
Autoveyor™ 3000

Installation and Service Manual

E. F. Bavis & Associates, Inc.

201 Grandin Road
Maineville, Ohio 45039
(513) 677-0500

Autoveyor™ 3000

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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.

Autoveyor™ 3000

Overview:

The Autoveyor™ 3000 is a positive drive conveyor system that was specifically designed to serve the drive-thru bank environment. Its purpose is to move drive-thru banking transactions from the customer to the teller and back as efficiently as is possible with a minimum of maintenance and repair.

The Autoveyor™ concept originated in the early 1970's as an alternative to the pneumatic drive-thru systems which were difficult for the customer to use and costly for the bank to purchase, install and operate. When introduced, the Autoveyor™ was the low cost product in the market place. It also offered significant advantages over the competition in ease of use, easy overhead installation and low cost to maintain. Since that time the pneumatic tube manufacturers have continued to cheapen their products to the point now where they are significantly less expensive than the Autoveyor™.

Note that competitive systems have concentrated their efforts on low price and as a result could not afford to improve the performance or reliability of the pneumatic systems much, if at all, since the 1970's. Some maintain that pneumatic systems may be less reliable now than in the 1970's due to the inexpensive components used. Few will disagree that the current tube systems are little more than throw-away devices which work fine for the first year or two and then cost more to maintain than the original equipment cost.

While we at E.F. Bavis and Associates have never increased the price of the Autoveyor™, we have continued to refine the product to its current model, the Autoveyor™ 3000.

Mechanically the Autoveyor™ has not changed significantly. The basic design of the system is to use Polycord¹ round belting to trap the plastic carrier and move it in a serpentine action up the separate vertical to the integrated horizontal conveyor. The carrier is transported along that horizontal conveyor to the other end of the system where it is again trapped by vertical belts where it descends to the teller end. Serpentine action belts can be used to move the carrier horizontally or vertically. The Autoveyor™ is designed to be a series of modular conveyors, which are integrated together to perform a bi-directional means of transporting a standard carrier. As a result of this design, the Autoveyor™ has no limitations as to the horizontal or vertical distance that it can traverse. Essentially the length of the system can be extended infinitely by adding additional conveyors.

What has changed over the years are the electrical and electronic controls which operate the system. The original Autoveyor™ used electro-mechanical controls, mechanical relays essentially, to control the machine. The Autoveyor™ - 2000 series machines used a combination of electro-mechanical and electronic controls, which improved reliability and functionality. The current version has done away with the electro-mechanical functions and has moved exclusively to solid-state electronics. In addition to improved performance and long term reliability of solid state components over electro-mechanical, the Autoveyor™ -3000 offers a full range of diagnostic LED's which further improves functionality.

¹ Polycord is a Trademark of Habasit Belting, Inc.

As you can see, the Autoveyor™ has not only maintained its price, but has improved the quality and features of the system so that what is purchased today is far better in terms of reliability and features and less costly in inflation adjusted dollars than the systems of the 1970's and 1980's.

Shipped in 3 Pieces – Made to Site Specs!

The standard Autoveyor™ drive-thru system consists of the following modules: a vertical teller conveyor, a horizontal conveyor and a vertical customer conveyor. Non-standard units may have other modules, but the majority consists of these modules. For the most part, installation of the unit consists of hooking these modules together.

The Autoveyor™ is bench built to the specifications of the site. The reason for this has to do with the nature of the conveyor system. As mentioned before, the vertical sections use serpentine action belts to move the carrier vertically. The layout of the pulleys in this type of belt arrangement is critical to the proper function of the machine. Attempts at making conveyors of this type in a modular fashion, which would not require custom made systems, have not yielded systems which are as reliable and as trouble free as the custom built systems.

Installation:

Installation of the Autoveyor™ requires that holes to be cut in the outside wall and the ceiling of the canopy per the specification print. Once that procedure has been completed, it is suggested that the Teller Vertical be mounted in accordance with the authority having jurisdiction.

Figure #1 indicates various acceptable ways to install overhead versions of the Autoveyor™. Note that in each and every case the Autoveyor™ sits or floats on the support. This is required in order to allow the metal horizontal to expand and contract as the temperature changes. In a 100-degree change in temperature, a 10-foot section of horizontal will vary approximately 1/8 of an inch. Therefore, on a 40-foot section of horizontal this movement is almost 1/2 inch!

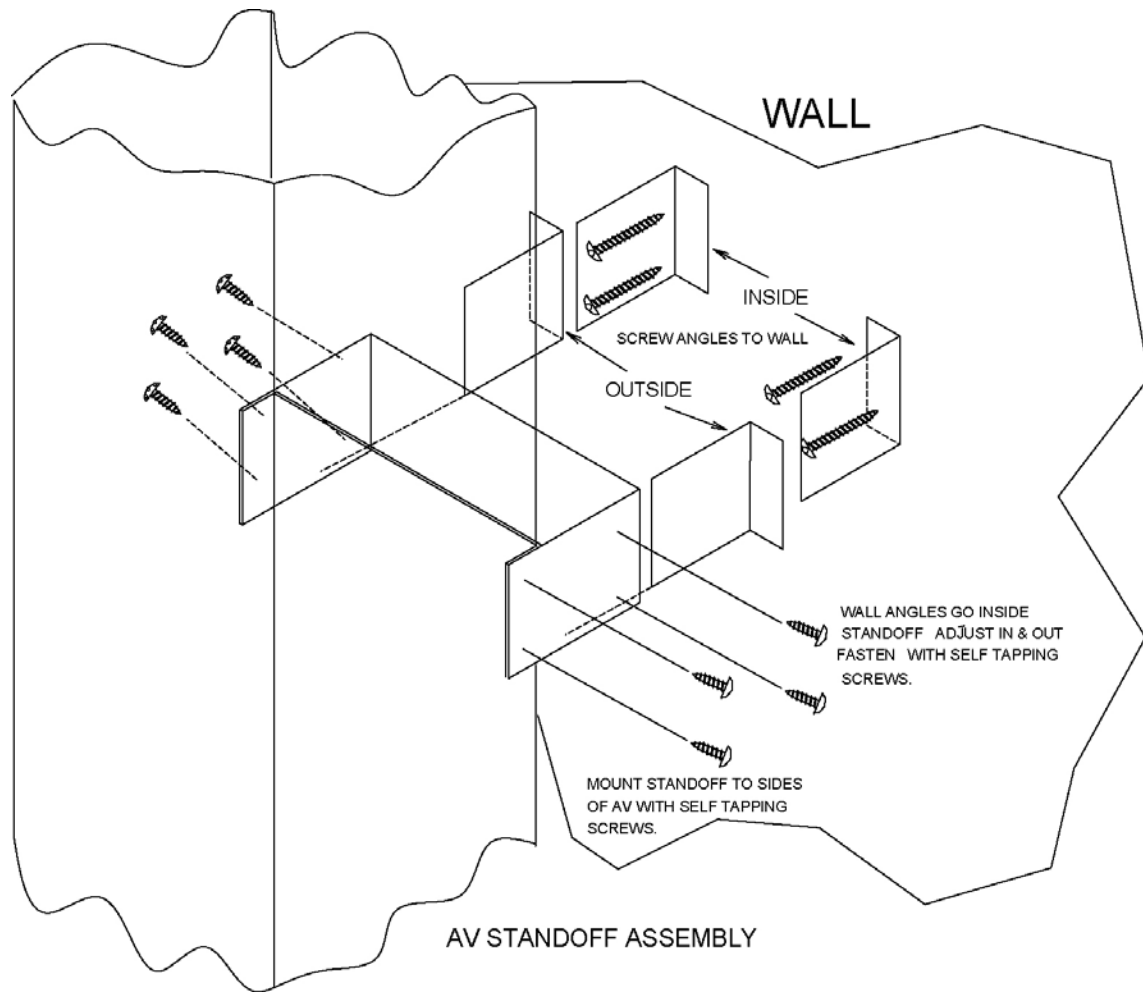
Figure #1 points out by number particular points of interest in a typical Autoveyor™ installation:

1. Wall Stand Off:

A wall stand off is shipped with each and every Autoveyor™. Its purpose is to stabilize the Teller end of the Autoveyor™. While the stand off is mounted to the wall, typically the Autoveyor™ rests against the stand off as support and it is not attached to the Autoveyor™ with any form of fastener (see figure on following page).

2. Wall Penetration:

Typically, the turn box of the Autoveyor™ extends into the hole in the building. As a result, one half of the turn box is supported by the building wall. It is suggested that the other end of the run box also be supported.



3. Customer Base:

This steel base is mounted to the island with two concrete anchors. Note that the customer unit can be raised or lowered a total of 3 inches on this base.

