

OWNER'S MANUAL



INDUSTRIAL VACUUM SYSTEMS
INCREDIBLY POWERFUL



CAUTION: Please read the instructions
before using the appliance!



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SAVE THESE INSTRUCTIONS

IMPORTANT SAFETY INSTRUCTIONS READ ALL INSTRUCTIONS BEFORE USING THIS APPLIANCE

WARNING: TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR INJURY:

Do not use on wet surfaces. - Use only as described in the manual. - Use only manufacturer's options and attachments. - Do not put any objects into openings. - Do not use with any opening blocked; keep free of dust, lint, hair, and anything that may reduce air flow. - Keep hair, loose clothing, fingers, and all parts of body away from openings and moving parts. - Do not pick up anything that is burning or smoking such as cigarettes, matches or hot ashes. - Do not use without filters in place. - Do not use to pick up flammable or combustible liquids such as gasoline or use in areas where they may be present.

NOTICE:

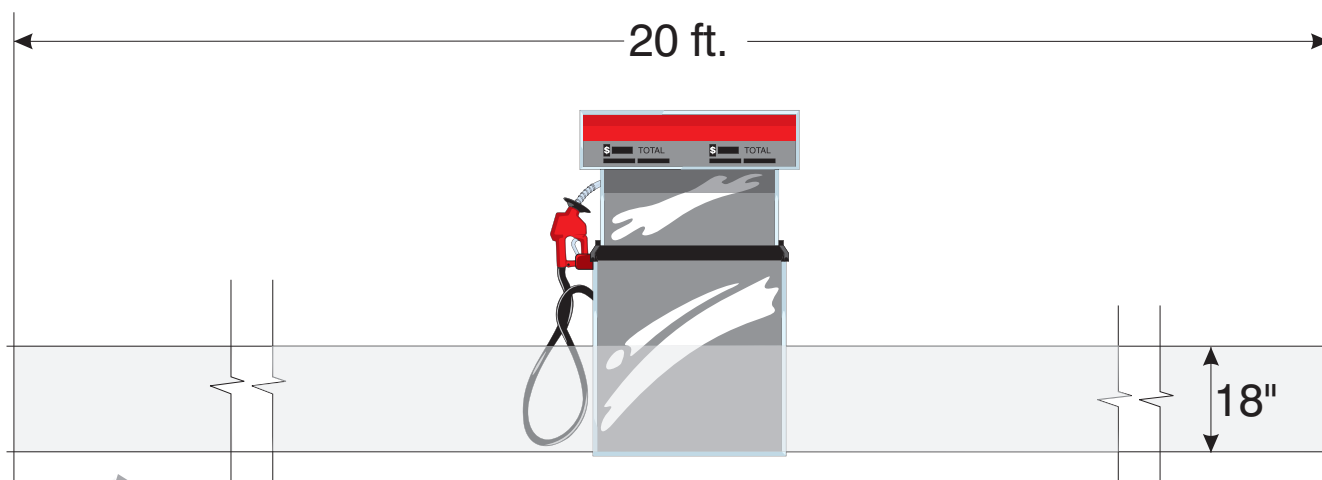
This equipment must be installed in full compliance with all applicable local, regional, and national codes, standards and rules.

European Installations:

Installation of this appliance must incorporate and provide full disconnection of all poles in the event an overvoltage category III condition. Such incorporation to the fixed wiring must be in accordance with the wiring rules.

DANGER:

This equipment incorporates parts such as switches, motors, or the like that tend to produce arcs or sparks which can cause an explosion. When located in gasoline dispensing and service stations, install and use at least 20 feet horizontally from the exterior enclosure of any pump and at least 18 inches above driveway or ground level.





