

Fearless Thinkers, Inc.

Tech Manual Example

Prepared for XpresWash Systems, Inc



XpresWash – Gen II Premium

Installation Manual



Advanced Customer Car Wash Authorization, Activation, and Billing System

- Superior Convenience
- Improved Customer Value
- Increased Sales
- Scalable from 1-8 wash lanes

Intentionally left blank

Contents

1.0 Introduction.....	1
2.0 Materials, Tools, and Skills.....	3
3.0 Preparing the Site.....	6
4.0 Mounting the XpresWash Reader to the Code Box	7
5.0 Mounting the Gen II Premium Computer cabinet unit to interior wall	8
6.0 System Checkout and Troubleshooting	9
7.0 In-Service Maintenance and Troubleshooting.....	9
8.0 Contacting the Factory	13
APPENDIX A: Mast Mounting	14
APPENDIX B: Code Box Wiring	18

Figures and Tables

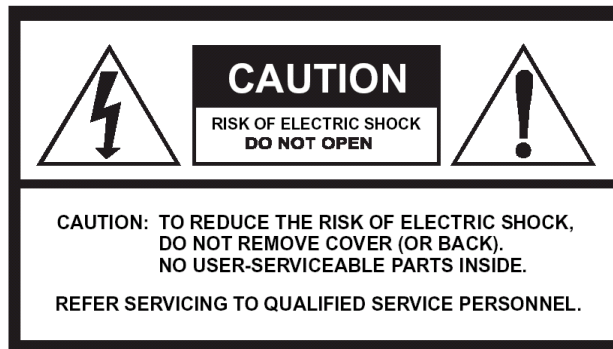
Figure 1: XpresWash Gen II Premium System Overview Diagram	1
Figure 2: XpresWash recommended RFID tag location	2
Figure 3: XpresWash Gen II Premium Major Components.....	4
Table 1: Major Components.....	5
Table 2: Other Components	5
Figure 4: CAT6 cable and Type-B RJ45 wiring details	8
Figure 5: Location of Computer Unit cables	9
Table 3: Spare Parts List.....	10
Figure 6: Reader Components.....	11
Figure 7: Light Box Components.....	12
Figure 8: Computer Cabinet External Misc Components.....	12
Figure 9: Computer Cabinet Internal Components	13

Acronyms

A	Amperes	LED	Light Emitting Diode
A/C or AC	Alternating Current	MHz	Megahertz
C	Centigrade	PC	Personal Computer
CAT	Category	PDQ	Pretty Darn Quick
F	Fahrenheit	RFID	Radio Frequency Identification
FCC	Federal Communications Commission	RH	Relative Humidity
Hz	Hertz	UHF	Ultra High Frequency
I/O	Input Output	VAC	Volts Alternating Current

Revision History

Ver	Notes	Affected Sections
1.0	First Formal Release	



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point, within an equilateral triangle, is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the device.

WARNING

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THE COMPUTER UNIT TO RAIN OR MOISTURE.

NOTICES

FCC

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Modifications not expressly approved by the manufacturer could void the user's authority to operated the equipment under FCC rules.

The RFID Reader operates in the 902 – 928 MHz UHF band with an output power of less than 1 watt.

© 2008 XpresSystems, Inc. All rights reserved. No part of this book, including text, screen examples, diagrams, or images, may be reproduced or transmitted in any form, by any means, without prior written permission of XpresSystems, Incorporated. Information in this document is subject to change without notice.

XpresWash and the associated logos are trademarks of XpresSystems, Incorporated.

1.0 Introduction

The XpresWash Gen II Premium is a multilane system designed to automate the authorization, activation, and billing of customer car wash operations. It is designed as an adjunct system that can be added to many in-service car wash systems including those by:

- Ryko
- PDQ
- MacNeil
- Mark VII
- Belanger
- Washworld
- Jim Colman Co
- Nustar
- Hamilton
- Others (consult the factory)

The XpresWash Gen II Premium system eliminates the need for a customer or operator to access an entry end code-box to activate a wash, however the customer is still able to change their wash choice via the code-box if desired.

The XpresWash Gen II Premium system utilizes Radio Frequency Identification (RFID) technology to identify the customer as they approach the entry end of the car wash with their car. A small “band-aid” style RFID tag is placed in the upper inside left-hand corner of the customer’s windshield, which communicates to the XpresWash system by way of a RFID reader attached to the code-box.

The XpresWash RFID reader activates its large GREEN light indicating to the customer that the RFID tag has been read and that the customer’s wash requested has been authorized.

1.1 System Overview

Figure 1 illustrates the basic functional description of the XpresWash Gen II Premium system. The items highlighted in **BLUE** comprise the on-site system elements.

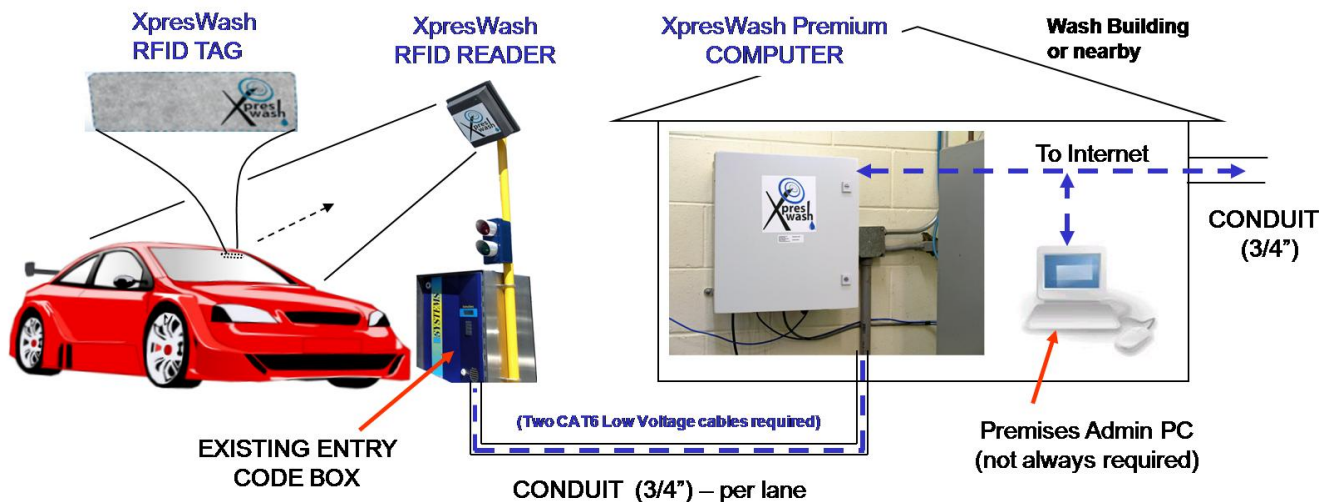


Figure 1: XpresWash Gen II Premium System Overview Diagram

- **RFID TAG** - a small “band-aid” style tag is placed in the upper inside left-hand corner of the customer’s windshield. This tag is coded with customer identification information that is then automatically read by the XpresWash RFID Reader as the car approaches the code box.

- **RFID READER** – an integral system comprised of an antenna, accept/decline lights, and mounting mast, and wiring. The RFID Reader system is designed to attach to existing code boxes, and to interface to contacts within the code-box.
- **COMPUTER** – a cabinet unit containing a preprogrammed XpresWash Gen II Premium computer, power supply, and input-output controllers for up to 4 wash lanes. XpresWash Gen II Premium computers can be ordered for single, double, triple, or quad lane configurations. A second XpresWash Computer can be added to provide up to a total of 7 wash lanes. The Computer is designed for installation inside an air-conditioned (heating and cooling) space on-site, and only required local 120 VAC power and access to the Internet.

1.1.1 RFID Tag placement

RFID tags are designed to be attached to the inside surface of the front windshield. The RFID tag is read by the XpresWash Gen II Premium system for access control and vehicle identification purposes. Figure 2 shows the recommended location area for the tag. Tags should be located on the driver side in most cases. Place the tag no closer than 1-inch from the edge of the glass and at least 12-inches away from any other vehicle identification transponder devices (MnPASS, EZPASS, I-PASS, ...). Tag orientation (vertical vs. horizontal) is not critical but in most cases the tag is placed vertically and parallel with the side edge of the glass.

Clean the area of the inside windshield with isopropyl alcohol and let dry before applying the tag. Peel the backing off the tag and apply with steady pressure. The adhesive is quickset so be sure of the alignment before you apply the tag. Do not bend the tag while applying it or it will likely be damaged and will require replacement. Any attempts to remove the tag will result in damage to the tag and will also require replacement.



Figure 2: XpresWash recommended RFID tag location

Some vehicle windshields have metallic coatings or tinting that can interfere with the operation of the tag. Avoid these areas. Many windshields of these types do provide a region under the mirror as coating free. Information on placement of tags for certain vehicles with special windshield types can be found at <http://www.sunpass.com/windshields.cfm>

If you have questions regarding the recommended tag location for particular XpresWash site installation, please consult your distributor.

1.2 Overview of the Installation Procedures

The installation procedure can be accomplished in as few as 2 hours with proper site preparation.

Site preparation includes:

1. Selecting a suitable location for the XpresWash Gen II Premium Computer Cabinet Unit(s) and running the associated A.C. power and Internet wiring to that location.
2. Having the Computer Cabinet Unit to Code-box wiring installed ahead of time. An electrician generally does this step.
3. Obtaining permission and access to the Code-box with use of the proper tools and documentation.