4. Horizontal Hanger using all thread rod:

All thread rod and unistrut can be used to hang and support the horizontal unit as long as it meets the requirement of the local authority having jurisdiction. Note also that the rods are positioned so that the horizontal unit is stabilized against side-to-side motion.

5. Horizontal Hanger using truss or roof structure:

Horizontals can be supported with the truss or roof structure as long as it is acceptable by the authority having jurisdiction. Note again that the unit is braced to provide stabilization against horizontal movement.

6. Horizontal Hanger using steel tape support:

As long as it is acceptable by the authority having jurisdiction, steel tape can be used to suspend horizontal components. Note however that the support member is not tape but a flat steel or wood component. Do not use the tape under the unit as it may allow that unit to twist.

Note that in all cases, control and power wires must be clear from rubbing on any of the supports.

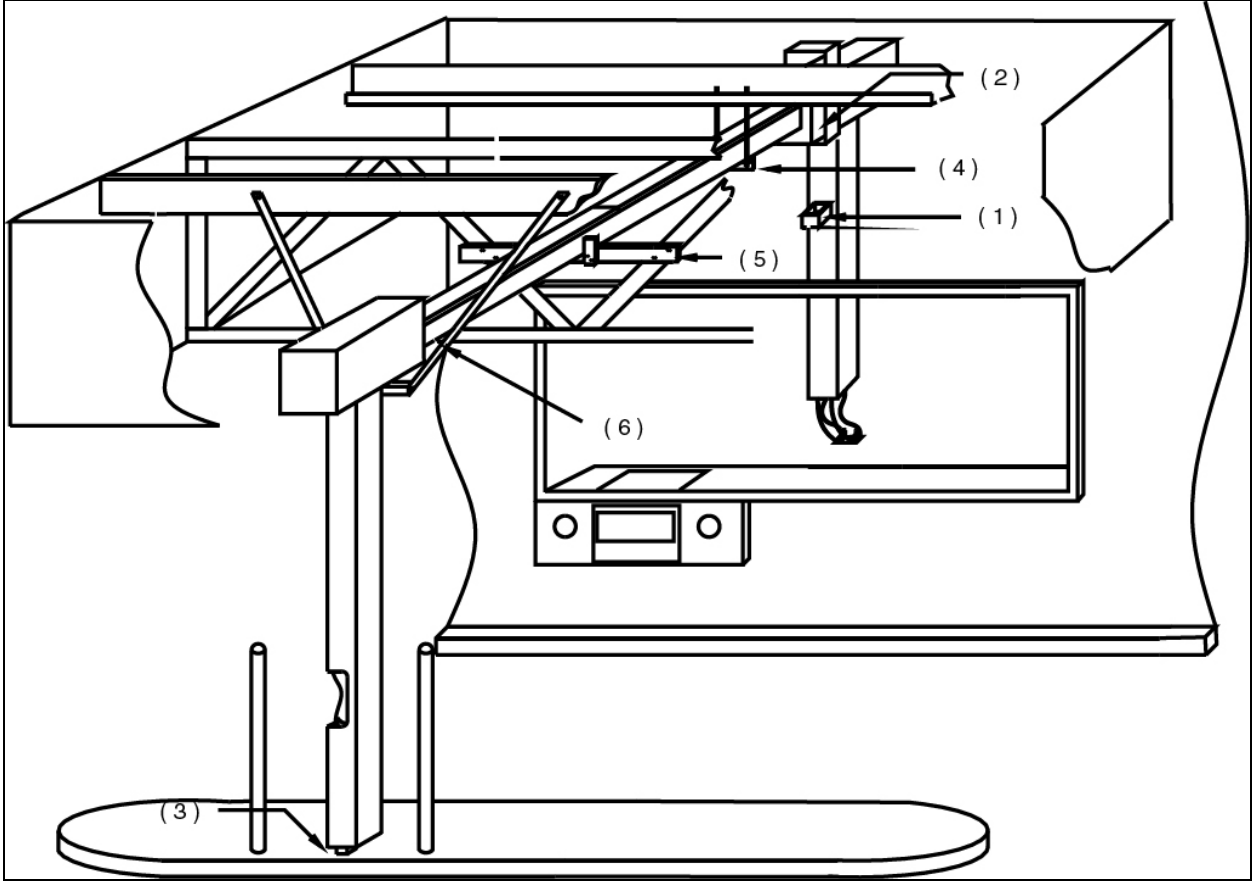


Figure 1

Figure #2 indicates the recommended underground installation. Note that the unit is kept off the bottom of the culvert to avoid contact with water that may settle in the culvert. It is strongly recommended for proper operation in underground culvert installations that sump pumps be provided in order to insure that the culvert does not flood.

The process of installation is rather simple. It consists of positioning the horizontal section on the supports in the canopy or culvert. Position the customer end to the horizontal. Connect the horizontal wiring plugs. Mount the teller end and connect the wiring plugs. Finish up by permanently mounting both ends and wiring the 110 volt power to the unit as required.

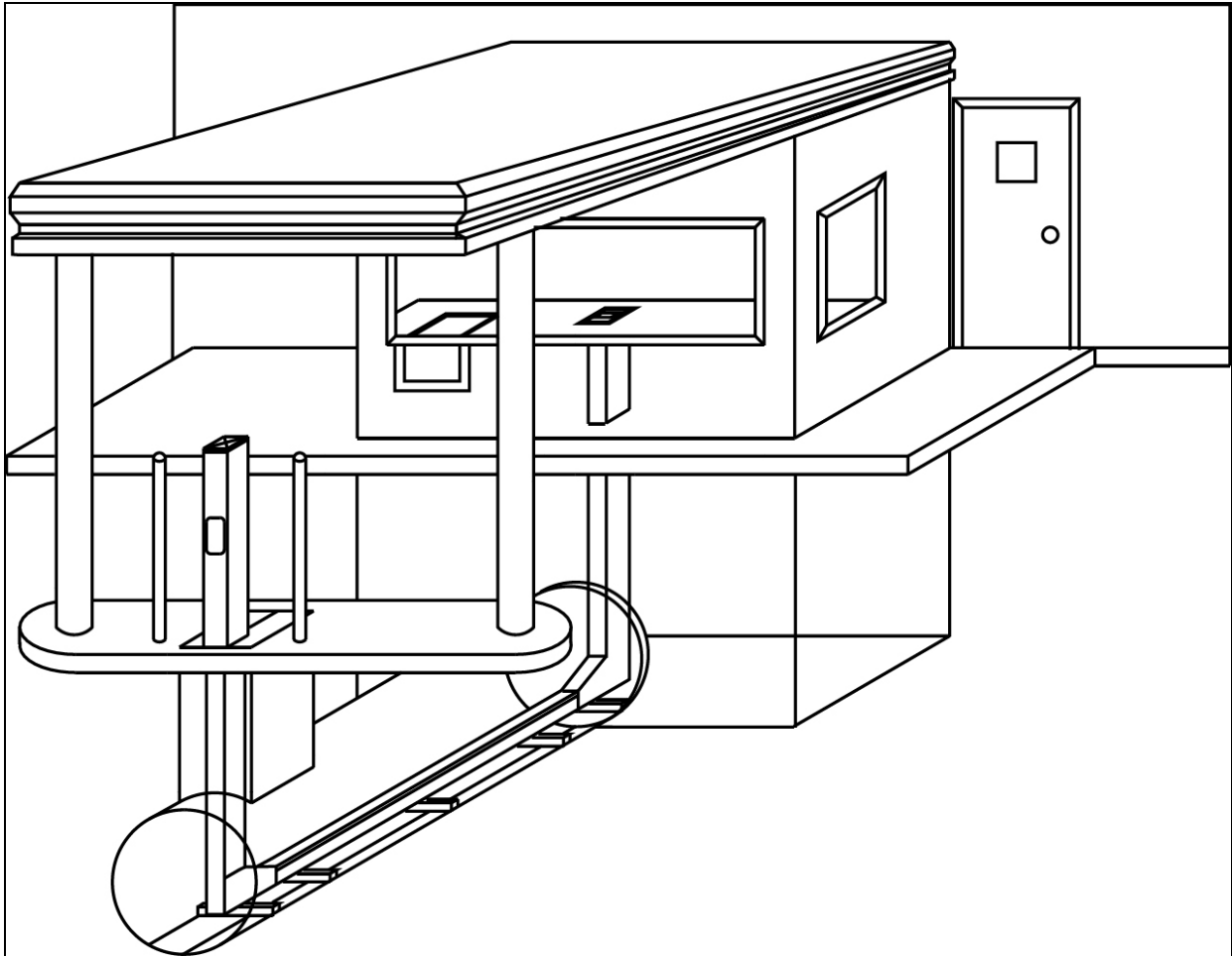


Figure 2

Note also that the teller vertical section of the downsend unit is not finished and is designed to be used inside the undercounter equipment.

