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# **Vertical Vittleveyor<sup>®</sup> (VRC) Systems**

## **User Reference Manual**



# Vertical Vittleveyor<sup>®</sup> (VRC) System

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## **Important Safety Instructions**

1. READ THESE INSTRUCTIONS.
2. KEEP THESE INSTRUCTIONS.
3. HEED ALL WARNINGS.
4. FOLLOW ALL INSTRUCTIONS.
5. DO NOT CLEAN THIS APPARATUS WITH A WATER SPRAY OR THE LIKE.
6. DO NOT BLOCK ANY VENTILATION OPENINGS. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
7. DO NOT INSTALL NEAR ANY HEAT SOURCES SUCH AS RADIATORS, HEAT REGISTERS, STOVES OR OTHER APPARATUS THAT PRODUCES HEAT.
8. ONLY USE ATTACHMENTS/ ACCESSORIES SPECIFIED BY THE MANUFACTURER.
9. TURN THE POWER SWITCH TO THE "OFF" POSITION WHEN THE APPARATUS IS NOT IN USE AND BEFORE SERVICING.
10. REFER ALL SERVICING TO QUALIFIED SERVICE PERSONNEL. SERVICING IS REQUIRED WHEN THE APPARATUS HAS BEEN DAMAGED IN ANY WAY, SUCH AS LIQUID HAS BEEN SPILLED OR OBJECTS FALLEN INTO THE APPARATUS, THE APPRATUS DOES NOT OPERATE NORMALLY.

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## **Grounding Instructions**

1. THIS MACHINE MUST BE CONNECTED TO A GROUNDED METAL, PERMANENT WIRING SYSTEM; OR AN EQUIPMENT-GROUNDING CONDUCTOR MUST BE RUN WITH THE CIRCUIT CONDUCTORS AND CONNECTED TO THE EQUIPMENT-GROUNDING TERMINAL OR LEAD ON THE CONVEYOR.
2. DANGER-CHECK WITH A QUALIFIED ELECTRICIAN OR SERVICEMAN IF THE GROUNDING INSTRUCTIONS ARE NOT COMPLETELY UNDERSTOOD, OR IF IN THE DOUBT AS TO WHETHER THE APPARATUS IS PROPERLY GROUNDED.

## Overview

### The Purpose of the Vittleveyor® System:

The Vittleveyor® System is designed to transport packaged food and currency between food preparation areas and customer serving area. This transport can be at a drive-thru where two points consist of the final order assembly area and the drive-thru lane, or can be some form of internal conveyance where food and/or currency is moved between floors or from one point within a restaurant to another.

The Vittleveyor® is designed to move packaged customer orders quickly in high transaction restaurants. **It was not designed, nor is it suited, to move bulk materials, live loads or any load in excess of 25 pounds.** For best results, make sure that loads are not too heavy.

### Applications Served:

While there are many different applications served by the Vittleveyor®, the Vittleveyor® can be classified for purposes of this document by the type of control systems that are present on any given machine. Currently there are two specific control systems. The control types are: Drive-thru and Vertical Reciprocating Conveyor (VCR).

Note that while the programmable controls vary between the two machines, the control box, which handles either of the controls contains the same computer and electronic drive system. What varies in the control box between the two classifications is the program in the computer. Control Boxes are designed to serve either classification once the proper program is loaded.

### The VRC Vittleveyor® System:

The VRC Vittleveyor® provides the user with the following controls:

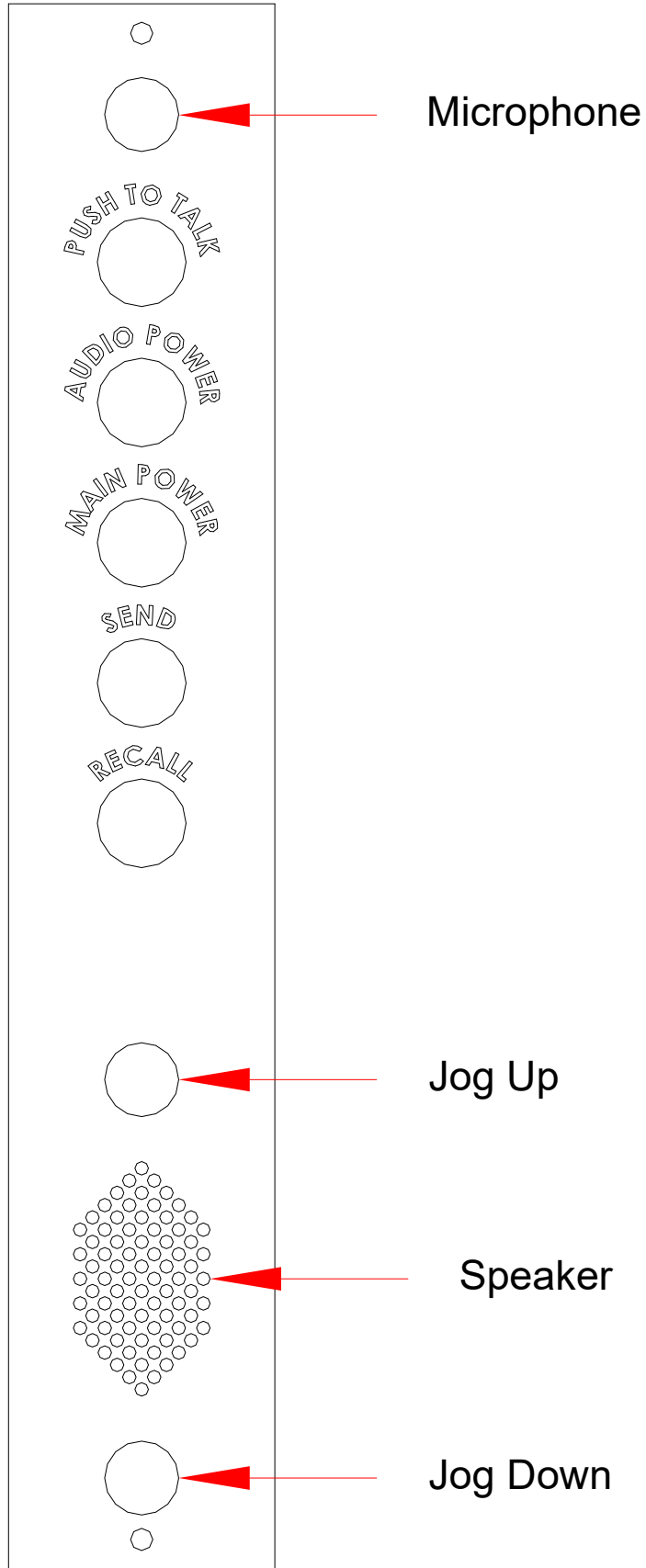
#### Upper Station:

