels reducing wear on wheels, bearings and track.

Once all bolts have been installed and tightened, set the other track at 112 1/4". Keep in mind both tracks should be as level as possible with one another as well as along the path of travel. If a track is installed in sections, weld the gap between the tracks and grind the weld smooth. Do not grind the weld so much that you create a dip in the track.

NOTE: Always drill all the way through concrete when possible so that if you make a mistake, you can hammer the bolt through concrete and install a new bolt in the same hole. The pitch in the bay floor may require you to use longer 1/2" concrete bolts. You can purchase longer bolts at most hardware stores.

b) Set the Guide Rails

When mounting the guide rails you do not need to level the rails. Mount them directly to the floor. There is no problem if you end up with a bow in the rail. Use 1/2" concrete anchor bolts to secure the rail to the floor.

c) Set the Gantry

Once the tracks are set, pick up the gantry unit with a forklift and set it on the tracks in middle of the bay if possible. We recommend setting it the middle so when you hang the boom assembly you can rest it on the gantry while installing it.

NOTE: Be sure you set the gantry so the Electrical Panel is facing the entrance end of the Car Wash and the safety eye cans are facing the exit end of the Car Wash.

d) Install the Boom Assembly

Each boom has two sections. The longer section mounts on the wall, and the shorter section mounts on the gantry.

On each section of boom assembly are three 1/2" stainless steel tubes for pre-soak. There is one for low ph pre-soak, one for high ph pre-soak, and one for circulating pre-soak. Also, on each section are four 3/8" brass tubes. One brass tube is for air, and the other three are for tri-color wax. The 3/8" stainless steel tube is for the

Tire Cleaner. The 1" stainless steel tube is for the HP Functions, and the ¾" Schedule 80 PVC is for spot-free rinse. The anti-freeze system circulates through the square tubing on the frame of the boom. Use one square tube as the supply and the other as the return.

There are two PVC conduits for the electrical. Use one for the 24VAC cable and communication cable. Use the other for the 208\230 VAC 3ph cable and an additional PVC conduit for the 4/4 electrical used for the blower.

1) Gantry Boom Assembly

For the gantry with no on-board blowers, the shaft for the boom is 18½" long from the end of the shaft to the bottom of the boom. For the gantry with on-board blowers, the shaft is 29" long. Make sure you have the right boom. The boom with the longer shaft will allow the boom to pass over the blower housing for on-board blower units.

Mount the boom to the gantry first. This will help you line up the two booms when mounting the wall mounted boom assembly. Slide two 1¼" pillow block bearings on shaft and mount the bearings to the stainless steel plate that is welded in the center of gantry. The gantry boom needs about ¼" of clearance between the highest point of the top of gantry (which may be the top boom motor) and bottom of the boom.

NOTE: Make sure the wall boom and the gantry boom are at the same height, or as close as possible. If the boom hits the top boom motor, you need to recheck your measurements.

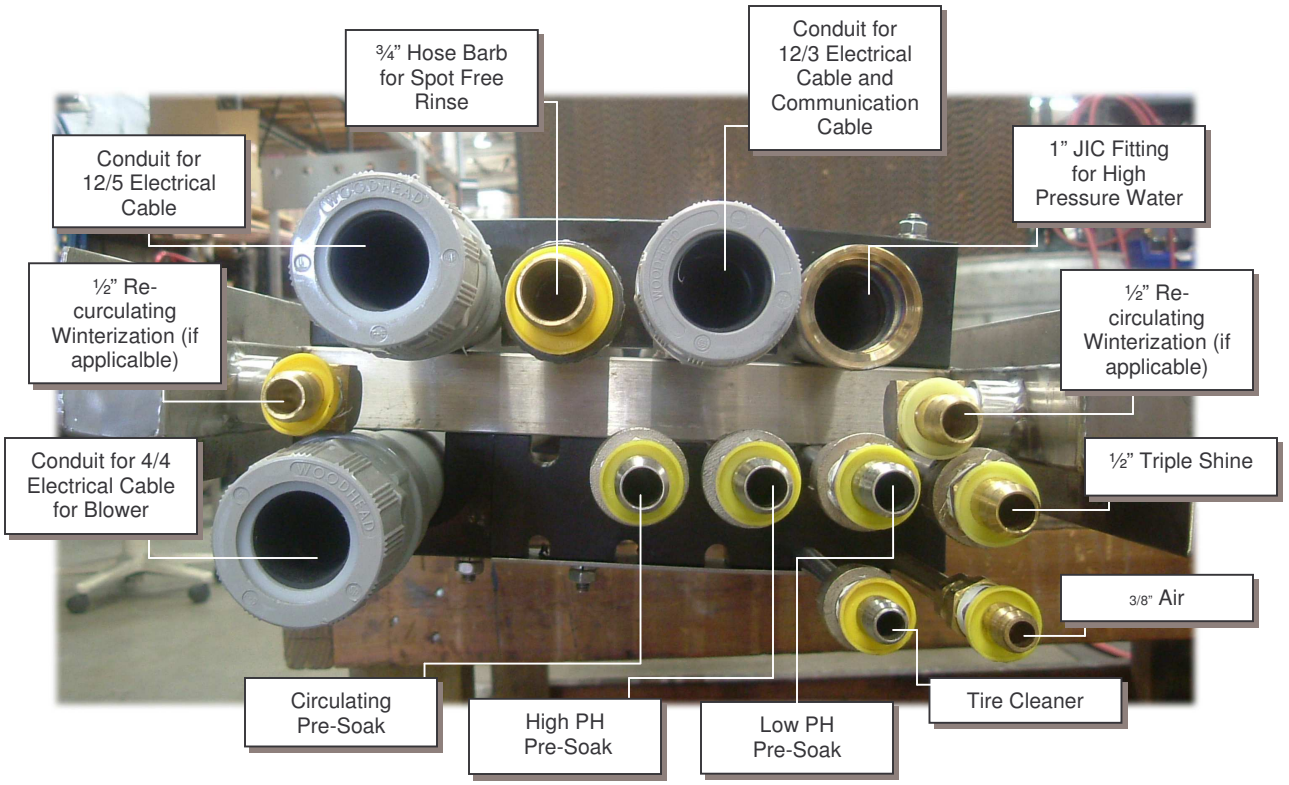
2) Wall-Mounted Boom Assembly

Of course, the boom and disconnect box for the gantry with on-board blowers will mount higher than the boom and disconnect box for the gantry without on-board blowers.

Lay out the location for mounting the "boom assembly mounting bracket" on the wall according to the measurements on drawing M 1.0 and according to the type of gantry you have. Drill holes through the wall and use the back-plate to prevent the bolts from pulling through the brick.

Once the boom bracket has been installed, slide 1¼" pillow block bearings onto the boom shaft and hang the boom on the bracket. Then bolt the boom to the bracket using ½" stainless steel nylon self-locking nuts.

NOTE: Use "Never Seize" on bolt threads.



Boom Assembly

3) Disconnect Box

Lay out the wall for the location of the disconnect box for the boom according to the measurements on drawing M1.A. Mount the box so the large hole faces the boom. The hoses go out the side of the Disconnect Box directly to the pipes mounted on the boom. If the equipment room is next to the automatic bay, the disconnect box will have couplings welded to the back of the box.

If the automatic bay is an extended bay not next to the equipment room, the box will have the fittings welded to the opposite side of the hole in the side of the box. It will have 90° fittings facing up to attach the hoses coming from the equipment room. Route the hoses from the equipment room, through the attic or on top of the roof (depending on the roof style of the car wash, then down through the ceiling of the automatic bay into the hose connectors of the disconnect box.

If the automatic bay is next to the equipment room, you will need to cut a hole in the wall, leaving enough space for the disconnect box to be mounted over the hole. Be careful not to cut the hole in the wall larger than 16" X 16". You can confirm the size of the hole with the box before cutting the hole. Once the hole has been cut in the wall, place the disconnect box over the hole with the large hole facing the boom and mount it to the wall using plastic anchors and stainless steel screws.

Once the box is mounted, swing the boom towards the entrance end of the car wash and connect all the hoses from the Disconnect Box to the Pipes attached to the boom. Run the SO Cord through the conduits going through the cord grip connectors at each end of the conduit.

e) Install The Plumbing From The Gantry To The Pumping Plant

NOTE: Do not connect any hoses to the high-pressure box or low-pressure box until after you flush out the lines during the Startup procedure.