The installation process includes:

1. **Installing the Computer Cabinet Unit(s).** This involves mounting the unit using standard methods applicable to the material of the vertical mounting surface. Mounting screws for masonry surfaces are provided. Two crimp contact cable ends will be needed to be added at this end of the system for each lane.
2. **Installing the Reader Assembly.** This involves opening up the code-box, drilling 4 through holes for the Reader Mast U-bolts, and making electrical connections between the Reader, the Reader Approve/Decline lights, the wires from the Computer cabinet unit, and the Code-box. This step will take the most time and should be performed during off-peak car wash times. A base mount is available as an option.
3. **System Checkout.** This involves reviewing that all steps were performed as documented, applying power and verifying correct boot-up response and internet connectivity, and testing a wash cycle with a supplied RFID test tag for each lane.

IMPORTANT: PAY SPECIAL ATTENTION TO CORRECT WIRING. SYSTEMS HAVE BEEN DAMAGED BY MISTAKES MADE DURING THE INSTALLATION PROCESS. FOLLOW THE INSTRUCTIONS AND DOUBLE CHECK ANY ELECTRICAL CONNECTIONS TO MAKE SURE TH CORRECT WIRES ARE GOING TO THE CORRECT CONNECTIONS. USE CONTINUITY CHECKS TO ASSURE THE CONNECTIONS ARE CORRECT BEFORE APPLYING POWER.

2.0 Materials, Tools, and Skills

2.1 Major Components

Figure 3 identifies the 2 Major components of the XpresWash Gen II Premium system as delivered. These components come ready to install using the associated parts described in section 2.2. Tables 1 and 2 identify the major parts used in the installation process.

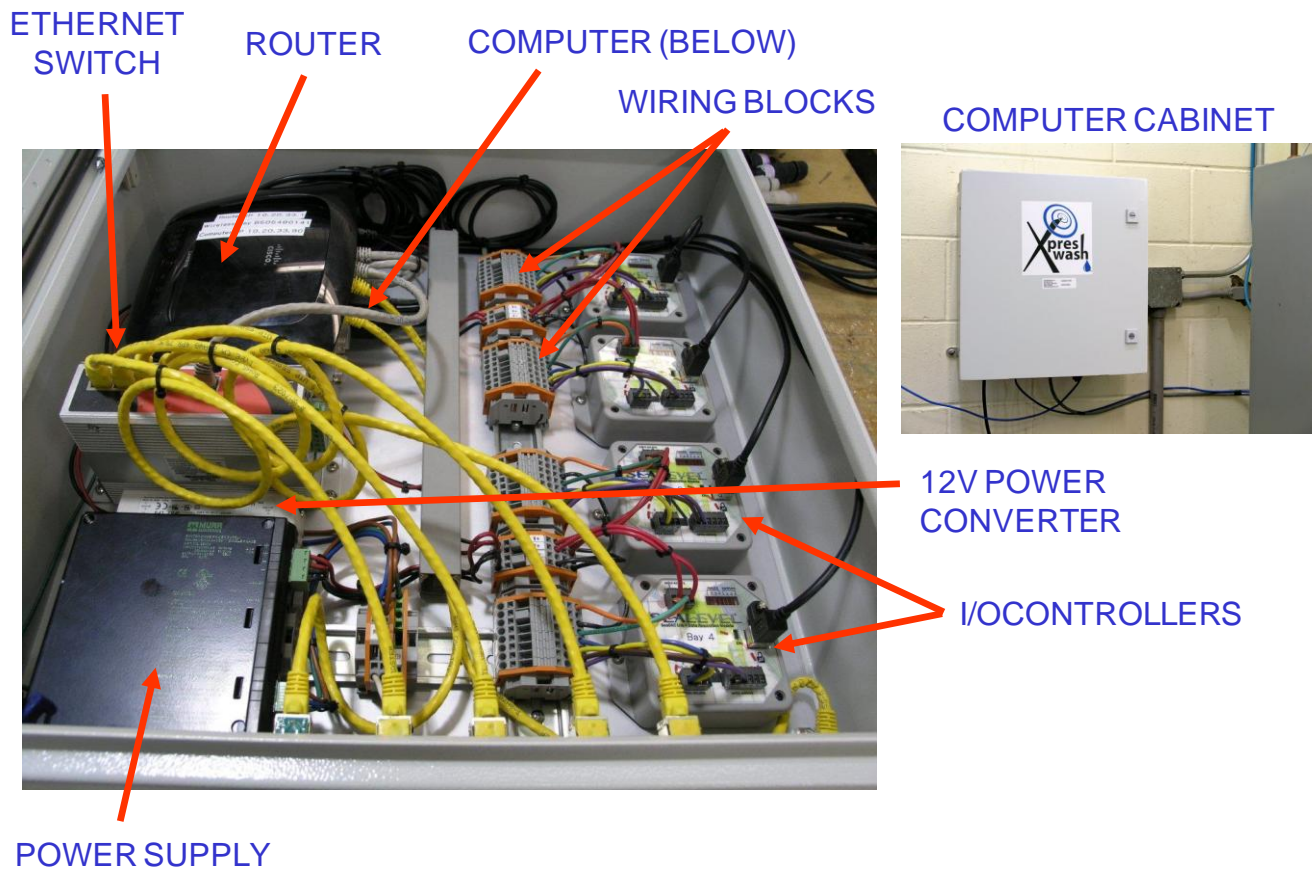
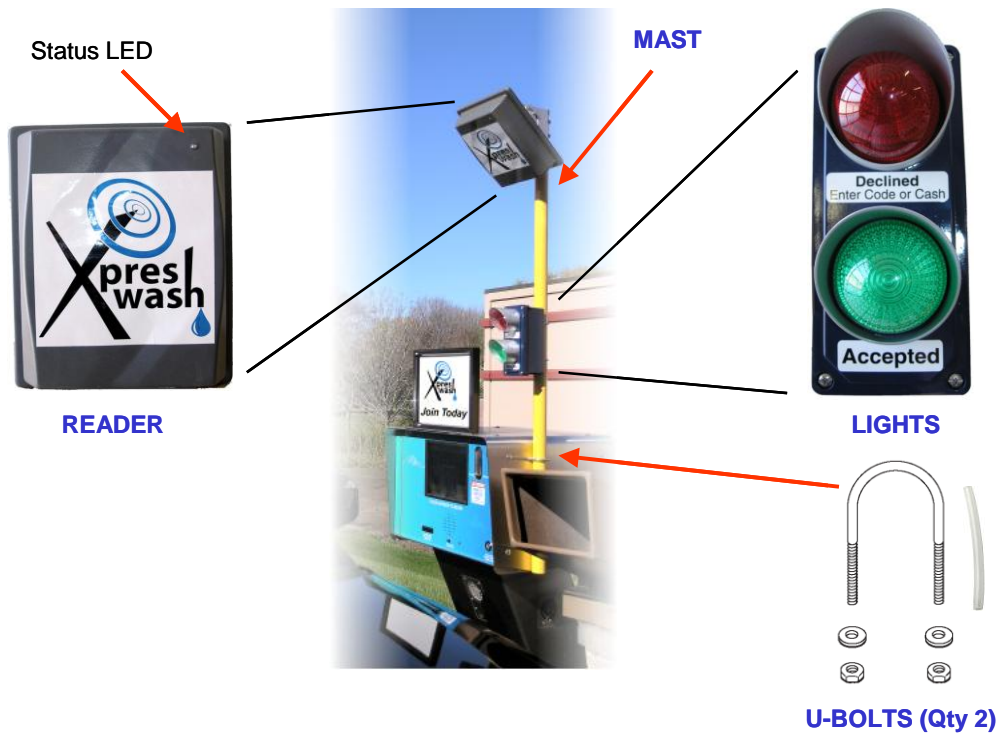


Figure 3: XpresWash Gen II Premium Major Components

Part Number	Major Component	Notes
RM536699	Reader/Mast Assembly	<u>Main Parts:</u> (for service needs) RM536701 Reader RM536700 7-foot Yellow Mast RM536702 Light Box
BD536549	Board Assembly	<u>Main Parts:</u> (for service needs) BD536517A Computer BD536516A Power Supply BD536544 Ethernet Switch BD536540A I/O Controller BD536548 12V Power Converter BD536547 Router BX536118 A/C Cord
BX536149	XpresWash Gen II Premium Cabinet	<u>Main Parts:</u> (for service needs) BX536118 A/C Cord

Table 1: Major Components

2.2 Other Components

The XpresWash system comes with the following assorted hardware:

Part Number	Minor Component	Notes
BD536301	Fastener Set	<u>READER</u> (Note 1) Qty 2 3-inch U-bolts; 1/4-inch - 20 for 1 1/4-inch pipe Qty 4 1/4-inch - 20 machine nuts Qty 4 1/4-inch x 3/4-inch Neoprene Bonded washers Qty 2 1/4-inch ID Clear Plastic tubing Qty 1 3/8-inch Metal drill bit <u>COMPUTER</u> Qty 4 Masonry Screws (1/4-inch) Qty 1 1/4-inch Masonry drill bit
BD536302	Single lane Connector Set	Qty 2 CAT6 Connectors Qty 6 3M Scotch Lock Spade Connectors

NOTE 1: These will come preassembled to the READER assembly for new systems.

Table 2: Other Components

2.3 Tools Required

Socket set (British units) – 7/16 -inch socket
Electric 3/8" drill
Pliers
CAT6 cable crimp tool
Scotch Lock crimp tool (recommended)
6-foot Ladder

2.4 Skills Required

Computer technician training or equivalent experience is required. Mechanical skills for light contraction and assembly are required.

3.0 Preparing the Site

The most significant effort involves providing electrical service to the Computer Unit and providing two low-voltage CAT6 cables from the location of the Computer Unit to the Code box.

NOTE: Since this is sensitive digital equipment, location of the Computer Unit and routing of cables must be kept clear of high voltage sources, high voltage cabling, and electrical noise sources such as Variable Frequency Drives (VFD) and motors. Please contact XpresWash if you have any concerns in this area.