Attaching Control Wire:

The wiring system on the Autoveyor™ 3000 Series equipment is all connectorized with pin and socket style connectors. The wiring simply plugs together, typically at vertical to horizontal junctions.

The audio circuits are 9 position connectors, master control circuits are 12 position connectors and motor circuits are 3 position connectors.

After plugging connectors together, it is important to secure the wiring away from all moving parts and sharp edges.

Power Wiring:

The current model AV – 3000 is no longer supplied with a wired-in molded cordset. A ½” conduit knockout is supplied on the side of the aluminum heat box which encloses the vertical to horizontal transition. This is manufactured in a manner to allow the side panel to be removed for service without disturbing the line connections.

Connections at the customer motor location are as follows:

Wire	Potential	Location
Black	120vac Hot	Back of the FUSEHOLDER
White	120vac Neutral	WHITE Position on the TERMINAL BARRIER
Green	Ground	Green screw marked GND on riser

Connections at other motor locations as follows:

Wire	Potential	Location
Black	120vac Hot	Back of the FUSEHOLDER
White	120vac Neutral	J2 120vac NEUTRAL ON THE SLAVE BOARD
Green	Ground	Green screw marked GND on riser

Audio Adjustment:

The audio control and amplifier board can be found on the teller end of the unit behind the teller control panel. To gain access, unscrew the two thumbscrews found on the top right and left of the panel. The panel is hinged at the bottom and will swing down. The audio board is on the left hand side. It is mounted on a card slide for easy access to the adjustments.

Figure #3 provides a line drawing of the board and the volume adjustments.

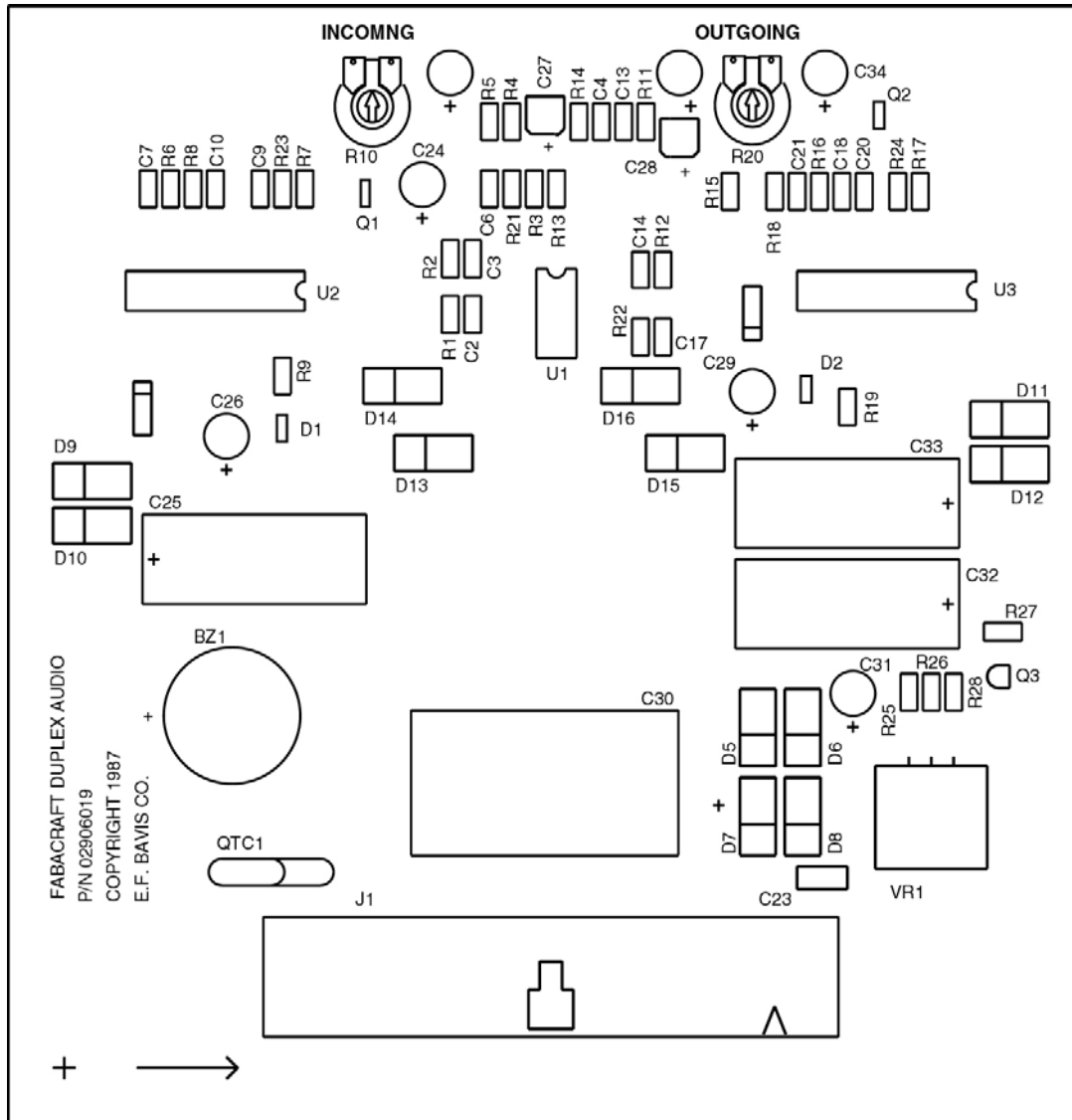


Figure 3

If field adjustment of the AUDIO SYSTEM is necessary, it should be performed as follows:

Before sliding the audio board out of the machine, disconnect the power by pulling out on the CIRCUIT BREAKER located on the bottom of the control board. The audio board has a lot of wires attached to it and clearances are close; this reduces the chances of permanent damage to the board. To restore power simply push the CIRCUIT BREAKER back in after the board has been slid into the machine.

The TELLER INCOMING VOLUME CONTROL should be turned to minimum. With the teller speaking into the INSIDE MICROPHONE and a vehicle present at the CUSTOMER UNIT, the OUTGOING VOLUME CONTROL on the AUDIO BOARD should be adjusted for satisfactory volume.

The TELLER INCOMING VOLUME CONTROL should now be adjusted to maximum. The INCOMING VOLUME CONTROL ON THE audio board should be adjusted clockwise until feedback occurs, then counterclockwise until feedback stops. This should complete adjustment.

If the incoming level is not sufficiently high enough, the outgoing level will have to be reduced to be able to get additional incoming volume. The gain levels are a balance; adjustment of each has an effect on the other. If the incoming level is too high, the TELLER INCOMING VOLUME CONTROL can be adjusted to a lower level.

There are two new controls labeled BOOST IN and BOOST OUT. If the teller cannot hear the customer, by depressing the BOOST IN button maximum incoming volume is achieved while muting the outgoing audio to prevent feedback. If the customer can not hear the teller, by depressing the BOOST OUT button maximum outgoing volume is achieved while muting the incoming audio to prevent feedback.

Control Board:

The Autoveyor™ 3000 control board is located opposite of the audio board behind the Teller Control Panel. It features a full assortment of diagnostic LED's, which provide detailed information about the current status of the machine and can be used to diagnose problems. Details on problem diagnosis can be found in the section titled, Problem Diagnosis.

Fuse Details:

The CONTROL BOARD has no fuses but utilizes self-resetting PTC thermistors. There is a RESETTABLE CIRCUIT BREAKER. A RED FAULT LED indicates if any of the aforementioned devices has been tripped.

The MASTER FUSE is a FNQ15. When replacing this fuse, it is important to replace it with fuses of the same type and rating. This fuse is now located on the outside of the turn box beside the AC POWER FEED, accessible without the need to remove any covers. A STATUS LED is provided that is illuminated when there is AC power and the fuse is good.

User Controls:

The Autoveyor™ 3000 features automatic and manual control systems for use by the teller and customer alike. Unlike other systems, one only needs to lift the carrier up into the system in order to send the carrier through to the other side. This automatic feature is the primary way that carriers are sent between customer and teller without need of pressing a "start" or "send" button. Fact is that there is no start button present on the standard Autoveyor™ 3000.