The upper station offers the user a lighted Send button, a Power on/off switch, and Jog switches. There are options available for a key switch for Recall operation and an arrival buzzer/light combination annunciator, but these features are not included with a system unless ordered specifically when the unit is purchased.

#### Lower Station:

The lower station offers the user only a lighted SEND button. Note that the light is only operational when the carrier is in motion. There are options available for a key switch Recall and a carrier arrival buzzer/light combination, but these features are not included with a system unless ordered specifically when the unit is purchased.

# Upper Level Control Panel



**Lower Level Control Panel**





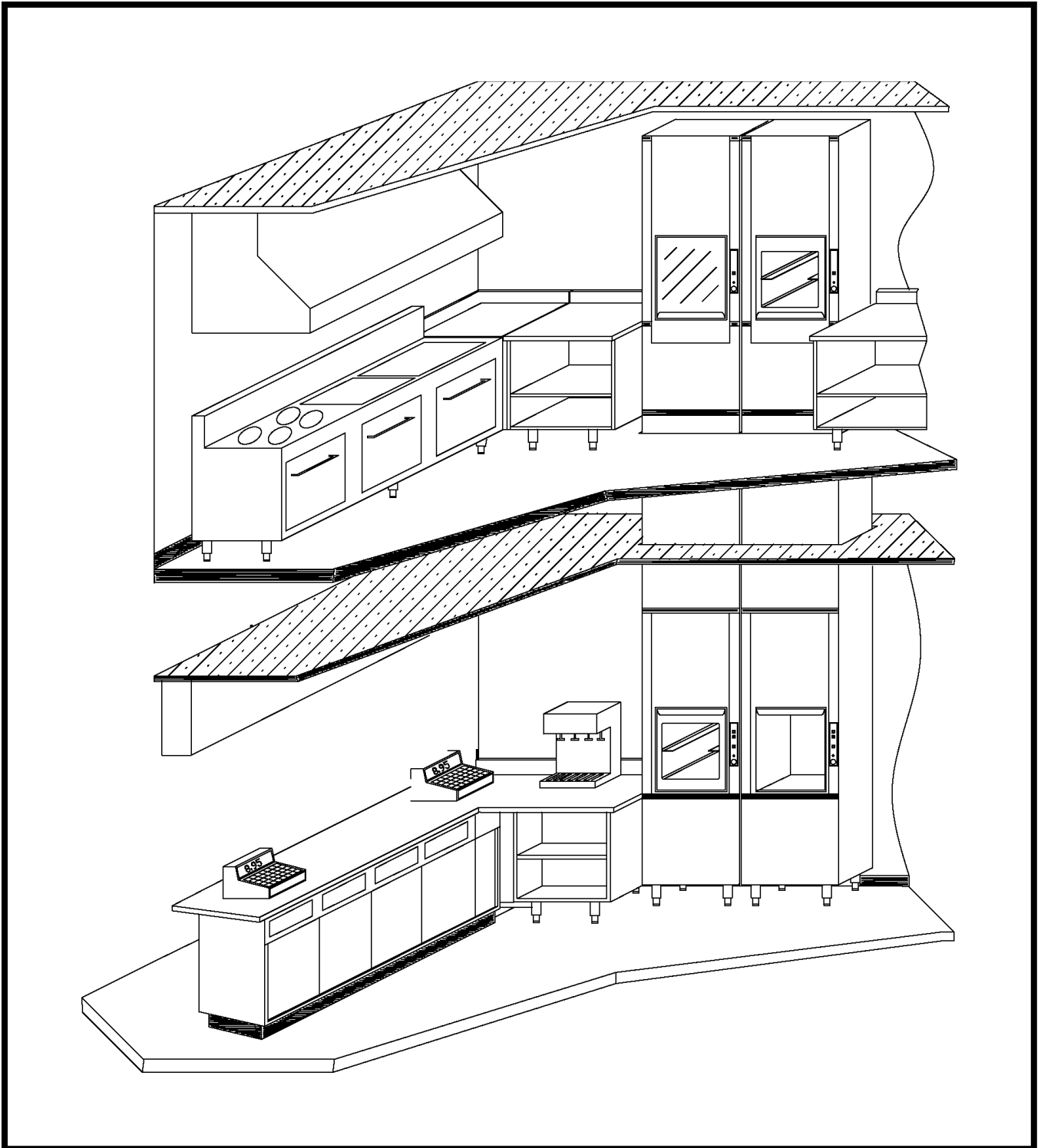
## User Operation Instructions

<b>Vertical Vittleveyor® Upper Level Control Functions</b>		
<b>Button</b>	<b>Required Basket Position</b>	<b>Operation initiated by pressing button</b>
TALK	Not sensitive to carrier position	If the AUDIO is in the “ON” position with the AUDIO LED lit, pressing this button turns the microphone at the server end on allowing the server to talk to the customer. Note that pressing this button cancels the incoming audio. One must release this button in order to hear the customer.
POWER	Not sensitive to carrier position	The POWER button toggles the Power and Audio on and off, and must be in the ON condition for the unit to run. Note that the power button also functions to reset the computer in the case of a safety bar trip. To reset, toggle the power off, then on quickly.
AUDIO	Not sensitive to carrier position	Pressing this button toggles the incoming audio on and off. Note that the audio comes on automatically when the POWER is turned on.
SEND	Carrier must be at the Upper Level position.	When the power is on and the carrier is at the Upper Level, pressing the SEND button will send the carrier to the Lower Level. Please see specification print for details on this position.
RECALL	Carrier must be at the Lower Level position.	Pressing the RECALL button brings the carrier back from the Lower Level position.