LIMITED WARRANTY

ExpressKey, GinSan, IVS, & Trusco Group of Companies (Company) provides a limited one year warranty on components and piece of equipment produced by the Company to be free from defects in material and workmanship. Electrical assemblies see Appendix A, have a limited two year warranty on the controller to be free from defects in material and workmanship. This limited warranty does not cover equipment that has been damaged due to misuse, misapplication, modification, altered, neglected, attempted theft, vandalism, connection to improper voltage supply, modification, or such parts that are commonly recognized to be subject to wear in normal usage. Normal use products are, but not limited to, those listed on Appendix B; which are warranted for 90 days. Every component and piece of equipment is packaged to assist in safe handling of the product.

Claims must be submitted in writing within a one-year period as covered by this warranty, from date of shipment, to the Company's warranty/repair department. If the return is approved an RMA and labeling instructions will be issued and the product can be returned. Returned product without the appropriate RMA and label will be issued to scrap and all warranties/replacements will be considered null and void. A testing fee of \$15.00 will be applied, if the product passes all tests related to the written claim, then the fee will be applied and paid prior to return of the product. If the product fails the test then the fee will not be applied. The Company may charge a 20% restocking fee for returned product and/or an order, which is canceled, and material has already been ordered and/or received to fill such order.

The Company's warranty/repair department will inspect all components, submitted under warranty. Warranty replacement will be based solely on the analysis and confirmation that the product defect was caused by material and/or workmanship. The company reserves the right to change the design of the product without assuming any obligation to modify any product previously manufactured or to replace warranted product other than with redesigned product.

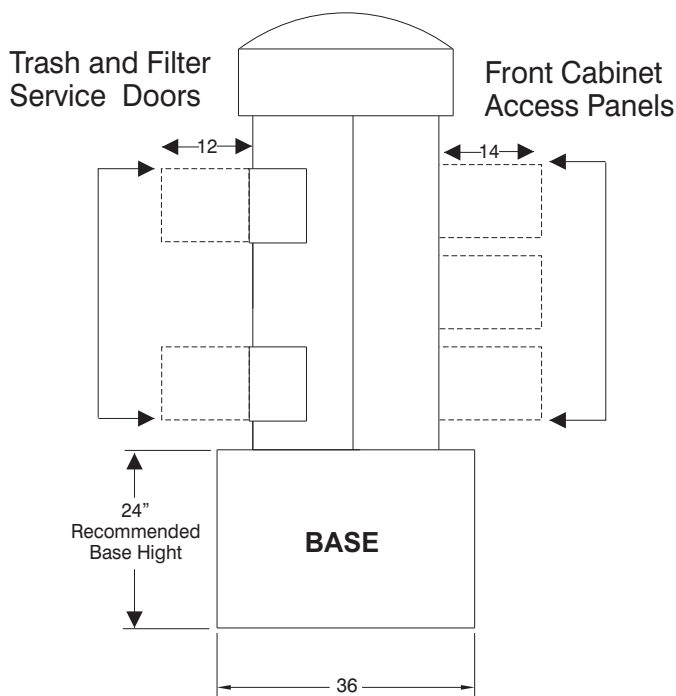
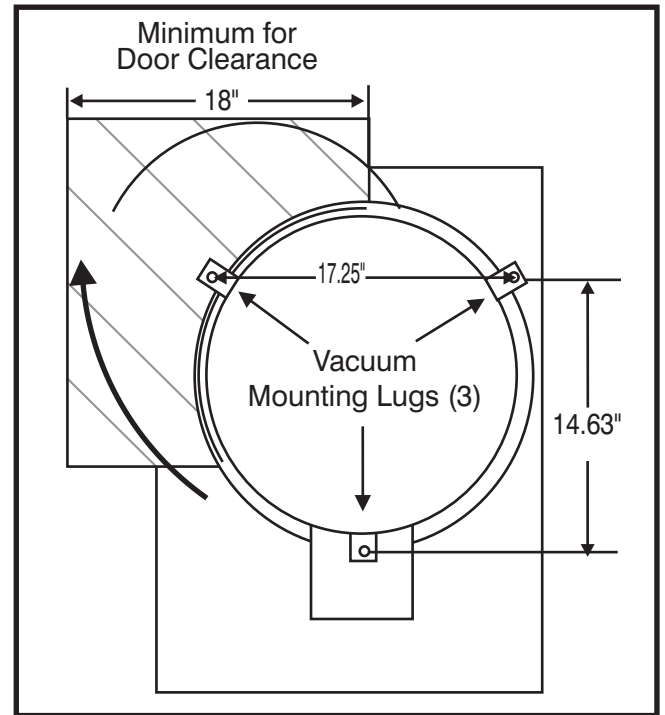
This warranty covers the product replacement only; charges for damages, freight and/or labor will not be accepted. There are no warranties expressed or implied which extend beyond this Limited Warranty. The loss of use of the product, loss of time, inconvenience, commercial loss, incidental or consequential damages is not covered. The Company shall not be liable for incidental, special, or consequential damages including without limitation damages resulting from personal, bodily injury or death or damages to or loss of use of property.