Teller Controls:

On the teller panel (Figure 4) itself are several control buttons whose operation are described on the following page:

Autoveyor™ 3000 Teller Controls

Control Button	Function When Pressed
BOOST IN	Pressing the BOOST IN button disables the outgoing audio and provides a full volume incoming audio signal. It is to be used by the teller when they are having difficulty hearing or understanding what a customer in the drive-thru is saying.
BOOST OUT	Pressing the BOOST OUT button disables the incoming audio and provides a full volume outgoing signal. It is to be used by the teller when the customer cannot hear or is having difficulty hearing the teller.
AUDIO ON (LED indicator above button)	Pressing the AUDIO ON button toggles the audio system on and off. The system is ON when the LED above the button is illuminated red. The audio system is OFF when the LED is not illuminated. Note that when the POWER is toggled on, the audio system is also set to the ON position.
CUSTOMER CALL (LED)	When the CUSTOMER CALL LED is flashing it indicates that a customer has pressed the CALL TELLER button on the customer end of the machine. Once the CALL TELLER button has been pressed the CUSTOMER CALL LED flashes for 30 seconds as an aid to the teller.
POWER ON (LED indicator above button)	The POWER ON button toggles the machines power on and off. A red LED above the button is illuminated when the power is set to the on position. When the power is toggled on the door on the customer end of the machine opens. When the power is toggled off the door closes.
RECALL	The RECALL function allows the teller to bring a carrier back to the teller end without assistance. It operates by closing the outside door, which lifts the carrier up into the opening initiating the transaction. Once the door has fully closed and the carrier is on the way to the teller, the door automatically opens.
CANCEL	Pressing the CANCEL button once a transaction has been initiated stops the transaction, reverses the motors and returns the carrier to its point of origin, whether sent from the customer or the teller end.

Customer Controls:

The customer controls consist of a single Call Teller button. Remember that transactions are initiated by lifting a carrier up into the opening so there is no start button.

When a customer presses the Call Teller button, a tone sounds at the Teller End of the machine and the Customer Call LED begins to flash. While the tone stops as soon as the customer releases pressure on the button, the Customer Call LED continues to flash for about 30 seconds

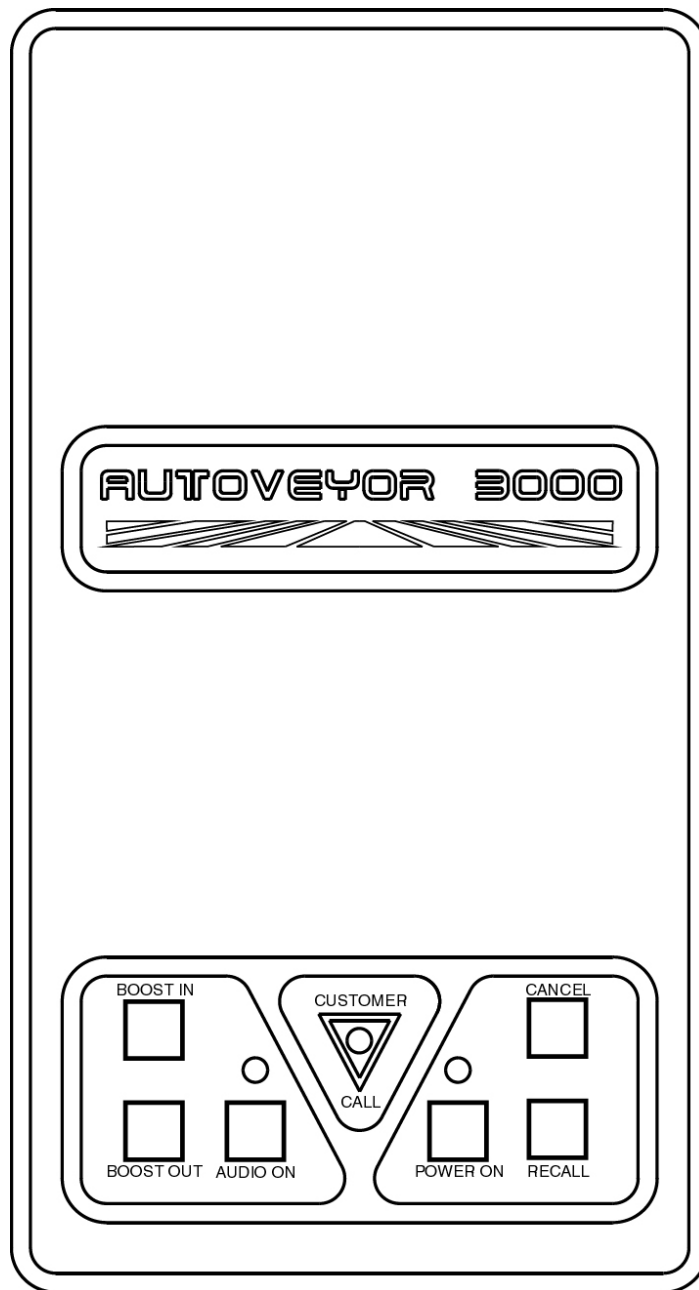


Figure 4, Teller Controls

Safety Features:

The Autoveyor™ 3000 is designed to be safe to use as confirmed by its U.L. Listing² Below are some of the features that are important from a safety point of view.

Low Voltage Controls:

All control wiring of the Autoveyor™ is low voltage and intrinsically safe.

² See U.L. label attached to the machine for details on listing.

Run Limit Timer:

The drive and the door motors are programmed through the control circuitry to only run for a certain amount of time before they automatically shut off. This limits any damage that may be caused in the event of some form of failure situation.

The MOTOR RUN TIMERS' jobs are just as the name implies, to limit the maximum length of the time the motors can run. There are two timers on the CONTROL BOARD.

The first is the DOOR MOTOR run timer for the door open/close functions. The time is fixed at 15 seconds. If, for some reason, the door becomes jammed before the door activates its limit switch the motor will not overheat and ruin since power will be cut off in 15 seconds.

The second is the MOTOR RUN TIMER for the conveying functions. The timer is adjustable from 0 to 63 seconds by a series of DIP switches called S1 on the CONTROL BOARD. (Note: The slave board has no run limit timer of its own but is also controlled by the MOTOR RUN TIMER of the CONTROL BOARD.)

The time is set at the factory during test for approximately 15 seconds more than what is required for a normal transaction. If the CONTROL BOARD is replaced or if adverse conditions exist, the MOTOR RUN TIMER will have to be reset. There are 8 positions on the DIP switches. Positions 7 and 8 are not used. Position 1=1 sec, 2=2sec, 3=4 sec, 4=8 sec, 5=16 sec and 6=32 seconds. The time equals the sum of the number of seconds associated with each position that is turned on. Example: If positions 1, 3, and 5 are on, then the total run time would be (1)=1 sec. + (3)=4 sec. + (5)=16 sec. = 21 seconds.

Limited Power Door Motor:

The motor, which powers the Customer End Door, open and closed, features a limited amount of power and a run limit timer. If someone were to be trapped by the door, it is designed so that it cannot generate crushing forces and is designed to shut off after a predetermined amount of time.

Thermally Protected Drive Motors:

In the unlikely occurrence that the drive motors were to overheat, they are designed in such a way that they automatically shut down.

Branch Circuit Protection:

Each motor is protected by an FNQ 15 amp motor fuse, which is accessible without the need to remove the turn box cover. In addition to the fuse, there is a power status LED indicator next to the fuse holder. When illuminated, this LED indicates that there is power to the motor and the fuse is good.

There are many other features present in the machine in order to provide safe operation, however, no amount of safety design can keep someone from getting hurt if they misuse the equipment. We have done everything that we can think of to insure that the equipment is safe including having it reviewed for safety by a third party³

³ See Note 2

Belt Repair:

Any belt that becomes broken can be repaired using the proper welding tools. Minimum requirements are a Belt Iron, part number 01048011, and Belt Guiding Tongs, part number 01049011. In order to get the tension off of the belt ends for welding, Klein Clamps are very helpful, part number 05001111. Note that steam irons, lighters, and other forms of belt heating are not acceptable. The belt iron is set at a specific temperature; using other forms of heat will likely cause premature belt failure.

If a belt needs to be replaced, do not measure the existing belt in order to determine the length of the replacement belt. Older belts may be stretched or otherwise damaged and will yield an improper model for the new belt. It is recommended that when a new belt is to be installed for whatever reason, contact the factory and provide the serial number⁴ of the machine. They will respond with the proper length of the belt.

There is no need to strip the skins off of the machine in order to replace a belt. Autoveyors™ have belts in pairs; in order to reinstall a belt into the system, attach the new belt to the matching pair and hand cycle the machine. If done properly with one cycle you should have both ends threaded all the way thru the system.

Note that there is no preventive maintenance required on the belting...if it is not broke, don't fix it!

Our experience has shown that the round belting used in Autoveyors™ loses tension during its life. The belting is factory set at the following tensions:

AV Vertical.....	6%
AV Horizontal.....	8%
All Power Belts.....	8%
HD Verticals	8%

When performing a tune-up and removing belting to get it to the proper design length, it is important to cut out the old splice to have only one splice per belt.

The only reasons that we support for replacement of the belting are as follows:

1. Damaged belting due to running with one end of the belt off the pulley sliding on the stainless steel shafting. This results in a flat spot on the belting.
2. Belting that, due to elongation, has reduced its diameter to the point that it rides in the bottom of the pulley groove and is not higher than the running surface of the pulley.
3. The belting has been frozen while containing excess moisture. This results in many tiny cracks that will eventually fail. This typically only happened in northern areas next to oceans, lakes, etc.