<b>Vertical Vittleveyor® Lower Level Control Functions</b>		
<b>Button</b>	<b>Required Basket Position</b>	<b>Operation initiated by pressing button</b>
CALL	Not sensitive to carrier position	When Pressed, the CALL button which activates a tone to alert the Upper Level that the Lower Level needs assistance.
SEND	Carrier must be at the Lower Level position.	When the power is on and the carrier is at the Lower Level, pressing the SEND button will send the carrier to the Upper Level. Please see specification print for details on this position.
Optional: RECALL	Carrier must be at the Upper Level position.	Pressing the RECALL button brings the carrier back from the Upper Level position.

**The VRC Vittleveyor® System:**

The controls of the VRC Vittleveyor® System vary by level. The Upper level of the system is considered the Master Station and the Lower level is considered the Slave Station. Note that the VRC version of the Vittleveyor® uses a two shelf carrier specially designed to move trays of pre-packaged food.



VRC Vittleveyor®

## **Operational Considerations**

### **The VRC Vittleveyor® System:**

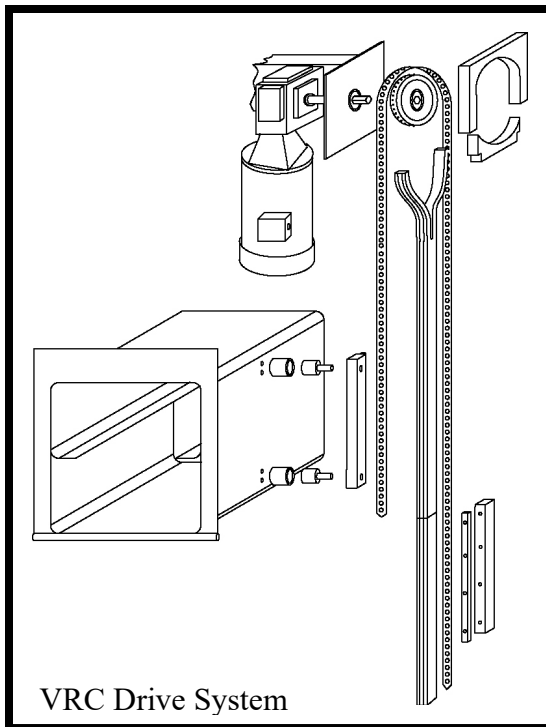
The most important operational consideration for the VRC Vittleveyor® is to get the order to the food prep/assembly area as soon as is possible. Most accomplish this by having their point of sale equipment transmit the order to the food prep area as soon as the total is generated. This allows the order to be assembled while the money portion of the transaction is being completed.

Some have decided to have the server prepare the drinks to give the food prep people more time to complete the order. All Vittleveyor® Systems are designed to carry drinks with lids without spilling. Operationally, however, it may be better to have them prepared by the server.

## User Diagnostics

The user diagnostics in either version of the machine are designed to give the server an immediate indication that either one of the safety devices has been activated or that some form of drive/positioning malfunction has occurred.

