Polycarbonate Overhead Doors With *Intelli*Watch Premium Operators

Installation and Maintenance Manual

BayWatch Warranty

The BayWatch High-Performance Door purchased by you (Buyer) should not be installed or operated before you read all associated product manuals explaining the proper method of installing, operating, and maintaining the equipment.

BayWatch Enterprises (Seller) warrants that the BayWatch High-Performance Door (Product) sold to the Buyer will be free of defects in materials and workmanship under normal use for a period of twelve (12) months from the date of shipment of the Product from the Seller's plant. Electrical components are warranted for a period of twelve (12) months from the date of shipment. If within the applicable period any Products shall be proved to the Seller's satisfaction to be defective, such Products shall be repaired or replaced at the Seller's option. Such repair or replacement shall be the Seller's sole obligation and the Buyer's exclusive remedy hereunder and shall be conditioned upon the Seller receiving written notice of any alleged defect within ten (10) days after its discovery and, at the Seller's option, return of such Product to the Seller, f.o.b. its factory. THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER REPRESENTATION AND WARRANTIES, EXPRESS OR IMPLIED, AND THE SELLER EXPRESSLY DISCLAIMS AND EXCLUDES ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE.

PARTS AND ASSEMBLIES sold separately by BayWatch Enterprises that fail due to defects in material or workmanship within ninety (90) days from the date of shipment will be replaced under warranty provided installation has been carried out in accordance with all BayWatch procedures. This warranty is limited to providing a replacement part only. This warranty does not cover freight, special charges, or any costs associated with the installation of the replacement part.

Any description of the Product, whether in writing or made orally by the Seller or the Seller's agents, specifications, samples, models, bulletins, drawings, diagrams, engineering or similar materials used in connection with the Buyer's order, are for the sole purpose of identifying the Product and shall not be construed as an express warranty. Any suggestions by the Seller or the Seller's agents regarding the use, application, or suitability of the Product shall not be construed as an express warranty unless confirmed to be such in writing by the Seller.

The Seller's liability with respect to the Product sold to the Buyer shall be limited to the warranty provided herein. THE SELLER SHALL NOT BE SUBJECT TO ANY OTHER OBLIGATIONS OR LIABILITIES, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORIES OF LAW, WITH RESPECT TO PRODUCTS SOLD OR SERVICES RENDERED BY THE SELLER, OR ANY UNDERTAKINGS, ACTS, OR OMISSIONS RELATING THERETO. Without limiting the generality of the foregoing, the Seller specifically disclaims any liability for property or personal injury damages, penalties, special or punitive damages, damages for lost profits or revenues, services, downtime, shutdown, or slowdown costs, or for any other types of economic loss, and for claims of the Buyer's customers or any third party for any such damages. THE SELLER SHALL NOT BE LIABLE FOR AND DISCLAIMS ALL CONSEQUENTIAL, INCIDENTAL, AND CONTINGENT DAMAGES WHATSOEVER.

This warranty shall be void in its entirety if the failure of any product is caused by any installation, operation, or maintenance of the Product which does not conform with the requirements set forth by the Seller in the applicable product manuals or is the result of any cause other than a defect in the material or workmanship of the Product.

10/13/12

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I. Overview

"BayWatch" is the Smart System for reliable, automated car wash bay operation. Cut downtime hassles and decrease maintenance, while reducing the amount of equipment installed in each bay. BayWatch is the simpler, more direct system, designed from the ground up for dependable performance.

BayWatch Enterprises, LLC has designed and developed a totally enclosed, waterproof, direct shaft driven car wash door operating system to specifically withstand high cycle harsh environments.

Features:
- Easy to Install, Operate and Maintain
- Faster and Smoother Operating Capabilities
- Customer Friendly Programmable Options and Remote Operating
- Self-Monitoring Sensors with Visual and Audible Alarms
- Automatic Reversing Sensors to Eliminate Vehicle Door Strikes
- Thermostat Control to Reduce Bay Freeze-ups
- Adjustable Door Heights
- Programmable Fail Safe/Secure Functions
- Time Control Function
- Chemical Monitoring Capabilities

BayWatch Enterprises, LLC is committed to providing operating equipment of the highest standard that is built for longevity for companies here in the US and internationally. The BayWatch operating equipment is impervious to cold wet conditions; the motor and gearbox are totally enclosed and waterproof. The polycarbonate door panels with aluminum rails can not only withstand unforgiving environments, but also will help make the bay more inviting and the car wash customer fill more comfortable. Our unique operating system can interface with any car wash and if needed we can customize door accessories to suite individual requirements. Also, the system has the only fail-safe procedure on the market today. If a power failure occurs or a customer were to get stuck in the bay and panic, then the doors can still be opened by hand. The BayWatch monitoring system can report directly to the convenience store personnel any alert messages with the door operations and notification of low chemicals. It can also e-mail these alerts to the operator or service provider. The operator and/or technician can access the monitor from their laptop, tablet or smartphone to diagnose the issue and possibly save a service call.

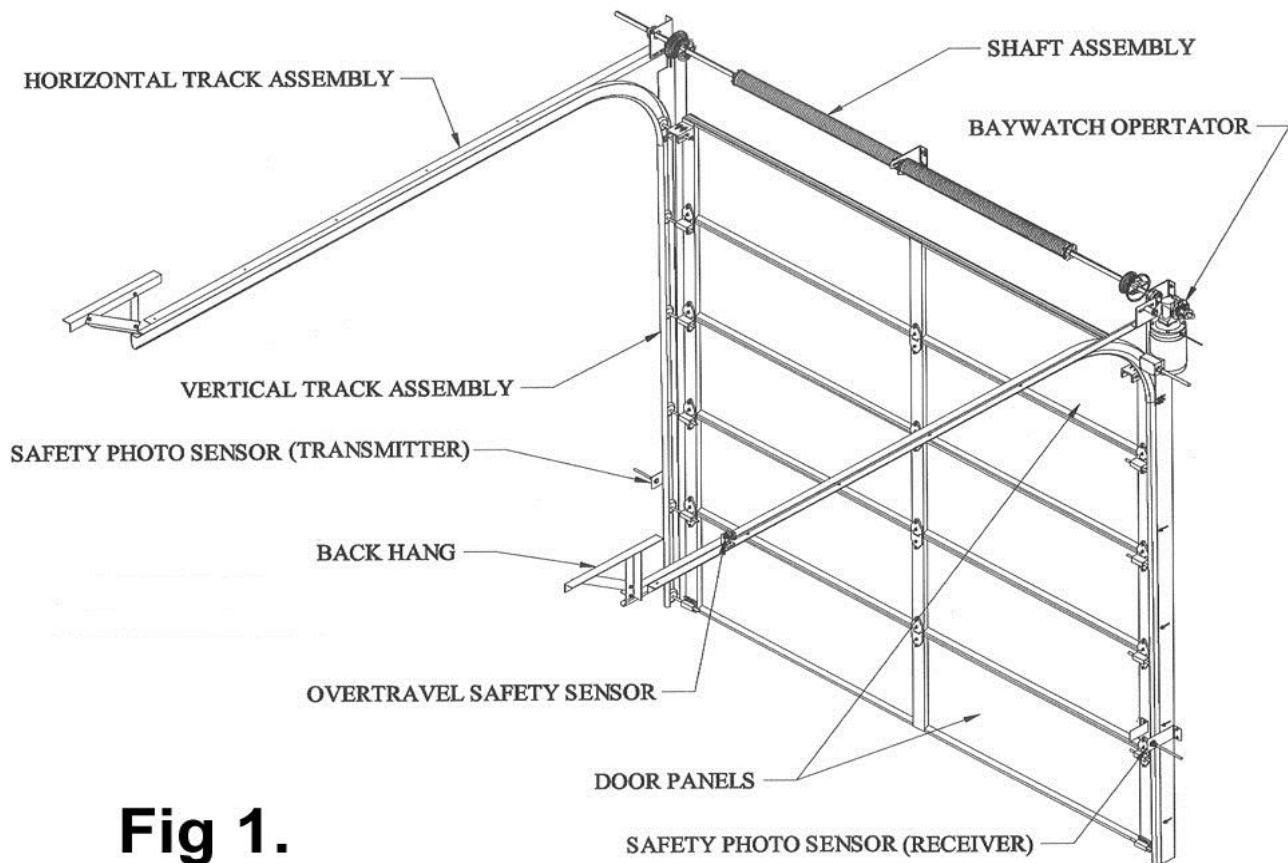See **Figure 1** for BayWatch **10'2"** wide x **10'** high overhead door system:

Fig 1.

Our focus is to offer the highest quality equipment that reduces car wash down time, reduces maintenance costs and is impervious to cold, wet environments. BayWatch has many years of experience in the car wash industry. BayWatch designed and developed a completely enclosed direct shaft driven car wash door operating system to specifically withstand cold and wet environments. The exceptional design of the door operators was developed for compatibility with a technical computer program that virtually monitors the operation of the doors, heaters and heat mats. This system allows the car wash attendant to program specific operating times and functions, while alerting them of any problems or adverse conditions.

This can all be done manually from a location separate to the car wash bay with the touch of a button without leaving the store or office. BayWatch supplies everything necessary to give the operator up-to-date information on the status of their car wash doors, heaters and heat mats. BayWatch quality and durability ensure it is at the forefront of developing and manufacturing THE BEST door operators for the car wash owner.

Standard Features of Bay Door Include:

- Stainless Steel 1" diameter Solid Keyed Shaft
- Galvanized Steel Torsion Springs
- Galvanized 3" Tracks are standard.
    - *Stainless Steel Tracks are optional*
- Plastic Hinges with Stainless Steel Screws
    - Stainless Steel or Galvanized Hinges are optional
- 3" Neoprene Rollers
- 16mm Triple Wall Polycarbonate panels
    - Gives *better lighting and insulation*
- Clear Anodized Aluminum Door Panel Frames
- Optional Powder Coating Door Frames Available
- 5 Year Warranty on Door Panels
    - *1 Year on all Components*
- Custom Doors for Any Bay Size
    - *BayWatch Operating System works any size door without the need for mechanical changes*
- Fail-Safe Manual Door Operation
    - The BayWatch door operating system uses a 15:1 gear ratio and balanced drum assembly to allow manual operation of the door in case of power failure.
    - *Placard signs are available to inform customer of escape procedures*

IN CASE OF
POWER FAILURE
RAISE DOOR BY
HAND TO EXIT
CARWASH

*Intelli*Watch Operator Interface with Touch Screen Display

The BayWatch Monitoring System and Controller gives you **full control over all door operations,** and **notify you in the event of any problems.**
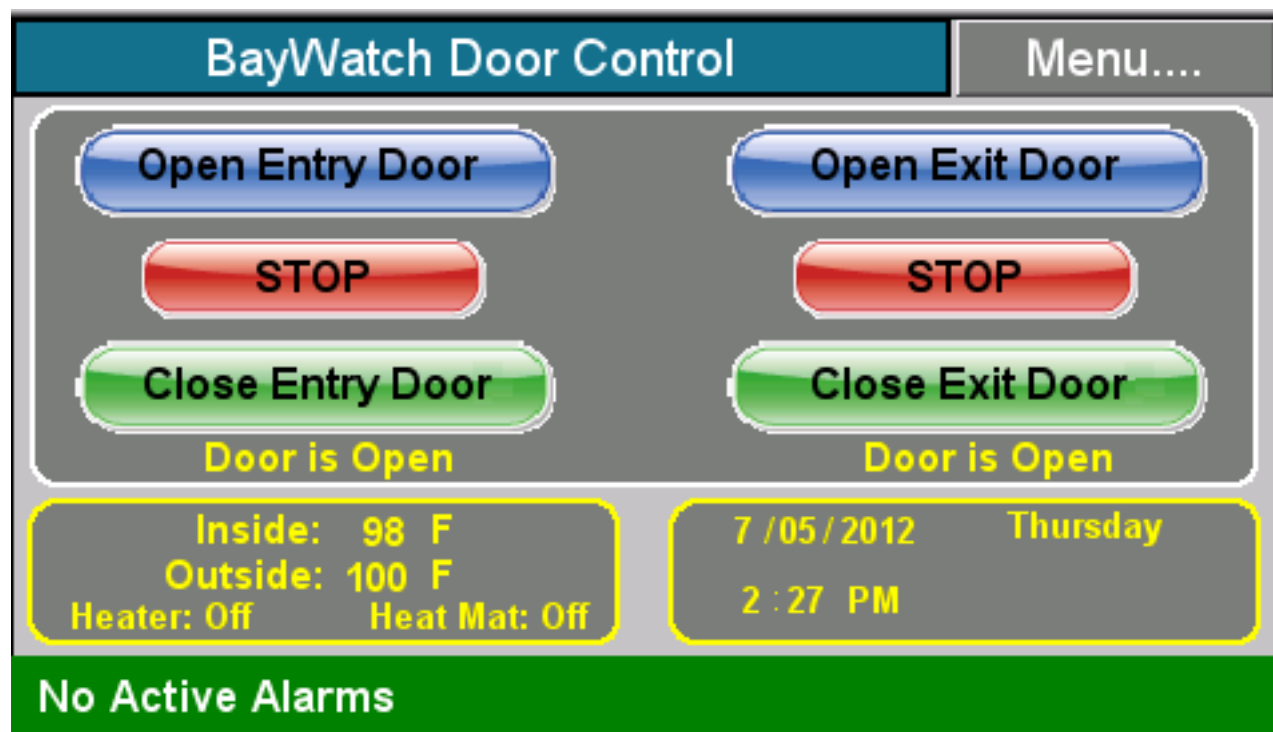
*Intelli*Watch Operation Functions:

- Reports position of each door.
    - Example: **ENTRY DOOR OPEN** or **EXIT DOOR CLOSE**.
- Reports any door failures including **POWER** and **VF DRIVE** failures.
- Reports any door sensors failures, lower photo eyes, over travel sensors and count proximity switches.
    - Example: **OVER TRAVEL EYE FAILURE ON ENTRANCE DOOR – CALL FOR SERVICE.**
- Allows remote operation (open and close) of each door.
- Allows remote monitoring through any laptop, tablet or smart phone that includes e-mail alerts for fastest repair response
- Links doors, heaters and heat mats together with a single thermostat. This eliminates freeze-ups and unnecessary heat output die to tampering with temperature settings.
- Allows operator to place door onto automatic time control functions from a remote location.
- Reports door opening height and allow cashier/attendant to customize this height according to specific requirements.
- Reports total number of door cycles on each door.
    - Example: **ENTRANCE DOOR 1256 CYCLES**.
- Reports chemical levels (up to 3 products) and warns operator to reorder chemicals when the product falls below 5 gallons (with purchase of chemical monitoring accessories).