An installation kit is shipped with each unit, which includes all of the electrical cables and hoses you need between the gantry and pumping stand. The contents of the installation kit are listed on pages 3 and 4 of this section. For instructions on where the hoses go, see the portion of this section labeled "Wall Boom Installation."

A standard hook-up is when the automatic bay is next to equipment room. If the automatic bay is not next to the equipment room, you will need an extended bay installation kit. As a rule of thumb, add 20' of hose for each bay between the equipment room and the automatic bay. The price book lists the hose extension kit with its part number and price.

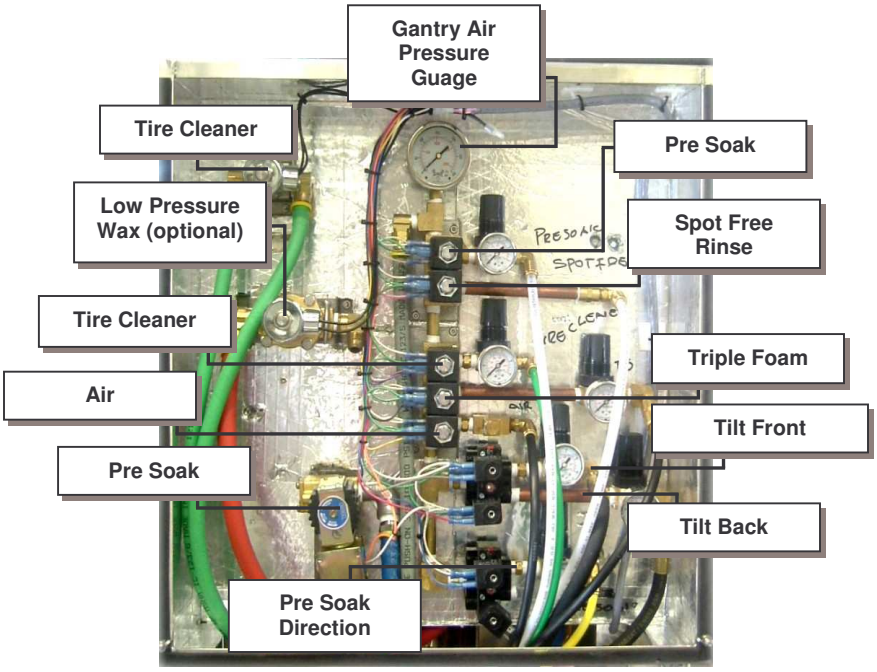
To hook up the product between the gantry and the pumping stand, you will need to use the Parker Hoses from the installation kit. All hoses for the products will hook to appropriate connector on the back of the pumping plant, except the blue ¾" R. O. hose. The R. O. hose connects to the R. O. pump on the R. O. system. Each hose will then go to the appropriate connector on the back of the disconnect box mounted on the wall. In the case of a remote bay, the connectors will be located on top of the box.

1) Connect the hoses to the Low-Pressure Box

The following table shows how we identify each hose function by color and size:

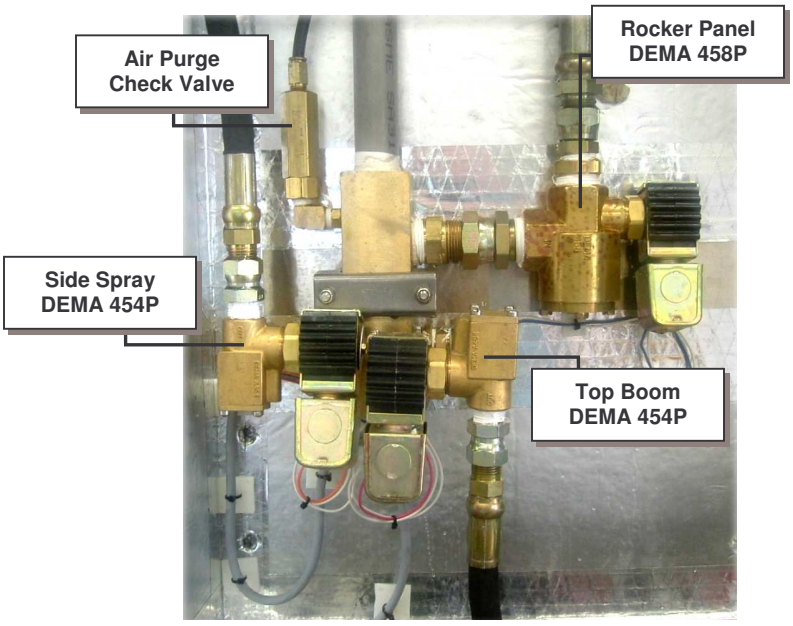
Function	Hose Color	Hose Size
Low PH Presoak	Red	1/2"
High PH Presoak	Blue	1/2"
Tire Cleaner	Green	3/8"
Tri-color Wax (Yellow)	Yellow	3/8"
Tri-color Wax (Blue)	Blue	3/8"
Tri-color Wax (Red)	Red	3/8"
Air	Gray	3/8"
Spot-free Rinse	Blue	3/4"

Begin connecting the hoses for the low-pressure box at the chemical pump on the pump stand and run the hoses to the back of the disconnect box. Then, connect the hoses between the wall-mounted boom and the gantry-mounted boom. Finally, connect the hoses from the low-pressure box to the gantry-mounted boom.



Low Pressure Box on Gantry (Driver's Side)

2) Connect hoses to the high-pressure box



High Pressure Box on Gantry (Passenger's Side)

The ¾" push lock hose connects to the Automatic R.O. Delivery pump on the Self-Serve or Stand Alone R.O. System to the transition box. From inside of the transition box connect a ¾" push lock hose, run the hose through the wall and gantry boom to the ¾" fitting on the gantry disconnect plate located at the top of the wash gantry.

3) Connect the Undercarriage Bar

The ½" wire braid hose will connect to the ½" 454P DEMA located in lower front center of pumping plant. This hose will connect to stainless steel undercarriage spray bar. Leave tips out until the hose and bar have been flushed out for 1 minute.

This completes all hose connections.

f) Set the Treadle Plate, Entrance and Treadle Eyes

Using the print labeled **"SHEET M1.0",** set the eye boxes for the entrance and treadle eyes with ¼" concrete anchors. Set the treadle plate with ½" anchor bolts. Grind the bolts off flush with the nut, to avoid cars running over the bolt and inadvertently getting a flat tire.

1) Eye Sensor Wiring

There are four eye sensors sent with each unit (two transmitters and two receivers). These eyes go in the stainless steel eye boxes you just mounted in the bay (see the drawing M2.0 and wiring diagram on page 17). Put the receivers in the stainless-steel boxes on the equipment room side of the bay, and the transmitters in the boxes on the opposite side of the bay.