Computer Unit dimensions: 19.5" w x 19.5" h x 6" d. Access door needs to swing 90-degrees and when fully open extends 26-inches from the wall surface. Cable access of 6-inches minimum is needed below the unit.

3.1 Electrical Service Requirements

The Computer Unit requires a 120VAC/50-60Hz service, grounded at 5A. The Computer Unit is internally fused at 6 amps. Voltage provided to power to the Reader Unit is supplied by the Computer Unit directly.



Electrical service must be turned off during all installation procedures.



Voltage between the Computer Unit and the Reader Unit is 48VDC. Take appropriate precautions.



TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT OPEN COVERS OF ANY UNIT. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

3.2 Environmental Specifications

COMPUTER Cabinet Unit (Internal)

The Computer Cabinet Unit is required to be located in a temperature and humidity controlled conditions adhering to the following criteria:

Temperature:	Operating	0°C – 70°C (32°F – 158°F)
Temperature:	Storage	-40°C – 100°C (-40°F – 212°F)
Humidity:	10 to 90% R.H. Non-Condensing (Operating and Storage)	

READER ASSEMBLY (External)

Temperature:	Operating	25°C – 60°C (-13°F – 140°F)
Temperature:	Storage	-40°C – 100°C (-40°F – 212°F)
Humidity:	10 to 85% R.H. Non-Condensing (Operating and Storage)	

4.0 Mounting the XpresWash Reader to the Code Box

For new installations, the Reader assembly will come preassembled and prewired with the U-bolt mounting clamp and fasteners attached. Below is a general description of the assembly process.

Mounting Steps:

1. Turn off the wash system so that there is no power at the Code-Box.
2. Open the Code-Box using the access key and/or tool
3. Identify the U-bolts and Reader cable hole location diagram for the subject Code-Box as provided in the **Appendix A** of this manual. **CAUTION:** Assure that the hole locations will not interfere with anything within the specific code box before drilling. There may be subtle differences within code boxes of the same model.
4. Drill 4 through holes, using a 1/4-inch drill bit, at the locations noted, and file any sharp edges.
5. Drill a through hole, using a 3/8-inch drill bit, at the location noted for the Reader cable at the lower U-bolt location
6. Clean up any loose metal drillings from inside the Code-Box.
7. Attach, but do not tighten, the 2 U-bolts, and their associated washers and nuts, to the Code-Box. The washers are used inside the Code-Box.
8. Hoist the Reader Assembly into position, sliding the lower end of the post through the top, and then through the bottom U-bolts.
9. Route the Reader Cable through the Reader Cable hole drilled in step 5.
10. With the Reader Cable and Reader Cable hole perfectly positioned, tighten the 4 U-bolt nuts firmly. Make sure that the Reader Cable grommet provides a good seal between the post and the Code-Box to prevent moisture and dust incursion.

Electrical Steps:

1. If not done earlier, turn off the wash system so that there is no power at the Code-Box.
2. If not done earlier, open the Code-Box using the access key and/or tool.
3. Identify the Connection Diagram for the subject Code-Box as provided in the **Appendix B** of this manual.
4. Make the connections as identified in Appendix B, connecting the Reader Cable, Computer Cable, and the Code-Box connections as identified
5. Dress and properly tie the cabling to assure no stress, strain, or interference with future Code-Box maintenance actions.
6. Close the Code-Box.

IMPORTANT: PAY SPECIAL ATTENTION TO CORRECT WIRING. SYSTEMS HAVE BEEN DAMAGED BY MISTAKES MADE DURING THE INSTALLATION PROCESS. FOLLOW THE INSTRUCTIONS AND DOUBLE CHECK ANY ELECTRICAL CONNECTIONS TO MAKE SURE TH CORRECT WIRES ARE GOING TO THE CORRECT CONNECTIONS. USE CONTINUITY CHECKS TO ASSURE THE CONNECTIONS ARE CORRECT BEFORE APPLYING POWER.

5.0 Mounting the Gen II Premium Computer cabinet unit to interior wall

Mounting Steps:

1. Turn off the wash system so that there is no power applied anywhere in the system.
2. Position the Computer Cabinet Unit with the top of unit located approximately at the 6-foot level off the floor. The positioning isn't critical but should be made serviceable.
3. Make sure the location allows for full door swing to 90-degress as well as provides a clearance of 6-inches adjacent to all sides is recommended.
4. Hold the unit level and mark the 4 holes to drill.
5. Drill the holes using a 1/4-inch masonry bit to an approximate depth of 2-inches. If the wall surface is not masonry, use an applicable alternate mounting method.
6. Qty 4 masonry screws are provided. Use these, or screws appropriate for the surface type, and fasten the unit firmly in place.

Electrical Steps:

1. Two CAT6 cables run from the Computer cabinet Unit to each Code Box. Mark one Code Box and mark the other one Reader. Assemble the Computer end of these cables using RJ45 Type B modular connector plugs as shown in Figure 4.
2. Attached these CAT6 cables, plus the broadband cable, to the Computer cabinet unit as shown in Figure 5.
3. Connect A.C. power to the Computer Cabinet Unit using the supplied cord.

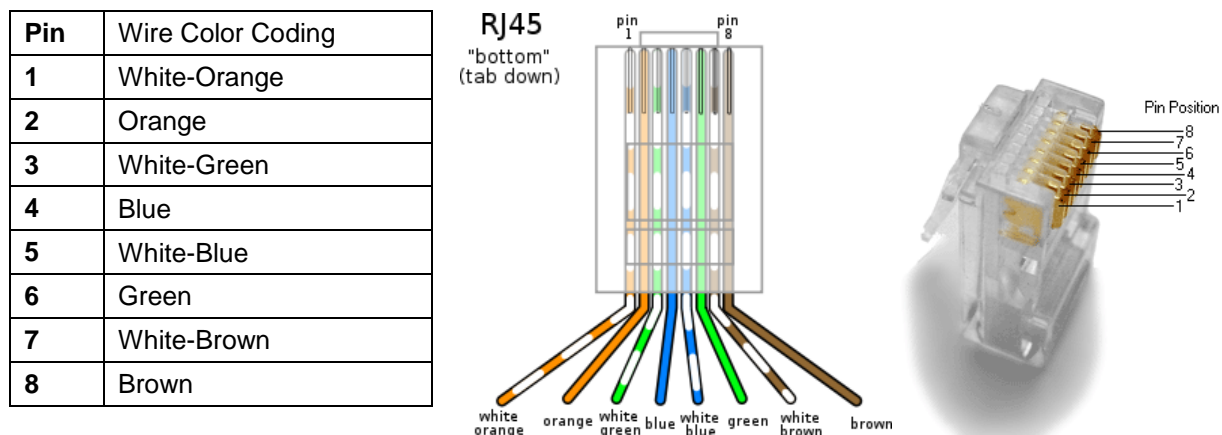


Figure 4: CAT6 cable and Type-B RJ45 wiring details

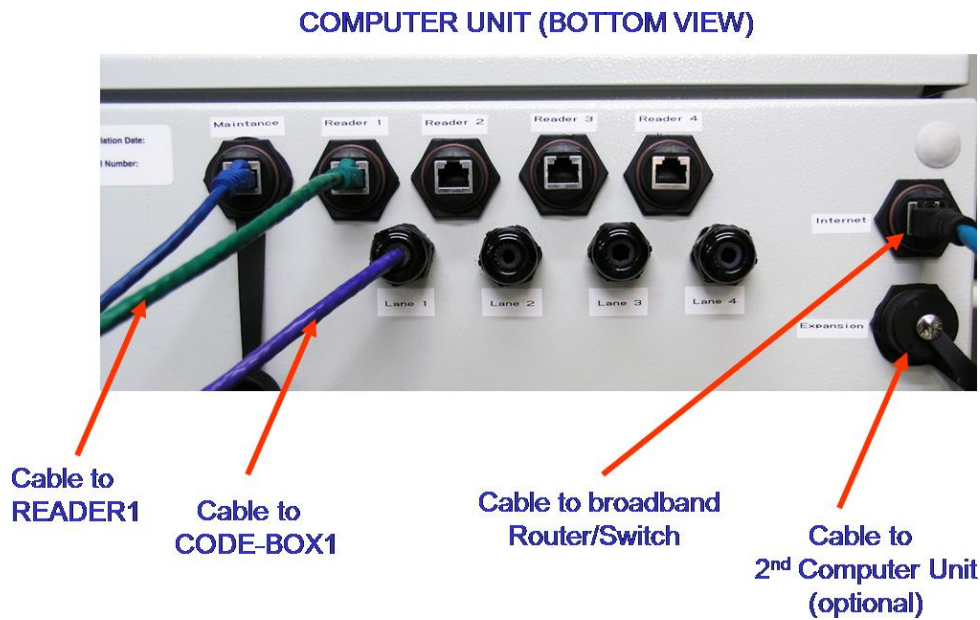


Figure 5: Location of Computer Unit cables

6.0 System Checkout and Troubleshooting

IMPORTANT: PAY SPECIAL ATTENTION TO CORRECT WIRING. SYSTEMS HAVE BEEN DAMAGED BY MISTAKES MADE DURING THE INSTALLATION PROCESS. FOLLOW THE INSTRUCTIONS AND DOUBLE CHECK ANY ELECTRICAL CONNECTIONS TO MAKE SURE TH CORRECT WIRES ARE GOING TO THE CORRECT CONNECTIONS. USE CONTINUITY CHECKS TO ASSURE THE CONNECTIONS ARE CORRECT BEFORE APPLYING POWER.

When installation is completed, power-on both the computer cabinet and the wash system. Upon successful power-up self test, the reader will have a GREEN light on until and RFID tag is placed in front of it at a normal range. Once a tag is read, the light will flash RED and then GREEN as the tag is read. This is all that is required. Repeat for each lane. If no lights are present, verify the installation and try again.