See **Appendix** for *Intelli*Watch Operating Instructions.

II. Door Installation

Install Wood Jambs

Install 2"x 6" and 2"x10" treated wood as shown in Figure 2. There should be 2 pieces **A** 2"x10"mounted flush with the opening on the wall running vertically from the floor to the ceiling on each side of the opening, 1 piece **B** 2"x6" of treated wood mounted flush with the opening across the top, and 1 piece **C** 2"x6" should be mounted vertically in the center of the door opening and between the ceiling and the top of piece **B.** See **Figure 2**:
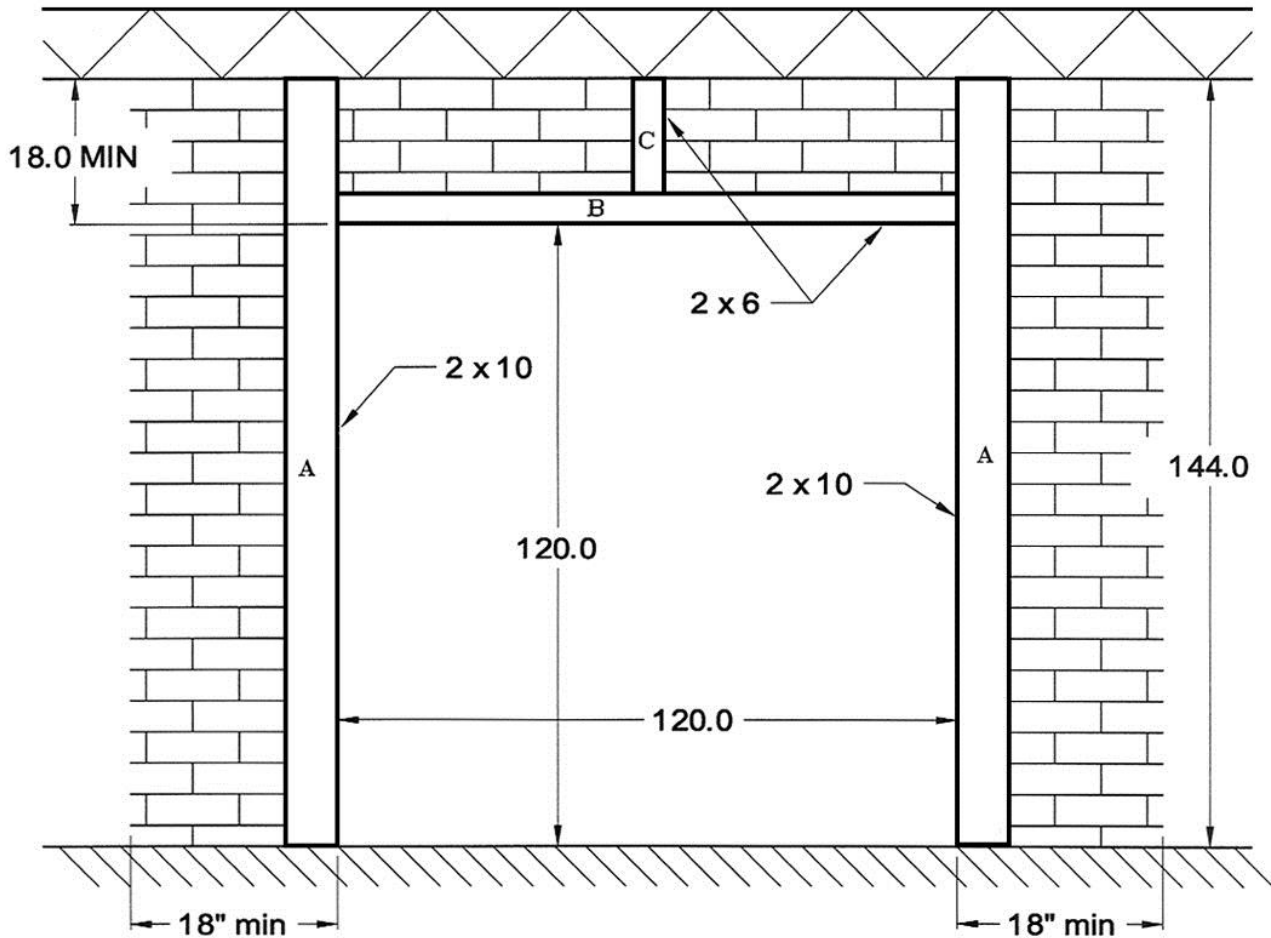
Fig. 2

If attaching to a block wall use ⅜" x 4½" or ⅜" x 5" concrete anchors. Now you are ready for the door and tracks installation.

Mount Vertical Track and Bottom Door Panel

The bottom section has a flexible rubber astragal. Attach the door cables to the left and right bottom brackets using clevis and cotter pins. Attach the brackets to the bottom of the bottom door section with hinge screws through the predrilled holes. Attach the #2 hinges to the top of the bottom section on both sides. Put one roller on each #2 hinge and one on each bottom bracket. Refer to **Figure 3**. Position the bottom section in the doorway and make sure it is centered in the opening.

HINGE PLACEMENT FOR 3" TRACK

ROLLER

SECTION 5, TOP

ADJUSTABLE TOP FIXTURE

HINGE #1　　　　HINGE #5

SECTION 4

HINGE #1　　　　HINGE #4

SECTION 3

HINGE #1　　　　HINGE #3

SECTION 2

HINGE #1　　　　HINGE #2

SECTION 1, BOTTOM

BOTTOM FIXTURE
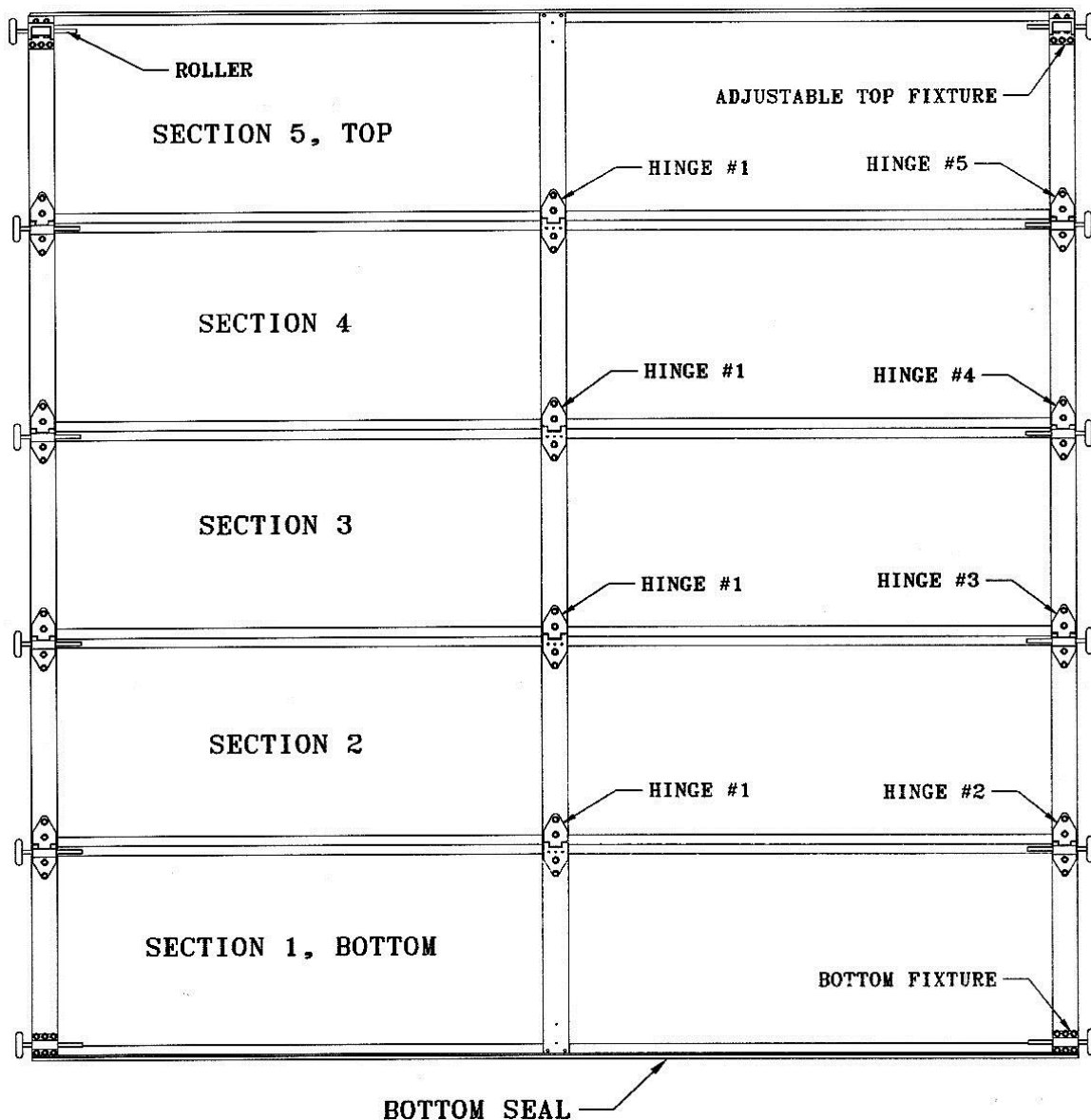
BOTTOM SEAL

Fig. 3

Insert the vertical track over the two rollers of the bottom section. Raise track **½"** off floor and screw lags on bottom hole of angle. Attach left side of vertical track, see **Figure 3**.

The other side will be mounted later. The vertical track reverse angle should be flush with the outside edge of the wood jambs **A.** Use wood lag screws to attach the track to the wood jambs.
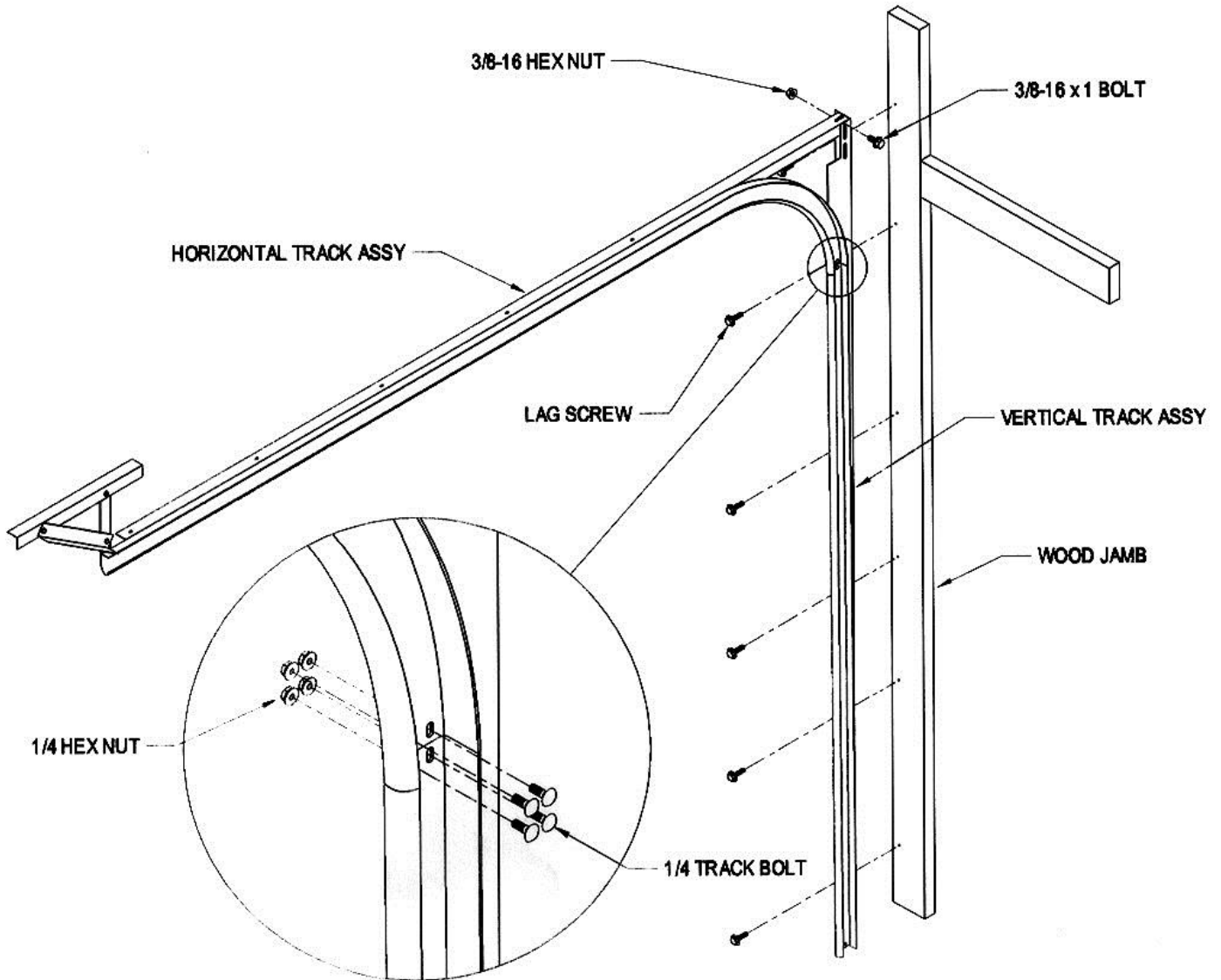
3/8-16 HEX NUT

3/8-16 x 1 BOLT

HORIZONTAL TRACK ASSY

LAG SCREW

VERTICAL TRACK ASSY

WOOD JAMB

1/4 HEX NUT

1/4 TRACK BOLT

Fig. 4

Adjust track sideways to allow ⅛" end play in roller, and ¾" distance between edge of track and edge of door panel. Plumb vertical track and put lag screws in the reverse angle at the top of the door. See **Figure 4**. Final adjustment will be made after door is stacked.