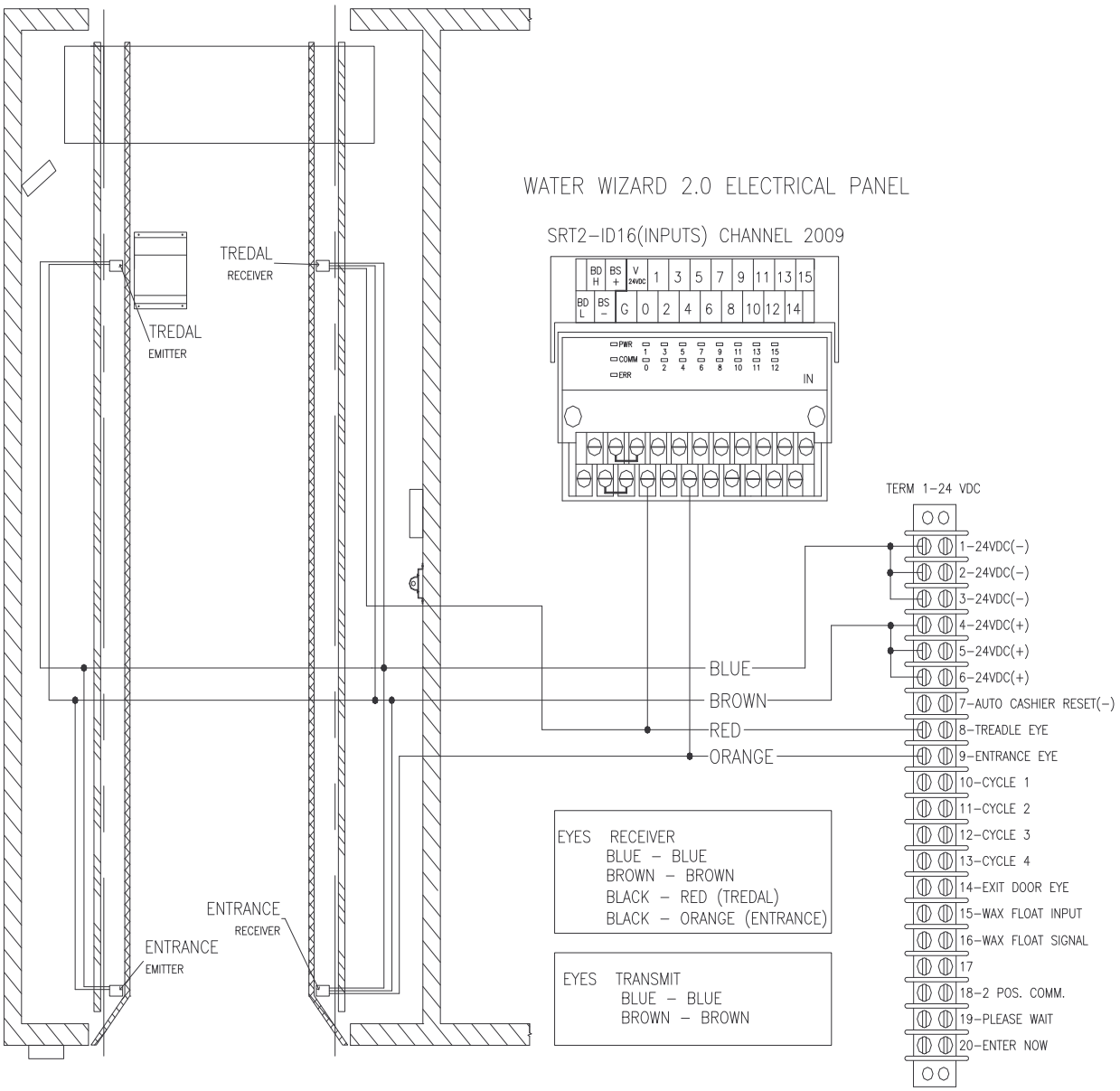
Have your electrician run a conduit from the WW ECC to a J-box by each of the receiver eyes. You will also need a conduit going underground (or overhead) to J-boxes by each of the transmitters.

You are supplied with four gray cables that are terminated with a plug on one end. Run the cables in a flexible, watertight conduit from the Eye box to each of the J-boxes provided by the electrician in the bay.

The cables are not long enough to reach to the ECC in the equipment room, so you will need to run some wires to the four J-boxes your electrician installed in the bay. You need two wires [brown for 24 DCV (+) and blue for 24 DCV (-)] for the transmitter and receiver eyes. In addition you need another two wires for the receiver eyes. One wire will go to the treadle receiver eye, and the other will go to the entrance receiver eye.
Both transmitter and receiver eyes are powered by 24 VDC. The two extra wires which go to each of the receiver eyes connects to the white wire of the cable going to the receiver eyes. This will serve as the input wire for each set of eyes, which you will tie into the **"Term 1"** terminal strip.

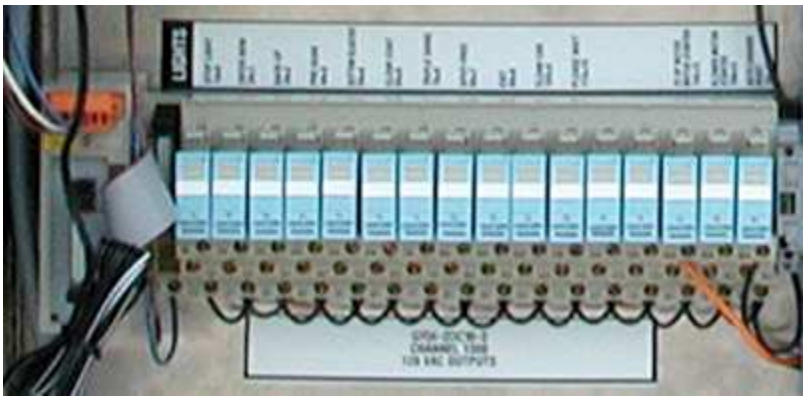
Run the cable from the stainless steel eye boxes in the bay through the conduit from the J-box to the ECC. You need one input for the treadle eye, and one input for the entrance eye. **Refer to drawing on page 17 for correct wiring**.

Note: Install receiver eye on the Equipment Room Side of the Bay.



EYES WIRING DIAGRAM

G70A-ZOC16 AND SIGN WIRING



The Optional 10 position sign is lit by an output from the G70A-ZOC16-3-DC24 output card inside the ECC located inside the equipment room. This output card is located at the lower left corner of the WW ECC. See the picture above.

Below the relays are three rows of screws. The screws along the bottom row are the relay common contacts. These screws are jumpered together with 120VAC feeding them through a ten amp fuse, also located on the din rail to the right of the G70A-ZOC16.

The screws along the top row are the normally open contacts, and the screws along the middle row are the normally closed contacts (not used). Run one wire for each light function from the top row of screws (normally open contact) on the ZOC16 to the terminal strip inside of each of the light cans. (See the chart below for proper outputs).

NOTE: DO NOT use the middle row of screws. This is the Normally Closed contact, which are not used.

The SRT2-VOD16 and the G70A-ZOC16 are powered by 24VDC. If not pre-wired from the factory, hook up the 24VDC(+) (Brown Wire) to BS (+) on both cards and 24VDC(-) (Blue Wire) to the BS (-) on both cards. On the SRT2-VOD16, hook up the communications wires (Black for BDH and White for BDL) to the BDH and BDL connections of one of the other SRT2 cards in the equipment room.

NOTE: DO NOT apply any voltage to BDH or BDL. You will burn up the communications in all of your car wash components, which is very expensive.

In the top of the 10-position sign, you will find a terminal strip for wiring up the sign. Run a ¾" conduit from the WW ECC to a position on the wall. Using an EMT to sealtight connector, run a ¾" sealtight conduit from the wall to the top back of the 10-position sign. Pull the wires from the WW ECC to the sign. Terminate the wires according to the chart below:

Lights - Wiring Diagram

10 POSITION LIGHT (OPTIONAL) INSIDE THE AUTOMATIC BAY		
G70A-ZOC16-3DC24	**WIRE COLOR**	**DESCRIPTION**
14	Red	"Stop"
24	Blue	"Enter"
34	Yellow	"Back-Up"
44	Tan	"Presoak"
54	Purple	"Bottom Blaster"
64	Black	"Clear Coat"
74	Gray	"Triple Shine"
84	Pink	"Spot Free"
94	Orange	"Exit"
104	Brown	"A Clean Car Is A Happy Car"
TERM 3		
2	White	120 Volt Neutral
3 or Ground Bus	Green	Ground

2 POSITION LIGHT AT ENTRANCE OF AUTOMATIC		
TERM 1 - 24 VDC	**WIRE COLOR**	**DESCRIPTION**
20	Blue	"Enter Now"
19	Red	"Please Wait"
SIGN CAN		
Pigtail	Blue	"Enter Now"
Pigtail	Red	"Please Wait"

COMMANDER C-1000 REMOTE

With the Commander C-1000, you can perform the following functions on the scrolling sign:

- Adjust the brightness of the sign
  - Press the up or down arrows on the remote
- Test each message in the sign
  - Press "0" for the main message
  - Press "1" through "9" for the first nine messages
  - Press "CNTL" + "0" through "5" for the remaining six messages
- Select different modes
  - Press the "MODE" button, then enter the password "9999" Press "0" to select either Self-Serve Bay or Automatic
  - Press "MODE 2" to select the display type. "MIRROR". The message will be displayed from right to left instead of left to right.
  - Press "3" to change the password.
  - Press "4" to test the sign. This function doesn't really do much.
  - Press "9" to Exit.