6.1 Network setup.

The XpresWash Gen II Premium unit contains an addressable internal router, an embedded computer, and up to 4 readers. The router is at IP address 10.20.33.1, uses DHCP auto obtain, SSID of "Xpresnet" and WPA of B505480141.

The router username is "admin."

The computer is at IP address 10.20.33.9

The readers are at IP address 10.20.33.91, 10.20.33.92, 10.20.33.93, and 10.20.33.94

Verify that the router is properly connected to the local broadband network.

7.0 In-Service Maintenance and Troubleshooting

No maintenance is required. For troubleshooting, consult the operator's manual.

7.1 Spare Parts

Table 3 identifies the spare parts that are available. Please refer to the part number when contacting the factory for pricing and delivery information. Figures 6 - 9 identify the location of each of these parts.

READER ASSEMBLY**DESCRIPTION**

7 FOOT YELLOW POLE	RM536700
READER UNIT	RM536701
RED/GREEN LIGHT BOX	RM536702
HW PL JMBO DOME FV LED 24V RED SPRING-UP	RM536703
HW PL JMBO DOME FV LED 24V GREEN SPRING-UP	RM536704
LIGHT BOX CLAMPS	RM536705
POLE CLAMPS	RM536706
BLACK POLE END CAP	RM536711
ALUM. DOMES FOR LIGHTS	RM536713
EXTRA GREEN BULBS FOR LIGHTBOX	RM536716
EXTRA RED BULBS FOR LIGHTBOX	RM536717
3 FOOT YELLOW POLE	RM536719
18" YELLOW POLE	RM536720
90 DEGREE YELLOW POLE	RM536722
MAST MOUNTING FOOT	RM536723

COMPUTER UNIT ASSEMBLY

IO CONTROLLER	BD536540A
POWER SUPPLY	BD536516A
ADVANTECH COMPUTER	BD536517A
ETHERNET SWITCH (5-PORT)	BD536544
12V POWER CONVERTER	BD536548
ROUTER	BD536547
2 FT. YELLOW CAT. 6 PATCH CABLE	BD536522
2 FT RED CAT.CROSSOVER CABLE	BD536523
1 FT GRAY CAT. 6 PATCH CABLE	BD536524
2 FT.BLACK CORD 90 DEGREE END	BD536525
CF Card	BD536532