Mount the 2nd Vertical Track

Measure the top of the vertical track to the top of the bottom section and set the opposite vertical track at exact same height repeating above procedure. To mount the opposite side of the door track to the wood jamb, slide the free track over the 2 exposed rollers. Move the angle so that it is flush with the outside of the wood jamb.

After mounting the vertical tracks make sure track is plumb using a level. If there is not ¾" to **1"** between each side of the door track and the door section, make adjustments to both sides. You are now ready to stack the door panels.

Stack Door Panels.

Stack the intermediate panels one at a time, on top of bottom panel up, attaching the hinges as shown in **Figure 3**. Do not install the top section yet.
      Note: All sections, except the bottom section, are the same.

Installing Horizontal Tracks

The horizontal track sits on top of the vertical track. Release the track bolts on the vertical track and pull it to the front of the angle. This will allow the horizontal track to line up with the vertical. Stack the horizontal track on top of the vertical. Using two track bolts and nuts attach the bottom of horizontal track onto the vertical.

Attach the angle at the top of horizontal track to the reverse angle of the vertical track using ⅜" carriage bolts and nuts (See **Fig. 4**). Position the bolts so they stick out towards the wall and away from the sections and cable. Using the angle iron secure the ends of the horizontal track.

Measure the distance from the wall to the outside of the vertical track to align the end of the horizontal track. Now you can install the top section of the door using the top adjustable fixtures with rollers. See **Figure 3**.

Installing Over Travel Safety Sensor

Mount the over travel safety sensor bracket to top rail of horizontal track. Measure **106"** from inside face of wall for exact position of bracket. See **Figure 5**.

Install sensor facing inward toward overhead door track. Take care to position sensor close enough to read door edge as it passes but with clearance to allow passage of door hinge.

Extend wire leads from sensor along door track and wire tie in place. Terminal wire ends in the junction box designated for low voltage data wires. Refer to BayWatch Operator Wiring Diagrams in the **Appendix**.
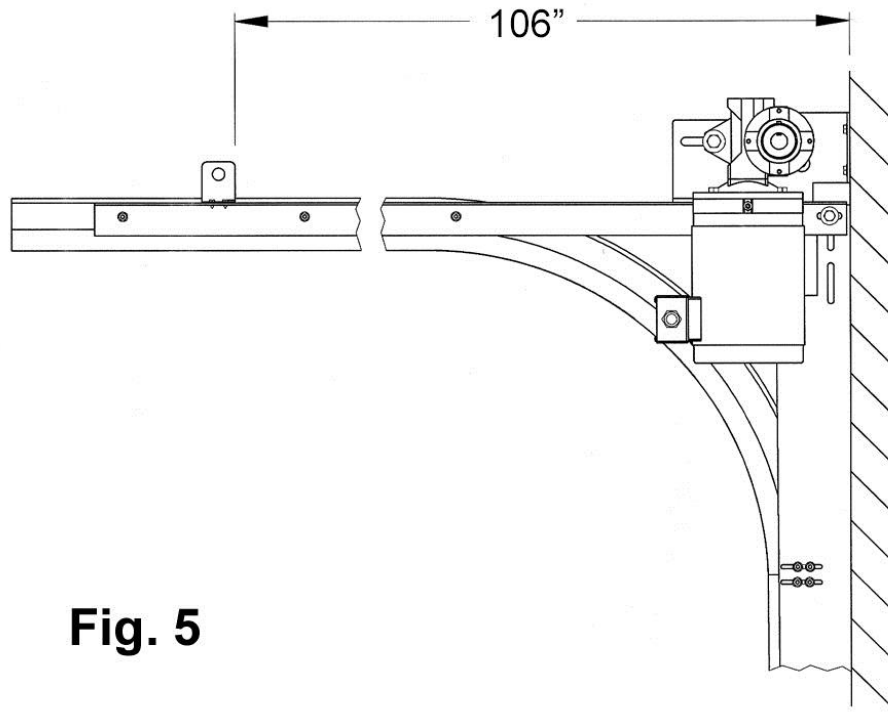

Fig. 5

Installing the Shaft with Torsion Springs

Before beginning this step, make sure the shaft is at least 2'4" longer then door width.

To prepare the shaft for spring installation, from the left-hand side, slide a round bearing to the center of the shaft. Then, slide on the left hand spring, the left pickup drum and the left shaft mount bracket with bearing. Repeat for the right-hand side (See **Fig. 6**).
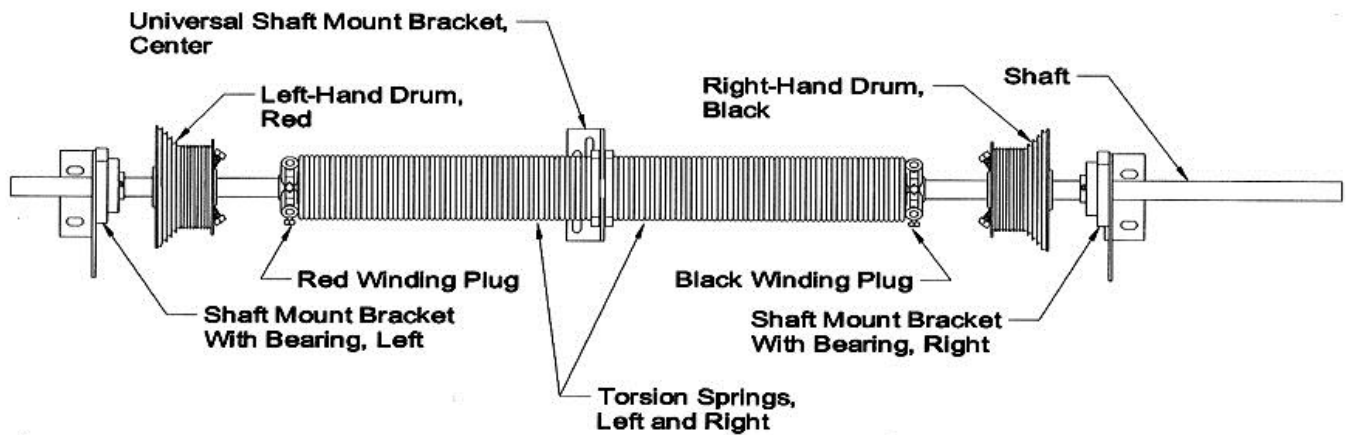
Fig. 6

Stack the shaft on top of the horizontal track. Place the bearing brackets on top of the horizontal angles with the flange in the same direction as the vertical angle. Attach the bearing brackets to the bottom of the horizontal angle with ⅜" carriage bolts.

Attach the brackets' flange to wood jamb **A** with lag screws. Align shaft **12" – 14"** stick out on operator side. Mount universal center bracket to the wall to wood jamb **C.**

Attach the torsion springs together to the center bracket using ⅜" **x 1.5"** bolts with nuts. Make sure the shaft is level.

Bring the door cables up between the door and track, and behind the rollers. Attach the cable to the notch on the door drums. Turn drum until cable is tight and tighten set screws. Make sure cable head is seated against drum. Clamp the vise-grip on shaft and against header to hold cable tight. Wind cable on right drum and tighten set screws. Tension must be equal on both cables. Cables are now set. **Do not remove vise-grips**.

<u>Winding Torsion Springs</u>

To wind the springs, use two steel rods with diameter ½" and are at least **18"** in length. See **Figure 7**. Before winding springs, place a clamp on vertical track to insure that the door does not rise while winding springs.
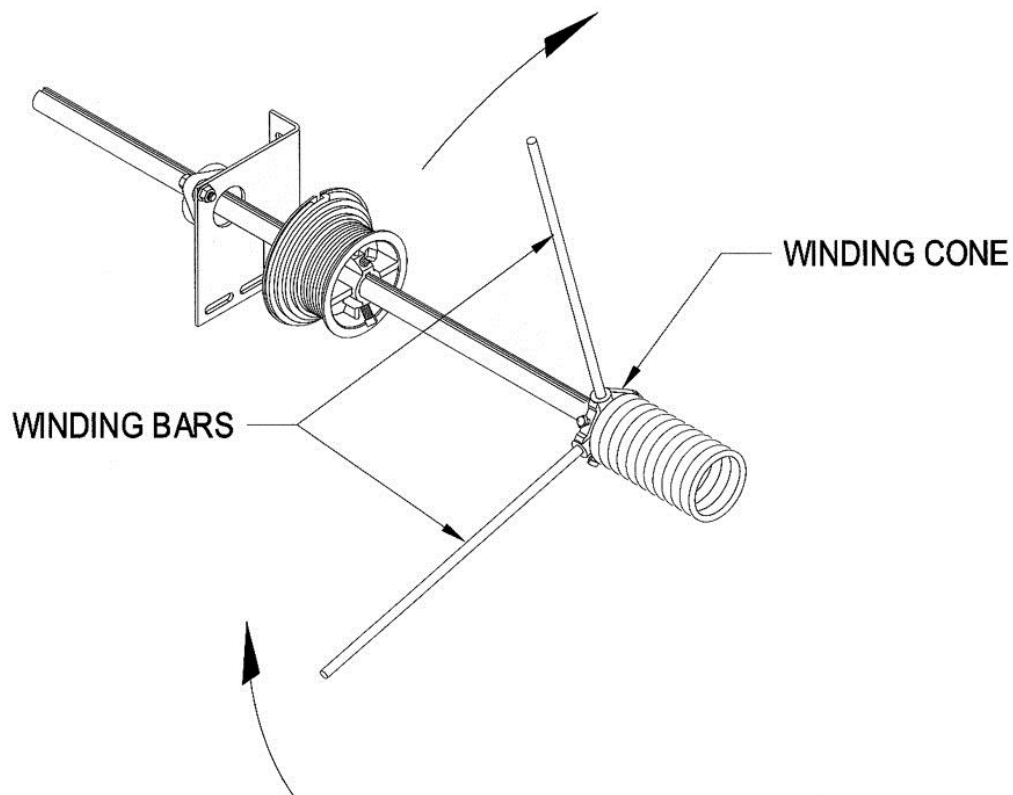
WINDING CONE

WINDING BARS

Fig. 7

Place bar in winding cone push up. The required numbers of turns is stated other spring tag. **Do not remove spring tags from springs!** After winding the first spring, tighten the set screws down to shaft. Wind other spring. **Wind both springs the same number of times ─ they must be equal**. After all springs are wound, but before removing vise-grips from shaft line and vertical track. **Make sure everyone and everything is clear of door**. Now remove vise-grips and clamp.

Raise the door **3 – 4** feet. If the door stays in position, it is balanced. If it rises by itself, it has been wound too much. If it drops to the floor, it needs more winding.

BayWatch Door Operator Installation

Door operator is pre-assembled and includes: **½ HP** Electrical Motor, Gear Reducer with torque arm bracket, and **8mm** Count Proximity Sensor in housing.
See **Figure 8**.
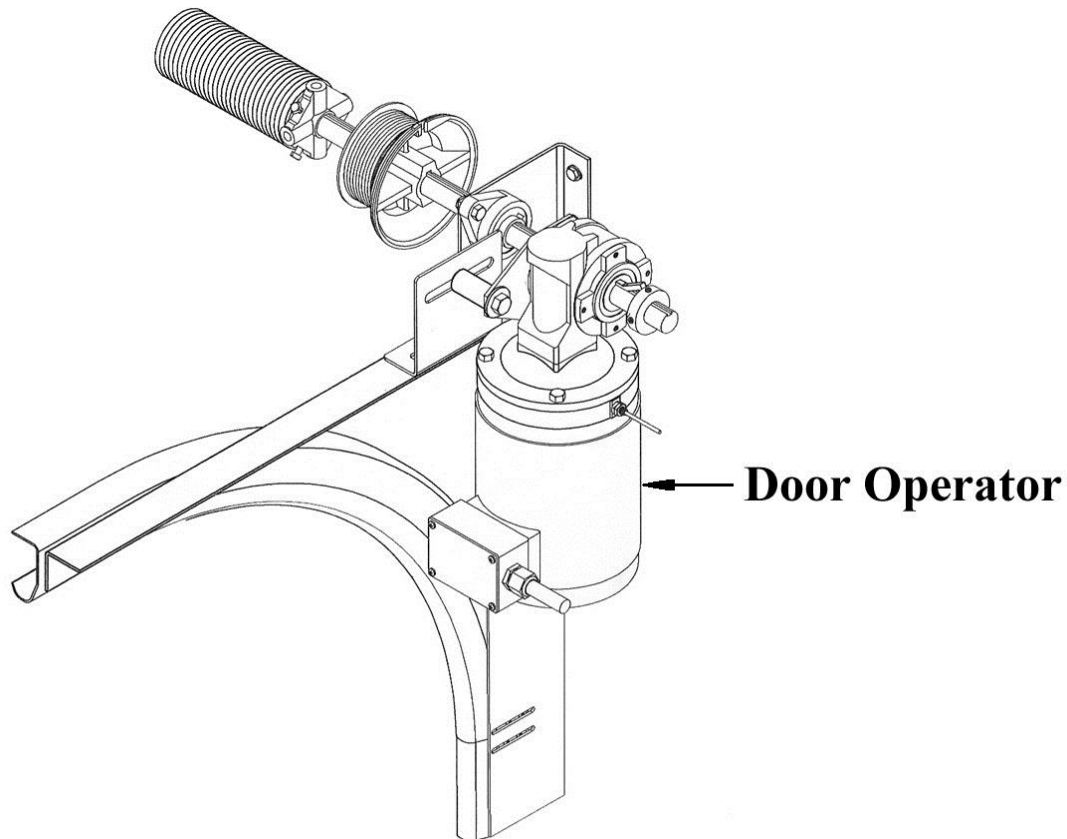
Door Operator