CHANGING THE MAIN MESSAGE

The scrolling message when the automatic is not in use is changeable. To change the message, you need a "NULL MODEM" cable and a computer with "Windows". Hook the cable to COM1 of your computer. Press the "START" button, then select "ACCESSORIES", "COMMINICATIONS", "HYPERTERMINAL".

Under a new connection, choose communications under COM1. Change the properties to 9600 Baud, and set the Flow Control to "NONE". Press the Space Bar. A menu will come up that says:

N – New Message
H – Help
Esc – Exit

Press "N" to enter the new message. After entering the message, press the "ESC" key to exit. After you are done, you can save your Hyperterminal session. Then make a shortcut to your desktop for future use.

i) Set the Home and End of Track Prox Targets.

See drawing M1.0 for detailed the prox target mounting location. This will position the prox so it cannot pass the prox plate before the gantry is at the end of the track. Mount the plates perfectly level to give the prox an even signal as it passes over the plate. After mounting the plate, carefully move the gantry so the prox is above the prox plate. Set the prox ⅛th" to 3/8^{ths} above the plate.

STEP 3: INSTALL THE PLUMBING FROM THE WATER SUPPLY TO THE PUMP STAND

WATER and ELECTRIC REQUIREMENTS

230VAC – 3phase - 125 AMP MINIMUM
Fusible Disconnect Switch w/125 Amp Dual Element Fuses

120VAC - 20 AMP DEDICATED

1" SOFT COLD WATER LINE

The Water Wizard 2.0 has a simple hook-up procedure. There is a 1" brass tee in the back of the cold-water tank, which serves as the cold soft water hookup. The ¾" hose on the bottom of the tee, installed at the factory, will feed all chemical hydrominders.

INSTALLATION PROCEDURES

STEP 4: INSTALL THE ELECTRICAL FROM THE ELECTRICAL PANELS TO THE WATER WIZARD 2.0 ELECTRICAL CONTROL CENTER

Run the electrical service for the Water Wizard 2.0 into the Electrical Control Center ("ECC") on either the side or the bottom of the cabinet. Do not put any holes in the top of the cabinet. Metal shavings could fall into a computer component, or water could leak through a hole in the top of the cabinet, damaging the computer and its components.

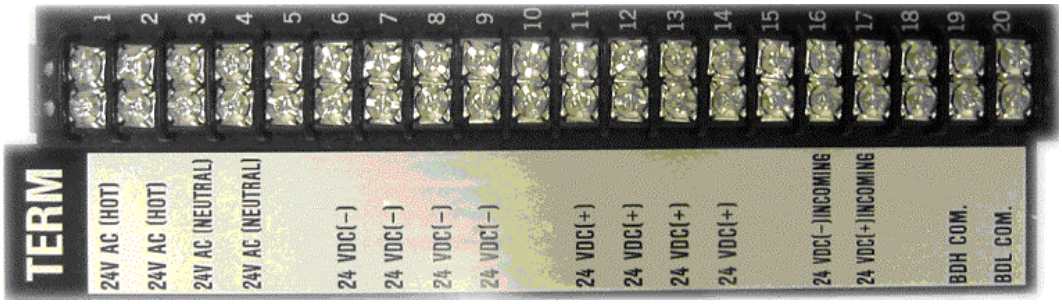
NOTE: If any holes are put in the top resulting in water damage or metal shavings falling into a computer component, causing a short, the warranty will be void.

Terminate the 125-amp 3-phase service for the Water Wizard 2.0 into L1, L2, and L3 of the plastic safety switch in the upper right hand corner of the panel. The bottom of the switch is pre-wired to the 25 HP motor starter and to two breakers.

The single-phase breaker protects the Low Pressure Pumps on the Pump Stand. The three-phase breaker protects the presoak heater and the motors/electronic drives on the gantry.

Terminate the 120 VAC circuit into the auxiliary, normally open contact on the left side of the safety switch. Terminate the 120 VAC Neutral in the terminal block labeled **"120 VAC Neutral"**. This circuit supplies voltage to the transformer, DC power supply, auto cashier, lights and computers.

STEP 5: HOOK UP THE ELECTRICAL FROM THE ECC TO THE GANTRY



Gantry Terminal Strip

INSTALLATION PROCEDURES

The gantry needs 208/230VAC, 24VAC, 24VDC, and communications. In the installation kit, you will find three electrical cords: one 12/5 SO cord (70'), one 12/3 SO cord (70'), and one Communications Cable (RSM531-30M, 30 meters long).

According to the National Electrical Code, Section 400.8, you are not permitted to run flexible SO cords through a wall. Electrical inspectors have called this to our attention. To avoid this problem, you can run a seal-tight from the bottom of the WW ECC to the back of the transition box. Then run your SO cords and communications cables through the seal-tight.

Run the cord through the grommet holes of disconnect box through the boom with all of the other hoses going to the gantry. Route the wires over to the electrical box on the passenger's side of the gantry.

Terminate one end of the 12/5 SO cord in L1, L2, and L3 3-Ph connections in the line side of the contacts for the presoak heater in the WW ECC. By hooking the gantry up in this manner, you can cut power to the gantry with the main switch in the equipment room.

NOTE: The white wire in the 12/5 SO cord is not used. This can be used as a spare if you lose one of the legs in your SO cord, so don't cut it off.

Run 12/5 SO cord to the electrical box on the passenger's side of the gantry. A hole is predrilled in the back of electrical box on the gantry for the 12/5 SO to enter the box. An aluminum GC90 cord grip fitting is provided for installation into the cabinet.

Terminate the black, red, and orange wires in L1, L2, and L3 of the safety switch in the gantry ECC. This will run all three motor starters on the gantry. Terminate the green wire in the ground bar at the bottom of the cabinet.

The 12/3 SO cord and Communication Cable run along the same path as the 12/5 but terminate at different locations. These two cords terminate on a terminal strip located at the bottom left side of the electrical panel on the gantry. The 12/3 S.O. cord is used for 24V AC. Terminate the black wire of the 12/3 S.O. cord in terminal screw #1or #2 (labeled 24 VAC hot). Terminate the white wire on terminal screw #3 or #4 (labeled 24 VAC neutral). Terminate the green wire on the ground bus at the bottom of the panel.

In the gantry, connect the ground wire to the ground bus. The other wires, blue and brown connect to the DC Filter. There is a brown wire, a blue wire, and a green wire. Connect the brown wire [24V DC Positive (+)] to #17 and the blue wire [24V DC Negative (-)] to #16. The black and white wires in the communication cable are communication wires for the Omron computer. Terminate the black wire to terminal screw #19 (BDH Comm). Terminate the white wire to terminal screw #20 (BDL Comm).

STEP 6: WIRE THE SPOT-FREE TO THE SELF SERVE STAND

One of the relays next to the 25HP Motor starter in the WWECC is for Spot-Free. The relay is pre-wired to the **24VAC** terminal strip. The **relay common** goes to **terminal #8**, and the relay **normally-open** contact goes to **terminal #9**.

To wire the spot-free, run **two wires** to the spot-free cabinet (may be in self-serve equipment). Hook one wire to **"24VAC" terminal #7**. Hook the other end of the wire to **24VAC Hot** in the Self-Serve Electrical Panel. You can get **24VAC hot** from the **commons** of the output card on the **spot-free PLC** or from **terminal #1** of any of the bay terminal strips.

The R.O. PLC can service two automatics. The inputs for the automatic bays are **inputs #10 or #11**. The input wire for the **first automatic** terminates at **input #10**. The input wire for the **second automatic** terminates at **input #11**.
See the wiring diagram below:

TERM 2 – 24VAC	Wire Color	PLC Input
#8 (COMMON)	Pink	24VAC Hot
#9 (N/O)	Pink	#10 or #11

NOTE: With Money Manager wire per instructions inside Supersaver Cabinet.

INSTALLATION PROCEDURES

STEP 7: WIRE THE DRYERS

a) Stand-Alone Dryers

The stand-alone dryer is controlled by output 2003.14 of the ROC16. You only need two wires going to the control panel of the Free-Standing Blower Control Panel, one 120VAC hot to output 2003.14 and one 120VAC neutral to #4 on Term #3 – 120VAC

If you need to change the voltage for the output, take the jumpers out of the common for relay 14 in the bottom row of the ROC16. Put a jumper wire between the commons for outputs #13 and #15. Wire the voltage you need to the common of output 2003.14.