MISC

FASTENER SET FOR INSTALLATION	BD536301A
CABLE SET FOR INSTALLATION	BD536302A
SINGLE LANE UPGRADE WIRE KIT	BD536303A

Table 3: Spare Parts List

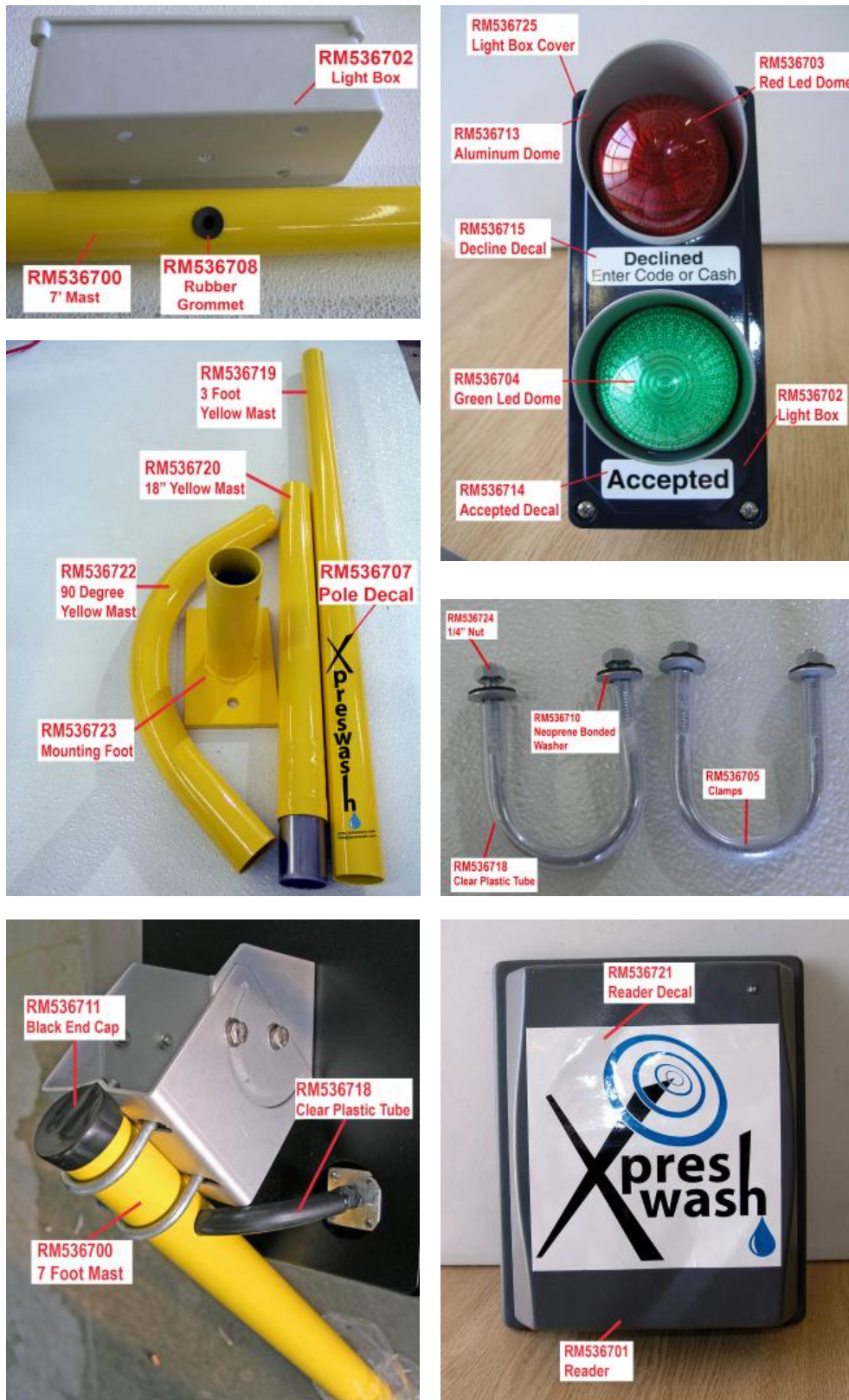


Figure 6: Reader Components



Figure 7: Light Box Components



Figure 8: Computer Cabinet External Misc Components

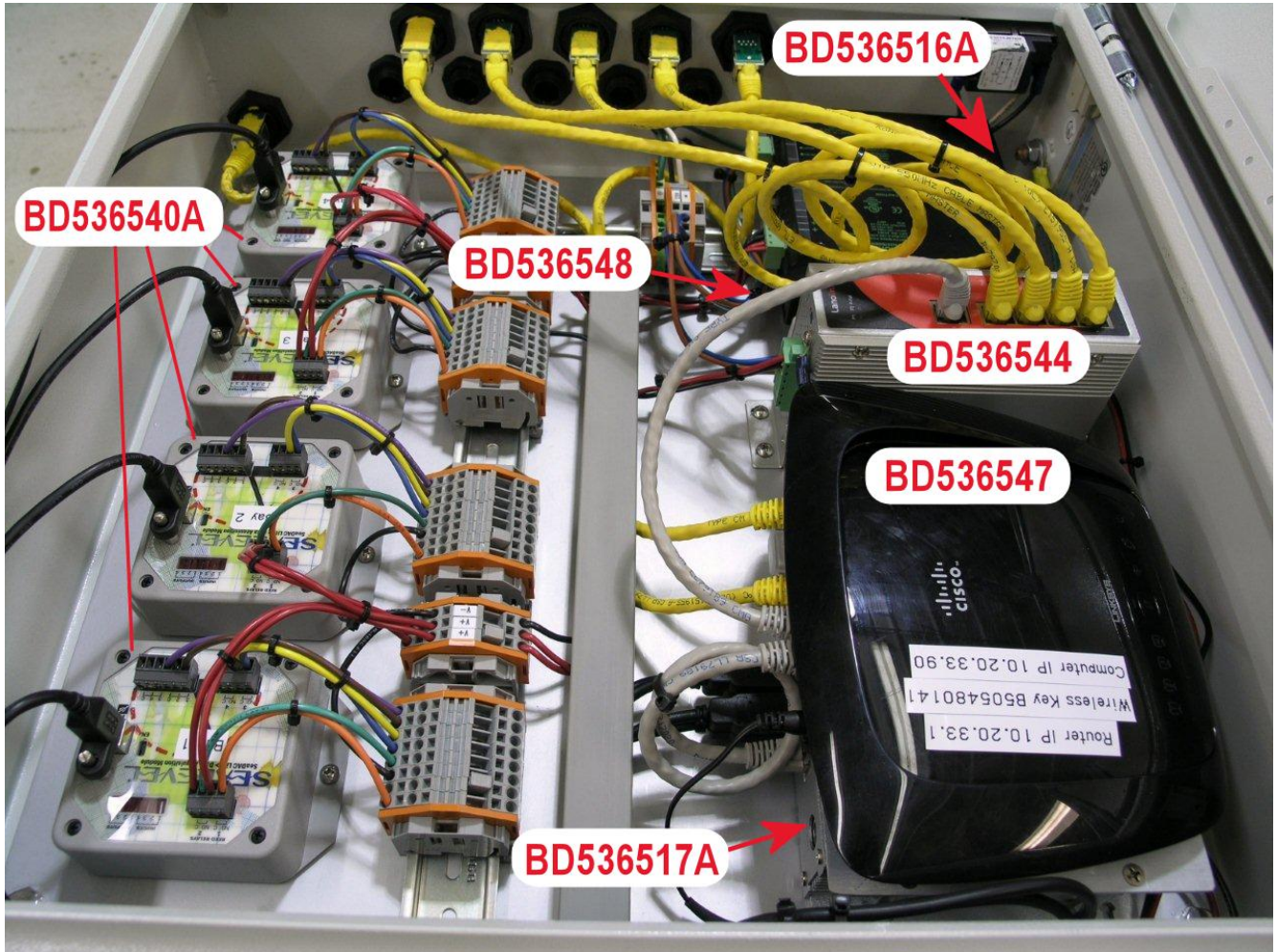


Figure 9: Computer Cabinet Internal Components

8.0 Contacting the Factory

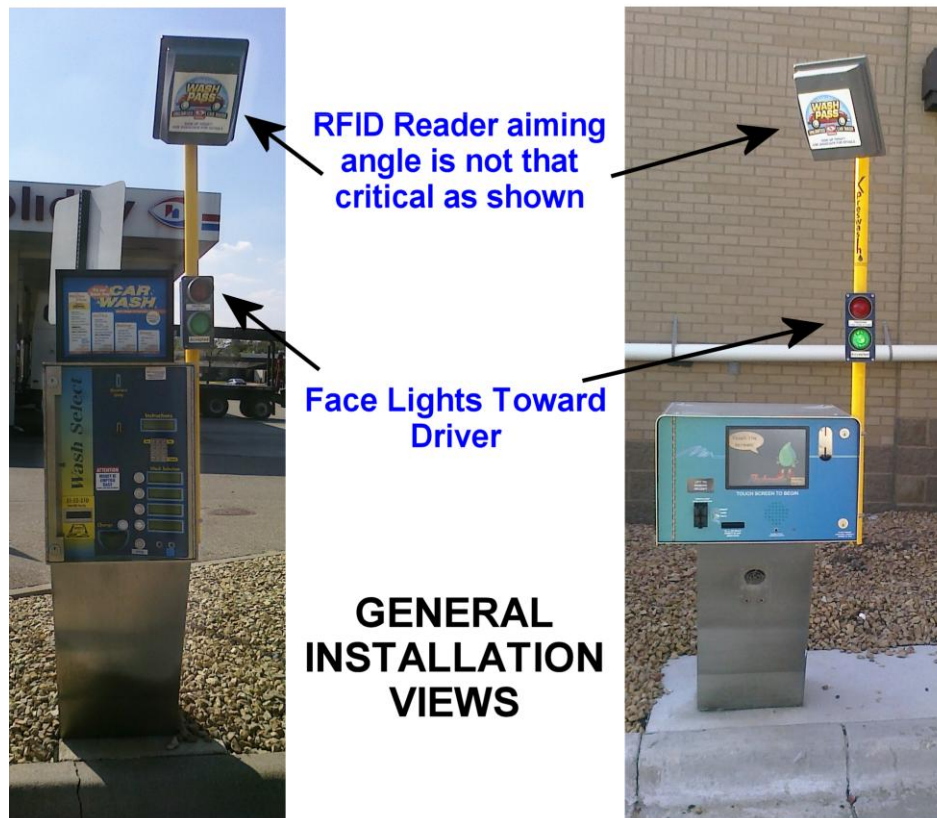
XpresWash support is available during normal weekday business hours at (952) 758-4399 or Fax: (952) 758-3697. Email support is also available at Info@XpresWash.com

APPENDIX A: Mast Mounting

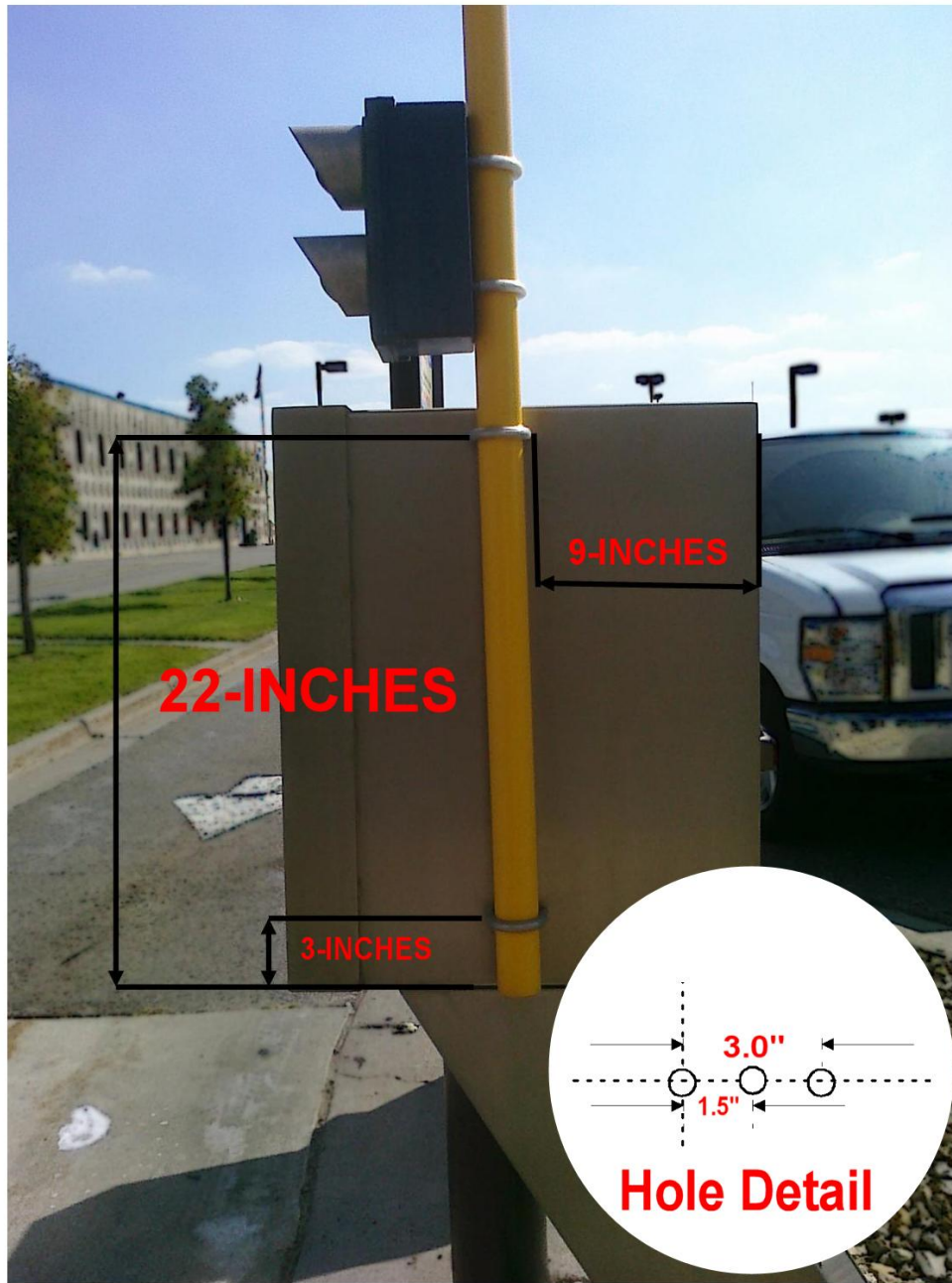
CODE BOX MAST MOUNTING LOCATION INFORMATION

General Information

- Each installation is unique. In most cases, a standard side-mounted 7-foot mast will be the best option. Alternately, a top mount with a 3-foot mast can be suitable using the RM536723 mounting foot.
- Shown are general hole location guidelines. The important point is that the post be mounted to the code box securely and that any holes drilled for the U-bolts and/cables do not interfere with anything within the code box. ALWAYS OPEN THE CODE BOX TO ASSURE THAT DRILLING WILL BE WELL CLEAR OF ALL INTERNAL CODE BOX COMPONENTS.
- The standard side mounted mast installation requires 3 holes in the lower U-bolt location and 2 for the upper U-bolt location. The middle hole in the lower U-bolt location is for the routing of the mast wiring.
- Take care to seal all holes drilled into the code box to prevent weathering.
- Contact the factory if you have questions or need assistance with the installation. We have installed the system in many unique ways that may not be covered in this general installation manual.