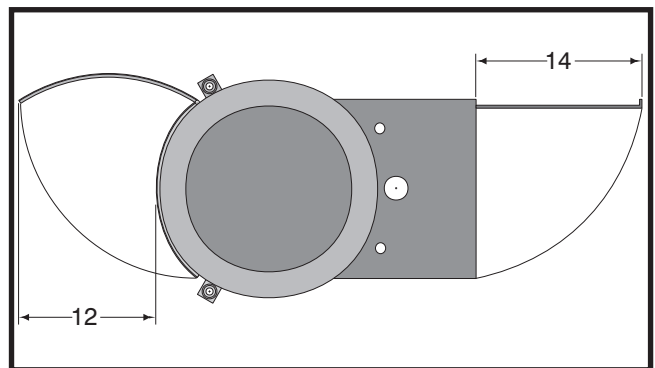
Typical Installation and Proper Placement

- 1 Determine the best orientation for each vacuum. Consider the traffic flow through the vacuum and detailing area, best visibility of graphics, best sequencing of extra services. Your distributor is the best source for help.
- 2 Make sure that vacuums will be easily accessible for customer use and servicing. Customers should have easy access to the coin acceptor area and be able to reach the hose and replace the hose after use. Note: The hatched area in the drawing to the right shows the clearance area required for service door opening.



Site Planning

Select and prepare a solid, level site for a concrete or similar base. Consult local codes for foundation requirements. Note: Although we recommend 24" base height above grade, 20" base height above surrounding surface provides minimum protection from typical bumper damage and 30" base height should be considered maximum, considering coin acceptor position.

