

CENTRAL-VAC AIR-PURGE INSTALLATION MANUAL

R-1: March 17, 2018

Dear Customer,

Thank you for choosing WALINGA PNEUMATIC CONVEYING SYSTEMS. For your convenience, should you require any information related to Parts, Service or Technical Engineering, please contact one of the following Walinga Personnel in Guelph at 1-888 925-4642 unless noted*

TECHNICAL - ENGINEERING:

Duane Swaving *226-979-8227 duane.swaving@walinga.com
Ken Swaving *519 787-8227 (ext:100) ks@walinga.com

WARRANTY CLAIMS:

Canada: Gary Nijenhuis (ext:258) gary.nijenhuis@walinga.com
USA: Jonathan Medemblik * (800) 466-1197 (ext 8) jtm@walinga.com

SERVICE MANAGER:

Andy Nijenhuis *(519) 763-7000 (ext:260) andy@walinga.com

ORIGINAL PARTS SALES:**Ontario and Eastern Canada:**

Jack Lodder (ext: 224) jel@walinga.com Parts Department Fax: (519) 824-0367

Manitoba and Western Canada:

Chad Yeo (204) 745-2951 (ext: 424) chad.yeo@walinga.com

USA:

John VanMiddlekoop * (800) 466-1197 (ext 3) jvm@walinga.com

SALES MANAGER:

Tom Linde *519-787-8227 (ext 5) thl@walinga.com
Peter Kingma (800) 466-1197 jpk@walinga.com

SALES REPRESENTATIVE:

Tim Linde *519-787-8227 ext 109 tim.linde@walinga.com or *519-993-8447
Henry Breukelman *204-745-2951 henry.breukelman@walinga.com

CORPORATE HEAD OFFICE:

5656 Highway 6N
RR#5, Guelph, Ontario, N1H 6J2
PHONE: (888) 925-4642 FAX: (519) 824-5651
www.walinga.com

FACTORY DISTRIBUTION AND SERVICE CENTRES:

938 Glengarry Cres. Fergus, Ontario Canada N1M 2W7
Tel: (519) 787-8227 Fax: (519) 787-8210
1190 Electric Ave. Wayland , MI.USA 49348
Tel: (800) 466-1197 Fax: (616) 877-3474
70 3rd Ave. N.E. Box 1790 Carman, Manitoba Canada R0G 0J0
Tel: (204) 745-2951 Fax: (204) 745-6309
PO Box 2426, 24 Molloy Street, Toowoomba QLD, Australia 4350
Tel: (07) 4634-7344 Fax: (07) 4634-7606

Overview

- This manual is a breakdown and walk through of Walinga's Air Purge Central Vac System.
- It was created in order to generate efficiency and clarity in the setup and installation of Central Vac Systems.
- You will find a breakdown of all the components that are included in a Central Vac system and how they come together; as well as a breakdown of how the piping system shall be installed.
- This manual will cover key points and procedures utilized in the construction and installation of the Central Vac Air Purge system.
- Every Central Vac piping system is original and built to suit the customer's needs.

Safety During the Installation of the Central Vac System (Refer to unit manual)

- Ensure that the blower and airlock have no power and are locked out, before performing service work on the Central Vac system. Failure to do so may result in severe injury or death.
- Ensure that all chain guards or moving parts have their proper guards installed, preventing injury.
- Wear the appropriate protective gear.
- Ensure that the Central Vac is anchored to firm and level ground.



- Make certain that sufficient amperage, at the proper voltage and frequency (60Hz) is available before connecting power for the electric model. Have a licensed electrician provide power to the machine. Always follow ANSI/NFPA 70 Standard and all local codes when providing electrical power.
- Have at least one extra person available to assist when elevating, moving or connecting to other equipment.
- Wear appropriate protective gear while working on the Central Vac System.
- Once finished, give the machine a “once over” for any loose bolts, components, leaks, faulty seals, and proper anchoring.
- Think SAFETY! Work SAFELY!
- Walinga would like to remind the owner of this piece of equipment, that in order to be in accordance with NFPA 652-Chapter 7, a Dust Hazards Analysis (DHA) must be completed.