User diagnostics use the lights or LED's depending on the specific system, associated with the server control panel in order to report the diagnostic information. Therefore, attention must be paid to the function of the lights in the system making sure that when they burn out they are replaced immediately. Waiting to replace lights when burned out makes diagnostics difficult, if not impossible, for the system user and may cause loss of use of the system when not warranted. For instance, if a safety bar is activated, the basket or car stops. If the server knows, as a result of these diagnostic reports, that the safety bar is the problem, they can clear the cause and get on with operation. Without this diagnostic report, the server may consider the equipment out of order, not take the remedial action and result in loss of use of equipment when not required.



Note that these are two classes of training for individual working on any of the Vittleveyor® systems. They are provided the title of either Trained Operators or Qualified Operators. The purpose of this distinction is to point out that there are different levels of ability required to do varying tasks associated with maintenance and problem resolution. Ignoring these distinctions places the person servicing the equipment at risk.

Trained individuals are those who have been fully trained by a Qualified Operator, understand the function of the Vittleveyor® System and its safety devices and have read and understood the Vittleveyor® manual. They must also be fully aware of all your company's policies regarding OSHA lockout/tagout regulations and know how to follow those regulations. This individual is the front line of support with the equipment and should be restaurant personnel.

A Qualified Operator is a Trained Operator who is also familiar with and has had formal training on the repair, maintenance and related safety procedures associated with that repair and maintenance of restaurant equipment and has attended the E. F. Bavis and Associates, Inc. Vittleveyor® Service Technician Training Seminar. It is the responsibility of the equipment owner to acquire training for and determine the level of the person working on the equipment. User diagnostics are geared toward the Trained Operator.

## User Problem Resolution Chart

<b>Button Light</b>	<b>Condition of Light</b>	<b>Meaning</b>	<b>Action (To be performed by a Qualified Operator)</b>
<b>POWER</b>	<b>Light will not come on when pressed</b>	No Power to Vittleveyor® System	Check fuse or electrical breaker and restore power to Vittleveyor® circuit. If the breaker or fuse is not off or blown, CALL FOR SERVICE.
<b>AUDIO</b>		Audio system off.	Press button to activate audio. If pressing button does not activate light and audio, CALL FOR SERVICE
<b>SEND</b> <b>Or</b> <b>RECALL (If so equipped)</b>	<b>FLASHING</b>	Emergency Safety Bar below the Upper Level opening or above the Lower Level opening has been tripped.	Clear obstruction. Press the button again for the transaction desired. If the carrier does not move to the proper position, CALL FOR SERVICE. If the lights continue to flash, but the carrier moves to the proper position, press the POWER button off and then on to reset the lights. If lights continue to flash after toggling power, CALL FOR SERVICE.
<b>SEND and RECALL (If so equipped)</b>	<b>FLASHING</b>	Either some form of jam has occurred which delayed the carrier's arrival or the carrier has missed the proper stopping point.	Determine basket position and CALL FOR SERVICE. Provide service personnel with basket position and status of lights.

### The VRC Vittleveyor® System:

The VRC Vittleveyor® does not have a sufficient number of lights in order to make a distinction between safety bar activation and faults within the drive system. Therefore, it offers only one diagnostic report, the flashing SEND light to indicate that there is some sort of problem. The server must use carrier position and remedial action in order to determine the problem or contact a Qualified Operator to resolve the problem.

The most common cause of the carrier stopping is activation of the safety bars. When this occurs, the SEND light will flash at each end. The Trained Operator should clear the obstruction and press the SEND button of the sending station in order to place the machine back into operation.

If the carrier does not resume progress toward its destination when the SEND button is pressed, then see the section: Jogging the Basket or Carrier.

## User Care and Maintenance

### **General:**

The most important aspect of care and maintenance for any Vittleveyor® System is to keep the system clean. No other aspect will extend the life of the machine or keep downtime to a minimum.

The tape used to move the carrier, is designed as the major wear component of the system; therefore, this tape must be replaced as part of normal preventive maintenance. It is recommended that this component be replaced every other year on VRC's. If the machine is very heavily used, or if it sits in a particularly harsh environment, it is possible more frequent replacement may be required. Not replacing this tape may result in a catastrophic failure at some point in the future.

### **Care and Maintenance**

<b>Daily Care Trained Operators Only</b>	<b>Monthly Care Qualified Operators Only</b>	<b>Annual Care Qualified Operators Only</b>
Clean all exposed internal and external surfaces including windows, liners and trays.	Check tape track for loose mounting screws. Tighten as required.	Inspect gearbox and add gear oil as required. Use AGMA Type 7C synthetic lubricant. <u>Do not</u> use EP rated gear lube.
Clean carrier.	Clean and inspect external door track, tape and tape track.	Replace main drive tape. Inspect mounting blocks and screws.
Clean all visible tape tracks.	Check all exposed screws for tightness. Tighten as required.	Inspect and test main drive motor
Check Upper and Lower Safety Bars for proper operation.		
<p><b><u>Care and Maintenance Notes:</u></b></p> <ol style="list-style-type: none"> <li>1. <b>Use only mild, non-abrasive, cleaners, such as Windex, that do not leave a residue. If soap and water is used to clean the unit, make certain that all surfaces are rinsed of any soap residue.</b></li> <li>2. <b>DO NOT lubricate the tape, tape track, guide track or guide wheels. These are either self lubricating or do not require lubrication. Lubricating these components leads to dirt problems.</b></li> <li>3. <b>To make maintenance easy, keep the jog magnet and skin wrench close to the unit.</b></li> </ol>		

### **NOTE:**

The JOG MAGNET should be removed from the SERVER CONTROL PANEL and stored in a secure place. Please note that operating the Vittleveyor® via the JOG MAGNET disables all safety and protective features of the machine. This feature is to be utilized for service and setup by authorized personnel only. The manual and Torx skin screwdriver should be stored with the jog magnet.