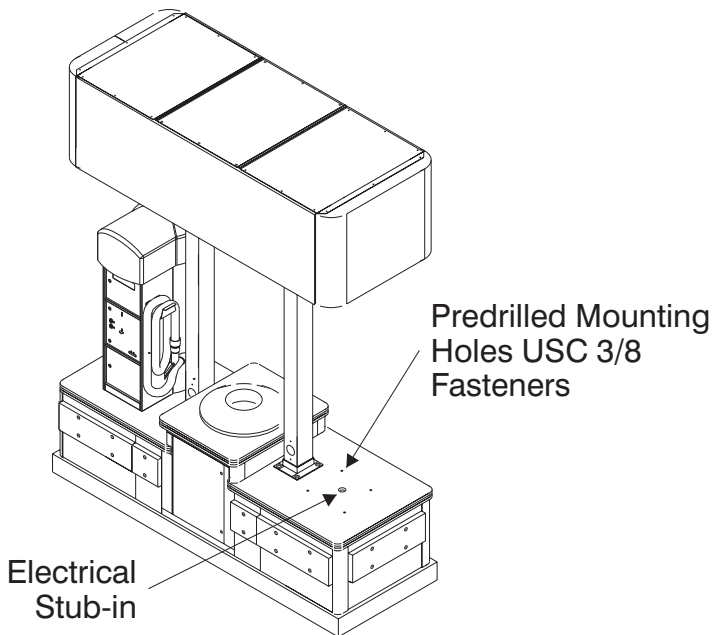


Recommended Clearance access for door openings





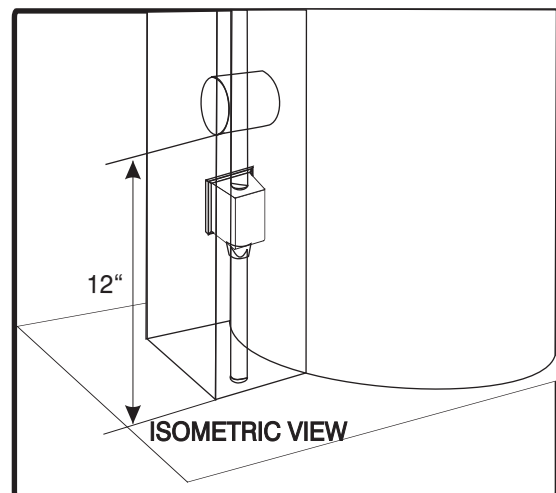
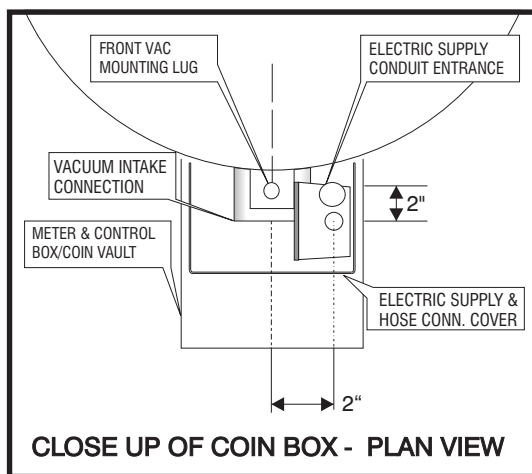
Island Installation and Electrical Connection



CAUTION ELECTRICAL SHOCK HAZARD. DISCONNECT POWER PRIOR TO BEGINNING ANY SERVICE OR INSTALLATION WORK. GET ASSISTANCE IF YOU ARE UNSURE OF THESE PROCEDURES.

Connect to electrical service. Refer to the data label on the outside of the vacuum for electrical rating. Customer is responsible for compliance with all applicable codes and ordinances. The Vacuum should be connected to a dedicated service. Check local codes and requirements. Refer to the **IMPORTANT SAFETY INSTRUCTIONS** on page 2.

To maintain the product's electrical listing it is necessary to connect the power supply of this vacuum directly to the timer terminal strip. (Remove the test cable.) A suitable connection must be made between the supply junction box (which can be located inside the intake shroud cover) and the terminal strip on the timer. To locate the electrical supply conduit measure approximately 2 inches to left of the center line of the front mounting lug. The measure approximately 2 inches in front of that location to provide adequate space for a 2 inch by 4 inch junction box. The box should be placed so that the top of the box is 12 inches (max.) from the base. Always check local codes. See illustration below for dimensions.

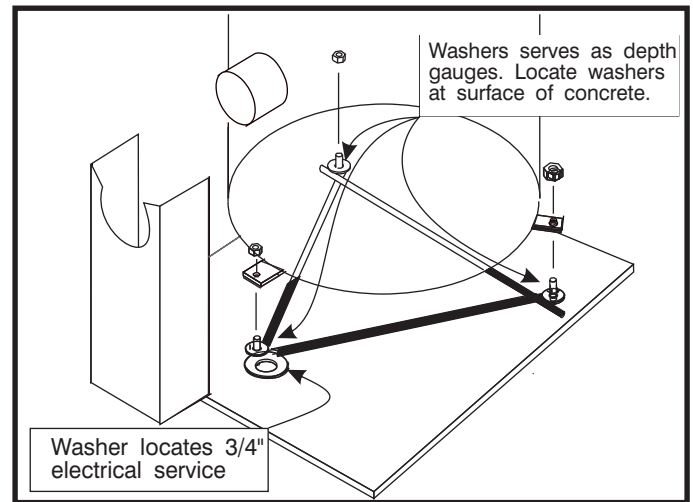




Installation to Concrete Structure

Using Mounting Bracket:

Vacuum Mounting Bracket (P/N 101002) - Available for new construction sites only. This bracket is cast into the concrete surface. It provides 3/8" studs for mounting the vacuum cleaner and "locates" a standard 3/4" EMT conduit for supplying electrical power to the vacuum. Three 1/2" diameter bars and "leveling" washers assure accurate positioning. The illustration to the right shows vacuum bracket positioning and use.