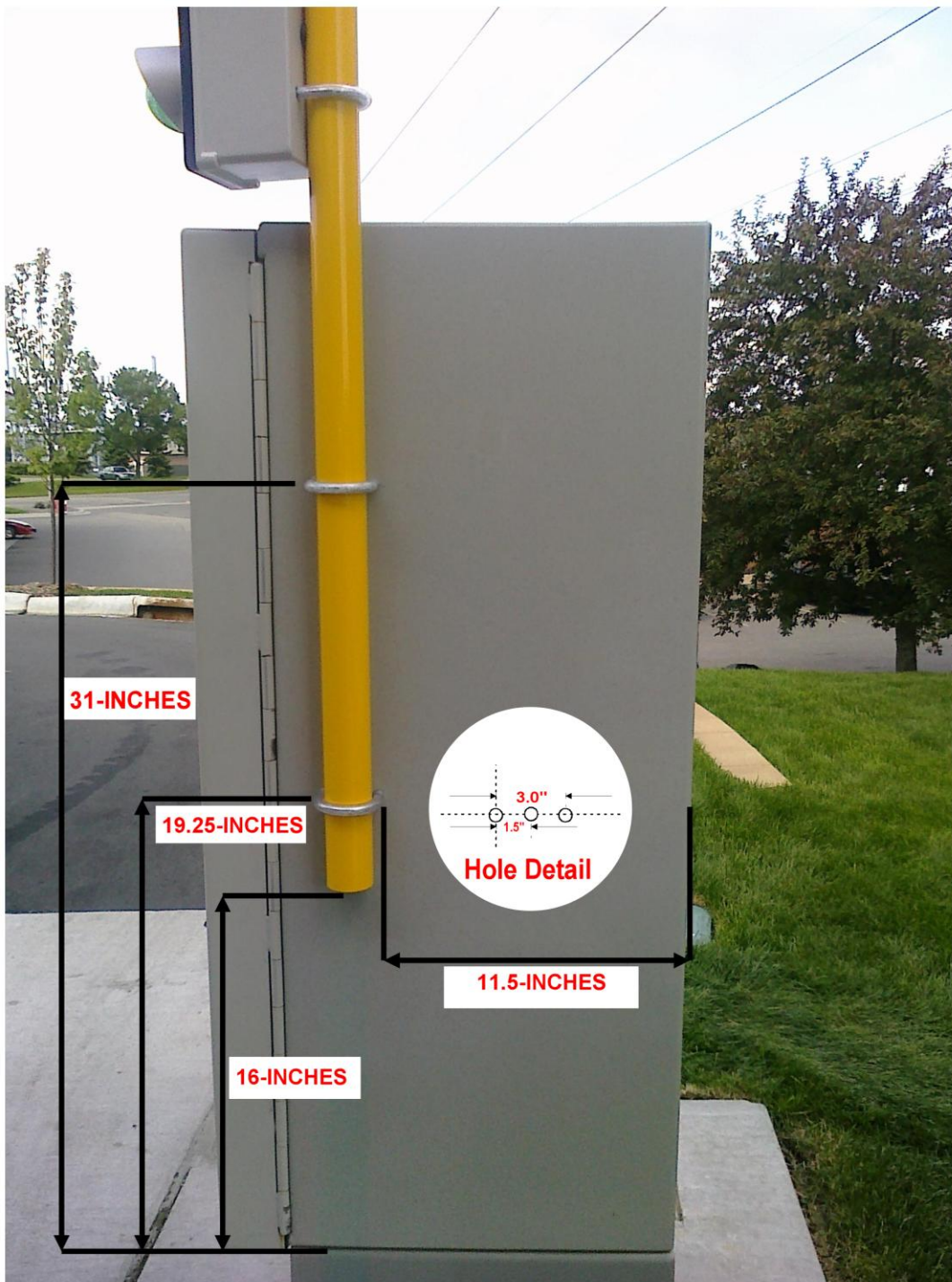


**WASH SELECT II using 7-foot mast
[SIDE VIEW]**



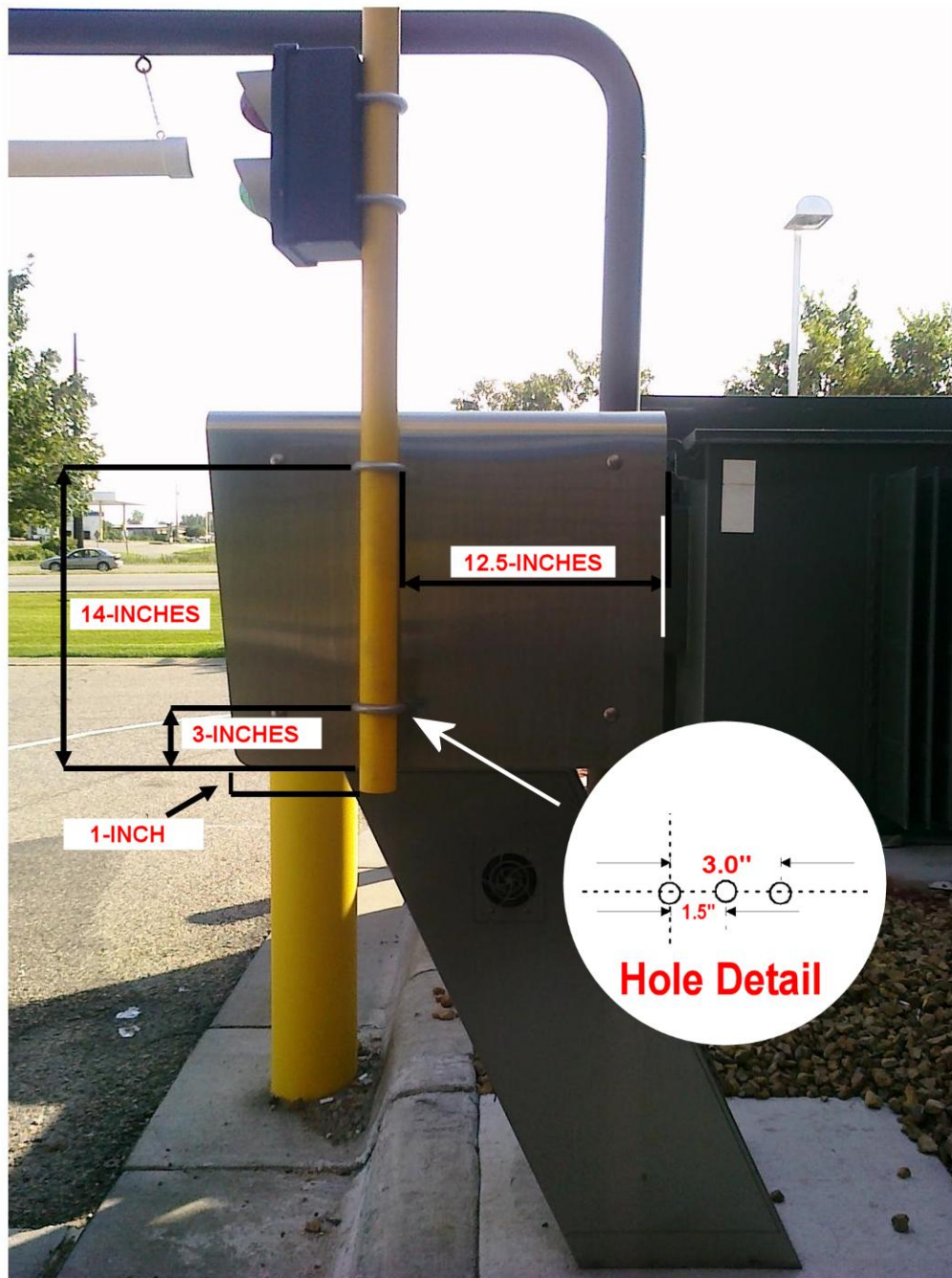
NOTE: This is a general hole location guide. The important point is that the post be mounted to the code box securely and that the holes drilled for the U-bolts do not interfere with anything within the code box. ALWAYS OPEN THE CODE BOX TO ASSURE THAT DRILLING AND SECURING WITH U-BOLTS WILL BE WELL CLEAR OF ALL INTERNAL CODE BOX COMPONENTS.

Hamilton HTK [SIDE VIEW]



NOTE: This is a general hole location guide. The important point is that the post be mounted to the code box securely and that the holes drilled for the U-bolts do not interfere with anything within the code box. ALWAYS OPEN THE CODE BOX TO ASSURE THAT DRILLING AND SECURING WITH U-BOLTS WILL BE WELL CLEAR OF ALL INTERNAL CODE BOX COMPONENTS.

RYKO AMTT



NOTE: This is a general hole location guide. The important point is that the post be mounted to the code box securely and that the holes drilled for the U-bolts do not interfere with anything within the code box. ALWAYS OPEN THE CODE BOX TO ASSURE THAT DRILLING AND SECURING WITH U-BOLTS WILL BE WELL CLEAR OF ALL INTERNAL CODE BOX COMPONENTS.

APPENDIX B: Code Box Wiring

CODE BOX ELECTRICAL WIRING DIAGRAMS

General Information

- Each installation is unique. In most cases there will be 2 cables routed to the code box from the XpresWash Computer cabinet and one cable routed from the RFID Reader/Light box mast assembly.
- In most cases the cables will be wired into existing contacts on one or more of the code box circuit board assemblies. Also, in most cases, some of the wires from the Reade/Light box assembly will be spliced to wires from the XpresWash Computer unit.
- Connections into terminal blocks are screw terminals in most cases. Crimp contacts use Scotch lock connectors in all cases.
- No soldering is required.
- This is a low voltage application.
- Take care to seal all holes drilled into the code box to prevent weathering if not already done so.
- Take care to dress any resultant cables to provide damage free access in support of repair actions of the code box. This should include use of service loops and wire ties as applicable.
- Contact the factory if you have questions or need assistance with the installation. We have installed the system in many unique ways that may not be covered in this general installation manual.

NOTE: Since this is sensitive digital equipment, location of the conduit and cables must be kept clear of high voltage sources, high voltage cabling, and electrical noise sources such as Variable Frequency Drives (VFD) and motors. Please contact XpresWash if you have any concerns in this area.