## **Safety Features of the Vittleveyor® System**

*The Vittleveyor® is intrinsically safe considering that the maximum force that can be exerted by the CARRIER is limited electronically by the DRIVE to 50 pounds initially, gradually working to a maximum of 72 pounds over a period of 5 to 10 seconds. To avoid excessive wear and damage to the equipment, the **Maximum Load limit is 25 pounds***

In the downward motion of the CARRIER on the LOWER UNIT, the CARRIER is programmed to stop four inches before any pinch point. The switching is redundant.

The VRC has a SAFETY BAR above the LOWER opening and at the bottom of the UPPER opening. These have four sensors each. Two of the sensors report to a SAFETY MODULE, which directly stops the motor. This is the first line of protection activated by the raising of the SAFETY BAR and will reset upon releasing the SAFETY BAR. The second line of protection is two additional sensors which report to the PLC. This causes the machine to stop and then flashing lights indicate a fault at the operator's control. The machine must then be reset by toggling the power off, then on to resume operation.

The UPPER UNIT has a self actuating guillotine type door. The CARRIER automatically opens the door when it arrives at the level and closes it when it leaves.

The CARRIER travels in slow speed when accessible by the operators and at a high speed when not accessible. The shift points are controlled accurately by a counter connected to an output shaft.

## **Service Diagnostics**

In order to service the machine, the Vittleveyor® system computer provides LED indicators of the status of the machine. Below are tables of the input/output status by LED number. The Vittleveyor® System, computer is located in the control box. Note that whenever service work is done in the field, E. F. Bavis & Associates, Inc. is available to provide telephone assistance.

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**The VRC Diagnostics**  
**The Drive-thru Diagnostics of the Control Box:**

NUMBER	NAME	CONDITION	INDICATES
<b>INPUTS</b>			
0	N/A	OFF	NORMAL
1	N/A	OFF	NORMAL
2	COUNTER	OFF ON FLASHING	DRIVE MOTOR OFF DRIVE MOTOR ON DRIVE MOTOR RUNNING
3	N/A	OFF	NORMAL
4	UPPER STOP	OFF ON	NORMAL CARRIER AT UPPER POSITION
5	LOWER STOP	OFF ON	NORMAL CARRIER AT LOWER POSITION
6	LOWER SAFETY	OFF ON	NORMAL LOWERSAFETY BAR RAISED TO ACTIVATED POSITION
7	UPPER SAFETY	OFF ON	NORMAL UPPER SAFETY BAR RASIED TO ACTIVATED POSITION
8	OVERTRAVEL	OFF ON	NORMAL CARRIER HAS OVERUN STOP SWITCHES ON UPPER OR LOWER UNIT
9	N/A	OFF	NORMAL
10	N/A	OFF	NORMAL
11	LOWER SEND	OFF ON	NORMAL LOWER SEND SWITCH DEPRESSED
12	UPPER SEND	OFF ON	NORMAL UPPER SEND SWITCH DEPRESSED
13	TEST MODE	OFF ON	NORMAL TEST MODE ENGAGED
14	N/A	OFF	NORMAL
15	POWER	OFF ON	POWER SWITCH OFF POWER SWITCH ON
<b>OUTPUTS</b>			
0	DOWN LIGHT	OFF ON	NORMAL LOWER SEND LAMP LIT
1	N/A	OFF	NORMAL
2	UP LIGHT	OFF ON	NORMAL UPPER SEND LAMP LIT
3	N/A	OFF	NORMAL
4	N/A	OFF	NORMAL
5	N/A	OFF	NORMAL
6	LOWER ARRIVAL ALARM	OFF ON	NORMAL LOWER ARRIVAL ALARM ON
7	UPPER ARRIVAL ALARM	OFF ON	NORMAL UPPER ARRIVAL ALARM ON
8	MOTOR	OFF ON	NORMAL DRIVE RUNNING UP SLOW
9	MOTOR	OFF ON	NORMAL DRIVE RUNNING UP FAST
10	MOTOR	OFF ON	NORMAL DRIVE RUNNING DOWN SLOW
11	MOTOR	OFF ON	NORMAL DRIVE RUNNING DOWN FAST



## **Adjustment of Integrated Audio System:**

The Vittleveyor<sup>®</sup> is equipped with our latest design built-in audio system. This audio system is of a SIMPLEX variety, which is commonly referred to as “push to talk”. The incoming audio (from the customer to the server) is normally on. When the operator depresses the TALK button, the incoming channel is turned off and the outgoing channel is activated.

An electronic CALL TONE is built into the SERVER CONTROL PANEL. The volume can be adjusted by rotating the shutter control on top of the buzzer.

There are two audio adjustments and buzzer volume adjustment accessible to service personnel.