Standard LED Display

This machine employs a dual-mode timer, which features a built-in L.E.D. Digital display assembly

The dual mode of the timer is like two (2) timers running simultaneously. They communicate with each other to inform the user of the monetary credit remaining. This allows the user to switch between the two (2) timers resulting in a recomputation of time remaining based on the correct service selected. An additional feature includes the grace time feature, giving the customer 17 - 20 seconds to insert more coins for additional time.

Each mode of the dual mode timer is programmable for COINS TO START and CYCLE TIME. They are pre-programmed from the factory as follows, unless specified by customers:

Timer A: \$1.00 (4 coins) to start for four (4) minutes vacuum (2 motors).

Timer B: \$2.00 (4 coins) to start for four (4) minutes of vacuum (3 motors-turbo).

The display feature of these timers is of the scrolling message type and includes three (3) different programmable messages which are pre-programmed at the factory as follows:

Welcome Message: WELCOME TO POWERVAC X3

Sales Message: TRY TURBO AT YOUR OWN RISK

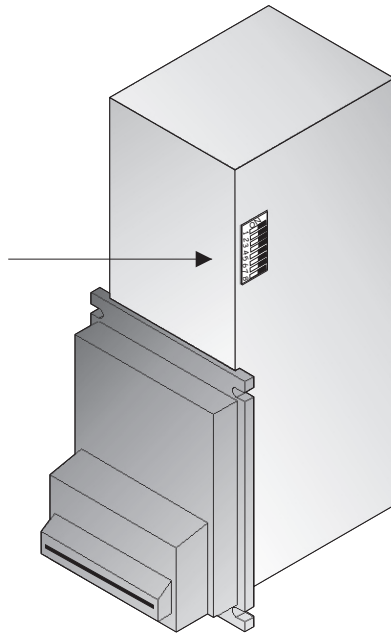
Exit Message: TELL FRIENDS ABOUT POWERVAC X3

To change the factory program from what is listed above, it is necessary to obtain a programmer. Contact your distributor or call IVS at 1-800-968-8227. Instructions for use of the programmer are detailed on the next page.



Presets for the Bill Acceptor

Option
switches



When you receive the bill acceptor all switches are off. As a result the following options are programmed:

1. Accepts \$1 dollar bills only
2. Four way accept
3. High Security accept
4. Long pulse
5. Four pulses per dollar

IMPORTANT: Do not change the settings for items 4, or 5. This will cause the PowerMAX 3 to Malfunction.



Do not program using the switches. All switches must remain in the off position. Acceptors come preprogrammed in order to work properly with the other electrical components of the machine. Use only the coupon to program the acceptor and only change sections 1 and 2.

IMPORTANT NOTE: Placing any switch ON will override the above options, and the Bill Acceptor will operate according to the switch settings labels.





Programming the Bill Acceptor

Note:
This coupon
is not to scale.

Insert this end first

USE #2 Pencil
Photocopy can
be used

Complete sections
1-5 ONLY

# Of Bill Directions	1	2	4	7
\$1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
\$2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
\$5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pulse	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3
Pulses per dollar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
Bezel lights On/Flashing	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6

MARS
Bill Acceptor
250057042 Rev. 03

Model: 2400
Configuration
Coupon 001

Programming Coupon
Figure 2



Locate Service Button
Figure 3

Using the Coupon to Program

Carefully remove the coupon from this Owners Manual. IF possible make copies of the coupon with a standard, carbon-based, non-color copier. Copies of the coupon are usable only if cut to match the exact size of the coupon. Copies of the coupon are located on the last page of this manual.