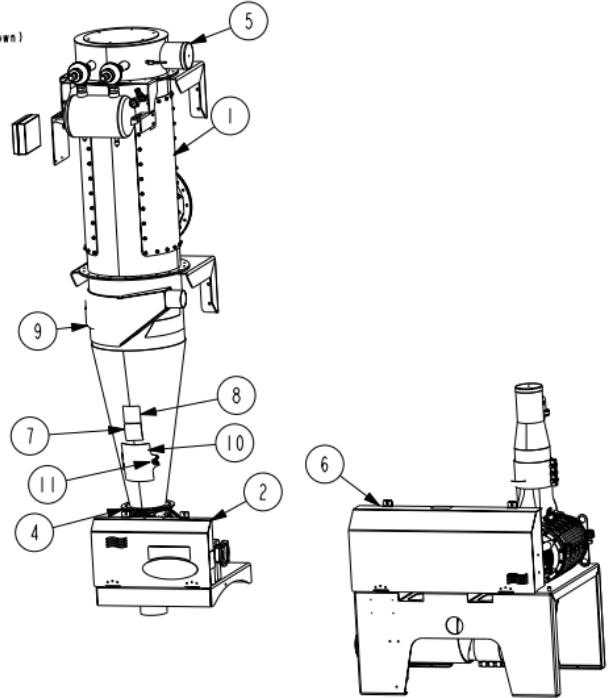
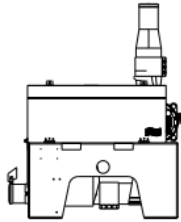
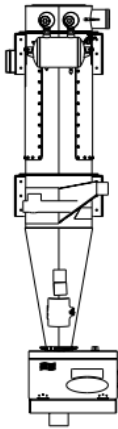
Key Items to Follow

- Follow Safety procedures.
- Ensure proper sealing of the mating components.
- Inlet placements in the piping.
- Use compression couplings and grounding strips at all joints.
- Keep piping as straight as possible.
- Keep all components within 400' of the Central Vac unit.
- Install Y elbows from the side or from the top of piping, and have the elbows follow the flow of the air stream.

Components of a Central Vac Air Purge System

BILL OF MATERIALS			
ITEM	QTY	NUMBER	DESCRIPTION
1	1	11-114713-5	CV CYCLONE ASSY, 21 DIA, PURGE
2	1	11-114734-5	DRV A/L PKG, CV, 1210, 20, F730, EX VENT
3	1	11-114752-5	PAINT KIT, AIR PURGE CENTRAL VAC
4	1	11-49069-4	A/L COVER PLATE, 1210, TOP
5	1	11-59788-6	Cap, Black Vinyl 6" x 1" long
6	1	11-76941-5	BLOW PKG, 614CV, POST PAINT, 2014
7	1	53-04730-6	DECAL, ROTATE A/L HAZARD
8	1	53-102379-6	DECAL, ROTATE A/L HAZARD
9	2	53-73860-6	DECAL, CENTRAL-VAC
10	2	80-03510-6_004-000	RUBBER - 4 LG
11	2	80-03510-6_008-750	RUBBER - 8-3/4 LG

(not shown)



THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION AND IT SHALL NOT BE USED OR REPRODUCED OR ITS CONTENTS DISCLOSED IN WHOLE OR IN PART WITHOUT THE PRIOR WRITTEN CONSENT OF WALINGA INC.

ALL DIMENSIONS ARE SHOWN IN INCHES UNLESS OTHERWISE SPECIFIED

DRAWING TITLE: CENTRAL VAC, 614, PURGE RCVR			
ASSEMBLY WEIGHT: 2144.4 LBS.	DRAWN BY: IGV DRAWN DATE: 09-JAN-18	DRAWING NUMBER: 11-114710-5	REVISION: B SHEET NUMBER: 1 of 2

- **1. Cyclone Assembly**

- The cyclone assembly uses cyclonic action in order to separate the bulk product from the air-stream.
- It is found bolted to the shipping rack separate from other parts.
- The cyclone assembly bolts to the airlock package.

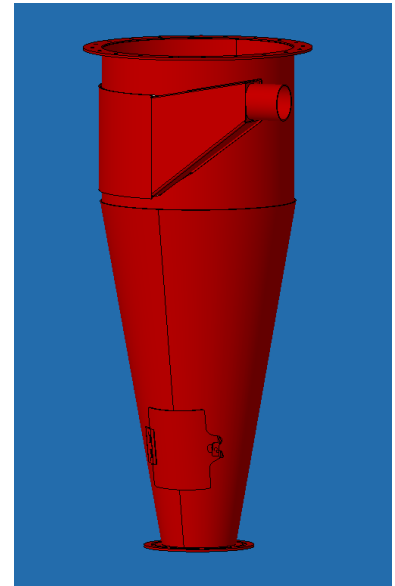


Fig 1. Cyclone Assembly

- **2. Receiver Midsection**

- The receiver midsection holds the four filters used to further separate bulk product from the airstream.
- The receiver midsection is the portion of the receiver that is to bolted to the Cyclone Assembly.
- Install with care, ensuring there is no damage to the explosion vent.