Power belts, due to higher loads, should be inspected and or replaced annually.

⁴ The serial number is located on the customer turn box and also on the back of the red customer station

Preventive Maintenance:

Preventive maintenance for the Autoveyor™ 3000 consists of keeping the machine clean and touching up the paint. Every 2 years of heavy operation, power belts should be checked for excessive wear, however, typical life on these belts is 5 to 7 years.

There is just nothing else to do but wait for something to just wear out and stop working. The reason for this is a result of the design of the Autoveyor™. Most components of the system are used at a fraction of their rated capacity. Further, we have chosen bearings that are shielded so that no lubrication is required. The drive motors are brushless and require no maintenance. Switches are isolated from direct contact with fast moving carriers. Finally, the major wear component of the system is the inexpensive carrier, which should be replaced on a regular basis. In fact, many financial institutions tell us that the carriers “ugly out” long before they wear out.

So, as you can see, unlike other systems a lot of time was taken in the design of the system so maintenance would not be an issue.

Unusual Installations:

Sometimes it is necessary to mount the horizontal upsend section of an Autoveyor™ either above or below an existing canopy. Remember that the horizontal section is not water tight, so provisions must be made to provide for protection from the environment.

Another aspect to consider in unusual installations is the protection of all the wiring. Note that wire used in the Autoveyor™ is not designed to be exposed to outside elements. It must also be protected.

In units that are hung under a canopy, it is strongly suggested that the unit be protected from tall vehicles.

Finally, if the horizontal section is installed above the canopy in some sort of housing, be sure that the housing is well ventilated. There have been several instances where housings of this type have gotten so hot that they have cooked the grease out of the system's bearings. Proper ventilation will keep this problem to a minimum.

Problem Diagnosis:

The Autoveyor™ 3000 provides more details about faults and operation status than any previous model of Autoveyor™. These details are provided via LED's mounted on the edge of the Autoveyor™ 3000 control board and visible by loosening the two thumb screws on the teller panel and lowering that panel on its hinge. The LED's are provided in three groups which are Faults, Outputs, and Inputs. Using these LED's most, if not all, electrical problems can be diagnosed.

AV3000 LED Diagnostics

Color	Name	Condition	Indicates
FAULTS			
Red	Low Temperature	Normally Off On	Normal Fan on due to low temperature
Red	Audio Fault	Normally Off On	Normal Audio Shorted
Red	Breaker Fault	Normally Off On	Normal 24vac breaker tripped
Red	Fan Fault	Normally Off On	Normal Fan relay shorted
Red	Motor Fault	Normally Off On	Normal Slave Board shorted
OUTPUTS			
Green	Motor Forward	Normally Off On	Normal Motor running carrier in
Green	Motor Reverse	Normally Off On	Normal Motor running carrier out
Green	Fan	Normally Off On	Fan On Fan Off
Green	Door Close	Normally Off On	Normal Door closing
Green	Door Open	Normally Off On	Normal Door opening
INPUTS			
Yellow	Customer Start	Normally Off On	Normal Customer start switch activated
Yellow	Teller Stop	Normally On Off	Normal Teller stop switch activated
Yellow	Teller Start	Normally Off On	Normal Teller start switched activated
Yellow	Customer Stop	Normally On Off	Normal Customer start switch activated
Yellow	Cancel	Normally Off On	Normal Cancel switch depressed
Yellow	Power	Normally Off On	Normal Power switch depressed
Yellow	Recall	Normally Off On	Normal Recall switch repressed
Yellow	Audio	Normally Off On	Normal Audio switch depressed

Advanced Troubleshooting:

If the problem is a result of multiple faults or if it cannot otherwise be determined through the use of the diagnostics provided on the control board, more advanced troubleshooting techniques may need to be applied. The following tables indicate what voltage and types of electricity that should be present throughout the various harnesses under each and every condition on a pin to relative pin basis.

Note that each table title refers to a section of the Full Flow Wiring Diagram. For instance, the first table is titled, "Teller Wiring"; this table refers to the section on the lower right hand side of the Full Flow Wiring Diagram marked "Teller".

TELLER WIRING

3 Position Small Connector				
Pin	Voltage	Relative Pin	Purpose	Condition
3 Green	12VDC 0VDC	1 Orange	TELLER START	Normal TELLER START Switch activated
2 Red	0VDC 12VDC	1 Orange	TELLER STOP	Normal TELLER STOP Switch activated
7 Position Small Connector				
Pin	Voltage	Relative Pin	Purpose	Condition
4 Yellow	12VDC 0VDC	10 Black	CANCEL	Normal CANCEL Switch activated
5 Green	0VDC 12VDC	10 Black	POWER LED	Normal POWER LED on
6 Blue	0VDC 12VDC	10 Black	AUDIO LED	Normal AUDIO LOED on
7 Purple	12VDC 0VDC	10 Black	POWER	Normal POWER SWITCH activated
8 Gray	12VDC 0VDC	10 Black	RECALL	Normal RECALL SWITCH activated
9 White	12VDC 0VDC	10 Black	AUDIO	Normal AUDIO SWITCH activated
4 Position Small Connector				
Pin	Voltage	Relative Pin	Purpose	Condition
1 White	24VAC	4 White	24 VAC Power to Audio	Normal
2 Brown	19VDC 0VDC	3 Brown	AUDIO CONTROL	Normal AUDIO on
22-3 Cable, 3 Position Connector				
Pin	Voltage	Relative Pin	Purpose	Condition
2 Red	0VDC 10- 12VDC	1 Black	DRIVE MOTOR	Normal MOTOR running forward
3 Green	0VDC 10- 12VDC	1 Black	DRIVE MOTOR	Normal MOTOR running reverse

18-10 Cable, 12 Position Plug				
Pin	Voltage	Relative Pin	Purpose	Condition
9 Grey	0VDC 12VDC	10 Brown	Low voltage control to fan	Normal FAN ON
5 Orange	24VAC 0VAC	2 & 6 Yellow & White	24VAC POWER	Normal FNQ Master Fuse Blown
3 Purple	<12VAC >12VAC	5 Orange	Temperature control of FAN	FAN Off (when POWER switch is off) FAN On
1 Black	0VAC 24VAC	5 Orange	DOOR	Normal DOOR closing
8 Blue	0VAC 24VAC	5 Orange	DOOR	Normal DOOR opening
4 Green	24VAC 0VAC	5 Orange	Customer Start	Normal CUSTOMER START switch activated
7 Red	0VAC 24VAC	5 Orange	Customer Stop	Normal CUSTOMER STOP switch activated

TELLER TURN BOX WIRING

18-10 Cable, 12 Position Plug				
Pin	Voltage	Relative Pin	Purpose	Condition
9 Grey	0VDC 12VDC	10 Brown	Low voltage control to fan	Normal FNQ master fuse
5 Orange	24VAC 0VAC	2 & 6 Yellow & White	24VAC POWER	Normal FNQ Master Fuse Blown
3 Purple	<12VAC >12VAC	5 Orange	Temperature control of FAN	FAN Off (when POWER switch is off) FAN On
1 Black	0VAC 24VAC	5 Orange	DOOR	Normal DOOR closing
8 Blue	0VAC 24VAC	5 Orange	DOOR	Normal DOOR opening
4 Green	24VAC 0VAC	5 Orange	Customer Start	Normal CUSTOMER START switch activated
7 Red	0VAC 24VAC	5 Orange	Customer Stop	Normal CUSTOMER STOP switch activated
Wires Coming From the Control Board Terminated with .187 Quickslide Connectors				
Grey	0VDC 12VDC	Brown	Low Voltage Control to FAN	Normal FAN On
22-3 Cable, 3 Position Connector				
Pin	Voltage	Relative Pin	Purpose	Condition
2 Red	0VDC 10- 12VDC	1 Black	DRIVE MOTOR	Normal MOTOR running forward
3 Green	0VDC 10- 12VDC	1 Black	DRIVE MOTOR	Normal MOTOR running reverse

