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TransTRAX II® P

Installation and Service Manual Utilizing BavSonic™ Audio

Revised: 11/22/2017
PN: 00900289

TransTrax II® P

Table of Contents

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.

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 SERVICE TECHNICIAN IF THE GROUNDING INSTRUCTIONS ARE NOT COMPLETELY UNDERSTOOD, OR IF IN THE DOUBT AS TO WHETHER THE APPARATUS IS PROPERLY GROUNDED.

TransTrax II® P Control Board Features

- The PWM DC motor control is a great improvement over SCR (phase angle fired) motor controls.
    - The PWM control uses rectified and filtered power verses rectified power of the SCR control, which has 120-Hertz components.
    - The switching speed of SCR controls is 60 Hertz compared to the PWM switching speed, which is over 20,000 Hertz. This higher switching speed is at the upper end of the range of useful hearing, which results in significantly quieter operation.
    - The inductance of the motor in conjunction with the higher switching speed results in a greatly improved power form factor (ripple) which significantly reduces motor temperatures.
    - The PWM has a "**soft start**" using an acceleration ramp.
    - Closed loop feedback (using the counter as speed reference)
    - Current limit. (The move will be cancelled and the board power turned off when the maximum current has been exceeded)
    - These improvements allow the machines to run longer between tape changes as the power is automatically compensated for tape wear.
    - The PWM control allows greater distances and heights than possible with the SCR control.
    - Note that this board does not have a timer/counter selection switch.
    - The PWM control board uses an external 24Vdc power supply.
    - The low voltage power protection is now an ATC automotive blade style fuse.
- The brake control is built into the PWM board.
    - The brake release button is on the board.
    - If the brake fails to release, the control board cancels the move and flashes the power LED on the teller control.

- There are enhanced diagnostic LEDs for the following functions:
    - Line power / Green
    - 24Vdc power / Green
    - Brake switch / Red
    - Send (indicates move in process) /Red
    - PWM (brightness of LED indicates pulse width) /Red
    - High speed operation / Green
    - Current caution / Yellow
    - High current / Red
- The jog function now includes pushbuttons verses a connector. (The brake must be released and the power button on for the jog switches to function.)
- Serial data output for logging function.

TransTrax II® P

Overview

The TransTrax II® P is a mechanical, positive drive conveyor system kit intended for the conveyance of currency and documents between customers and tellers at drive-thru banking lanes. This kit features one piece of extruded architectural grade aluminum tubing, which has a satin anodized finish. The tubing can be, using a power miter box with the proper blade installed, cut and spliced to suit dimensions dictated by varying site conditions. The system is sold as a complete kit ready to install at a site. The standard kit allows for a maximum tubing centerline-to-centerline distance of 13' 11". Minimum distance is 3' 11". Maximum overall height is 20' 3". Longer, shorter and/or taller sites can be accommodated. Please consult the factory for assistance and pricing.

(Note; With factory assistance, the minimum horizontal distance from center line to center line of the vertical tube is 32 inches, maximum horizontal distance from center line to center line of the vertical tube on a straight lane is 84 feet.

NOTE

The new P.W.M. Board in the TransTrax II® P allows the system to travel greater heights and lengths, compared to the standard TransTrax II® P While still maintaining POWER, and SMOOTH, operation over the new extended lengths.

The TransTrax II® P must be run in an overhead configuration. It was not designed to accommodate "Downsend" configurations. If there is a need for this type of configuration at a given site, we suggest that you consider a product from our Autoveyor™ product line. Please contact us for more details on this product line.

In order to provide the greatest speed and safety of operation, the TransTrax II® P operates at two different speeds. The carrier travels at slow speed when it is exposed to either the customer or teller. Then it travels at a much higher speed when in the horizontal section of the track when the carrier is not exposed to people. In addition, both models feature a proven system of distance monitoring to control shift points versus less sophisticated "time based" systems.