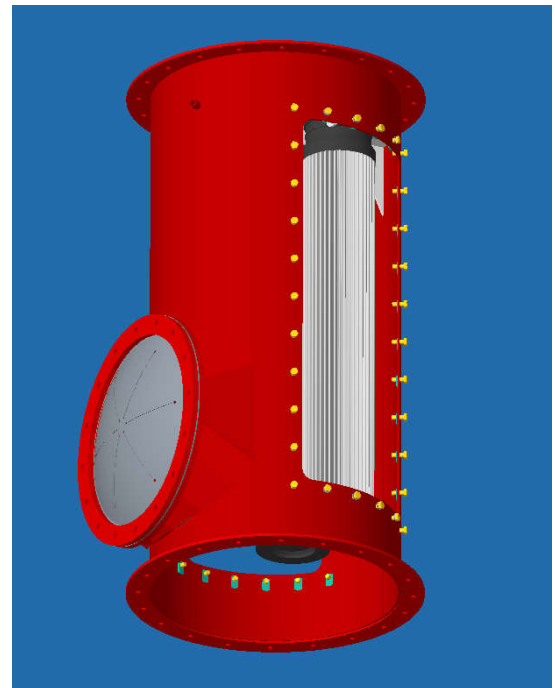


Fig 2. Receiver Midsection

- **3. Receiver Top**

- The receiver top is the portion of the machine that controls the air-purge cycle. It uses high pressure air to clean the filters in the midsection.
- The receiver includes purge valves, an air tank and a timer control box attached to it.
- The receiver top comes pre-assembled with the receiver midsection.

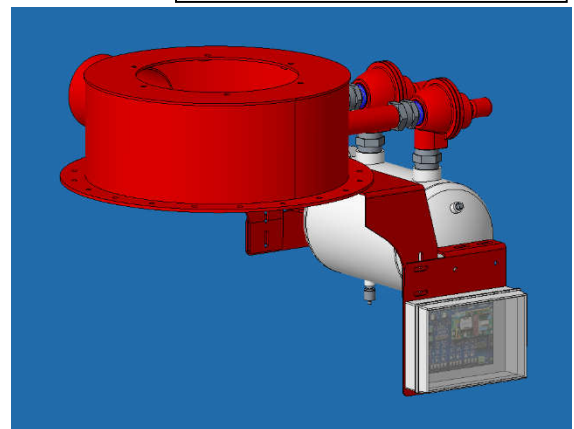


Fig 3. Receiver Top

- **4. Airlock / Rotary Valve**

- The airlock package comes equipped with a Walinga 1210 drop-thru airlock. It is built as a single assembly.
- The airlock will be placed under the cyclone assembly and above the customer's discharge option.
- Discharge piping is 6" and should be installed vertically with a maximum of a 20° slope. This ensures that dust will flow through the spouting using only gravity.
- The airlock operates off of an electric motor and chain drive and has to be placed in an easily accessible location for service.
- The dimension of the airlock package is 27-½" long by 28" wide.

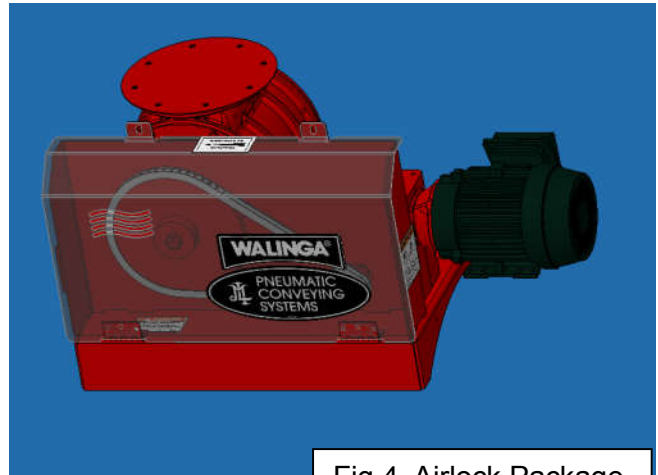


Fig 4. Airlock Package

- **5. Blower Package**

- The blower package comes equipped with a Walinga PD Blower. It is used to generate the suction of the system. The blower package frame is a heavy-duty steel frame.
- The base itself is 32" wide by 43–3/8" long for the standard 614 blower. (31-½" wide by 41-½" long for the 510 blower base)
- The blower package has a single 6" port where the air stream is generated.
- The 6" pipe going into the blower inlet, comes from the receiver top section.
- The blower is a crucial part of the Central-Vac system and requires regular service.
- When installing, ensure that the belt cover and the blower are easily accessible for the service personnel.