> **NOTE: If you need to change the voltage please call the Jim Coleman Co. technical support.**

DIXMOR DIGITAL TIMER WIRING

To wire the Digital timer, you need four wires from the ECC to the timer. You need a black wire for 120 VAC Hot, a white wire for 120 VAC Neutral, and two control wires. See the wiring diagram below.

Terminal 2 24VAC	Terminal 3 120VAC	Wire Color	Dixmor Timer Terminal Strip
	Hot #1	Black	#1
	Neutral #4	White	#2
#10		Purple	#3
#11		Purple	#5

b) On-Board Dryers

Run the 4/4 S. O. cord from the WW ECC to the Dryer Electrical Panel on the top of the gantry. In the Dryer Electrical Panel, terminate the 4/4 in L1, L2, and L3 of the main disconnect switch. Terminate the green wires to the ground bus of the panel.

STEP 8: WIRE THE BAY DOORS

If the car wash is installed where temperatures will fall below freezing, you may wish to purchase the optional door package. The package includes an SRT2-ROC08 and a set of Banner Eyes. When the car wash comes with the door package pre-installed, the SRT2-ROC08 is installed in the Water Wizard 2.0 ECC, and the outputs and commons come pre-wired to the eyes terminal strip. The Eyes Terminal Strip is located near the bottom of the ECC.

NOTE: When the Door Control Package is purchased separately, you must install the SRT2-ROC08 in the ECC. The SRT2-ROC08 is powered by 24VDC and communicates to the Car Wash CPU over the BDH and BDL lines. Terminate BDH with a black wire to BDH of one of the other terminal cards. Terminate BDL with a white wire to BDL of one of the other terminal cards. The card is powered by 24VDC. BS (+) and BS (-) are the 24VDC(+) and 24VDC(-) respectively. Terminate the BS+ with a brown wire to 24VDC (+). Terminate the BS (-) screw with a blue wire to 24VDC (-).

To hook your door controls to the Water Wizard 2.0 ECC, run three wires to both door controllers. In each controller, terminate one wire on the Door Controller Common. Terminate the other wires to the Door Controller Open contact and the Door Controller Close contact.

In the WW ECC, hook the wires to the appropriate screws on the **"TERM 2"** terminal strip. See the wiring diagram that follows:

BAY DOOR WIRING DIAGRAM

TERM 2 24VAC	Wire Color	Door Control	SRT2-ROC16
#13	White/Yellow	Entrance Common	COM 4
#14	White/Blue	Entrance Open	2003.08
#15	Red/Black	Entrance Close	2003.10
#16	White/Yellow	Exit Common	COM 5
#17	Red/Yellow	Exit Open	2003.09
#18	Red/Green	Exit Close	2003.11

You can also wire the windy day switch to input 2009.06 of the SRT2-ID16. When input 2009.06 is on, the doors will close regardless of what the outside temperature is. This feature allows you to close the doors on windy days without activating the blowout feature, even though the temperature is above freezing. To wire the windy day switch, wire 24 VDC (-) to the common terminal of a switch. Then wire the switch leg terminal of the switch to #6 of the SRT2-ID16.

Included with the door package is a set of Banner Eyes. Install the banner eyes on the outside of the Exit door high enough to where the eyes will be blocked for at least two seconds. That means you must install the eyes at bumper height. Wire the Banner Eyes the same way the treadle and entrance eyes are wired. Terminate the DC power of the eyes to DC (+) (brown wire) and DC (-) (blue wire). Terminate the Normally Closed Input of the receiver eye wire (the white wire in the 4.4T cable) to Term #3 Screw #17 in the WW ECC. This screw is pre-wired to input #1 of the SRT2-ID16 in the ECC.

STEP 9: WIRE THE FREEZE THERMOSTAT

No Bay Doors or Bay Doors With no Bay Heat

Inputs 2009.05, 2009.06, and 2009.07 of the SRT2-ID16 of the WW ECC in the equipment room are the three inputs that control the Freeze Blowout and the Bay Door programs. When the temperature rises above the temperature preset on the Thermostat, I**nput 2009.05** will come on and **Input 2009.07** will go off (if wired correctly). When the temperature falls below the temperature preset on the thermostat, **Input 2009.05** will go off and **Input 2009.07** will come on. **Inputs 2009.05 and 2009.07** should never be on at the same time.

When **Input 2009.05** first comes on, the car wash controller sends a 3 second signal to open both Bay Doors. When **Input 2009.07** first comes on, the car wash controller sends a 3 second signal to close both bay doors and execute the blowout program. (See the description of the blowout program below).

Input 2009.06 is the **Windy Day Switch**. When this input first comes on, the car wash controller sends a 3 second signal to close both bay doors. However, the **Blowout Program** will not execute with the windy day switch. This is the difference between **Input 2009.06** and **Input 2009.07**. Both inputs will close the door and operate the **Bay Door** program. Input #7 will also execute the **Blowout Program**. **Inputs 2009.06 and 2009.07** can be on at the same time, or **Inputs 2009.05 and 2009.06** can be on at the same time, but **Inputs 2009.05, 2009.06, and 2009.07** cannot be on at the same time. If **Inputs 2009.06 and 2009.07** are on, the **Blowout Program** will execute even though **Input 2009.06** does not execute the blowout. The **Blowout Program** will execute because **Input 2009.07** is on.

To wire the **Thermostat**, you will need to run three wires to the **Thermostat** from the **WW ECC**. Wire one wire to **24 VDC (-)** in the WW ECC, one wire to the SRT2-ID16 **Input 2009.05**, and one wire to the SRT2-ID16 **Input 2009.07**. In the Thermostat, the **24 VDC (-)** wire goes to the **Common** terminal (**Red screw**). Output 2009.05 of the SRT2-ID16 goes to the **Close on Temperature Rise** contact (White screw), and **Input 2009.07** of the SRT2-ID16 goes to the **Open on Temperature Rise** contact (**Blue screw**).

When the **Blowout Program** is activated, the gantry will blowout all the chemical and water lines once after the temperature drops, and then again once **3 minutes** after each wash, once the car leaves the bay and as long as **Input 2009.07** remains lit. The blowout process goes through a sequence of blowing out all the lines on the gantry five times.

The sequence for the **Blowout Program** is as follows:

Rocker Panel
Side High Pressure Rinse
Top High Pressure Rinse
Tire Cleaner
Top Presoak
Side Presoak
Tri-foam Wax

NOTE: The undercarriage hose does not get blown out nor does it have a weep system. To protect the undercarriage from freezing, run some sort of heating system along the hose. If you have the winter wizard system, run the hoses for the rail heat along the side of the undercarriage hose. If you do not have rail heat, you can run heat tape, or something similar along the hose.

Bay Doors with Bay Heat

If you have Bay Doors with Bay Heat, and you don't want the gantry to blowout the lines, you can wire the thermostat differently. In this case, you will need two thermostats. One thermostat will measure the temperature in the bay, and one thermostat will measure the outside air temperature.

Pull two wires to the thermostat in the bay, and pull three wires to the outside air thermostat. Wire the commons of both thermostats to **24 VDC (-)**. You can bring two wires from the panel, one for each thermostat, or you can bring one wire from the panel to the first thermostat terminating the wire on the **Common terminal (Red screw)** of the first Thermostat. Then run a jumper wire from the first thermostat to the second thermostat, and terminate the jumper wire at each thermostat on the **Thermostat Common terminals (Red screw)**.

For the **Bay Thermostat**, terminate a wire to the **Open on Temperature Rise** contact (**Blue screw**), and terminate the other end to **Input 2009.06 (Windy Day Switch)** of the SRT2-ID16 of the WW ECC in the equipment room.

For the **Outside Air Thermostat**, terminate one wire on the **Close on Temperature Rise** contact of the thermostat **(White screw)**, and terminate the other end of the wire to **Input 2009.05 (Door Thermostat)** of the SRT2-ID16 of the ECC in the equipment room. Terminate another wire on the **Open on Temperature Rise** contact of the thermostat **(Blue screw)** and terminate the other end of the second wire to **Input 2009.07** of the SRT2-ID16 **(Freeze Thermostat)**.

STEP 10: SET THE ENTRY WIZARD OR OTHER AUTO CASHIER

Using the print labeled **"SHEET M1.0"**, set the auto cashier.
NOTE: Entry Wizard is to have a dedicated 120 volt circuit. DO NOT use 120 volt power from the Water Wizard Electrical Control Panel.