The Model TTII features dual stopping heights: high for vehicles such as vans and trucks, low for cars. There are two sets (high and low) of premium weatherproof buttons for both send and help. The stopping height is determined by pressing the appropriate CAR or TRUCK buttons when sending the CARRIER out to the customer. The system allows one move from car to truck or vice versa; then the CARRIER must be recalled.

The weight capacity of the system is conservatively rated at two pounds, which is equivalent to two rolls of quarters. There are safeguards built into the system which prevent catastrophic failure, should the carrier be overloaded.

This system is intrinsically safe in that the mechanical power levels at the moving parts (car and carrier) are below 40 lbs. of force when accessible by the users. The electrical power levels at all locations other than the TELLER VERTICAL STANDOFF are intrinsically safe in that they are at NEC Class II levels (24VDC 100 VAC) or lower.

The TransTrax II® P has been reviewed by a third party for safety and suitability for the given application. Please review the label applied to the machine for details concerning this review.

Please note that the intrinsically safe power level does require that the system be smooth running without any extra drag induced by poor fitups, misalignment at joints in the tubing and other installation related problems, or it simply won't run properly.

Each part in the kit contains a PSA label with the part name and number attached to it. Please read over this manual before installation to familiarize you with the different components and where they are used in the system.

A schematic of an installed TransTrax® system identifying major components by part number follows:

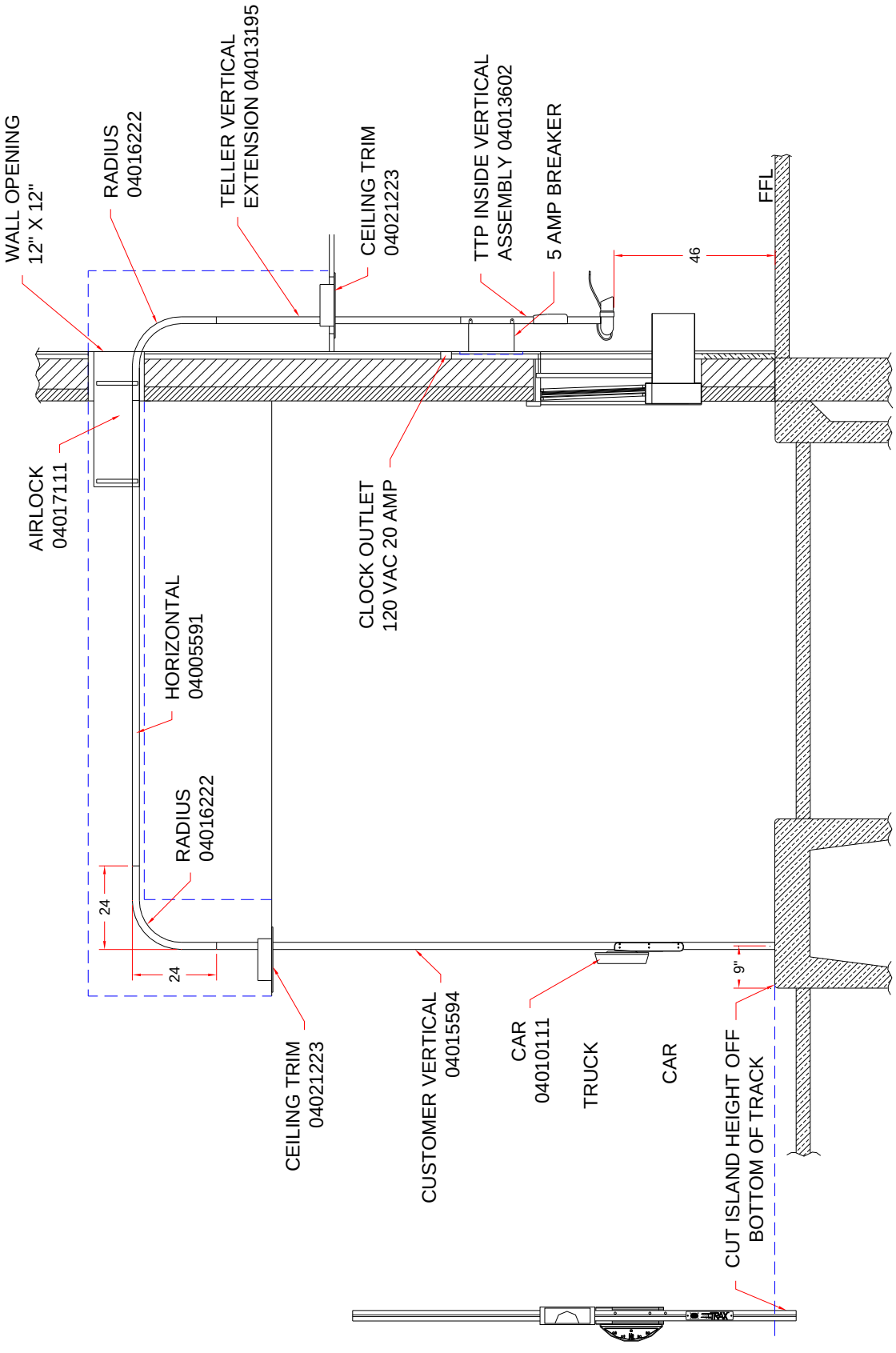
Note: This manual is written for the C System featuring the BavSonic™ Audio System. The BavSonic™ Audio System was introduced in late 2001 as an enhancement over the previous BavCom™ Audio System. The BavSonic™ System features two audio boards: one at the teller end of the unit and the other at the Customer end.