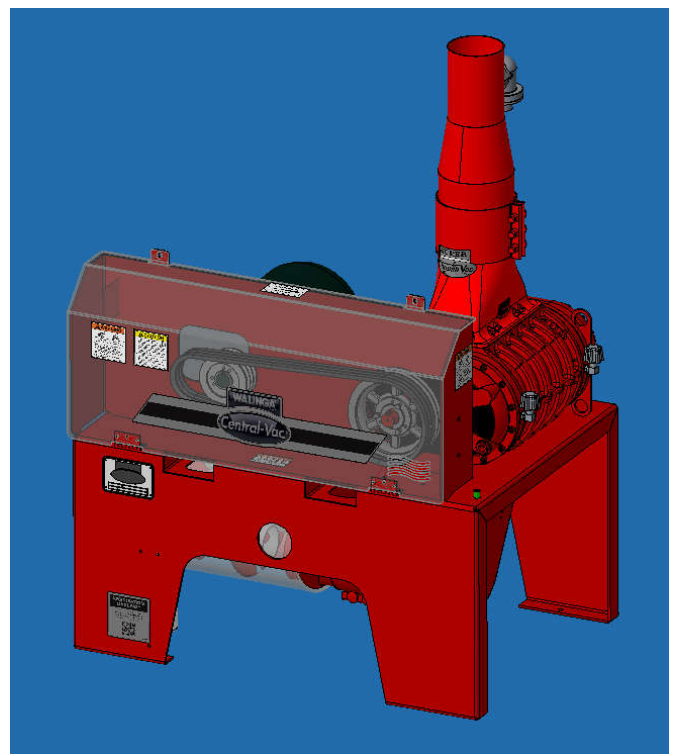


Fig 5. Blower Package

Typical Machine Setup



R-1: March 17, 2018

Piping Components

- **Aluminum tubes**

- 3" aluminum tubing is the typical size of the main line of the Central Vac system.
- 3" aluminum tubing is used for the main and drop lines, going down towards the camlock inlets.
- In some applications the unit will be equipped with a 3" mainline and 2" drop lines.



- **Galvanized steel elbows**

- Used for corners in the piping system.
- Available in 2", 3", 4", and 6".
- 6" elbows are utilized between the blower, filter housing, and separators.
- TY's are used to connect the inlet piping going to the main pipe line.



- Drop lines should never enter the main line from the bottom.
- TY's are directional and must be installed in accordance with the air flow.
- The direction of the airflow is coming through the Y into the main line.

- **Compression Coupling**

- These are used to join all the piping together. They consist of a three-bolt compression clamp, black gasket, and a grounding strip.
 - In order to fully function, the clamp must be fully tightened for maximum clamping force.
 - Ground strip is put into place in order to prevent static electricity build up.



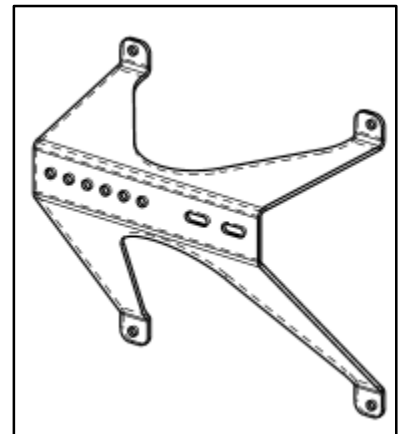
- **Mounting Brackets**

- The mounting brackets are mounted to the wall or to any other solid support.
- The saddle clamps are attached to the mounting brackets.