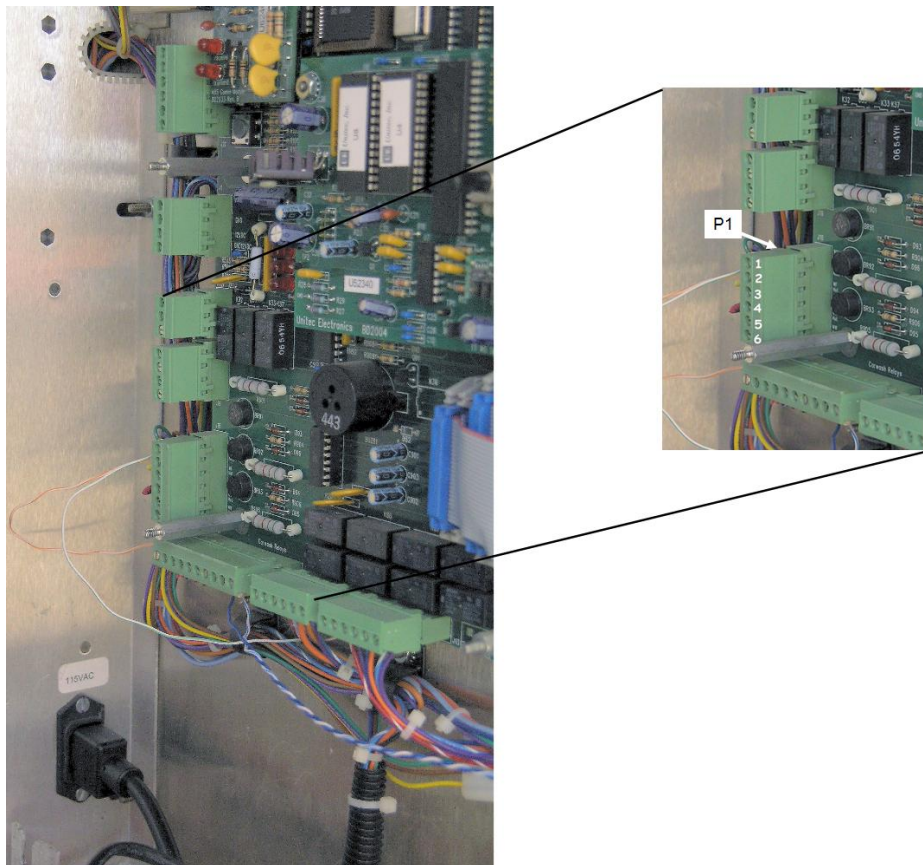
IMPORTANT: PAY SPECIAL ATTENTION TO CORRECT WIRING. SYSTEMS HAVE BEEN DAMAGED BY MISTAKES MADE DURING THE INSTALLATION PROCESS. FOLLOW THE INSTRUCTIONS AND DOUBLE CHECK ANY ELECTRICAL CONNECTIONS TO MAKE SURE TH CORRECT WIRES ARE GOING TO THE CORRECT CONNECTIONS. USE CONTINUITY CHECKS TO ASSURE THE CONNECTIONS ARE CORRECT BEFORE APPLYING POWER.

WASH SELECT II Wiring Instructions

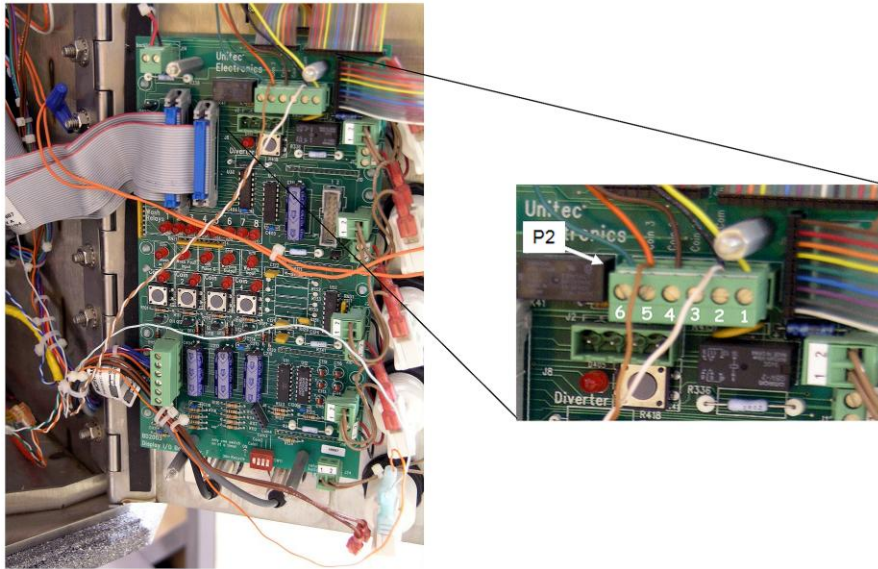
For the Wash Select II, there is:

1. A cable from the Computer cabinet that gets wired into 2 terminal blocks on 2 different circuit boards as well as is wired to the cable from the light set. These are shown as contacts P1 - P3 in the diagrams.
2. A cable from the RFID reader that gets spliced into a second dedicated cable from the Computer cabinet. The reader wires are spliced one-to-one color code pairs on the corresponding CAT6 return cable using the same style Scotch crimp contacts as shown for P3 in step 1.

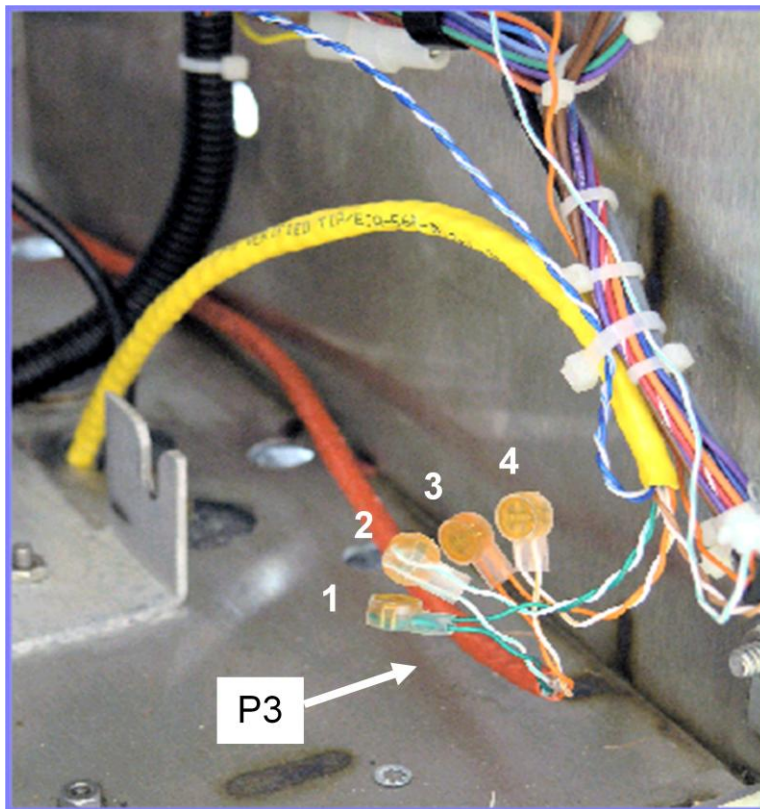
Cable From Computer Cabinet	Wire Color Coding	Code Box Contact
1	White-Orange	spare
2	Orange	P3-3
3	White-Green	P3-2
4	Blue	P1-1
5	White-Blue	P1-2
6	Green	P3-1
7	White-Brown	P2-2
8	Brown	P2-1