Fill out the coupon - Use a #2 pencil. All sections must be complete and fill only one block per line (Figure 2). Sections 3, 4, and 5 are premarked with an "X", these are the areas you need to fill in.

Complete Section 1 - Enable desired bill direction. Enable 1 or 2 direction face up, or 4 way acceptance (which allows acceptance in all directions).

Complete Section 2 - Enable desired bill denominations. Fill in one block for each denomination. High Accept enables maximum bill acceptance. High security may be desired for locations where a higher level of discrimination is desired. OFF will reject bills of the selected denomination.

Locate the service button - On the back of the unit (refer to figure 3). Depress the button once to enter coupon setup mode. Depressing again will exit the mode. All switches must be off before programming with the coupon.

Insert coupon and verify settings were accepted.

ACCEPTED: Coupon returned immediately and LED flashes 10 times when coupon is pulled out.

REJECTED: Coupon returned after 10 seconds. LED flashes number of times corresponding to section improperly filled out. Example three flashes for improper section 3. If rejected, review instructions or try new coupon.





Programming for MA-820

Coin Learn Procedure for the IDX MA-820

Slide the front cover up and identify the three controls to be used in coin memory storage procedure.

Black or red button located near bottom right corner.

Rotary switch with sixteen positions (0 to 6 are memory positions) also located near bottom right corner.

LED half way up on right side (green in RUN mode and red memory mode).

Turn the Rotary switch to one of the learn positions (1 to 6) and observe the LED turn red to indicate that the MA-800 is ready to store data.

Push black or red button once for each credit pulse you wish to have issued for this coin. Example, a \$1 coin would be equaled to 4 pulses.

Slide the cover back on the unit to make sure outside light does not interfere with the sensors; light shield must click into place.

Deposit the coin through the acceptor between 6 to 10 times until the LED flashes red and green; this indicates the acceptor is storing.

Once LED starts to flash red and green, slide cover back up and turn rotary switch back to position 0. Be careful not to turn the switch too far or the acceptor will not accept coins.

Once the switch is back in the zero position slide the cover back to closed position and the programming is complete.

THE COIN YOU DO NOT WANT TO ACCEPT MUST BE STORED IN POSITION ONE. Turn rotary dial to position one and press black or red button 13 times, then drop coin that you don't want to accept through 6 to ten times until LED flashes. Turn Dial back to 0 and close light shield.

Coin De-Learn Procedure

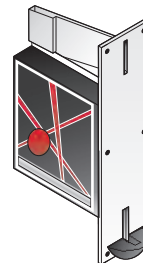
Slide the front cover up and turn rotary switch to the coin # position you wish to remove from memory

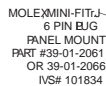
Push the black or red button once to initiate the memory storage sequence.

Turn the rotary switch back to position #0 without depositing any coins to signal the unit that you wish to erase.