Electrical Hookup

120 VAC

Running from a 20 amp breaker from the main Equipment Room Breaker Panel, you should have one conduit with (3) three #12 AWG wires. These wires are:

1-120VAC Hot
1-120VAC Neutral (White)
1-Ground (Green)

> **NOTE: Refer to Auto Cashier instructions for correct voltage.**

Cycle Switch and Entry Wizard Reset
In a separate conduit, run (7) seven #18 AWG wires. These wires are:

Cycle 1 – Pink	**Term 1**
Cycle 2 – Brown	**Term 1**
Cycle 3 – Purple	**Term 1**
Cycle 4 – Gray	**Term 1**
24 VDC (-) Blue	**Term 1**
24 VAC (Hot) Auto Cashier Reset	**Term 2**
24 VAC Neutral	**Term 2**

NOTE: It is recommended to run 4-5 additional wires for future needs.

In the WW ECC, terminate the above wires on the terminal strip labeled:
"TERM 1 - 24VDC" & "TERM 2 – 24VAC"

AUTO CASHIER - HAMILTON
The Hamilton Auto Cashier and Entry Wizard Auto Cashier send and receive the same type of signals to and from the Water Wizard 2.0 Electrical Control Center (ECC). Therefore, the wiring is very similar in both units. Run the Auto Cashier wiring into the (ECC) inside the equipment room. This is where the CPU will accept signals from the Auto Cashier, as well as send reset signals. You will find a terminal strip for the Auto Cashier terminations in the lower right corner of the panel. The terminal strip and all terminations are labeled for your convenience.

You will need a total of 8 wires. They are:
1-120V Hot *(To Main Panel – Not WW ECC)*
1-120V Neutral *(To Main Panel – Not WW ECC*)
1-Ground
4-Cycle Wires 24V DC (-)
1-Inhibit Signal 120V

NOTE: Run all low voltage in a separate conduit.

Inside the Hamilton, there is a single gang box containing the power wires and inhibit wires. Remove the cover and terminate your 120V hot from the ECC to the Hamilton. Then terminate the inhibit signal wire from the ECC to one of the small red wires. This will leave the 120V neutral (white) wire and one small red wire in the single gang box. Twist these two wires together and terminate with the 120V neutral from the ECC. You will then need to wire the signal wires. You will wire the 24V DC (-) from the ECC to terminal #1, on the relay terminal block. Then run jumper wires to terminals #3, #5 and #7. Then wire the cycle wires from the ECC to the relay terminal block. Terminate the wire for cycle #1 wire on terminal #2, cycle #2 on terminal #4, cycle #3 on terminal #6 Cycle #4 on terminal #8.

HAMILTON WIRING DIAGRAM

TERM 1 24VDC	Hamilton Auto Cashier	
24VDC (-)	1,3,5,7	
Cycle 1	2	
Cycle 2	4	
Cycle 3	6	
Cycle 4	8	
120VAC Hot	J-box, Black Wire	
120V Cashier Reset	J-box, Red Wire	
120VAC Neutral	J-box, 1 White & 1 Red Wire	
Ground	J-box, Green Wire	

AUTO CASHIER HAMILTON GOLDLINE

For the power and cycle switches you will need to run three wires for the main power, five wires cycle switches, and two wires for Cycle Inhibit.

Inside the Hamilton Goldline, locate the relay panel as shown in the figure on the following page. On the relay panel are three terminal strips with six screws each. The terminal strips are labeled **A, B,** and **C.** All the wires from the WW ECC to the auto cashier hook to these three terminal strips.

NOTE: ***(120 V power must come from Main Equipment Room Breaker Panel)***

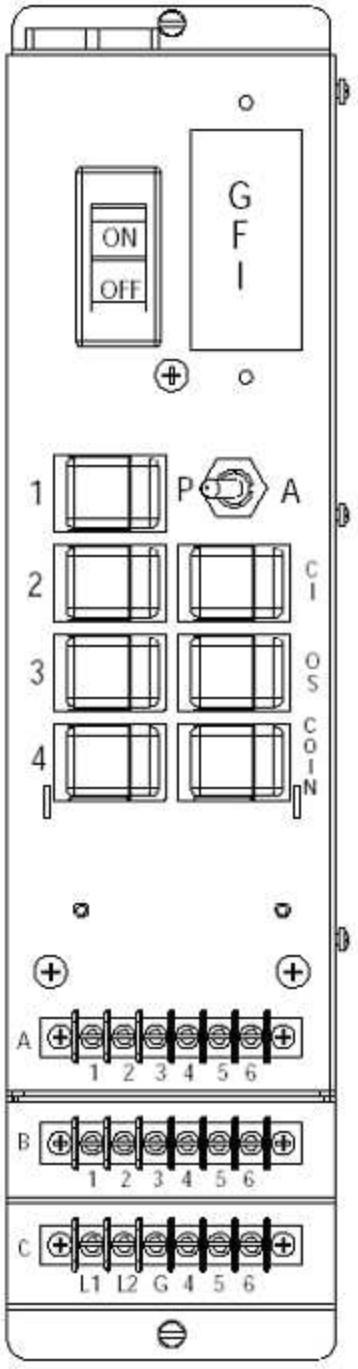
Terminal C is for incoming power and cycle inhibit. For the incoming power, terminate the **120VAC hot** to**L1**, **120 VAC Neutral** to **L2**, and the **ground wire** to **G**. Terminate **Auto Cashier Reset** to **C5** and **120 VAC Neutral** to **C6**.

Terminals A and B are for the cycle switches and the **Out of Service Relay**. Terminate the wire for **24 VDC (-)** to terminal **A1**. Then run jumper wires from **A1** to **A3**, from **A3** to **A5** and from **A5** to **B1**. Terminate the four wires for each of the cycles as follows:

Cycle 1 to A2
Cycle 2 to A4
Cycle 3 to A6
Cycle 4 to B2.

Terminals B3, B4, and **B5** are contacts for an out of service relay. **B3** is the **Common**, **B4** is the **Normally Open Contact**, and **B5** is the **Normally Closed Contact**. If the Goldline goes out of service, this relay is activated. See the diagram below:

Relay Panel



AUTO CASHIER UNITEC

Run the Unitec Auto Cashier wiring into the Electrical Control Center (ECC) inside the equipment room. This is where we will accept signals from the Auto Cashier, as well as send reset signals. You will find a terminal strip for the Auto Cashier terminations in the lower right corner of the panel. The terminal strip and all terminations are labeled for your convenience. You will need a total of 10 wires. They are:

Main Power:

- 1-120V Hot
- 1-120V Neutral
- 1-Ground

Cycle Selection Wires:

- 4-Cycle Wires 24V DC (-)
- 1-24V DC (-) Common (Supply Voltage Blue Wire)

Wash in Use Signal:

- 1-Inhibit Signal 120V
- 1-Inhibit Signal 120V Neutral (can share the neutral with the main power)

NOTE: The Red Lion will need to be changed. To change the Red Lion, select "Change Settings". Enter your four number password, and then press "Enter". Press the "Next" button three times. The top of the screen will say "Unitec Auto Cashier?". Toggle the "No" to "Yes" by pressing the button under the word "TOGGLE". Press "Exit".

We suggest that you run all low voltage in a separate conduit. If this is not possible, then use shielded conductor cable for low voltages.

Hook the wires for the main power into the 3-pronged ac connector, which comes with the unit. (See pages 18 and 19 of the Unitec Wash Select II Installation Manual. Once the cord is assembled as instructed by the manual, you can plug in the main power into the connector in the lower left corner of the cabinet

To test the Unitec Auto Cashier Reset, select "Test Screen" on the Red Lion. Press the "Next Button" Toggle Auto Cashier Reset to "On". Then go see if the Unitec gets put out of service.

UNITEC WIRING DIAGRAM

Signal	**J-18 Connector**
Wash-In-Use Hot	1 (To WW ECC Panel 120 Volt)
Wash-In-Use Neutral	2 (To WW ECC Panel 120 Volt)
POS4000	**J-22 Connector**
Pin 1 – White	Pin 1 – White
Pin 2 – Red	Pin 2 – Red
Pin 3 – Black	Pin 3 – Black
Shield-Not connected	Shield, strap to base mounting bolt in case
Signal	**J-17 Connector**
Cycle Common	9
Cycle #1	4
Cycle #2	3
Cycle #3	2
Cycle #4	1
Spare Option Relays	5-8

Three-Prong AC Connector For Incoming Power
(Power must come from Main Equipment Room Breaker Panel)

Hook the 120VAC hot to the L screw, the 120 VAC Neutral to the N screw and the ground to the G screw.