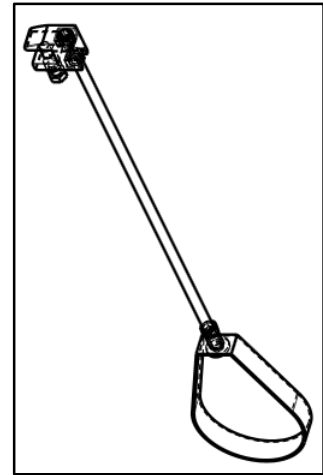
- **Saddle Clamps**

- Saddle clamps consist of two parts; a “saddle” and a u-bolt which are used to attach the piping system to mounting brackets.
- Tighten the nuts evenly to prevent any incidents of piping separation or falling.



- **Tube Hangers**

- Tube hangers are an effective way to hang the piping system from the beams running along the roof.
- Consists of a Top Beam Clamp, a rod, and a hanger properly sized to the piping.



- **Rubber Flex Line/ Pickup Hose**

- Rubber flex line is used on the suction end of the central vac system, and is used by the operator.
- The flex line has a static wire built into it to prevent static electricity build-up.
 - If servicing a rubber hose, ensure that the ground wire is making contact with the coupling.
 - After the service, the installer must check the resistance by using an OHM meter on the couplings while they are in contact with each other.
 - The conductivity of the coupling should read between 0 and 5 ohms resistance.
- Also available as a clear hose.



- **Camlock Coupling**

- The camlock couplings are used to connect the piping to pick-up hoses.
- They are designed for quick and easy connect and release.
- A rubber seal is installed in the opening of the coupling to ensure proper connection and to prevent connection leaks.
- When installing a camlock coupling, be sure to apply a ring of silicone around the piping and have the dust plugs inserted and clamped in place.
- By having the dust plugs inserted during installation ensures that the gasket is not pushed out by the pipe
 - After installing the coupler, attach the chain from the dust plug to the Camlock coupling.
 - This ensures that the dust cap will not be lost when an operator is using the Central Vac system.



- **Piping Requirements**

- Every system is different, built to suit the customer.
- A typical system will include piping layout/ system design drawings provided by either approved project engineering staff or qualified Walinga personnel.
- All piping installed must be properly supported.
 - When installing the support points, ensure that there is enough strength to allow for a full pipe line, should the system become plugged.
 - One support point for every 15' of pipe line is recommended.
- Ensure that the main lines are as straight as possible to maintain maximum conveying rate.
- Space the inlets and the inlet piping, or at a maximum of 40' apart, in accordance with piping layout drawing provided.
- When installing the inlet lines, ensure that the Y elbows enter from either the side or the top of the main pipe line. The Y must also follow the flow of the product and air stream.
- All the piping should be within 400' of the main Central Vac system to maintain product air speed and avoid plugging.

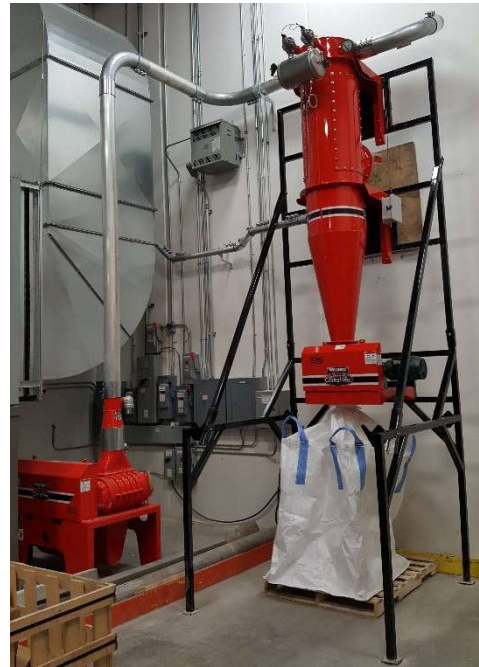


- All compression couplers must be fully tightened, to ensure a proper seal.
 - **The grounding strip in the compression couplings must be properly installed, making contact to both pipes. This to ensures total protection from static electricity build up as the grounding strip is connected to both pipes.**
- As much as possible, ensure that all joining components are easily accessible for any future service and maintenance.
- For ease in future maintenance, install all the compression couplings facing the same way.
- Electro-Static hazard warning labels must be installed on the piping by all inlets.

Set Up Procedure

Every System is different!