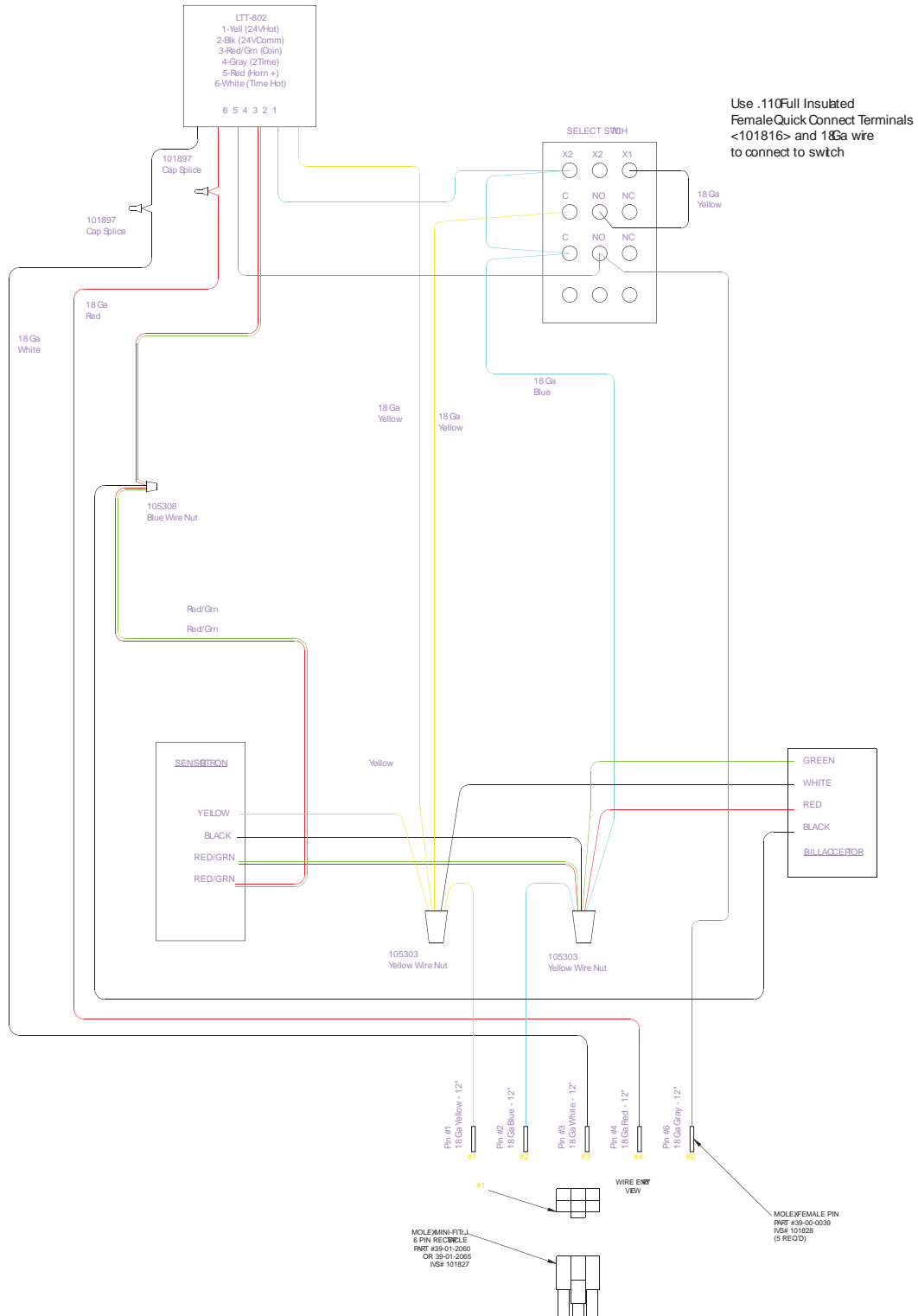
The LED will flash red-green to indicate completion.

Slide the front cover back down.





Meter Panel Wiring



Use .110 Full Insulated Female Quick Connect Terminals <101816> and 18Ga wire to connect to switch

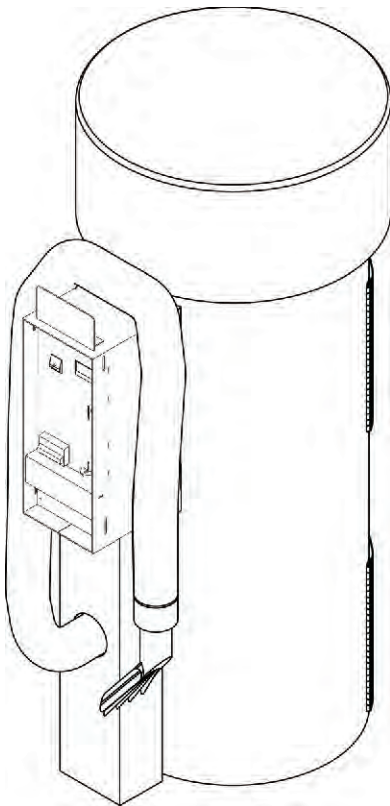




MAINTENANCE

General Maintenance

- Keep the outward appearance of the unit looking good by using a glass cleaner to clean the front door and lexan faceplate in front of visual display.
- Apply a stainless steel polish to the cabinet to maintain the appearance.
- Take care not to use abrasive cleaners or rags for these applications to avoid scratching the surfaces.
- **DO NOT USE STEEL WOOL OR OTHER FERROUS BRUSHES TO CLEAN STAINLESS STEEL SURFACES**
- Check motor Brushes for wear and replace as necessary
- If it is a three (3) motor vacuum, order a special nozzle. Inspect gasket and replace with factory replacements.