Fig. 8

Operator can be installed on either side of overhead door. Refer to **Figure 9** for operator installation step by step. After determining the location of operator, slide gear- box on shaft until the motor is spaced approximately **½"** from the door track.
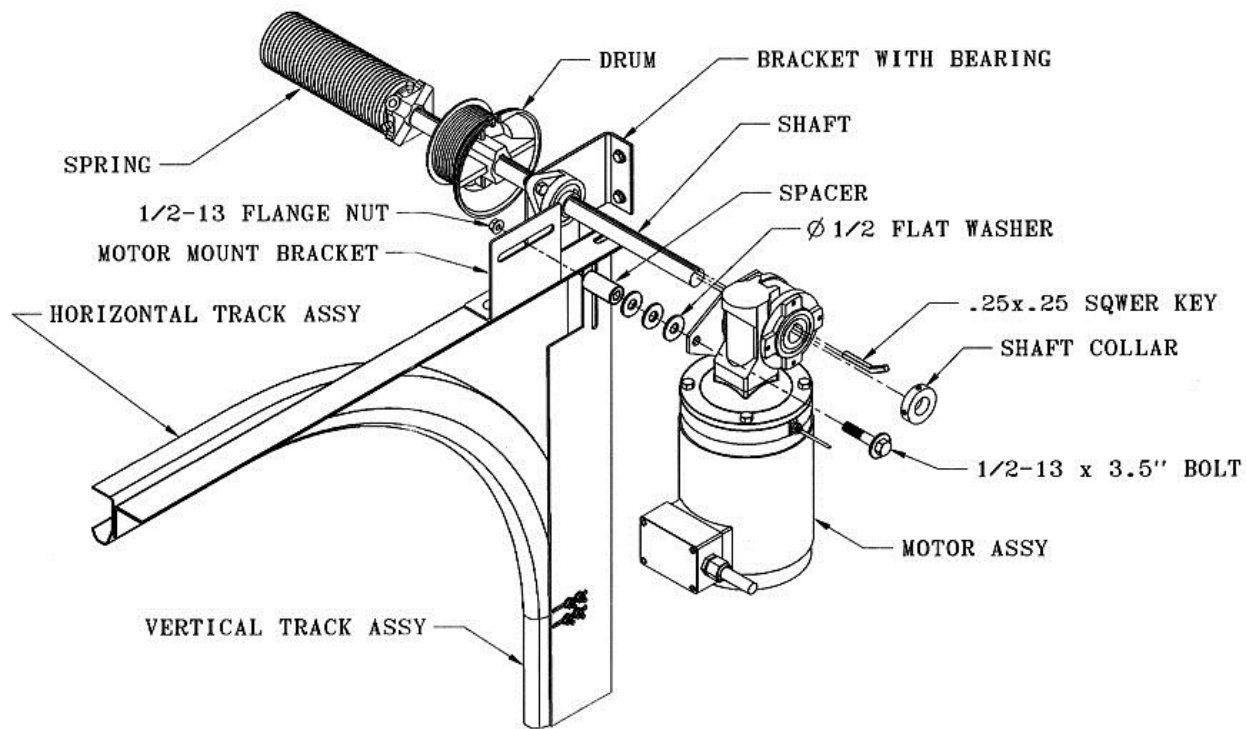
Fig. 9

Install motor mount bracket on top of the upper track angle support then rotate motor away from exterior wall to align the bolt hole in motor torque arm with the slotted hole in motor mount bracket. Locate aluminum spacer and flat washers (if required) between arm and mounting bracket. Insert ½" bolt and tighten with nut. See **Figure 9**.

Insert key into key-way slot of shaft and gear-box. Insert shaft collar and tighten with set screws. Tighten connector of cord set to motor count proximity switch. Wire tie cord to door-frame, and terminate in junction box, designated for low voltage wires. See Terminations chart (Pg 18) and BayWatch Operators Wiring Diagrams in **Appendix**.

<u>Safety Photo-Eyes Installation</u>

Mount LPE brackets on both sides of overhead doors at **28"** to center of brackets above finished floor. See **Figure 10**.

Insert photo Receiver through hole in bracket mounted on the operator side of door. Secure with plastic nut. Repeat with photo Transmitter on opposite side of door. Pull photo eye

leads into conduit furnished by electrician. Then terminate in junction box designed for low voltage communication.
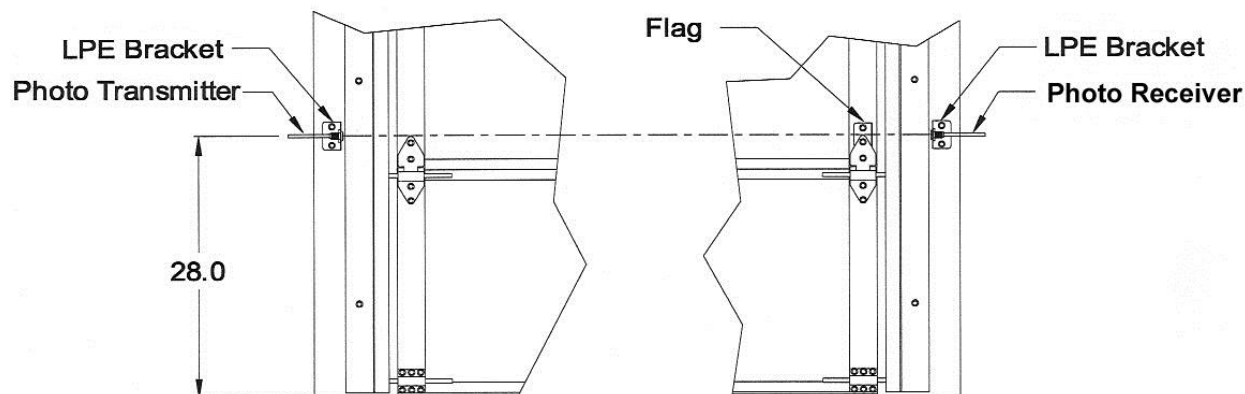
Fig. 10

Install flag on door panel using top hinge bolt to secure as shown on **Figure 10**.
All photo eye brackets and flag must be mounted using two fasteners. Flag must block photo eyes completely to allow computer to reset.

Any top penetrations to any electrical control boxes will void the manufacturer's warranty

BayWatch Main Control Box Installation

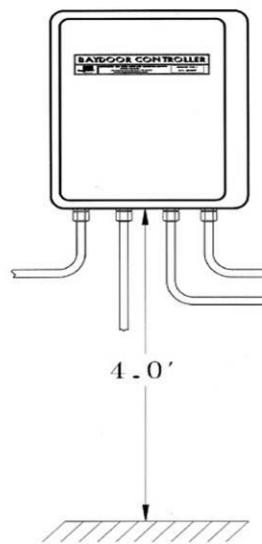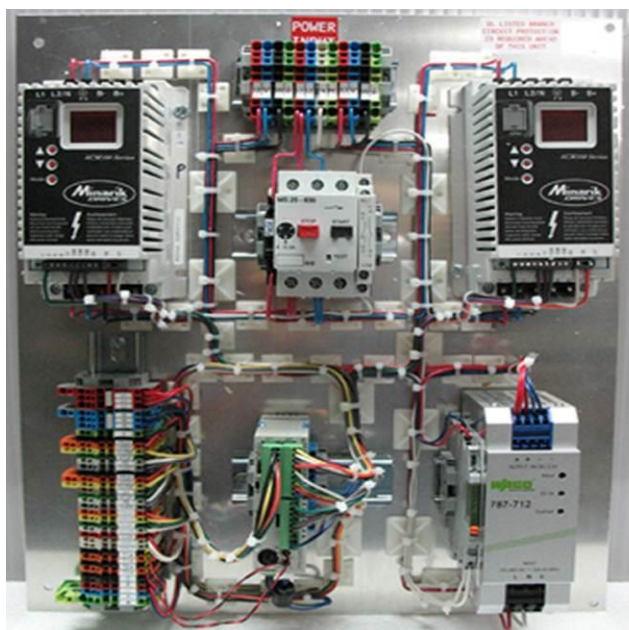Install BayWatch control panel box in designated location. See **Figure 11.**

Fig. 11

Check to ensure adequate spacing with other equipment to allow box door to open. Mount control box at 4' from bottom edge of the box above finished floor. Using **½"** concrete anchors fasten box to wall. Check to make sure box is level and secure.

Low Voltage Junction Boxes Installation

Junction boxes should be mounted **8'** to the bottom edge of box above finished floor. See **Figure 12**.

Fig. 12
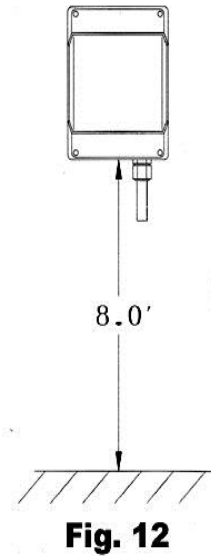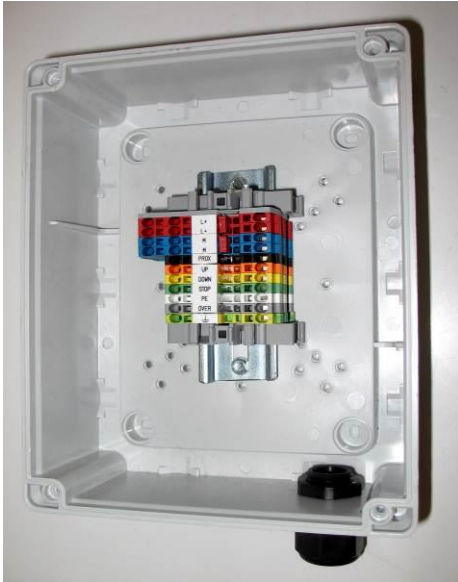
Junction box should be mounted to wall using **#8 x 1½"** sheet metal screws with **#8** x **7/8"** plastic anchors. Check that it is level and secure.

Push Button Controls.

Install NEMA-4 push button controller **4'6"** above finished floor. See **Figure 13**.

CORRECT

NOT CORRECT

4' 6''

Fig. 13
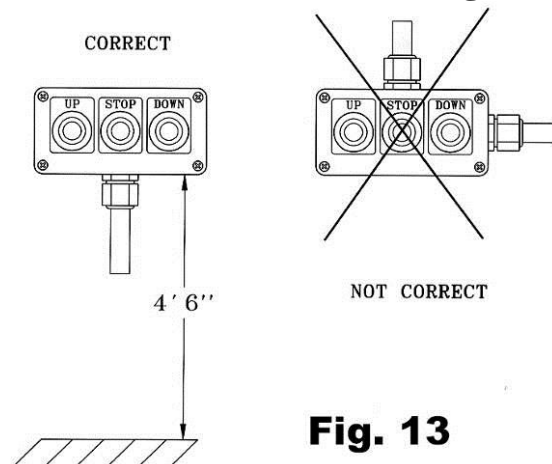
Anchor securely using **#8 x 1½"** sheet metal screws with **#8** x **7/8"** plastic anchors. **Do Not Penetrate Back of Push Buttons.** Check to make sure cover and switches line up properly.

*****Any top penetrations to any electrical control boxes will void the manufacturer's warranty*

III. ELECTRICAL

Wiring

(Refer to Appendix for Low Voltage Communication Diagram.)

Over Travel Safety Sensor —
Run **40'** cable that is supplied with the sensor, all way back to low voltage Junction Box. Cut cable in J-box for termination. Make sure cable is run through four-hole water tight fitting supplied with J-box.

Counter Proximity Switch —
Run cable that is supplied with the switch down into J-box. Make sure cable is run through four-hole water tight fitting supplied with J-box.

Push Button Stations —
Run 6 conductors 22 AWG Shielded communication cable (using only **Orange**, **Yellow**, **Green**, **Brown** and **Red** conductors) from push buttons to J-box. Cut wires for termination in J-box.

Safety Photo Transmitters and Receivers —
Run cable that is provided with each photo sensor all the way back to J-box. Cut wires for termination in J-box.

Junction Box —
Run 10 conductors 18 AWG Shielded communication cable through low voltage conduit all the way to BayWatch Main Control Box. Cut cable for termination in Control Box and J-box and one 14 AWG **Green**/**Yellow** ground wire.

Motors —
Run 14 AWG 3 power wires (**Blue**, **Red** and **Black**) and one **Green** ground wire through High Voltage conduit from BayWatch Main Control Box to Motors. Cut wires for termination in Motor and Control Box.

C-Store Monitor —
Run 6 conductors 22 AWG shielded communication cable to BayWatch Main Control Box. Cut wires for termination in Monitor and Control Box.

BayWatch Main Control Box —
For single phase run two 14 AWG power wires (**Red** and **Black**), one **Green** 14 AWG ground wire and one <u>White</u> 14 AWG neutral wire through High Voltage conduit from Distribution Panel to right side bottom of Main Control Box.