The BavSonic™ System, which comes standard with the TransTrax®, features a blinking LED when call button is pressed. Further it is compatible with both the BavSonic™ telephone audio and BavSonic™ Matrix Controller. Contact E.F. Bavis & Associates for details on these optional products.

If there are questions about any of the following, contact the Technical Service Department at (513) 677-0500.

Note: The Shipping Manifest can be found on Page 33&34; a listing of required tools on Page 32.

TransTrax II® P Overview Diagram



Installation

Installation Overview

The process of installing a TransTrax II® P into a building consists of first mounting the TELLER VERTICAL UNIT, attaching the radius, adding the horizontal section, attaching the customer radius, and then mounting the CUSTOMER VERTICAL UNIT. All wiring is connectorized and is designed to run inside the tubing.

After the tubing is installed, the AIRLOCK ASSEMBLY and CEILING TRIMS are mounted. Six one inch angled reinforcement plates are included in the Installation Accessories of each TransTrax II® P. These are intended to be used when installing the CEILING TRIMS and AIRLOCKS when it is not possible to get fasteners in from the bottom of the tube or the sides. The electrical connection is then made. The final aspect of the assembly process consists of feeding the DRIVE TAPE into the machine, adjusting the electronic motor control and audio system.

The teller, customer and carriers are all tested as a unit in the factory. **Do not** mix and match components when installing a multiple lane job.

The following detailed description provides step-by-step details of this process, as well as important notes and cautions. Read these details carefully before attempting to install the TransTrax II® P.

Installation Procedures

The first part of the TransTrax II® P kit is a completely assembled TELLER VERTICAL UNIT. The system electronics are housed in the WALL STANDOFF portion of the TELLER VERTICAL UNIT. The WALL STANDOFF sides open outward to expose the back. The WALL STANDOFF BACK needs to be mounted securely to the wall.

CAUTION: The WALL STANDOFF supports the entire weight of the TELLER VERTICAL UNIT. Do not just use molly bolts or similar type mounts into the drywall. Make certain that the fasteners and mounting surface are adequate to fully support this component and the forces that occur during operation.

The bottom of the TELLER VERTICAL UNIT should be positioned 46" off the inside floor. If the vision window frame obstructs the placement of the WALL STANDOFF, it can be repositioned up to 6" higher on the VERTICAL TUBING by removing its associated screws and placing it at the higher position.