HORIZONTAL WIRING

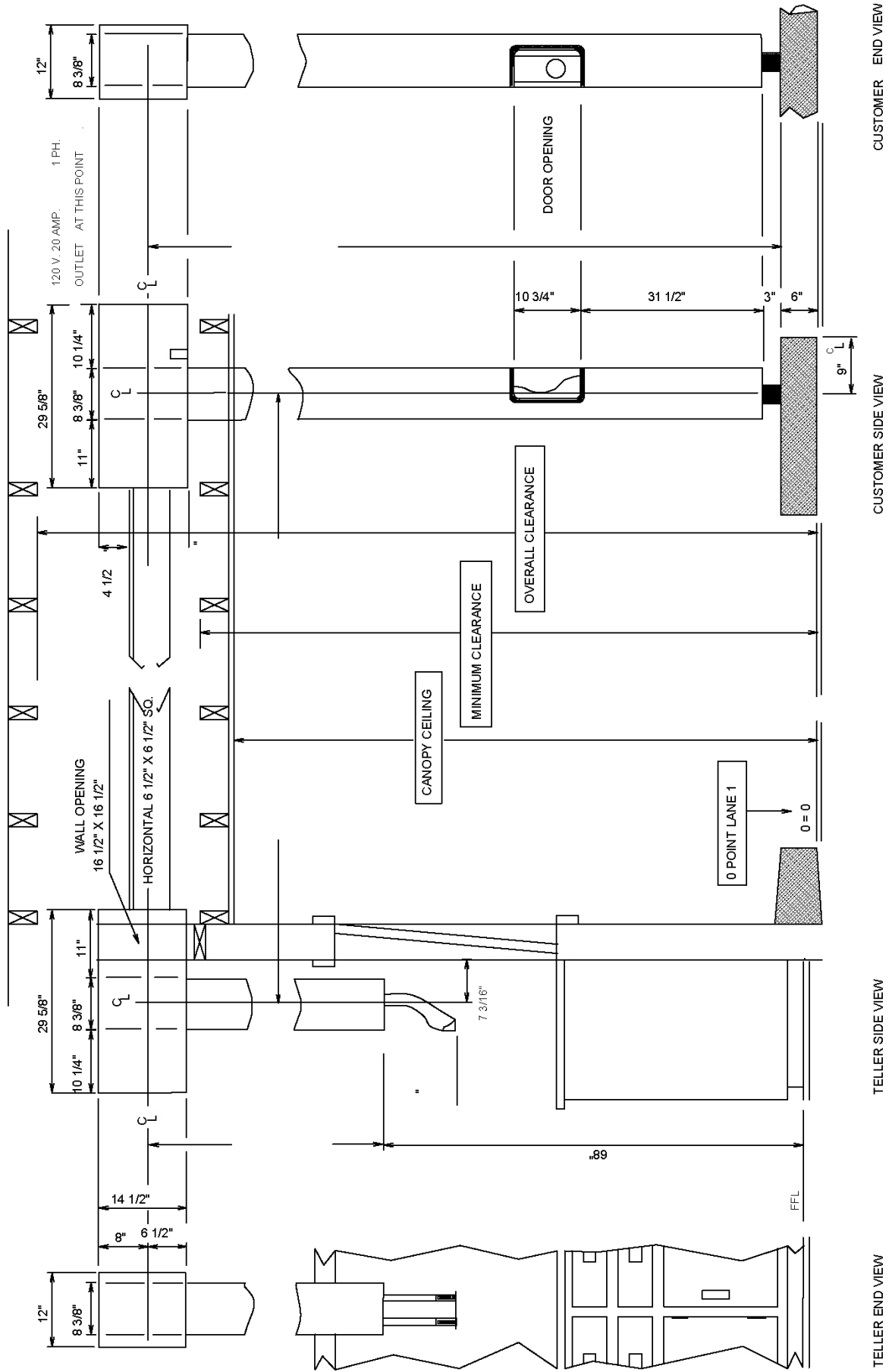
18-10 Cable, 12 Position Plug				
Pin	Voltage	Relative Pin	Purpose	Condition
9 Grey	0VDC 12VDC	10 Brown	Low voltage control to fan	Normal FNQ master fuse
5 Orange	24VAC 0VAC	2 & 6 Yellow & White	24VAC POWER	Normal FNQ Master Fuse Blown
3 Purple	<12VAC >12VAC	5 Orange	Temperature control of FAN	FAN Off (when POWER switch is off) FAN On
1 Black	0VAC 24VAC	5 Orange	DOOR	Normal DOOR closing
8 Blue	0VAC 24VAC	5 Orange	DOOR	Normal DOOR opening
4 Green	24VAC 0VAC	5 Orange	Customer Start	Normal CUSTOMER START switch activated
7 Red	0VAC 24VAC	5 Orange	Customer Stop	Normal CUSTOMER STOP switch activated
22-3 Cable, 3 Position Connector				
Pin	Voltage	Relative Pin	Purpose	Condition
2 Red	0VDC 10- 12VDC	1 Black	DRIVE MOTOR	Normal MOTOR running forward
3 Green	0VDC 10- 12VDC	1 Black	DRIVE MOTOR	Normal MOTOR running reverse

CUSTOMER TURN BOX WIRING

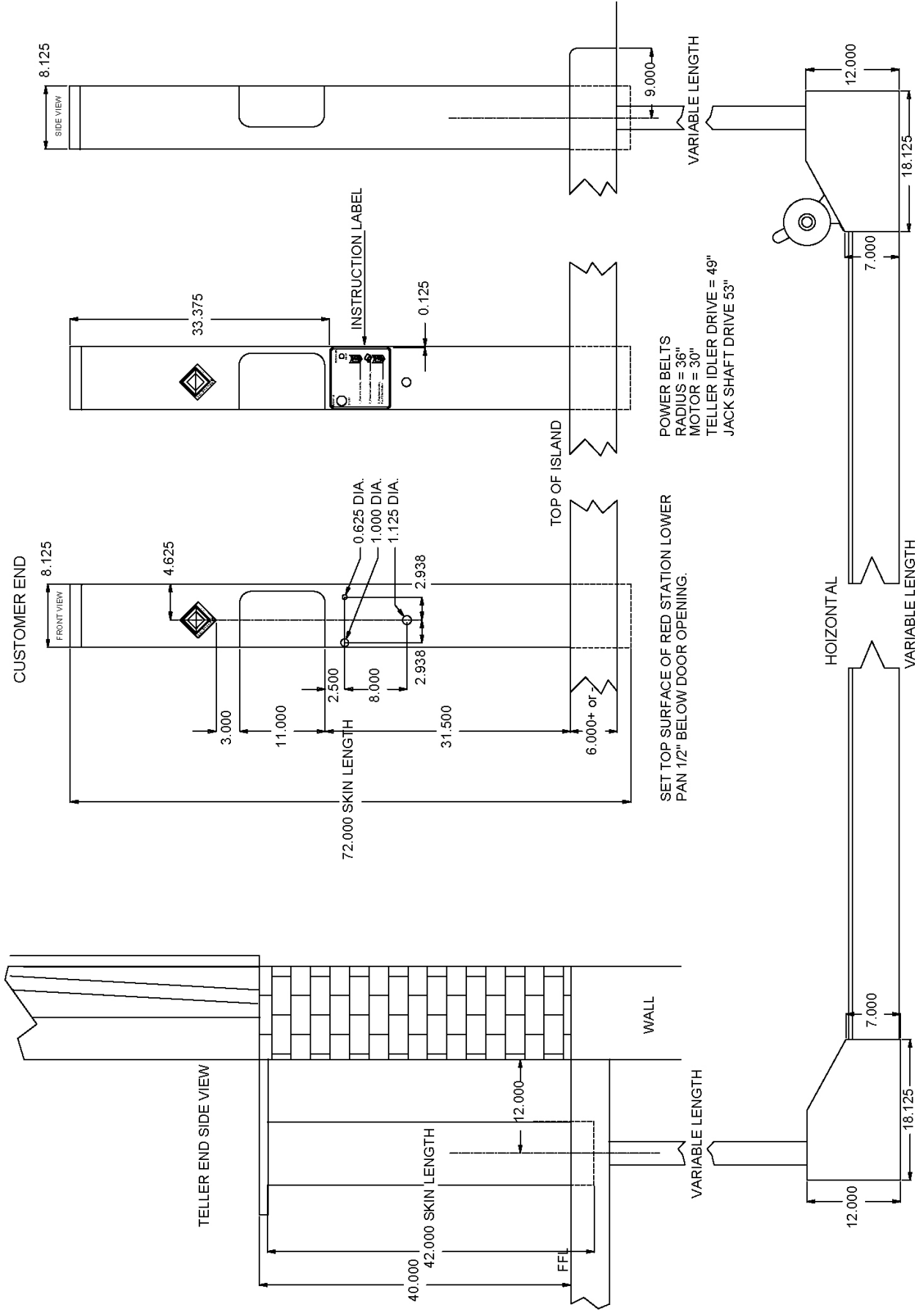
Motor				
Wire	Voltage	Relative Wire	Purpose	Condition
Blue	0VAC 120VAC	Black	MOTOR POWER	Normal Motor running reverse
Yellow	0VAC 120VAC	Black	MOTOR POWER	Normal Motor running forward
Transformer				
Wire	Voltage	Relative Wire	Purpose	Condition
Orange	24VAC	White & Yellow	24VAC POWER	Normal
Black	120VAC	White	120VAC POWER	Normal
22-3 Cable, 3 Position Connector				
Pin	Voltage	Relative Pin	Purpose	Condition
2 Red	0VDC 10-12VDC	1 Black	DRIVE MOTOR	Normal MOTOR running forward
3 Green	0VDC 10-12VDC	1 Black	DRIVE MOTOR	Normal MOTOR running reverse
18-10 Cable, 12 Position Plug				
Pin	Voltage	Relative Pin	Purpose	Condition
9 Grey	0VDC 12VDC	10 Brown	Low voltage control to fan	Normal FNQ master fuse
5 Orange	24VAC 0VAC	2 & 6 Yellow & White	24VAC POWER	Normal FNQ Master Fuse Blown
3 Purple	<12VAC >12VAC	5 Orange	Temperature control of FAN	FAN Off (when POWER switch is off) FAN On
1 Black	0VAC 24VAC	5 Orange	DOOR	Normal DOOR closing
8 Blue	0VAC 24VAC	5 Orange	DOOR	Normal DOOR opening
4 Green	24VAC 0VAC	5 Orange	Customer Start	Normal CUSTOMER START switch activated
7 Red	0VAC 24VAC	5 Orange	Customer Stop	Normal CUSTOMER STOP switch activated