For Three phases run three 14 AWG power wires (**Blue**, **Red** and **Black**), one **Green** 14 AWG ground wire and one <u>White</u> 14 AWG neutral wire through High Voltage conduit from Distribution Panel to right side bottom of Main Control Box.

NOTICE: *All Low Voltage control wiring shall be separated from High Voltage power wiring in separate conduits.*

All conduits **MUST** *penetrate* **THE BOTTOM** *of Control Panel* (Figure 11)*, Junction Box* (Figure 12) *and Push Buttons* (Figure 13) **ONLY**.

Terminations

Push Buttons (Entrance) ─

Control Wires:

Orange – to bottom of OPEN contact,

Yellow – to bottom of CLOSE contact,

Green – to bottom of STOP contact.

Power Wires:

Red– to top of OPEN contact,

Red Jumper Wire – from top of OPEN contact to top of STOP contact,

Red Jumper Wire – from top of STOP contact to top of CLOSE contact.

Push Buttons (Exit) ─

Control Wires:

Orange – to bottom of OPEN contact,

Yellow – to bottom of CLOSE contact,

Green – to bottom of STOP contact.

Brown – to top of STOP contact.

Power Wires:

Brown– to top of OPEN contact,

Brown Jumper Wire – from top of OPEN contact to top of CLOSE contact.

Motors (Entrance and Exit) ─

Power Wires:

Blue – to 3 and 9,

Red – to 1 and 7,

Black – to 2 and 8,

Wire Nut – 4, 5 and 6.

Ground Wires:

Green – to ground screw inside motor wire housing,

Green – from ground screw of motor to Control Box.

Junction Box (Entrance and Exit) ─

From Over Travel Eyes:

Brown wire – L+

Blue wire – M

Black wire – OVER

From Counter Proximity Switch:
     Brown wire – L+
     Blue wire – M
     Black wire – PROX

Junction Box (Entrance) ─

From Push Button Stations:
     Red wire – L+
     Orange wire – OPEN
     Yellow wire – CLOSE
     Green wire – STOP

Junction Box (Exit) ─

From Push Button Stations:
     Red wire – L+
     Orange wire – OPEN
     Yellow wire – CLOSE
     Brown wire – L+ STOP
     Green wire – STOP**18**

Junction Box (Entrance and Exit) ─

From Photo Transmitter:
     Brown wire – L+
     Blue wire – M
From Photo Receiver:
     Brown wire – L+
     Blue wire – M
     Black wire – PE

Junction Box (Entrance) ─

Communication Cable to BayWatch Main Control Box (Entry Door)
     Red wire – L+
     Blue wire – M
     Black wire – PROX
     Orange wire – OPEN
     Yellow wire – CLOSE
     Green wire – STOP
     White wire – PE
     Gray wire – OVER
     Violet and Shield wire – ⏚

Junction Box (Exit) ─

Communication Cable to BayWatch Main Control Box (Exit Door)

Red wire – L+
Blue wire – M
Black wire – PROX
Orange wire – OPEN
Yellow wire – CLOSE
Brown wire – L+ STOP
Green wire – STOP
White wire – PE
Gray wire – OVER
Violet and Shield wire – ⏚

Control Panel (Main Box) －

Power Wires from Distribution Panel for Three Phases:
Blue – L1
Red – L2
Black – L3
White – N
Green – PE9

Power Wires from Distribution Panel for Two Phases:
Blue – L1
Red – L2
White – N
Green – PE

Power Wires from Entrance Motor (on write side of terminal block):
Blue – U
Red – V
Black – W
Green – ⏚

Power Wires from Exit Motor (on write side of terminal block):
Blue – U
Red – V
Black – W
Green – ⏚

Control Panel cont. (Main Box) －

Power Wires from Heating System:
White – HEAT 1
White – HEAT 2

Communication Cable from entrance Junction Box (labeled as ENTER):
Red wire – L+
Blue wire – M
Black wire – PROX
Orange wire – OPEN

Yellow wire – CLOSE
Green wire – STOP
White wire – PE
Gray wire – OVER
Violet and Shield wire – ⏚

Communication Cable from exit Junction Box (labeled as EXIT):
Red wire – L+
Blue wire – M
Black wire – PROX
Orange wire – UP
Yellow wire – DOWN
Brown wire – L+ STOP
Green wire – STOP
White wire – PE
Gray wire – OVER
Violet and Shield wire – ⏚

Communication Cable from C-store (Monitoring System):
Black wire – Rx-
Brown wire – Rx+
Red wire – L+
Blue wire – M
Green, White and Shield wire – ⏚

Thermo Sensor T1 (Heating Control):
Orange wire – T1-a
Black wire – T1-b
Thermo Sensor T2 (Doors Control):
Orange wire – T2-a
Black wire – T2-b

Monitoring System in C-Store
Communication Cable from Main Control Box:
Black wire – Rx-
Brown wire – Rx+
Red wire – L+
Blue wire – M
Green, White and Shield wire – ⏚

***<u>*Any top penetrations to any electrical control boxes will void the manufacturer's warranty*</u>

BAYWATCH INPUTS LIST

TERMINAL	INPUT LABLE	INPUT DESCRIPTION
X1 - 0	PROX	COUNT PROX SENSOR, ENTRY DOOR
X1 - 1	PROX	COUNT PROX SENSOR, EXIT DOOR
X1 - 2	OPEN	PUSH BUTTON "OPEN", ENTRY DOOR
X1 - 3	CLOSE	PUSH BUTTON "CLOSE", ENTRY DOOR
X1 - 4	STOP	PUSH BUTTONS "STOP" ENTRY & EXIT
X1 - 5	PE	LOWER PHOTO EYE, ENTRY DOOR
X1 - 6	OVER	OVER TRAVEL SENSOR, ENTRY DOOR
X1 - 7	OPEN	PUSH BUTTON "OPEN", EXIT DOOR
X1 - COM	M	NUETRAL / COMMON
X2 - 8	CLOSE	PUSH BUTTON "CLOSE", EXIT DOOR
X2 - 9	PE	LOWER PHOTO EYE, EXIT DOOR
X2 - A	OVER	OVER TRAVEL SENSOR, EXIT DOOR
X2 - B	TB17	VFD FAULT CIRCUIT
X2 - C	ENTER CLOSE	CARWASH SIGNAL TO CLOSE ENTER
X2 - D	ENTER OPEN	CARWASH SIGNAL TO OPEN ENTER
X2 - E	EXIT CLOSE	CARWASH SIGNAL TO CLOSE EXIT
X2 - F	EXIT OPEN	CARWASH SIGNAL TO OPEN EXIT
X2 - COM	M	NUETRAL / COMMON
X4 - 0	T2-A	INSIDE TEMPERATURE SENSOR
X4 - 1	T2-B	FOR DOORS CONTROL
X5 - 0	T1-A	OUTSIDE TEMPERATURE SENSOR
X5 - 1	T1-B	FOR HEATER CONTROL
X6 - 1	L+	+ 24V DC POWER
X6 - 2	M	NUETRAL/ COMMON (- 24 V DC POWER)
X6 - 3	⏚	GROUND
X7 - 1	RX +	RS485 SERIAL CONNECTION
X7 - 2	RX -	WITH MONITORING SYSTEM

BAYWATCH OUTPUTS LIST

TERMINAL	OUTPUT LABLE	OUTPUT DESCRIPTION
Y3 - 0	1TB - 1	ENTRY VFD, OPEN DOOR INPUT
Y3 - 1	1TB - 13A	ENTRY VFD, CLOSE DOOR INPUT
Y3 - 2	1TB - 13B	ENTRY VFD, FAST SPEED SELECT
Y3 - 3	2TB - 1	EXIT VFD, OPEN DOOR INPUT
Y3 - 4	2TB - 13A	EXIT VFD, CLOSE DOOR INPUT
Y3 - 5	2TB - 13B	EXIT VFD, FAST SPEED SELECT
Y3 - 6	UNUSED	
Y3 - 7	R1 - A1	HEATER CONTROL (ON / OFF)
Y3 - COM	1TB-11, 2TB-11	FAULT OUTPUT

IV. START-UP

✓ Check **PLC** power is off. Place toggle switch in **STOP** mode.

✓ Turn power on.

✓ Check **LED** on lower **Photo Sensor** (transmitter) for power. Verify that the photo eye inputs are on with the door in the open position. You can verify by looking at the entry and exit door signals on the *Intelli*Watch monitor (See Fig. A and B).

✓ Check **LED** on **Over Travel Sensor** for power. Verify the over travel is on with the door blocking the eye.

✓ Check **LED** on proximity switch for power. Move the door manually and verify the proximity sensor turns on and off during travel.

✓ Verify push buttons are terminated properly: depress **OPEN** and **CLOSE** and check the **PLC** inputs for power. Press open and close on each door to verify the input turns on. Open and close buttons are normally open inputs.

✓ Verify **STOP** buttons are terminated properly and verify the stop inputs are on. Stop buttons are normally closed inputs.

✓ To load the factory presets into the computer, touch the menu button on the BayWatch door control screen (See Fig. C). This will display the main menu screen (See Fig. D). Touch the [Service Info] button and it will display the service screen (See Fig. E). Press the factory reset button and all factory presets will load.

✓ Place **PLC** toggle switch in **RUN** mode. With the door **36"** off the ground, press the **[Close]** button to determine direction of travel. If the door starts up, switch any two power wires **U**, **V** or **W** on the motor terminals. Repeat steps with other door and they are ready for operation.
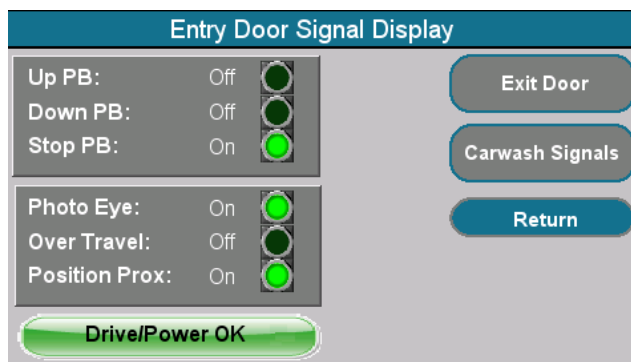
Fig. A
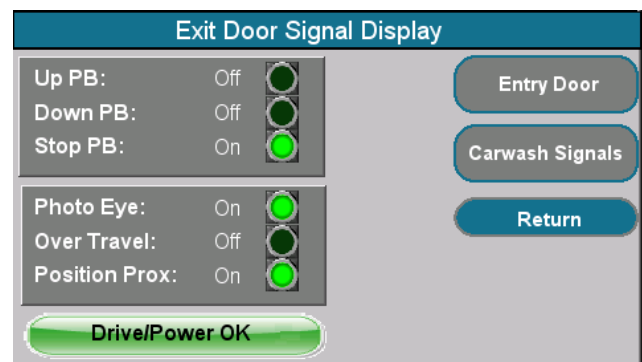
Fig. B
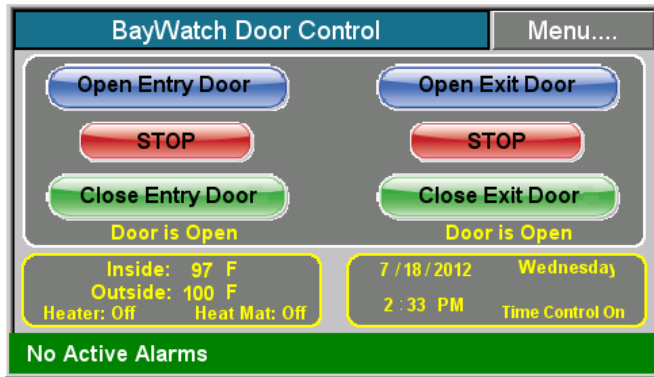
Fig. C
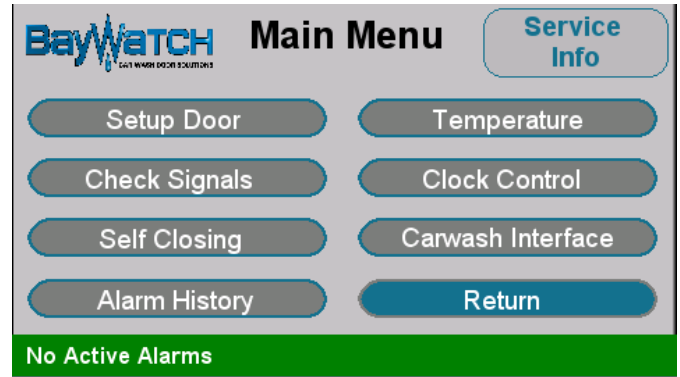
Fig. D

Fig. E

V. MAINTENANCE

Maintenance is very important in keeping a door system dependable and operates year-round. Always set up a **MAINTENANCE SCHEDULE** congruent to the door manufacturer's recommendations. If the manufacturer does not provide a proper maintenance schedule, check with the installers for recommendations. Door systems are mechanical systems that require service and routine maintenance, just like a vehicle or other machine.

Basic maintenance recommendations ─

1. **SEMI-ANNUALLY:** Grease all Zerk bearings with a grease gun.
2. **SEMI-ANNUALLY:** Spray **ZER 45** lubricant with Teflon on roller stem where it rides inside the metal hinges and springs. No lubricating is required for plastic hinges. **DO NOT USE WD-40.**
3. **ONCE A YEAR:** Check bearings on plastic hinges for wear.
4. **ONCE A MONTH:** Inspect door cables for fraying. Replace them if necessary.
5. **SEMI-ANNUALLY:** Check to see if the door is binding. Look for signs of rubbing such as shiny metal on the track or door. This could indicate that the cables need replacing or adjusting.
6. **SEMI-ANNUALLY:** Check door balance. Refer to Chart 2 page 12 for torsion springs winding if necessary.
7. **CLEANING:** Use only mild soap, detergent or cleanser AA1221, lukewarm water, and soft sponges or cloths. Rinse with warm water. Fresh paint and grease may be removed before drying by rubbing lightly with a good quality naphtha or isopropyl alcohol, followed by a wash with mild soap or detergent, and a final rinse.
DO NOT USE ABRASIVE OR AMMONIA PRODUCTS.
To repair scratches and repel dirt order cleanser AA1221.