Daily/Weekly Maintenance

- Remove dirt & debris from vacuum.
HINT: consider ordering a debris catcher from your distributor to simplify this process.
- Empty & shake bags weekly
- Exchange bags and wash bi-monthly
- Check hand tools, as suction will be impaired if vacuum nozzle wears excessively
- Always make sure vacuum doors are closed.
- Check hose for signs of wear, replace if excessive.
- Test Vacuum suction and airflow
- Suction Test: Place hand over cuff feel for "pull"
- Air Test: Hold cupped hand near hose inlet feel for "breeze"





TROUBLESHOOTING

Symptom	Problem	Correction
Poor Performance	Poor Suction	Test by placing hand over end - feel for "pull". With hose end sealed, use plastic bag or sheet to test for leaks at door opening. (Move sheet lightly past suspected areas, plastic will "stick" at leaks.) MAKE SURE VACUUM DOORS ARE SEALED.
	Poor Airflow	Check for overfilled debris areas or hose clog. Clean filters. Check motors to be sure that both are working.
Vending Problems Coins	Coin jams	Check for "overfilled" coin box. Check for clearance of coin path to coin box(remove obstructions). Check "cradle" area of coin mechanism for severely bent coins. Check magnet for Canadian (Magnetic) coins.
Bills	Bill Jams	Remove bill stacker and reinstall for soft reset. Reset main power for hard reset.
	Doesn't accept specific denomination (\$1 or \$5)	Reprogram bill acceptor (see instruction manual)
	Doesn't accept any bills	Check for bill jams in both acceptor and stacker.





TROUBLESHOOTING

Symptom	Problem	Correction
Unit does not start	Test for line power to unit	Check diagnostic lamp on the control chassis. Make sure the 115 vac lamp is on.
	Test for 24v circuit power.	Refer to diagnostic lights on the control chassis. Make sure the 24 vac lamp is on.
	Text to timer operation	Check for proper timer display activity.
Unit does not operate properly.	No vacuum cycle operation	Check for lights on motor fuses, then check for lights on motor relays. Fuses and relays are both found on the control chassis.
Display lights are not lit as well as chassis lights.	No power to unit.	Check the main breaker.
		Check the connections at power distribution point to vacuum. Use a voltmeter to probe at the top connection screw of the 30amp fuse block and terminal screw #28 (both located on the control chassis)
115 vac light is off as well as dome lights.	Main fuse	Check for the indicator light on the main fuse, if the light is on then power is available, but the fuse is blown.
		Test or replace fuse, if voltmeter across fuse reads 110v to 120v, fuse is bad.





TROUBLESHOOTING

Symptom	Problem	Correction
Main power indicators lit but timer and mech will not work.	4 amp 24v. Fuse	Look for fuse blown light on the indicator, which is located on fuse cover. Test or replace fuse, use ABC-4. NOTE: this fuse controls the power to the coin mech and bill validator.
	2 amp 24v. Fuse	Look for fuse blown light on fuse cover. Test or replace fuse, use ABC-2 NOTE: this fuse controls power to the display/timer and is needed to establish the purchased credit line
LED timer counts down without vacuum cycle starting.	Vacuum motors won't start or run.	During count down cycle, check for bad fuse indicators on fuse covers. These only come on during their normal "run" cycle. Replace any bad fuse. Look for overfilled filter bags and other restrictions in the vacuum cycle before restarting the system. NOTE: restrictions to the air flow such as clogged filters cause higher than normal amp draw. This can cause fuses to blow.





Notes





Notes



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