1. Inspect the system design drawings (if available), compare with all the parts received.
2. Inspect all the locations of where the components will be installed, look for:
 - (a) NFPA requirements
 - (b) Proper support points.
 - (c) Obstructions
3. Starting at the Central Vac's main components install and anchor the hanger manifold.
 - (a) If not using Walinga Supplied hanger, ensure alternative is structurally sound enough to support and sustain the weight of the machine in operation and the product being conveyed.
4. Install the airlock and fasten it to the hanger manifold.
5. Run a bead of silicone around the top lip of the airlock.
6. Bolt the cyclone mounting bracket to the rack or a structurally sound support.
7. Apply silicone to the top flange of the cyclone assembly, bolt the pre-assembled receiver mid-section and receiver top to the cyclone assembly. Ensure that the explosion vent is positioned in the correct direction towards ducting or outlet on the wall. (If a change to the orientation of the receiver top is required, ensure that the air purge tank and valves are square to the explosion vent. There are only four acceptable positions). The mounting bracket is to be positioned directly opposite the air tank and purge valves on the bottom side of the top flange on the receiver mid-section.
8. Bolt receiver mid-section mounting bracket to rack or structurally sound support.
9. Install receiver brackets to the Airlock.
10. Place blower package in approved location and secure.
11. Using appropriate size piping and elbows, pipe from the blower inlet to the outlet on the receiver top section.
 - (a) When joining piping, ensure that the grounding strip is present on all compression couplers. Do not leave gaps between piping sections or between piping and elbows. Gaps will lead to premature wear of piping and create holes in couplers and gaskets.



12. Using 6" tube or pipe, discharge the airlock into the customer's desired location. Ensure that all NFPA standards are met. The discharge pipe should be installed vertically with a maximum of a 20° slope. This ensures that dust will flow through spouting using only gravity.
13. For ease in maintenance install all compression couplings facing the same way.
 - (a) This creates minimal movement when removing any couplings.
14. When installing the camlock couplings, ensure that the dust cap is installed and clamped on, before applying silicone to the piping and installing the camlock coupling.
15. Install Electro-Static Hazard warning labels on the piping at all the pick up points.
16. Install the chain from the dust cap to the camlock couplings.
17. Install explosion ducting outside of the facility.
 - (a) Ensure that the duct is no longer than 16 inches. If it is, please contact the Walinga Representative.
18. Walinga would like to remind the owner of this piece of equipment, that in order to be in accordance with NFPA 652-Chapter 7, a Dust Hazards Analysis (DHA) must be completed.

Notes:

- Customers may have different discharge options making every installation unique.
 - Refer to the system design drawing for every install.
- Dust free 2 cubic yard dust bin which can be installed under the discharge.
- A selection of different electrical options are available for the customers.
 - NEMA 4 or NEMA 12 starter control panel complete with starters for both blower and airlock drive motors. The panel will include a relay to control the optional slide gate.
 - Custom panels are available.
 - Note: As a rule, Walinga Central Vac systems are equipped with Toshiba 3 phase electric motors. Please refer to the sales contract for voltage and HP requirements, or contact your local Walinga representative.
 - **All electrical connections must be made by a certified electrician in accordance with local electrical codes.**

"It is the responsibility of the owner/operator of facilities in which explosion vents are utilized to comply with the requirements of the AHJ, which is typically the use of National Fire Protection Association ("NFPA") Standard 68. Owners / operators must deploy an appropriate number and configuration of vents; ensure vents are installed where activation will not cause personal injury or unacceptable property damage; and ensure vents are not adversely affected by process conditions or conditions on the non-process side of the vent. Seller's installation and operating instructions shall be followed by the Buyer."

Accessory Wiring Instructions

See wiring diagram in panel for detailed wiring instructions.

If you have any questions, please contact your Walinga representative.

1. Remote Start/Stop
 - (a) Remote Start to be wired between terminal 5 and 6.
 - (b) Remote Stop
 1. Remove jumper between terminal 4 and 3.
 2. Remote Stop to be wired between terminal 4 and 3.
2. Purge Circuit
 - (a) Timer Board Power Connection to be wired between terminal 7 and 2. **(Voltage 120VAC)**
3. High-Level Sensor
 - (a) High-Level Sensor (Normally open) to be wired between terminal 8 and 3. **(Voltage 120VAC)**
4. Auxiliary Stop Sensor
 - (a) Remove jumper between terminal 9 and 3.
 - (b) Auxiliary Stop Sensor (Normally open) to be wired between terminal 9 and 1a. **(Voltage 120VAC)**
5. Open Gate Solenoid
 - (a) Open Gate Solenoid to be wired between terminal 10 and 2. **(Voltage 120VAC)**
6. Close Gate Solenoid
 - (a) Close Gate Solenoid to be wired between terminal 11 and 2. **(Voltage 120VAC)**