VI. TROUBLESHOOTING

Problem	Cure
Doors won't open	— Check the physical condition of the doors - check the track reveal. Make sure there are no jumped cables, broken hinges, or bent panels. — Check the **PLC** inputs - make sure the **DOWN** inputs is not being held, the **STOP** inputs is on, and the Over Travel Sensor input is not lit. — Check to see the car wash inputs are not being held. — Check door balance, make sure the door is not bottom heavy. — Check wire connections - make sure all Safety Sensors have good connections, check for shorts in push buttons and **L+** and **M** wires.
Doors won't close	— Check the physical condition of the doors, look for binding, jumped cables, broken hinges, or unbalanced door. — Check car wash input making sure they are not being held up. — Check lower Safety Sensors - make sure they have power, are unobstructed and aligned. — Check **PLC** inputs - make sure the **UP** in not lit, and the **STOP** is lit. — Check Push Buttons for a lose wire or corrosion. — Check for a bad Thermostat.
VF Drive failure	— Check for door binding. — Check door balance make sure it balances at top, middle and bottom. — Check the Motor current, make sure it stay below **2.8**.
Motor won't shut off at ground	— Run a ground wire from outside of motor to Junction Box.
Door rolls down at the top	— Add tension to the springs to prevent roll back
Doors rolls up at the bottom or top	— Release tension from springs to prevent door from rolling up.

Problem	Cure
Doors rolls up at the top and rolls down at the bottom	— Release tension of springs, adjust length of cables. — Watch springs for bunching, stretch springs.
Doors goes down and immediately back up to over travel	— Manually, close both doors toggle **PLC** to stop run and back to run. — Make sure motor Proximity Switch is powered and blinking when motor is running. — Check Proximity Switch connections.
Doors stop prematurely	— Check program heights. — Check over travel adjustment. — Check **PLC** inputs.
System turns on but no PLC inputs Cable continually jumping	— Check all **L+** and **M** connections. — Check conditions all sensors, make sure not shorting out. — Check alignment of vertical and horizontal tracks. — Check of debris or foreign object under door. — Make sure shaft is not shifting, check all set screws. — Check to make sure door doesn't go past over travel sensor.
Door not shifting to slow speed No power at sensor	— Check motor Proximity Switch. — Turn power off to system and back on to reset count — Check all **L+** and **M** connections. — Check connections in Junction Box. — Check **M, 1M** and **2M** are all connected in Control Panel. — Check Photo Sensors are not causing a short.
Monitor not powered on	— Plug in Monitor. — Check power supply is good.
Monitor display: OVER TRAVEL FAILURE	— Check adjustment of Over Travel Sensor — Check connections in Junction Box and Control panel.
Monitor display: LOW PE FAILURE	— Make sure Photo Sensor are aligned and unobstructed. — Check all connections in Control Panel and Junction Box. — Replace Photo Sensors if needed.
Monitor display: PROX FAILURE	— Make sure door opens to consistent height. — Make sure Proximity Sensor is powered on. — Make sure **PLC** inputs **1.4** and **1.5** are not lit.

APPENDIX

*Intelli*Watch Touch Screen Operating Instructions

1. BayWatch Door Monitor Function Screens

1.1 Main Control Screen

When the BayWatch Monitor is energized, the first screen to display is the **Baywatch Door Control** screen (See Fig. 1).

> * After five (5) minutes of inactivity on any other screen, the system will default back to this screen
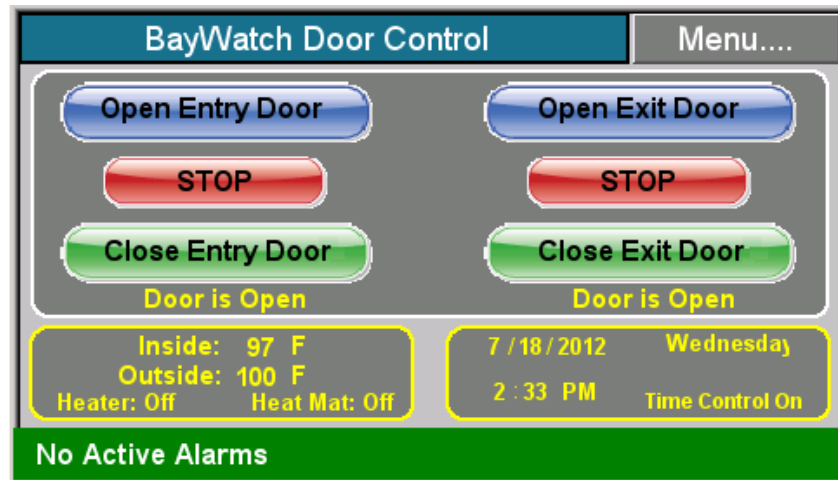
Fig.1

The main control screen displays:

- Open/Close buttons of each door: [Open Entry Door] or[Close Entry Door] The current status of the door is highlighted in Blue. (in the photo above, the entry and exit doors are both open. Pressing the green close buttons will close the doors)
- Position of each door: [Door is Open]
- Inside and Outside Bay Temperature
- Time, Date and Day of the Week
- Programmable Function in use: [Time Control On]
- Heater Status: [Heater: Off]
- Heat Mat Status: [Heat Mat: Off]
- Alarm status

To view other options, touch the [Menu…] button.

1.2 Menu
When the [Menu…] button is touched, the monitor will display the **Main Menu** screen (See Fig 2A).
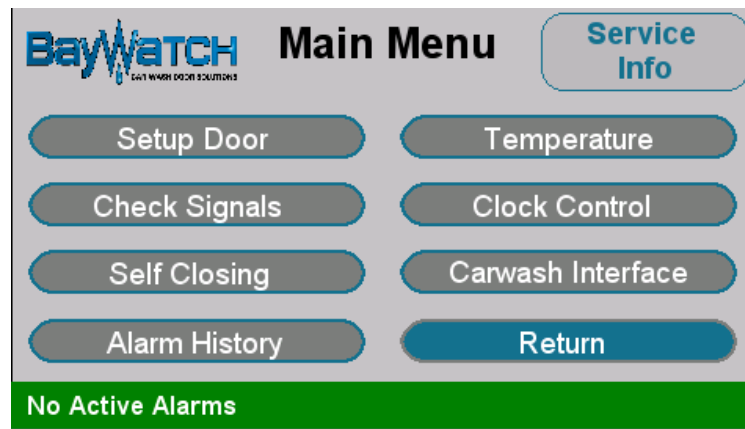
Fig. 2A

The Main Menu displays eight (8) function buttons, Service Info and Alarm Status. The [Setup Door], [Self Closing], [Temperature], [Clock Control] and [Carwash Interface] buttons will require a password to be input to enter these screens. This is to protect the system from being tampered with by unauthorized personnel (See Figure 2B).
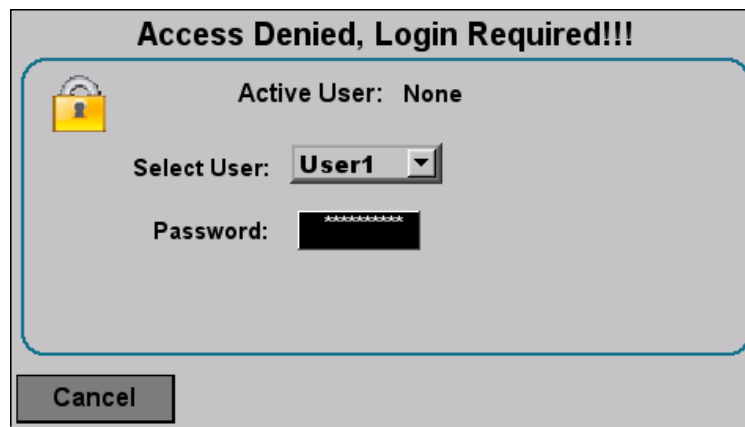
Fig. 2B

The factory preset password is "1111". The password can be changed and is discussed in Section 1.2.8. You will not be required to re-enter the password unless there has been inactivity for more than 10 minutes.

1.2.1 Setup Door

The [Setup Door] button will display [Entry Door Setup] screen (See Figures 3A and 3B)

Entry Door Setup	
Door Open Height:	092 Inch
Door Position Scale:	0.48 In/Count
Door SlowDown Distance:	012 Inch
Lower Eye Alarm Time:	005 min
Entry Door Is On	
Exit Door	Return

Fig. 3A

Exit Door Setup	
Door Open Height:	104 Inch
Door Position Scale:	0.48 In/Count
Door SlowDown Distance:	012 Inch
Lower Eye Alarm Time:	005 min
Exit Door Is On	
Entry Door	Return

Fig. 3B

Functions Include:

- Adjust Door Open Heights
- Adjust Position Scale
- Adjust Slowdown Distance
- Adjust Lower Photo Eye Alarm Time
- Door On/Off Activation (*touch [Entry/Exit Is On] to change status)
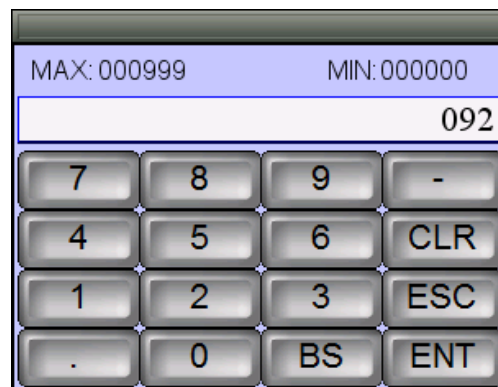
Factory Preset:

96 inches
0.48 in/count
12 inch
5 min

To return to the main menu, touch the [Return] button

Changing the Factory Presets:

To change any setting, simply touch the desired setting to bring up the setting input screen (See Fig. 3C).

MAX: 000999		MIN: 000000	
			092
7	8	9	-
4	5	6	CLR
1	2	3	ESC
.	0	BS	ENT

Fig. 3C

Type in the desired new setting and press the [ENT] button. The new setting will appear in the setup screen. If an incorrect button is pushed, simply touch the [BS] (Backspace) button to back over the number one space at a time or the [CLR] (Clear) button to clear the entire entry.

1.2.2 Check Signals

The [Check Signals] button will display a screen that shows all inputs from each door and car wash, and the status of each door (See Figures 4A, 4B and 4C).
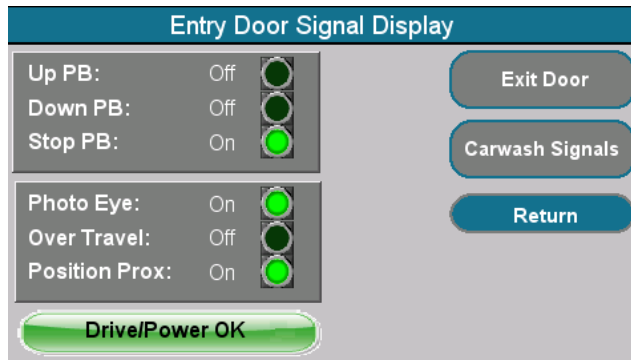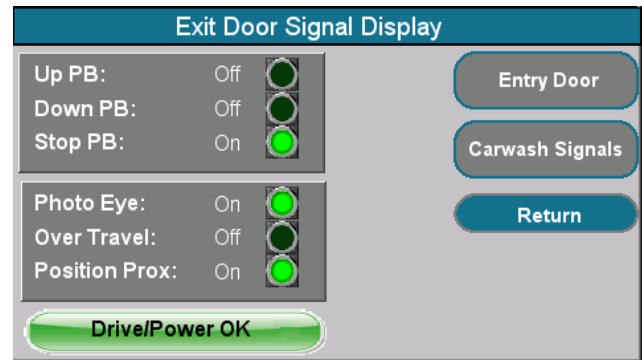

Fig. 4A

Fig. 4B

Fig. 4C

Entry door signals will display when the button [Check Signals] is pressed. To display Exit Door signals, touch the [View Exit Door] button. To view car wash signals, touch the [Carwash Signals] button (Fig. 4A and Fig. 4B). This will bring up the car wash signal display screen (Fig. 4C). Touch [Return] to go to the **Main Menu**.

1.2.3 Self Closing

The [Self Closing] button will display a screen with buttons to activate the self-closing options for the Entry and Exit doors (See Figures 5A and 5B).
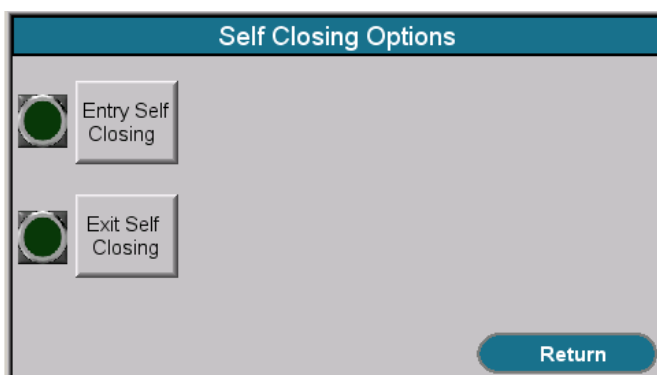
Fig. 5A
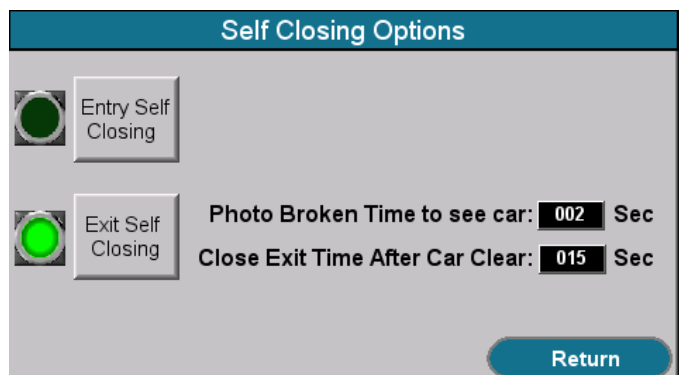
Fig. 5B

To activate the self-closing option, touch the desired door button [Entry Self Closing] or [Exit Self Closing]. The button will turn green, ⬤, and timers [Photo Broken Time to See Car] and [Close Exit Time After Car Clear] will appear (See Fig. 5B).