CUSTOMER WIRING				
Wire	Voltage	Relative Wire	Purpose	Condition
Purple	<12VAC >12VAC	White	Temperature Control of Fan	FAN Off (when POWER SWITCH is off) FAN on
Black	0VAC 24VAC	Yellow	DOOR	Normal DOOR COSING
Blue	0VAC 24VAC	Yellow	DOOR	Normal DOOR OPENING
Green	24VAC 0VAC	Orange	Customer Start	Normal Customer start switch activated
Red	0VAC 24VAC	Orange	Customer Stop	Normal Customer stop switch activated

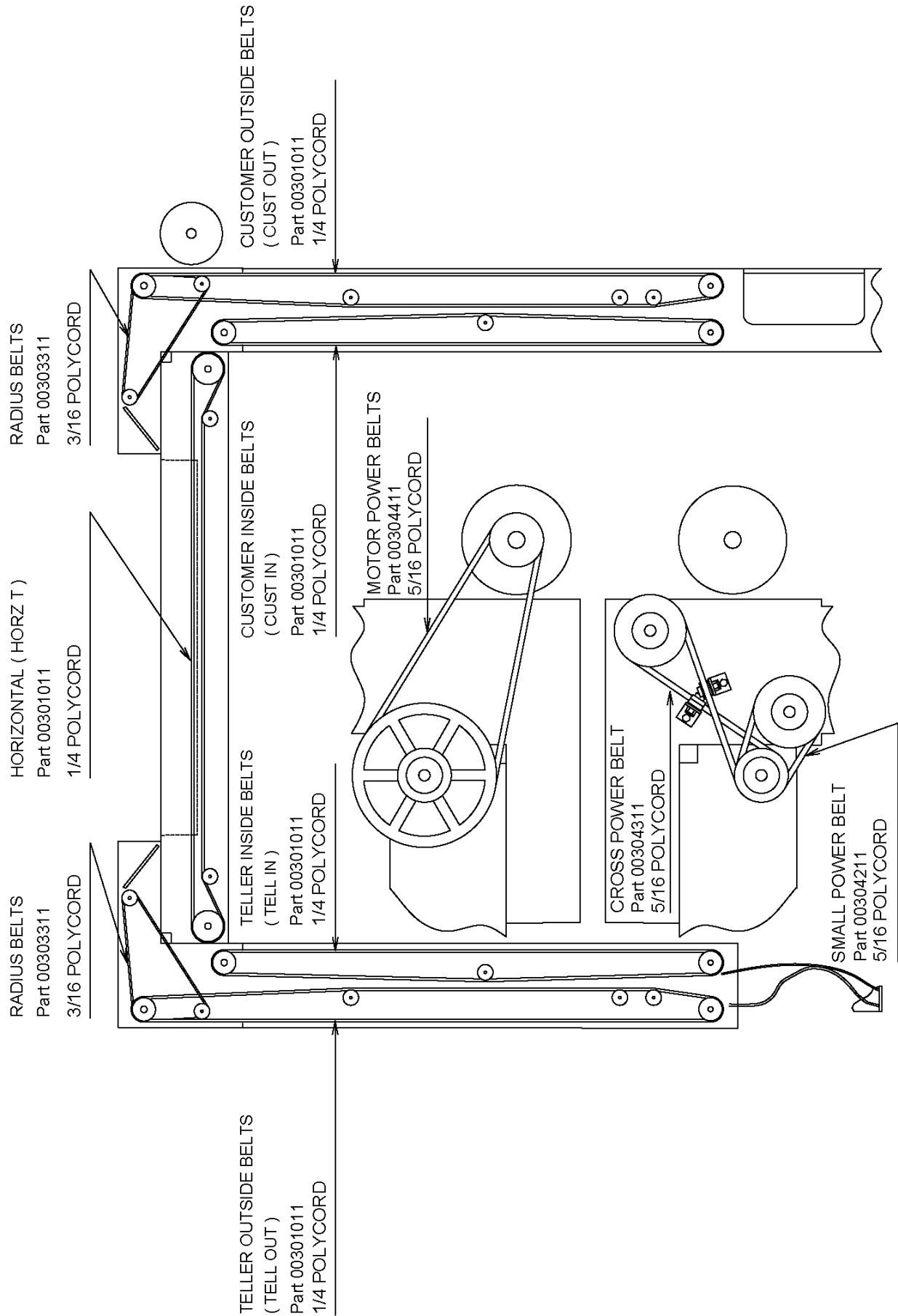
Typical Autoveyor™ 3000 Diagram



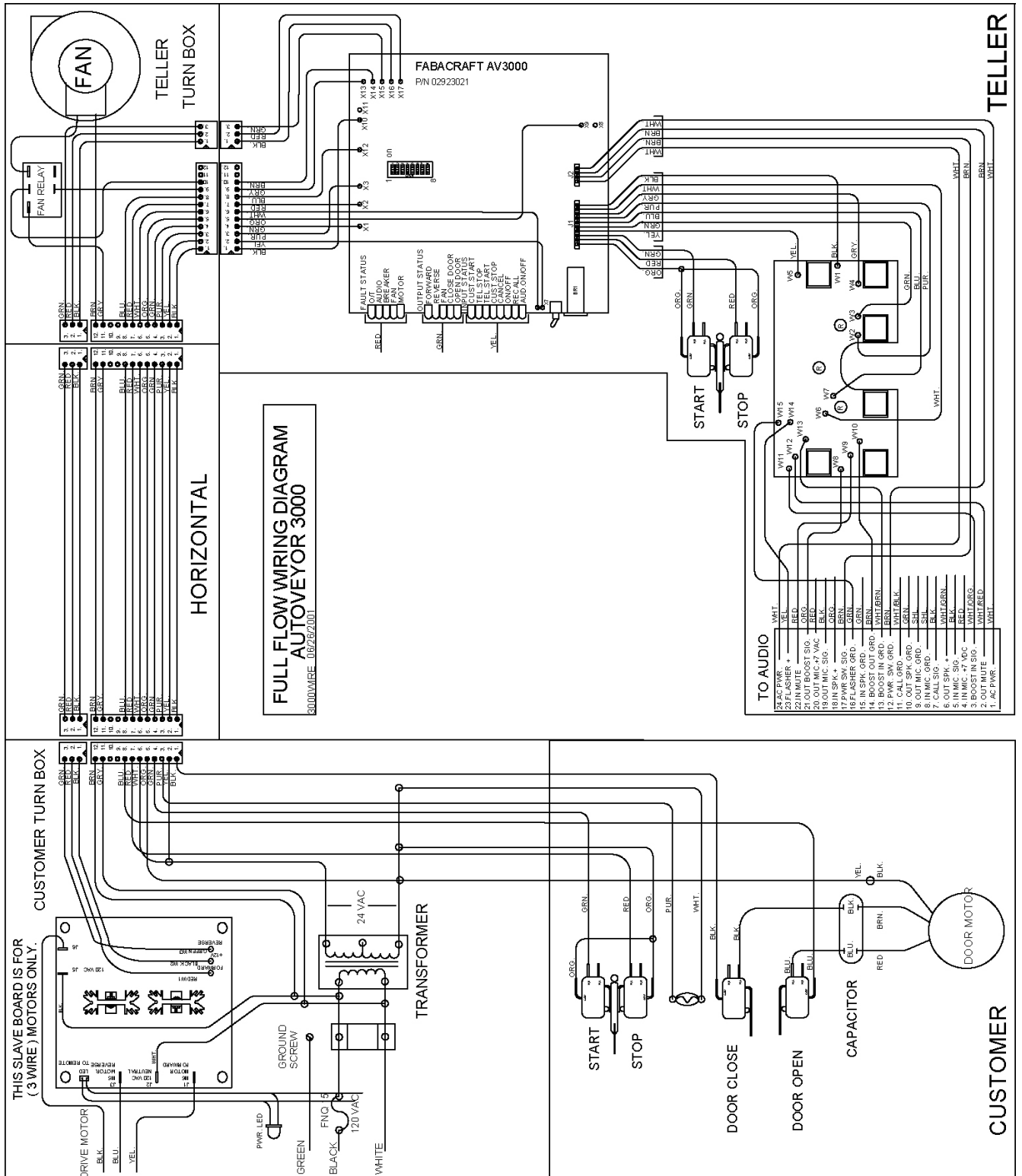
Autoveyor™ 3000 Down Send



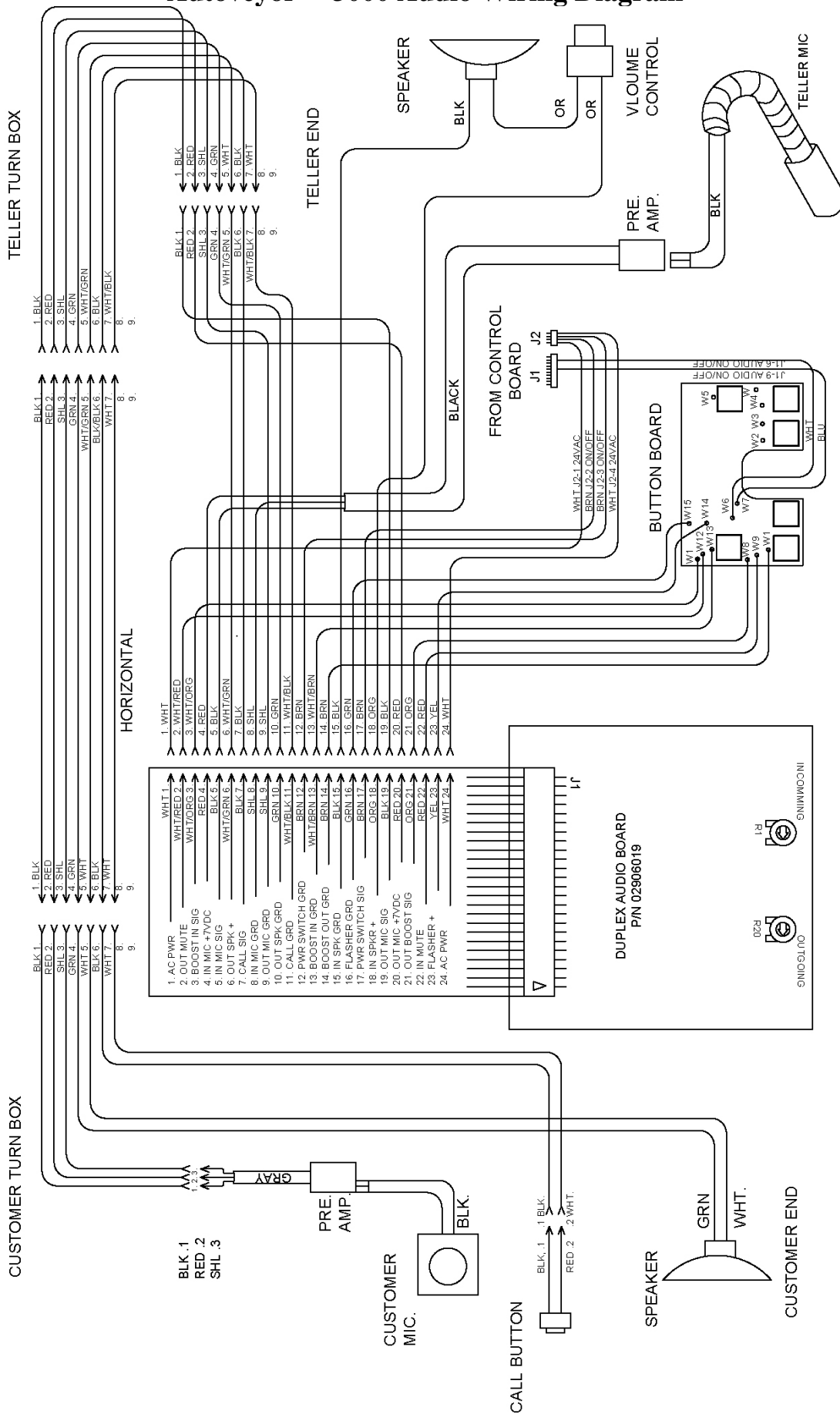
Autoveyor™ Belt Location Diagram



Autoveyor™ 3000 Wiring Diagram



Autoveyor™ 3000 Audio Wiring Diagram



HD3000 Installation Instruction Supplement

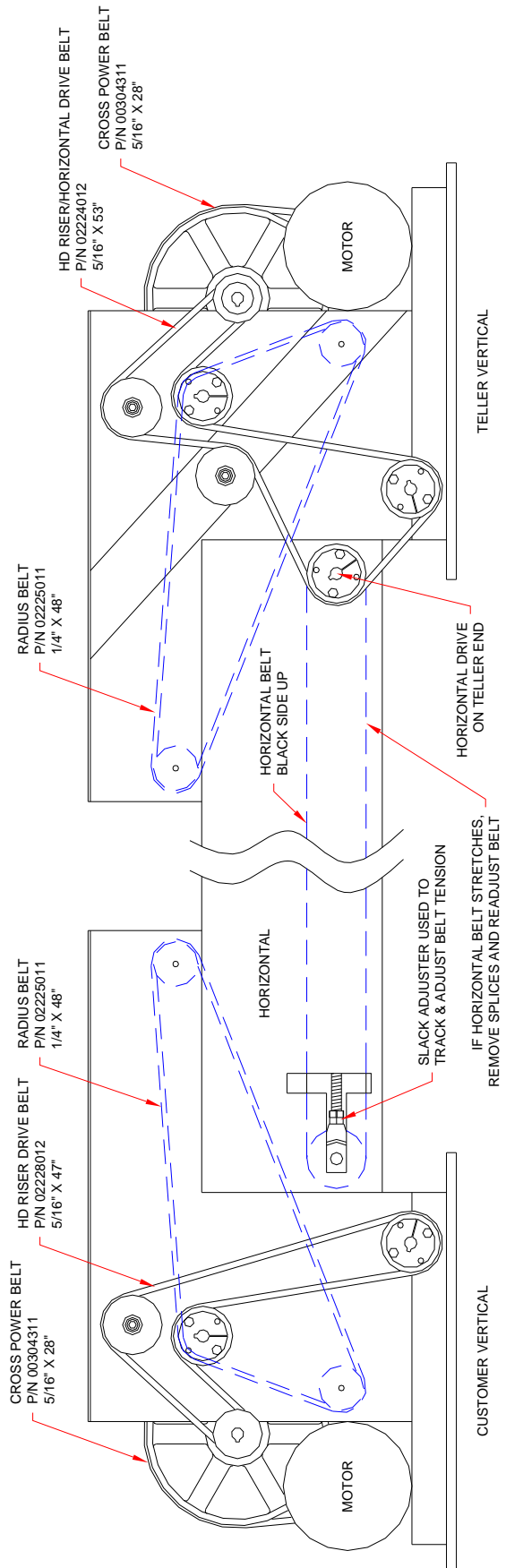
Please note that the wiring for the HD3000 is internal to the horizontal assembly. To install the wiring it is necessary to remove the slide pan from the horizontal. The wiring is then placed in the gap between the vertical and horizontal insulation. The wiring does have to run behind the intermediate roller brackets. It is a good idea to secure it with occasional strips of duct tape. Insure that the wiring is secured from all moving parts.

Lay the flat belting down in the horizontal before replacing the slide pans. Run the belting around the drive pulley, through the intermediate roller brackets and then around the idler pulley and connect it on top of the slide pan with the blue pins that are provided.

It is then necessary to tighten the slack adjusters and track the belt. The slack adjusters are on each side of the idler end of the horizontal and adjust independently. Lengthen the slack adjuster of the side that the belt runs towards until the belt stays near the center of the drive pulley when running in both directions. Be careful to not run the belt off of the pulleys causing it to scrape on the ends of the pan during this procedure. The belting can become damaged from fraying on the sides.

You will note that there are short sections of belting that have ends attached. These are called "STRETCH PIECES". The purpose of these are to provide the service person with an easy means of shortening the belt when there is no longer sufficient movement of the slack adjusters to properly tension the belt. Run the slack adjuster in, then remove the shortest STRETCH PIECE and try again. Save the STRETCH PIECE as the next time it may be necessary to remove a long one and re-insert the short one.

HD3000 Drive Belts Diagram



HD Down Send Control Button Diagram