Access is gained by first removing the CONTROL TRIM BEZEL. The CONTROL TRIM BEZEL has four screws securing it which are located on the sides of the bezel. After removing these screws, the control panel has 2 screws that have to be removed. After these screws are removed, the control panel will slide out revealing the adjustments. The two black potentiometers located on the large circuit board are the master gain controls. Adjusting these controls clockwise will increase volume and vice versa. The controls are marked inside and outside.

Note: The AUDIO ON/OFF control mimics the POWER ON/OFF, i.e. When the power is turned off, the audio turns off. Depressing the AUDIO ON/OFF again will toggle the audio back off.

## **Other Technical Information**

### **Control Box Fuses:**

Note: To reduce the risk of the fire and/or shock only replace fuses with same type and rating.

The Control Box for the Vittleveyor<sup>®</sup> has four fuses located within it. Two fuses are located on the Regenerative Drive. The other two fuses are located on the PLC. Following is a list of fuses with size, location and purpose.

<b>SIZE</b>	<b>LOCATION</b>	<b>PURPOSE</b>
AGC10	DC drive board, top fuse	Controls one leg of the 208-240vac feed to the Regenerative Drive
AGC10	DC drive board, lower fuse	Controls remaining leg of the 208-240vac feed to the Regenerative Drive
AGC3	Horizontal fuse	Controls 24vdc to the Lamps, Input Switches, etc.
AGC1	Vertical fuse	Controls 10vac to the PLC logic

## **What does Jogging the Carrier Mean?**

The movement of the carrier of Vittleveyor® systems is controlled by the computer found in the control box. However, when some sort of problem develops that impedes or stops the carrier when under this automatic control, or if the carrier needs to be moved for service, the service personnel may have to manually move the carrier back to the home position in order to reset the machine, so that the automatic system can operate the carrier. This manual moving of the carrier outside the automatic control is called jogging the carrier.

What types of things would require the carrier to be jogged? Full travel of the safety bar, a dirty machine such that the carrier moves too slowly that it does not arrive within the allotted time, or some sort of mechanical impediment that stops the carrier before it arrives at the destination.

### **Jogging the Drive-thru Unit:**

**Note: Only trained personnel should attempt Jogging the machine.**

There are two Magnetic sensors hidden in the black buttons above and below the speaker on the Upper Level control panel which control the jogging of the machine, (see Pg. 3).

Before attempting to JOG the unit, make sure that there are no physical obstacles in the way of the carrier and that all people are clear of the machine.

**Note: Be careful when jogging the unit, as all safety, over-travel and stop switches do not work when operating the unit in jog mode! Only trained personnel should use the jog mode. Contact the factory for support.**

In order to manually move the carrier in toward the Lower Level of the unit, apply the north side of the jog magnet, which was provided with your unit, to the black button below the speaker. This will cause the carrier to move toward the Lower Level of the unit. Moving the magnet away from the button will make the carrier stop. Applying the north end of the magnet to the black button above the speaker will cause the carrier to move toward the Upper Level.

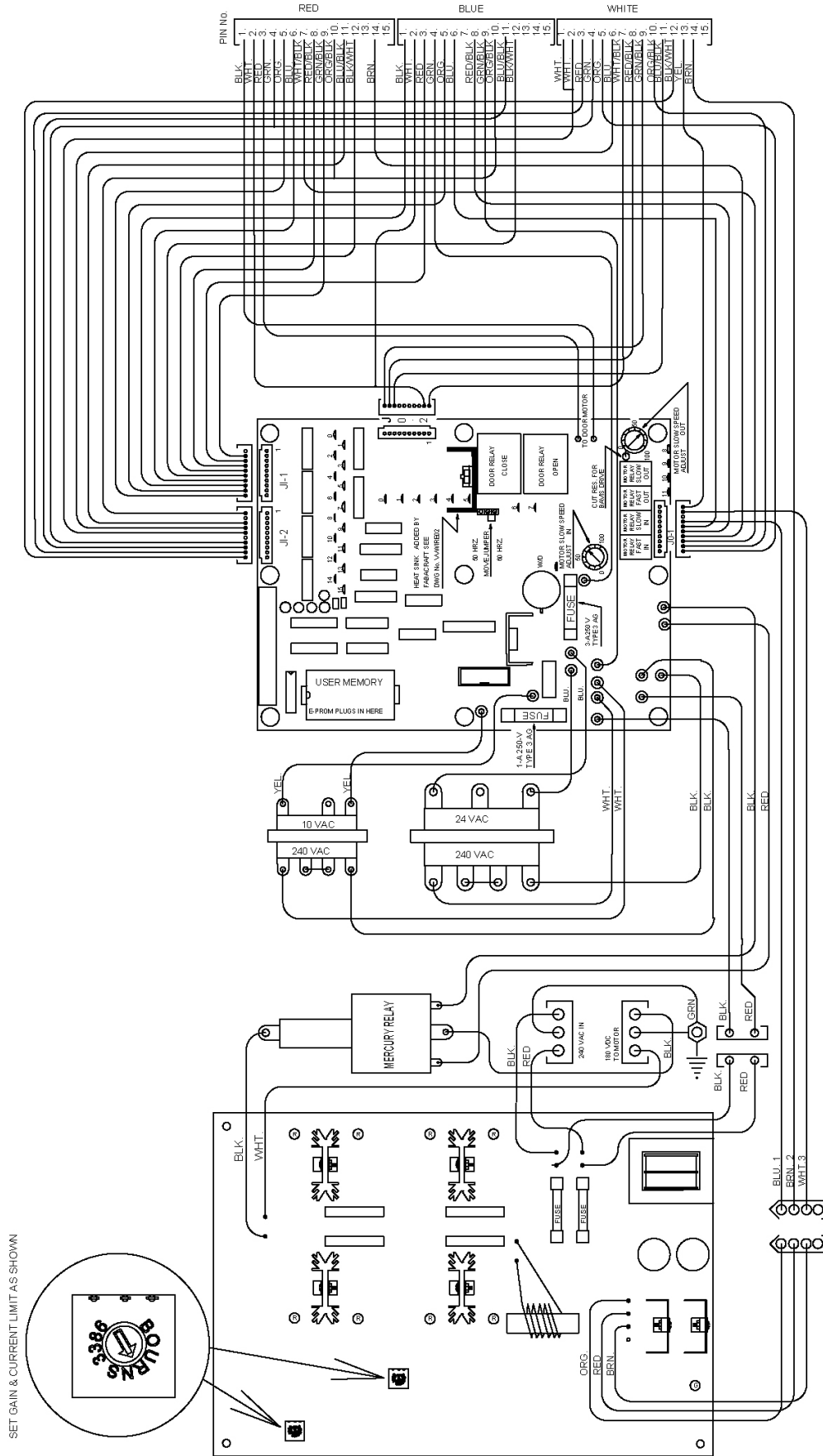
When jogging the unit, be careful not to crash the carrier into the bottom of the Lower Level or at the top of the Upper Level of the machine. If the carrier does not move when it is jogged, do not attempt to free the jam by jogging the unit back and forth. This will cause damage and make repair of the original problem more difficult and time consuming. If a jam of this type occurs, call the factory for support.