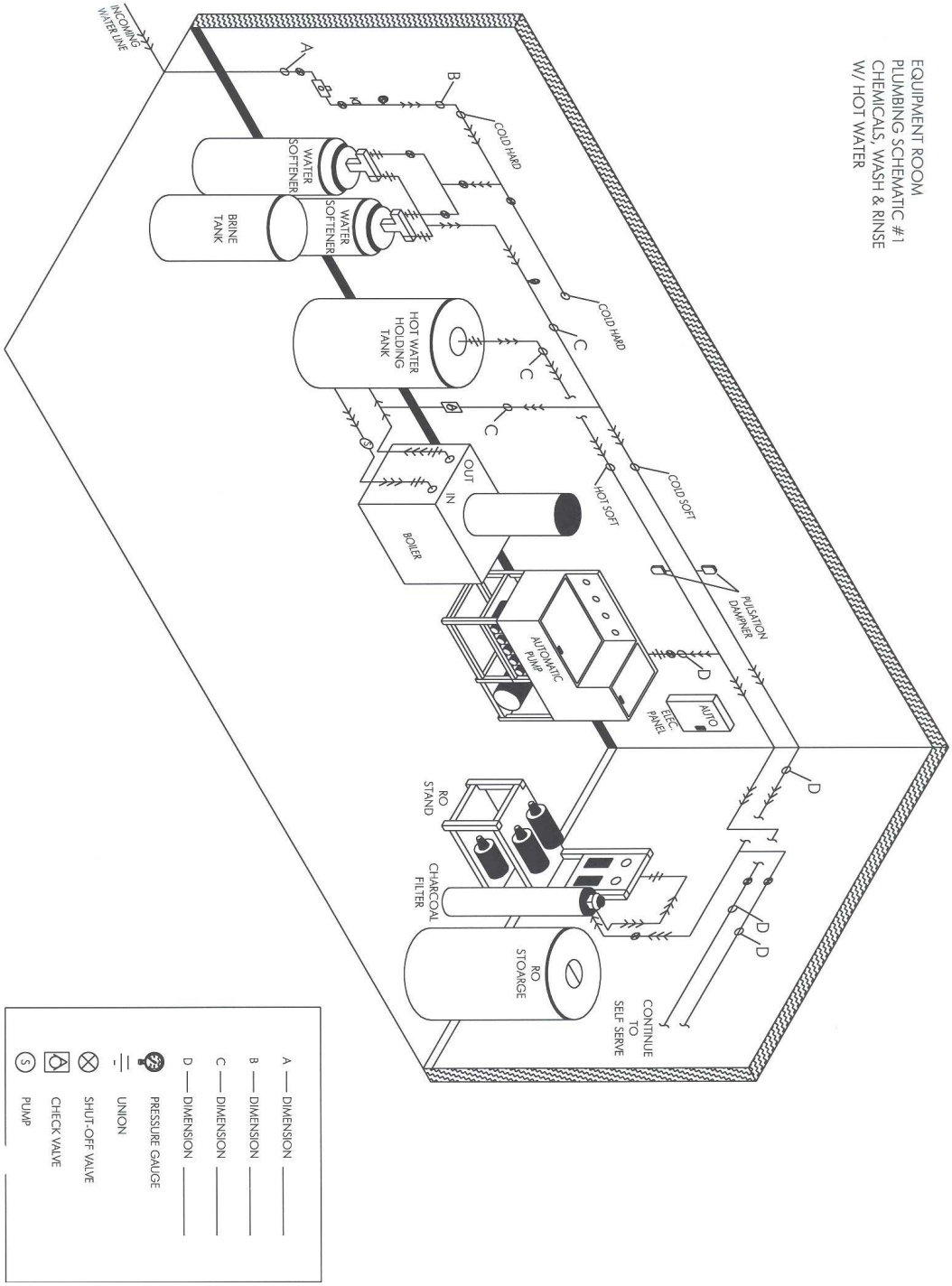
STEP 11: CLEARANCE BAR

Bolt the clearance bar to the concrete, in front of the automatic and centered with the track, using ½" anchor bolts.

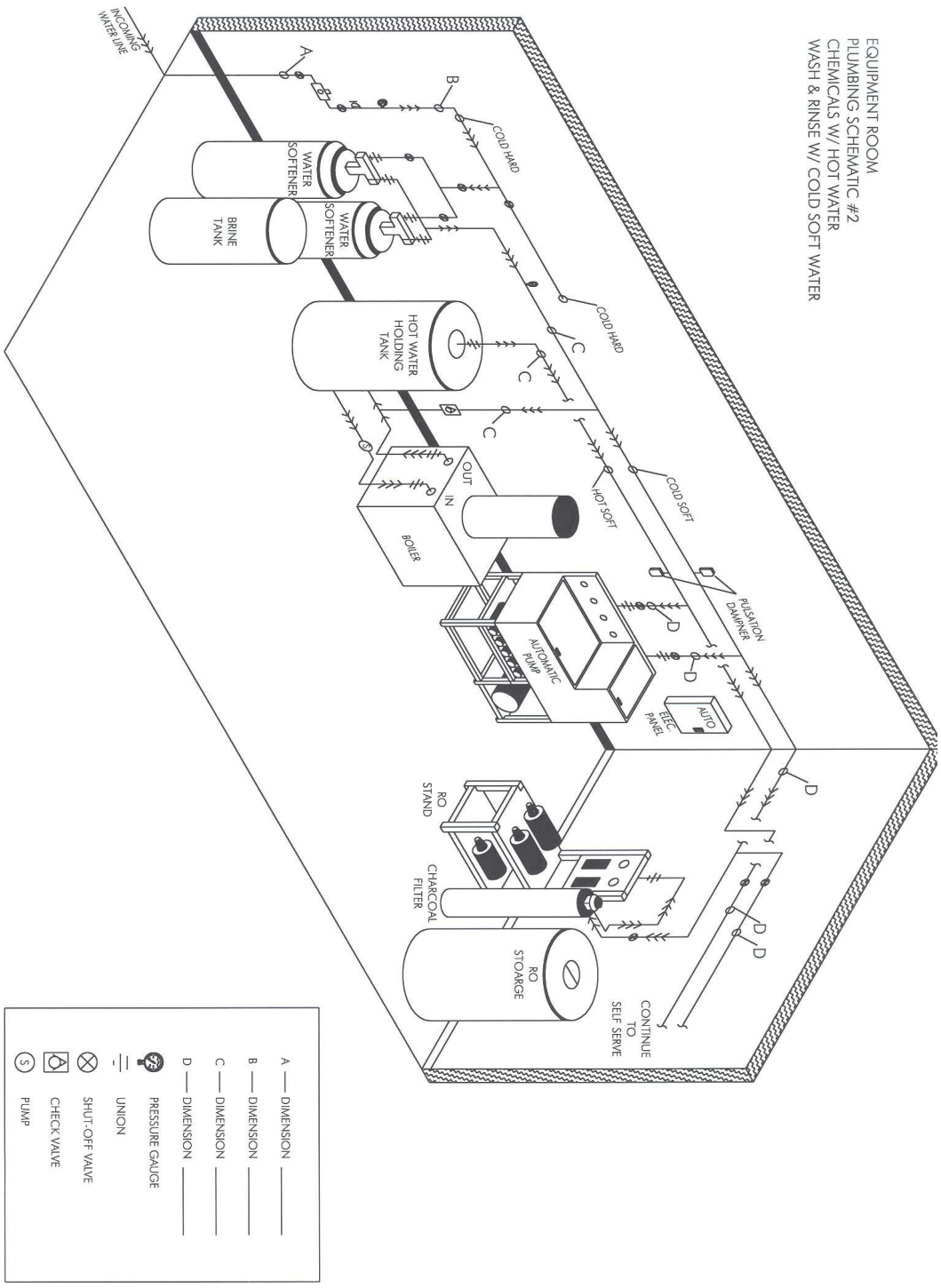
NOTE: The clearance bar can be mounted before the auto cashier, to prevent taller vehicles from inserting their money into the auto cashier.