To change the preset timers, touch either the [002] Sec or [015] Sec timer box. The input screen will appear. Enter the desired time and touch [ENT]. The new times will appear in the timer box.

1.2.4 Alarm History
The [Alarms History] button will display the active alarm viewer (see Figures 6A and 6B).
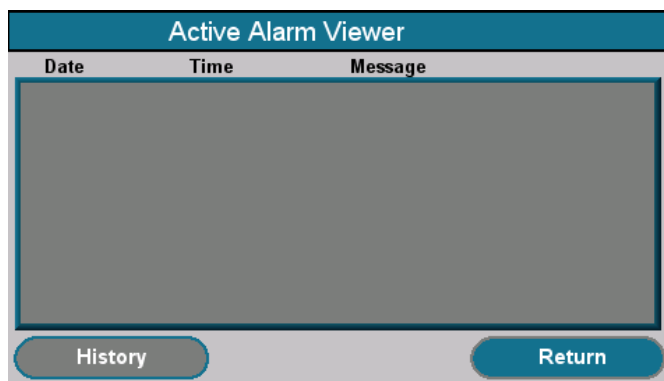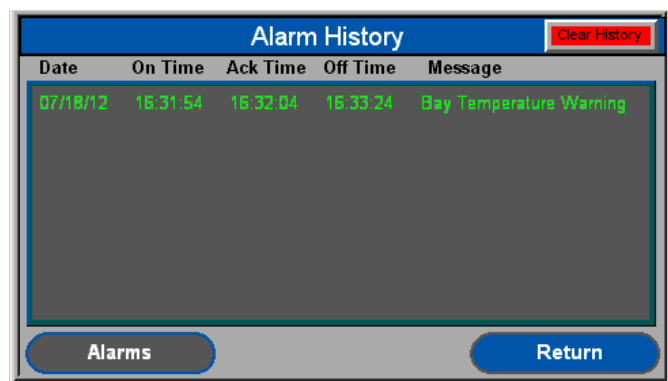
| **Fig. 6A** | **Fig. 6B** |

The Active Alarm Viewer (Fig. 6A) displays:
- The date, time and fault that occurred
- A history button that displays the alarm history screen

The Alarm History (Fig. 6B) displays:
- A history of all faults
- Time that fault occurred
- Time the fault was accepted
- [Clear History] button (clears running history of faults that have occurred). The alarm history will not clear until someone manually clears them

Alarm Acknowledge and Clearing:
- When an alarm occurs, the main screen will change to a red square notification and a continuous, audible beeping will begin (Fig. 6C)
- A message will scroll across the bottom of the screen that states the purpose for the alarm
- To acknowledge the alarm, press the [Acknowledge Alarm] button
- After the alarm is acknowledged, the beeping will stop

- The red alarm will now change to yellow and continue to scroll the alarm message across the bottom of the screen until the problem is resolved or repaired (Fig. 6D)
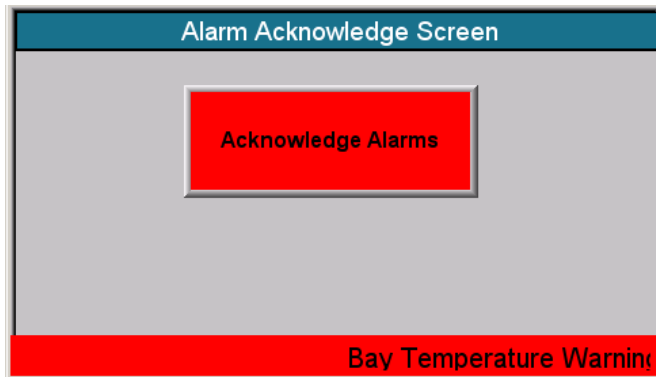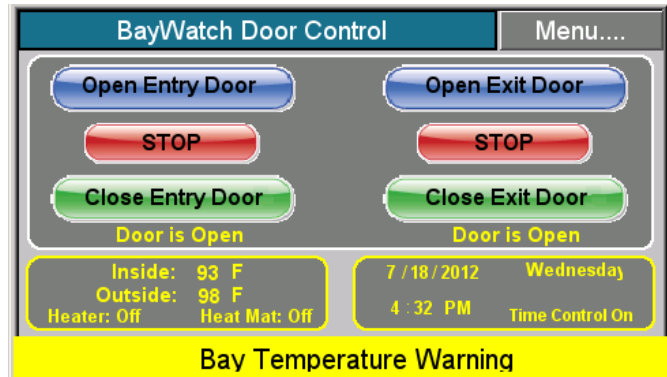

Fig. 6C

Fig. 6D

List of Alarms:
- **Bay temperature below 32° F**
- **Photo eye failure on entry or exit door**
- **Prox failure on entry or exit door**
- **Over travel eye failure on entry or exit door**
- **Drive power failure on entry or exit door**

1.2.5 Temperature

The [Temperature] button will display the temperature control settings screen (Fig. 7A).
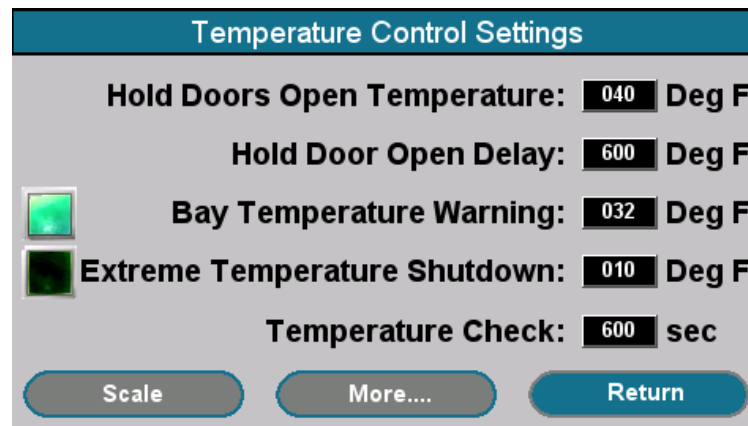
Fig. 7A

Functions Include: **Factory Preset:**
- Hold Door Open Temperature   40 Deg. F
  *temperature setting to control doors for winter/summer mode
- Hold Door Open Delay   600 sec
  *period of time that temperature must be above the "hold door open" preset
   before the computer will open the doors on temperature mode

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- Bay Temperature Warning   32 Deg. F
  *temperature setting that activates an alarm for bay protection
- Extreme Temperature Shutdown   10 Deg. F
  *turns off open function to doors below preset temperature to protect the car wash equipment
- Temperature Check   600 sec
  *time between system scans to check the door position during winter mode
- [Scale] button to activate temperature sensor calibration (Fig. 7B)
- [More] button to activate additional temperature controls option (Fig. 7C)
- [Return] button to go back to the BayWatch door control screen
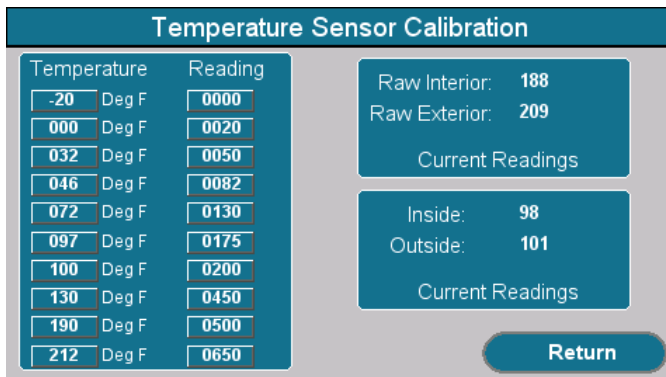
Fig. 7B
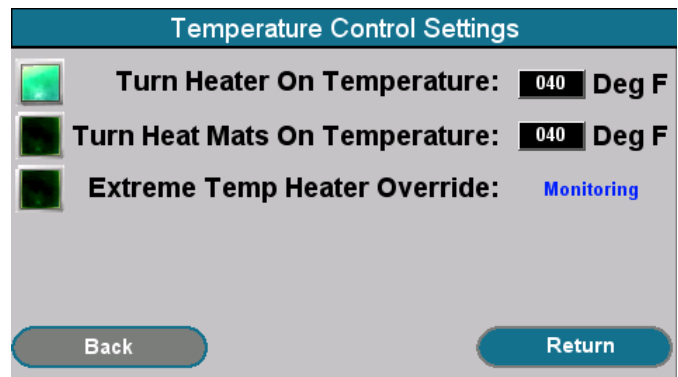
Fig. 7C

The Temperature Control Settings (Fig. 7C) screen displays additional temperature control options.

Functions Include: **Factory Preset:**
- Turn Heater On Temperature   40 Deg. F
  *Temperature to activate the car wash heater
- Turn Heat Mats On Temperature   40 Deg. F
  *Temperature to activate the car wash heat mats
- Extreme Temp Heater Override
  If this function is turned on, the computer will monitor the exterior temperature. If the temperature falls below the set external temperature preset, the computer will increase the heater thermostat temperature (factory preset at 70 Deg. F) until the exterior temperature returns to levels above the external temperature preset (See Fig. 7D).
- [Back] button returns to the temperature control settings screen
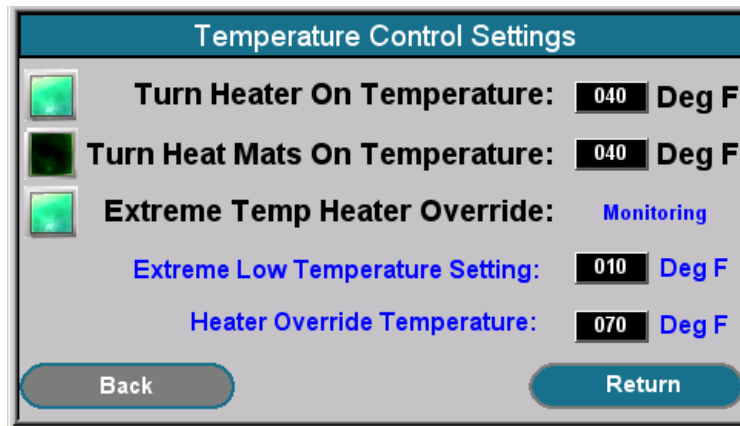- [Return] button to go back to the BayWatch door control screen

Fig. 7D

1.2.6 Clock Control

The [Clock Control] button will display the door operation time control screen. When the system first turns on, and the clock control button is selected, the single day screen setting will appear (Fig. 8A). At this point, the operator will need to decide if they want to set an open and closed time for each day, or make it the same for every day. See Single Day Setting or Every Day Setting instructions below based on the operator's choice.
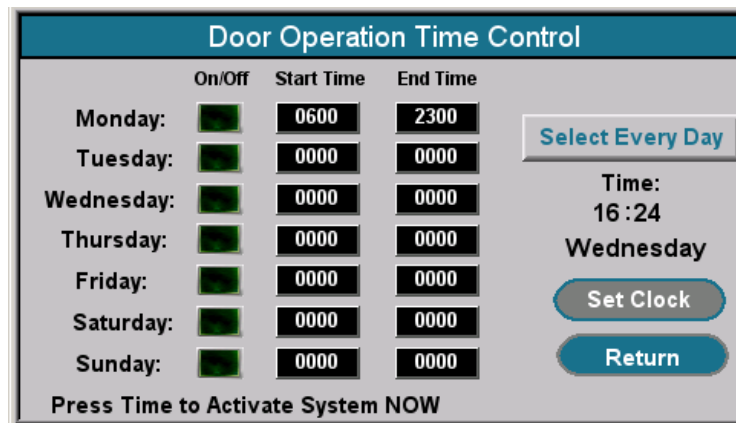

Fig. 8A

Single Day Settings:

1. Press the Monday [On/Off] button ![Monday On/Off button] to activate that day of the week.
2. The button will turn green when day is activated. ![green button]
3. Touch start time for each day and the input screen (Fig. 3C) will appear
4. Enter the desired time (military time)
5. Touch [ENT] button
6. Repeat for end time
7. Proceed to [Set Clock] instructions below

Every Day Settings:

1. From the single day screen (Fig. 8A), press the [Select Every Day]
2. The screen in fig. 8B will appear

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3. Touch start time (factory setting of 0000) and the input screen (Fig. 3C) will appear
4. Enter the desired time (military time)
5. Touch [ENT] button
6. Repeat for end time
7. Proceed to [Set Clock] instructions below

Clock Settings:
1. From either the Single Day or Every Day screen, press the [Set Clock] button and the "Set System Time and Date" screen will appear (Fig. 8C)
2. Touch the hour and minute box and the input screen (Fig. 3C) will appear
3. Enter the current time and press [ENT]
4. Repeat for Date

To load the new time and date (Fig. 8C):
1. Press the [Set Date/Time] button
2. Press the clock face
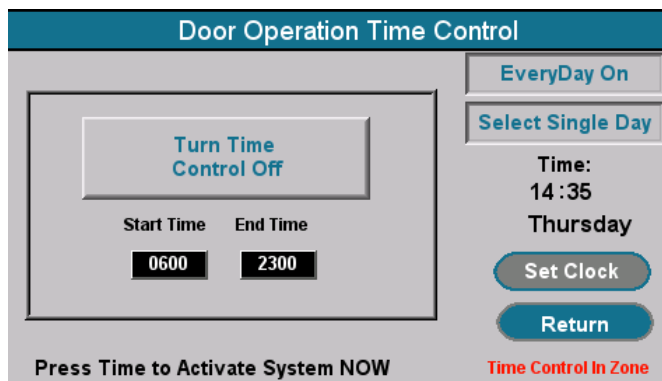3. System will give an audible beep and the new time and date will appear
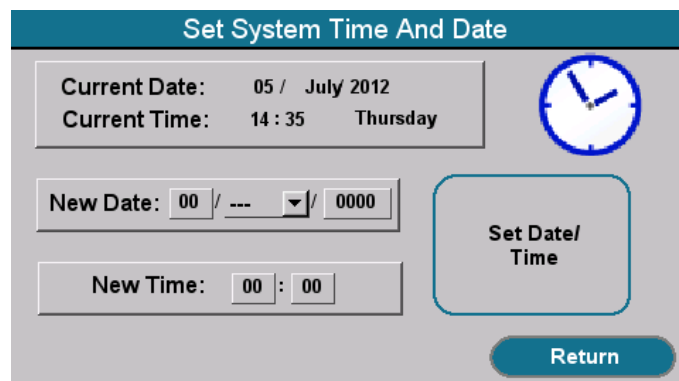

Fig. 8B

Fig. 8C

1.2.7 Car Wash Interface
The [Car Wash Interface] button will display the car wash door interface setup screen (Fig. 9A).