To reset the Carrier's position in the program, Jog the carrier about a foot towards the other end of the unit, and then back to its normal stopped position. Toggle the power switch off, and then back on.

## **Wiring Diagrams of the Vittleveyor® Units:**

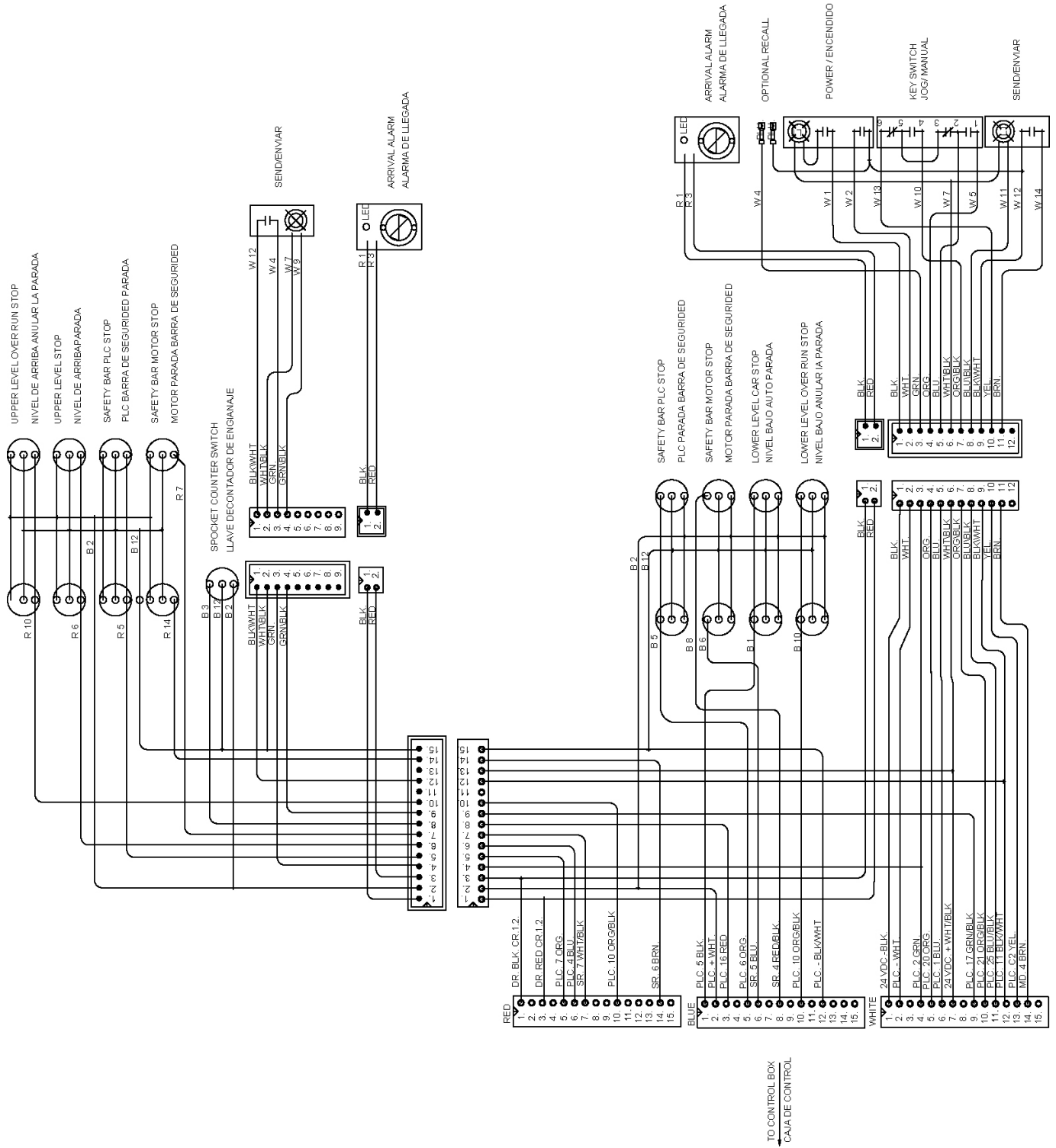
All versions of the Vittleveyor® use the same control box. What varies between the versions is the field wiring and the program. The diagrams that follow document the control box and field wiring.