P1



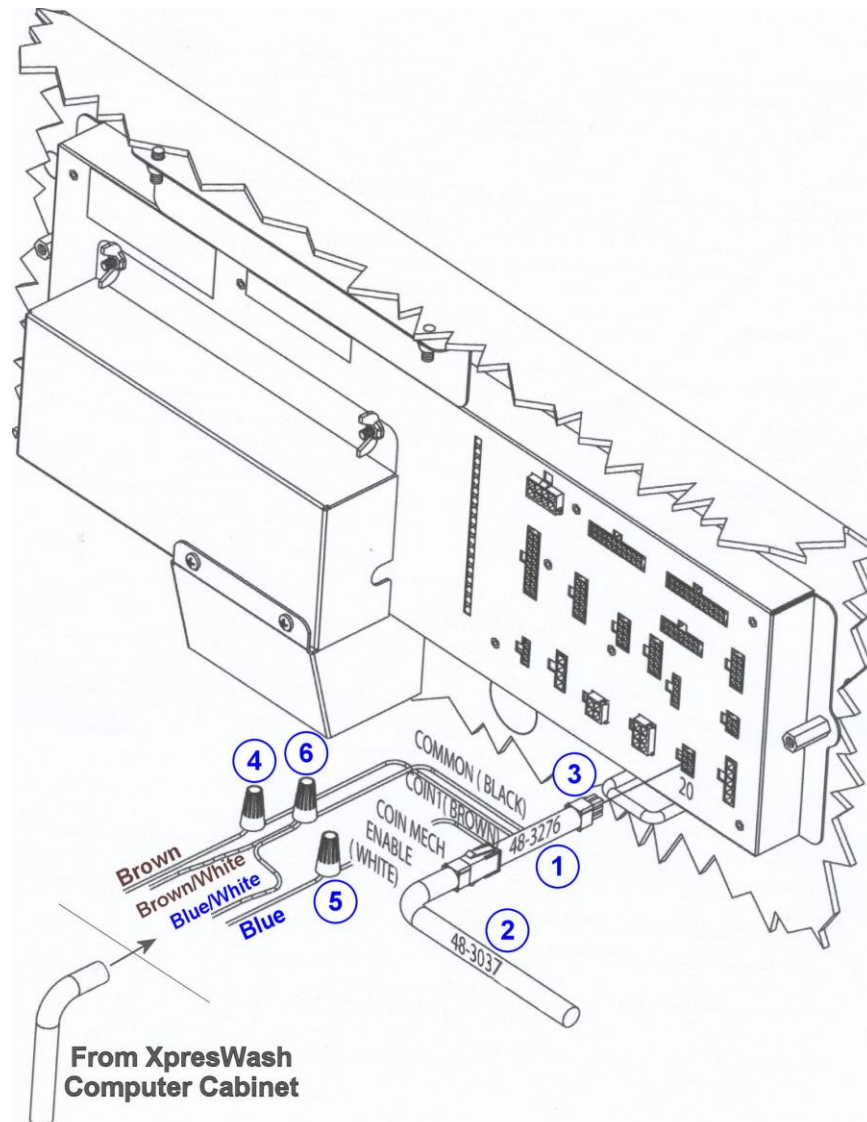
P2



P3

Hamilton Gold Line Wiring Instructions

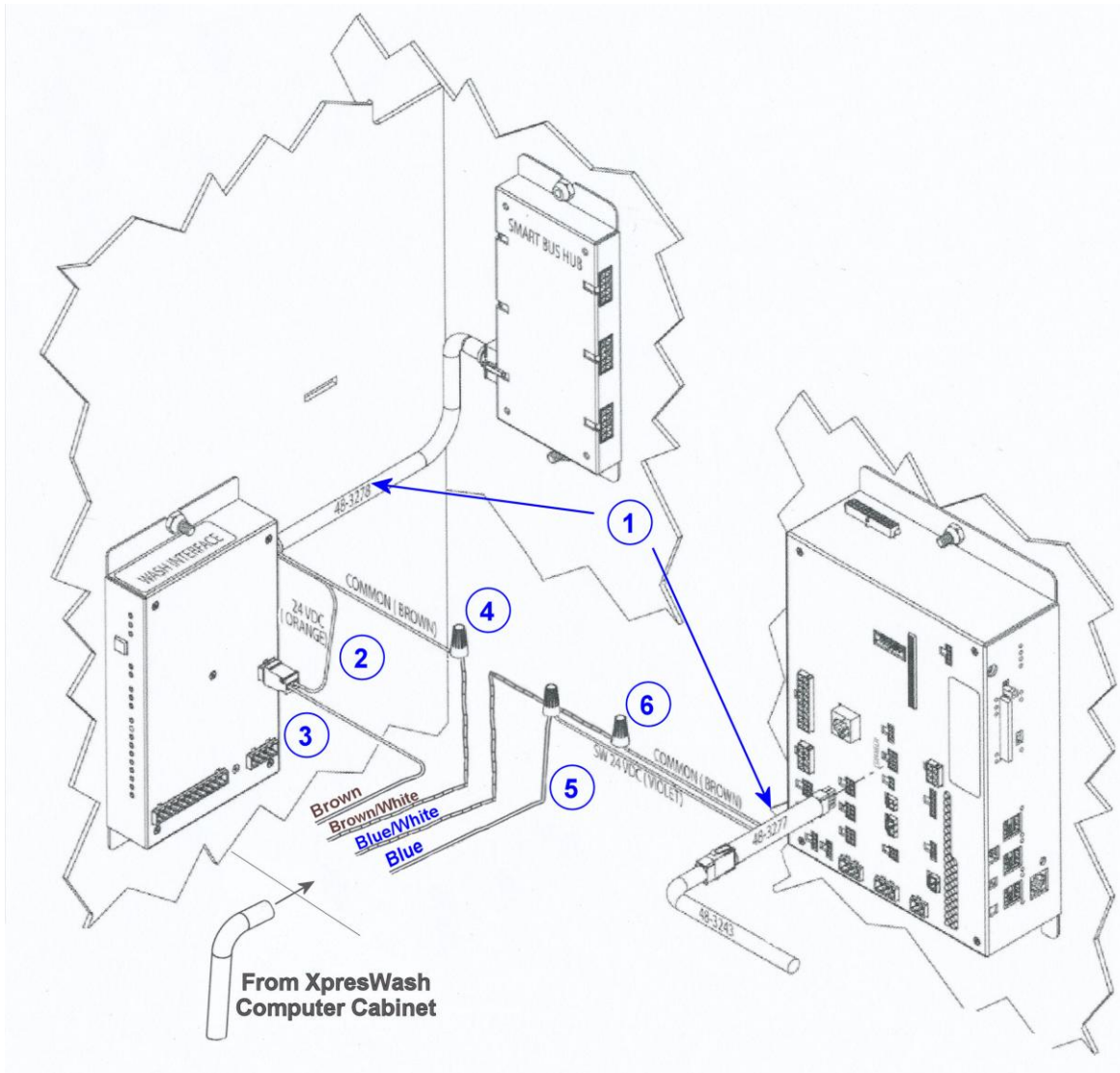
The Gold Line XpresWash installation involves use of the Hamilton Private Label Interface Kit #100-0165. Obtain this kit prior to installation. The steps to wire the XpresWash electrical signals and to this kit are shown below.



- 1, Locate the Goldline Private label interface harness (#48-3276).
2. Remove harness (#48-3037) from position 20 on distribution board and insert one end into harness (#48-3276).
3. Insert the other end of harness (#48-3276) into position 20 on distribution board.
4. Connect the BRN wire from harness (#48-3276) to XpresWash BRN wire.
5. Connect the WHT wire from harness (#48-3276) to XpresWash BLU wire.
6. Connect the BLK wire from harness (#48-3276) to XpresWash BRN/WHT and BLU/WHT wires

Hamilton HTK Wiring Instructions

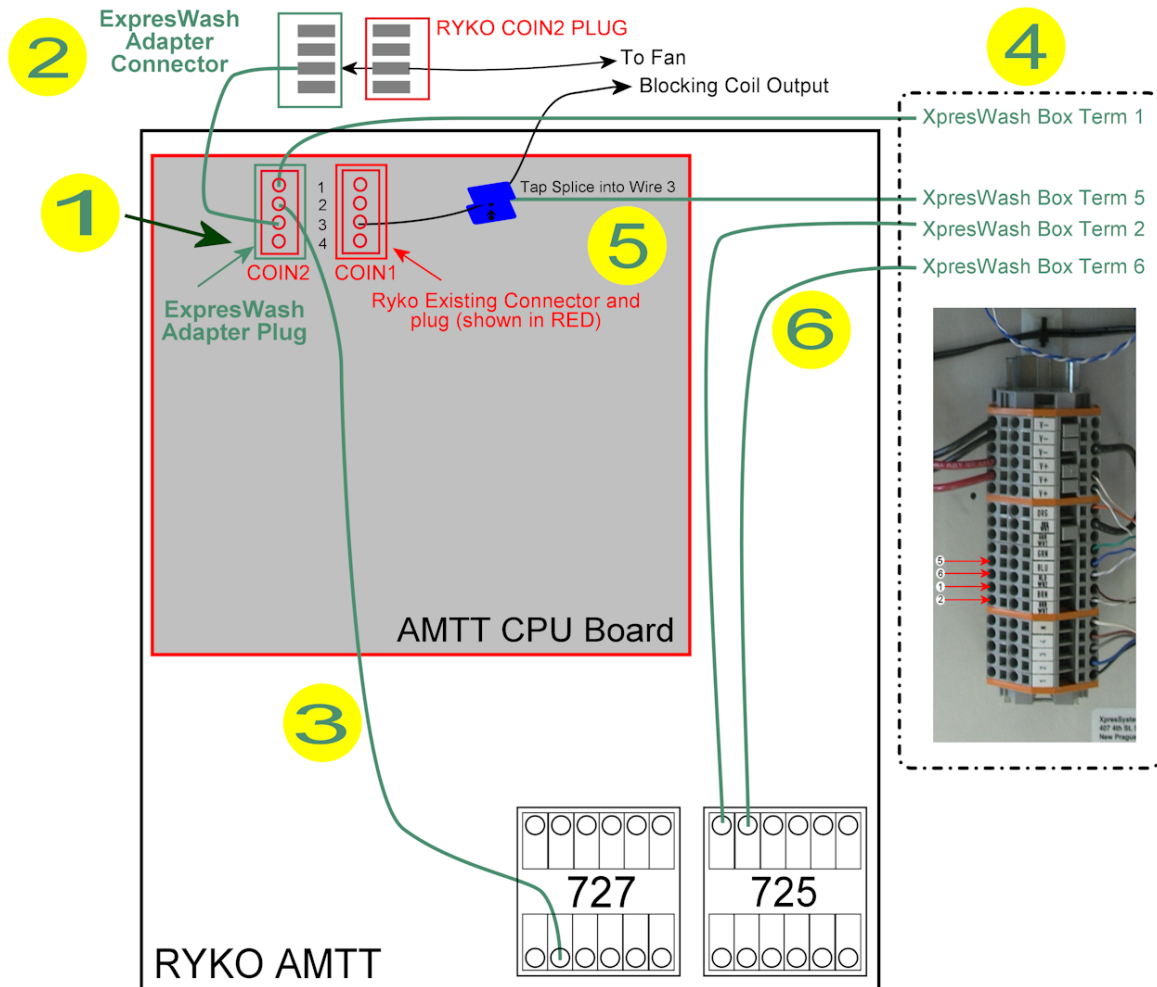
The HTK Line XpresWash installation involves use of the Hamilton Private Label Interface Kit #100-0166. Obtain this kit prior to installation. The steps to wire the XpresWash electrical signals and to this kit are shown below.



1. Replace harness (#48-3233) with kit harness (#48-3278) and (#48-3243) with kit (#48-3277) as shown.
2. Strip 1/4" insulation of Orange wire and insert into either 24VDC Phoenix Connector terminal and tighten screw.
3. Strip 1/4" insulation of Brown wire from the XpresWash Computer cabinet cable and insert into the other 24VDC Phoenix Connector terminal and tighten screw.
4. Connect the BRN wire from harness (#48-3278) to XpresWash BRN/WHT wire.
5. Connect the VIO wire from harness (#48-3277) to XpresWash BLU wire.
6. Connect the BLK wire from harness (#48-3277) to XpresWash BLU/WHT wire.

Ryko AMTT Wiring Instructions

This procedure involves use of XpresWash Adapter cable
(consult factory)



Steps

1. Remove the 4-contact Ryko plug from COIN2 on-board socket
2. Plug the Ryko plug from Step 1 into the XpresWash Adapter connector. Plug the XpresWash adapter plug into the COIN2 on-board socket.
3. Terminate adapter wire 2 into terminal block 727 as shown
4. Terminate adapter wire 1 to XpresWash Box Terminal 1
5. Tap slice into wire 3 of the existing COIN1 cable and terminate it to XpresWash Box Terminal 3
6. Terminate 2 wires from terminal block 725 as shown matching XpresWash Box Terminal 2 and 6

Ryko AMTT Color Screen version Wiring Instructions

(Reserved)

Ryko Multi-Upgrade Wiring Instructions

(Reserved)