Fig. 9A

Functions Include:
- [Define Signals] button allows the ability to set up custom open/close button functions for the car wash interface
- [Use Mark VII] button allows the ability to set up open/close buttons for proper interface to all Mark VII car wash equipment

To activate:
- If Mark VII equipment is installed, press the [Use Mark VII] button and the green light will appear (See Fig. 9A)
- If [Define Signals] is chosen, the screen in Fig. 9B will display. This screen will give the ability to configure open/close functions best suited to each car wash.
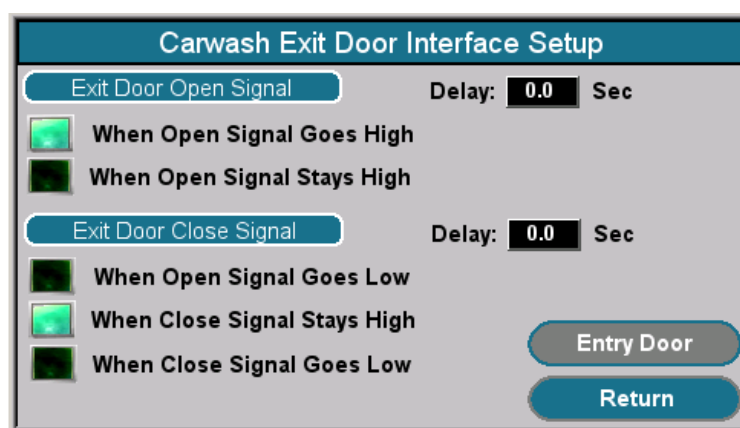

Fig. 9B

1.2.8 Service Info
The [Service Info] button will include the BayWatch technical service phone number and monitor settings (See Fig. 10A).

Fig. 10A

Functions Include:

- [Calibrate Screen] button will display the calibration screen (Fig. 10B). It may be necessary to re-calibrate the monitor if the screens sensitivity changes at some point (i.e. the buttons have to be touched 3 or 4 times to get them to work). Follow the instructions to complete calibration.
- [Factory Reset] button returns the monitor to all factory presets and must be activated at initial system start-up. ***Warning – pushing the factory reset button *will not* take you to another screen. Pressing this button will automatically cause a reset.
- [Passwords] button displays password user screen (Fig. 10C). Screen function allows user to changed preset password. Follow instructions to complete.
- [Network] button displays communication set-up screen (Fig. 10D). Screen function allows the operator the input of IP address for online connection.
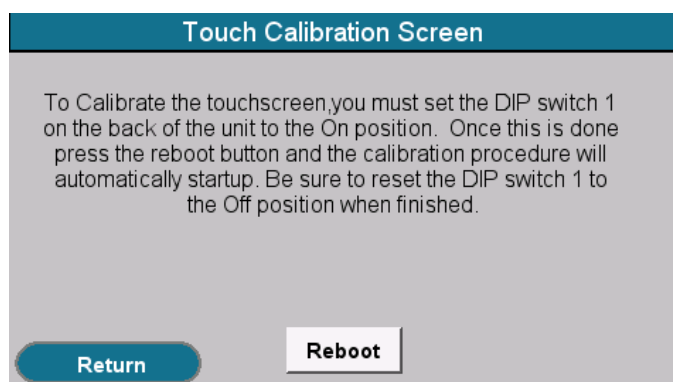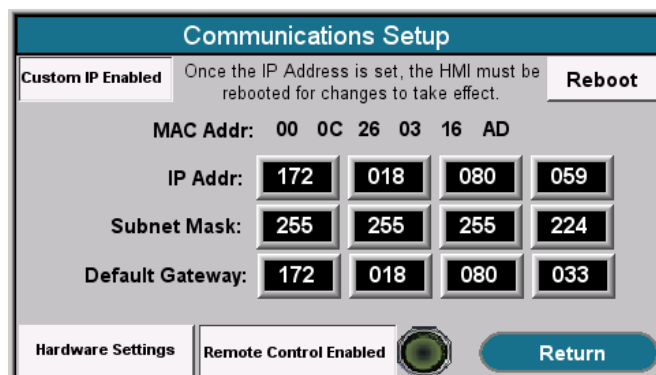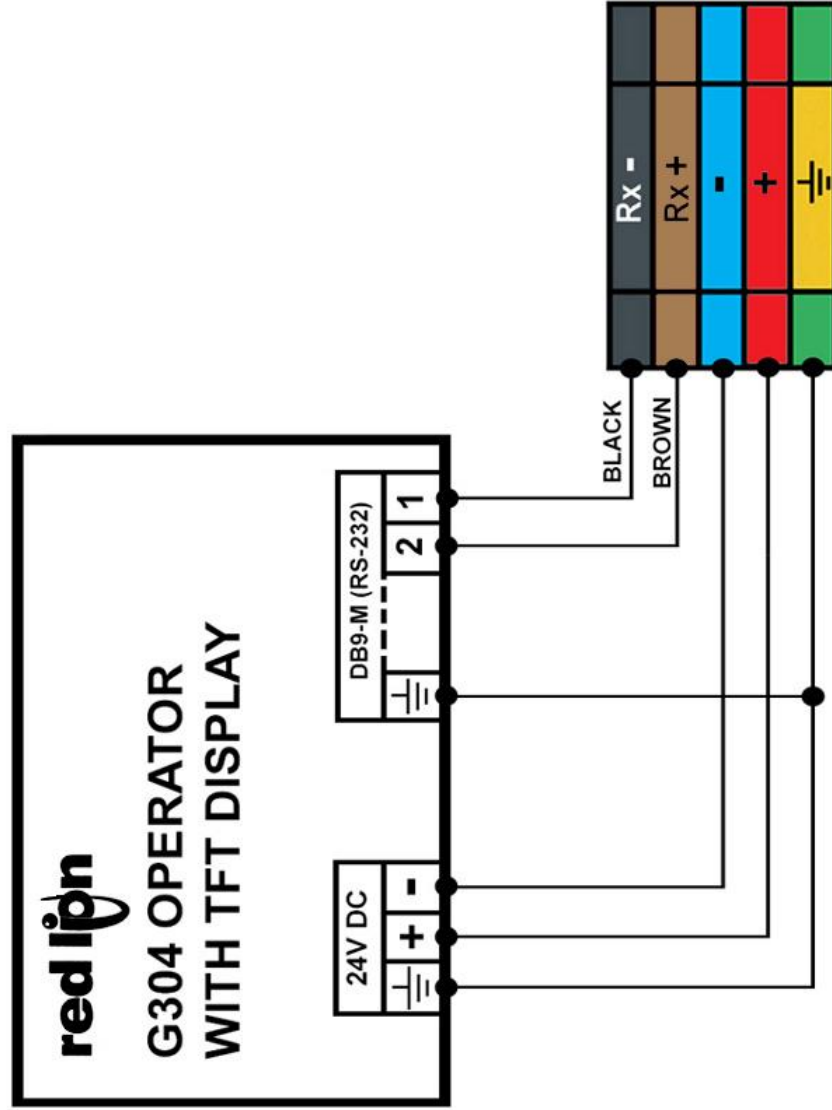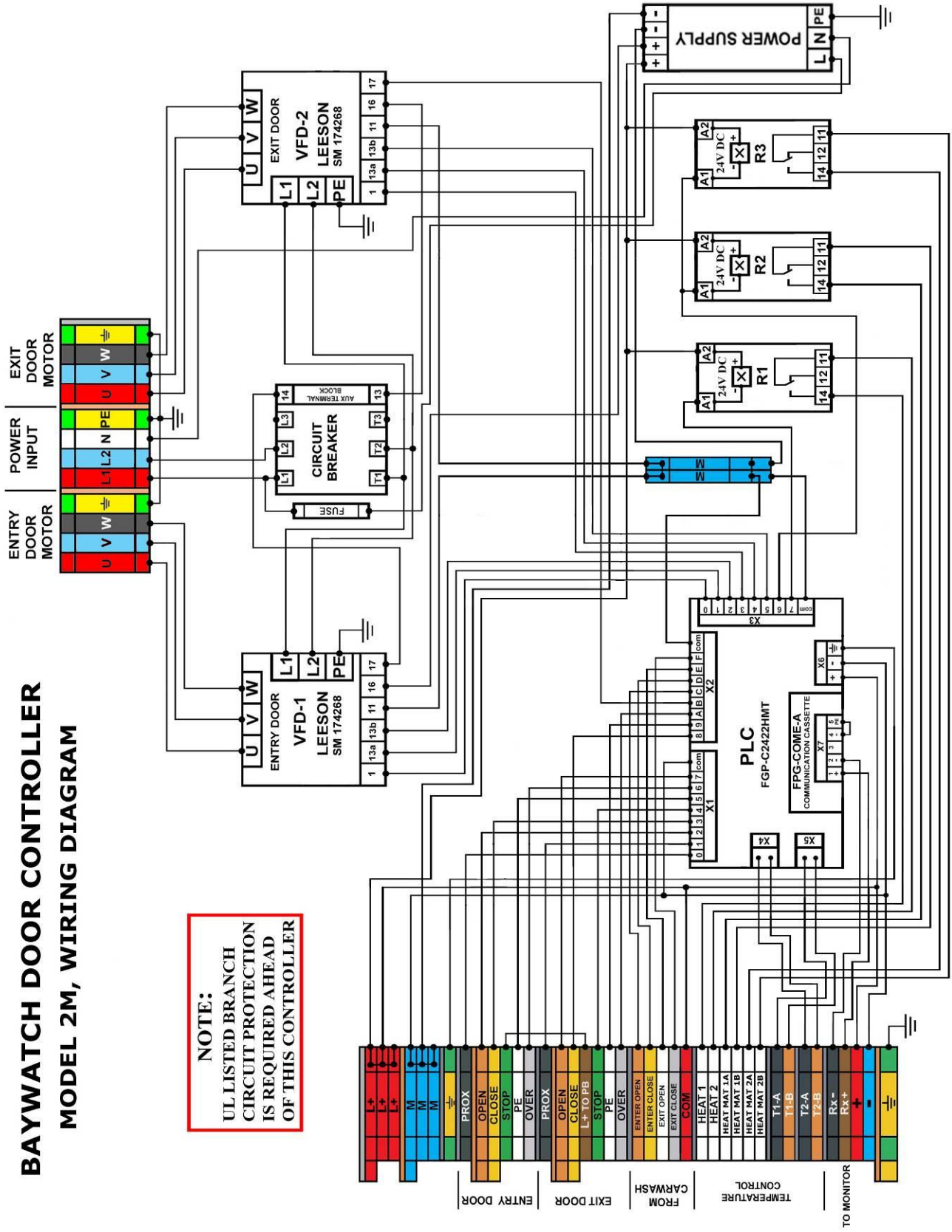
Fig. 10B

Fig. 10C

Fig. 10D

BAYWATCH DOORS MONITORING SYSTEM,
WIRING DIAGRAM

red lion

G304 OPERATOR
WITH TFT DISPLAY

24V DC

DB9-M (RS-232)

2 1

BLACK

BROWN

Rx −

Rx +

−

+

BAYWATCH DOOR CONTROLLER
MODEL 2M, WIRING DIAGRAM

NOTE:
UL LISTED BRANCH
CIRCUIT PROTECTION
IS REQUIRED AHEAD
OF THIS CONTROLLER

LOW VOLTAGE COMMUNICATION DIAGRAM

HEATER THERMO SENSOR

DOOR THERMO SENSOR

MONITOR

③

FROM EXIT DOOR

CONTROL BOX

B

②

PB STATION

⑦

A

J-BOX

ENTRY DOOR

⑥

MOTOR PROXIMITY SWITCH

PHOTO TRANSMITTER

PHOTO RECEIVER

DEFFUSE PROXIMITY SWITCH

VIEW A

⑤ ① ④

VIEW B

① ② ⑤

No	PART #	DESCRIPTION	CABLE RANGE	QTY
1	PG07	CD07CR-BK	.08 - .20	4
2	PG09	CD09CA-GY	.16 - .31	3
3	PG11	CD11CA-BK	.20 - .39	1
4	3/4NPT	CD21N1-BK	4 x .24	2
5	3/4NPT	CD21N3-BK	2 x .31	3
6		14 AWG STRANDED WIRE, GN/YE	.14	AS REQRD
7		18 AWG 10 CONDUCTORS CABLE	.27	AS REQRD

NOTES

NOTES