# Vittleveyor® Control Box Wiring

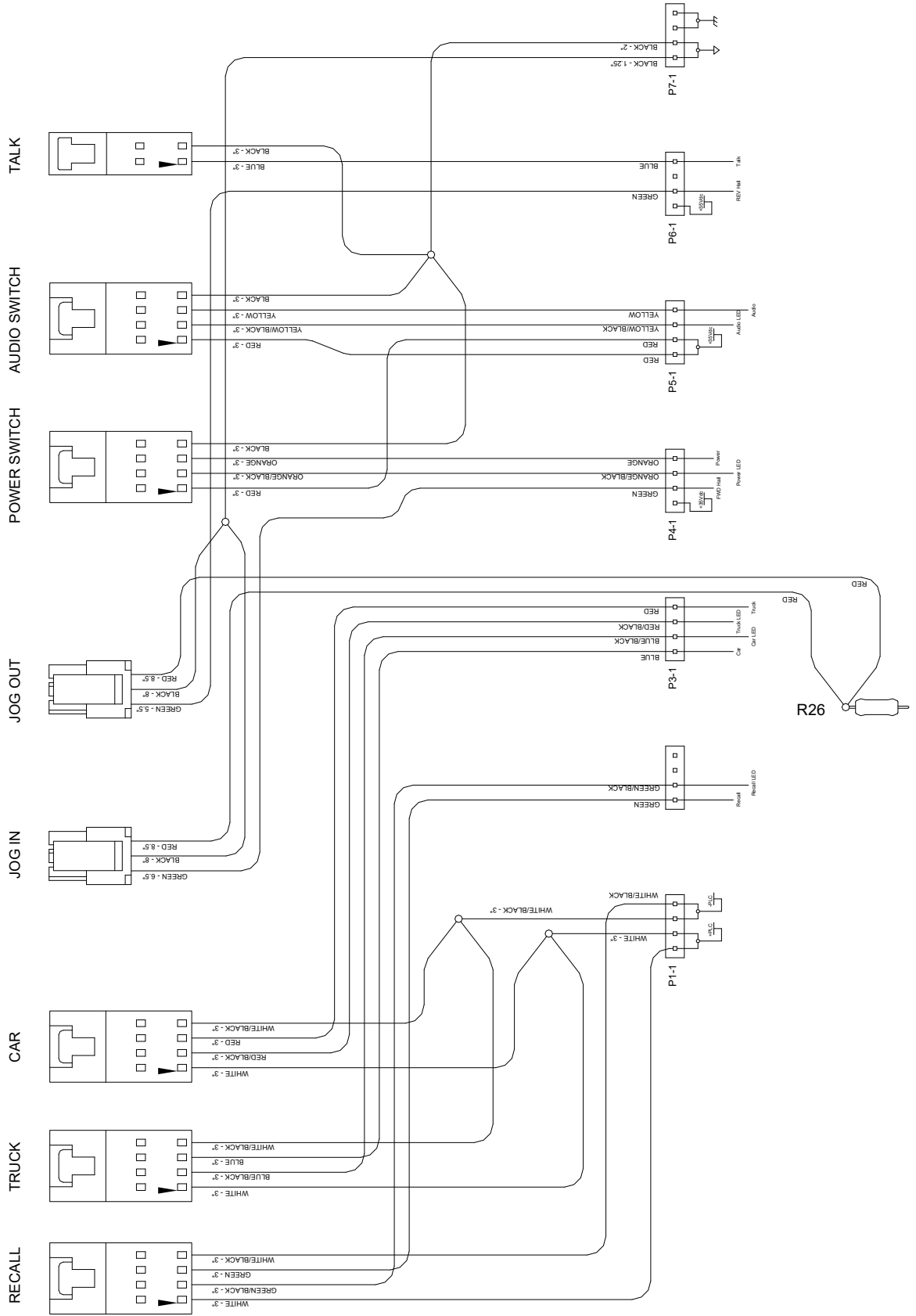


SET GAIN & CURRENT LIMIT AS SHOWN

# VRC Vittleveyor® System



# Master Control Panel Wiring



**Revised**

<b>ECN</b>	<b>Date</b>
13511	02/16/2012
20639	03/31/2021