INSTALLATION PROCEDURES

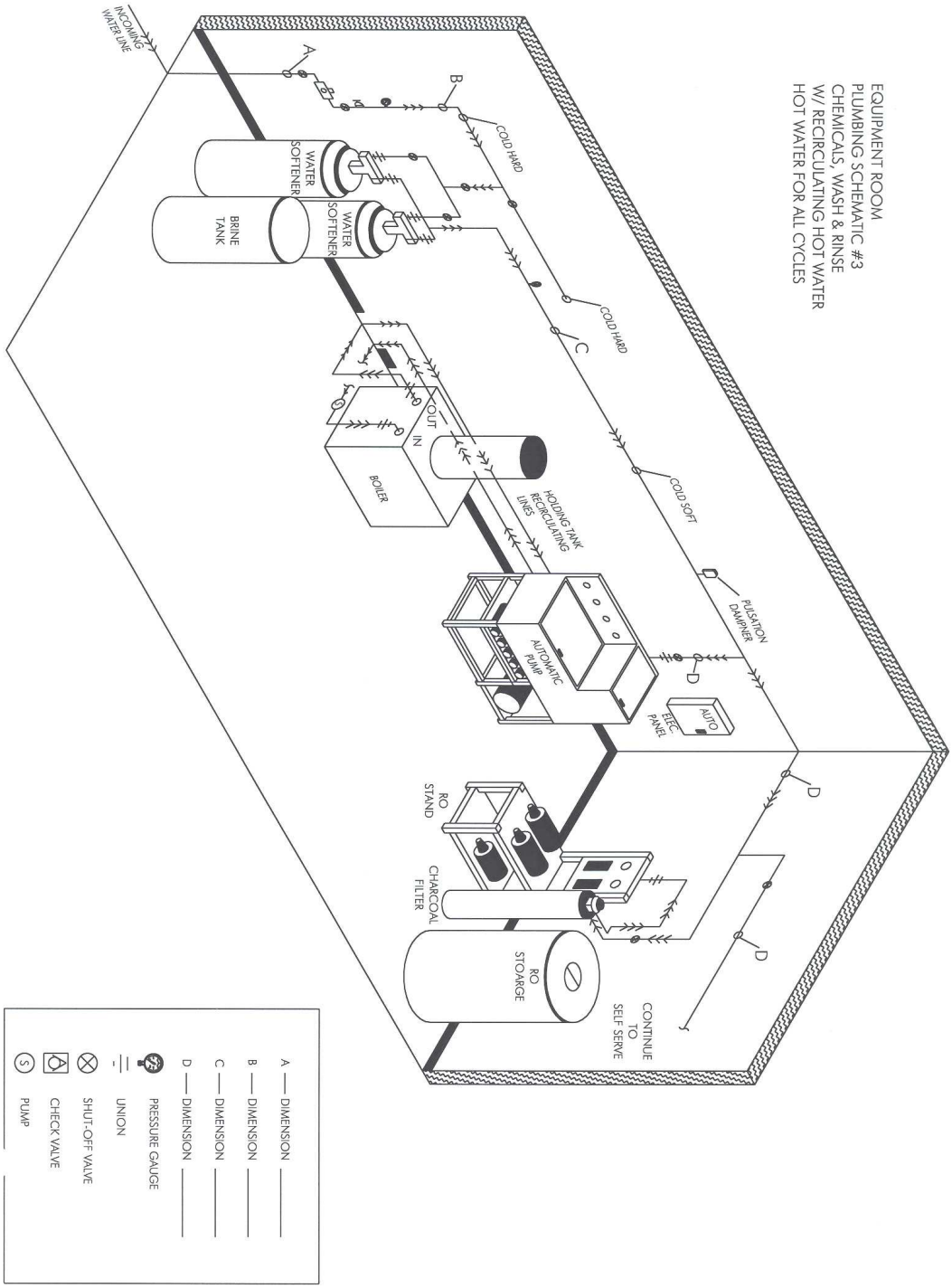
EQUIPMENT ROOM
PLUMBING SCHEMATIC #1
CHEMICALS, WASH & RINSE
W/ HOT WATER



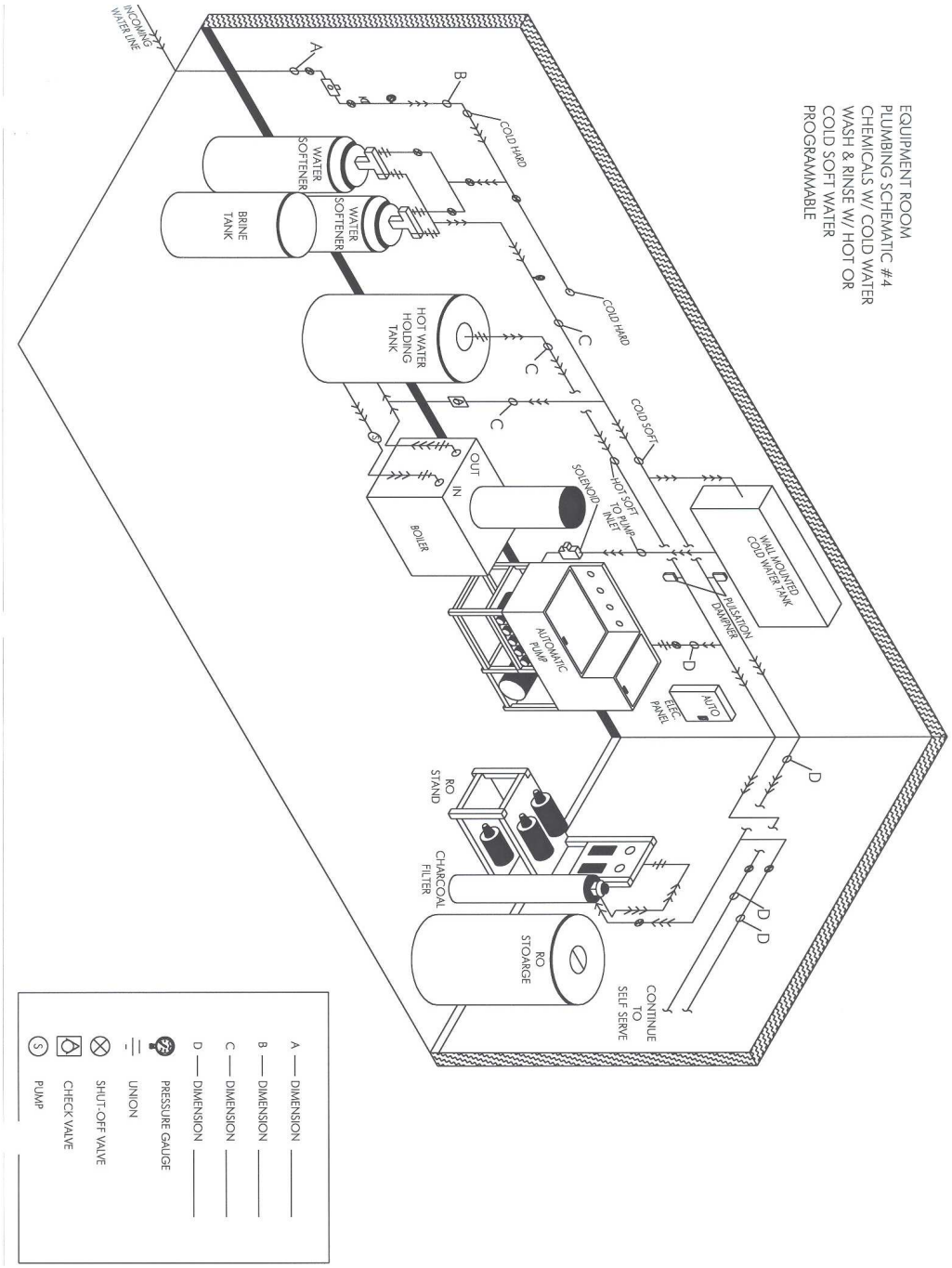
INSTALLATION PROCEDURES



INSTALLATION PROCEDURES



INSTALLATION PROCEDURES



Water Wizard 2.0 Installation Manual

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