The TELLER VERTICAL EXTENSION should be cut to a dimension that will allow the FORMED RADIUS to exit the building via the 12" square clearance hole in the wall. The TELLER VERTICAL EXTENSION should then be deburred and the tape slot chamfered (see page 13).

NOTE: The area of the TAPE SLOT where the tubes are joined must actually be CHAMFERED on both tubes and on the top and bottom track and not just deburred to allow the tape to pass easily in the event of a slight misalignment. Inspect the factory prepared ends for an example. The factory prefers to use a conical rotary cutter in a high-speed grinding tool such as a Dremel.

Pass the HORIZONTAL WIRING CABLES through this section and all other tubing as the unit is assembled. Sometimes "fishing" the wiring harness through the tubing can be a challenge due to the screws, etc. We have found that a "fish tape" does a great job. Just attach one end of the harness to a 10-12' length of "fish tape" with electrical tape and push the tape through the tube. Attach the tubing to the TELLER VERTICAL UNIT using two of the extruded internal SPLICE PLATES (see page 13). Be careful when running screws into the tubing not to nick or cut any of the wires.

The FORMED RADIUS needs to be attached to the TELLER VERTICAL EXTENSION using the extruded internal SPLICE PLATES (see page 13).

CAUTION: The FORMED RADII are <u>not</u> designed to be cut. They were designed to be used as is. Any modifications to this component void the warranty and will likely yield less than acceptable operation.

The CUSTOMER VERTICAL UNIT is completely assembled and designed for installation at a site with no elevation difference from the lane to the island. Measure the distance from the lane to the island and cut this amount off of the bottom of the CUSTOMER VERTICAL UNIT. It mounts to the island with a CUSTOMER BASE UNIT. The CUSTOMER BASE UNIT mounts to the island via two 3/8" holes (Note: base unit to island fasteners not provided) and to the CUSTOMER VERTICAL TUBING via two self-tapping screws (see page 14).

Note that the holes must be predrilled with the short 1/8" bit provided in the installation accessories to prevent drilling into and damaging wiring. The CUSTOMER VERTICAL UNIT is 120" tall. It needs to be cut to length which will allow the HORIZONTAL TUBING to be plumb horizontally after the FORMED RADIUS is attached to it. Be sure to deburr and chamfer each end of the tubing before proceeding (see page 13).

CAUTION: When cutting off the top of the customer unit, make sure that the vertical cable from the customer unit is pulled back down the customer tube to prevent cutting the cable.

The FORMED RADIUS needs to be attached to the CUSTOMER VERTICAL UNIT using the extruded internal SPLICE PLATES (see page 13).

The HORIZONTAL TUBING needs to be cut to a dimension which will allow both of the vertical units to be plumb vertically after it is installed to the FORMED RADII. Be sure to deburr and chamfer each end of the tubing before proceeding (see page 13).

Airlock Assembly

The AIRLOCK ASSEMBLY is a two-piece design. Attach the AIRLOCK BOTTOM using the self-tapping screws provided (see drawings on pages 3&4). Note the alignment tabs on this part that center it on the tube. The notched end goes on the radius. Install the AIRLOCK TOP *to the* BOTTOM. Fill the area between the AIRLOCK ASSEMBLY and the 12" square opening with insulating material and cover with drywall, sheathing board or other appropriate material.

Ceiling Trims

Secure the CEILING TRIM halves together around the TransTrax II® P tube with the 8-32 hardware provided. Holes must be predrilled with the short 9/64" bit provided in the installation accessories to prevent drilling into and damaging wiring. Attach the ceiling trim to the tubing of the TransTrax II® P with the #8x1/4" self-tapping screws provided. These screws do not protrude into the tubing greatly simplifying running the wiring. Note: The trim must be on the vertical section of tubing, not the radius. If it is necessary to attach the trim to the ceiling, it will be necessary to drill holes for this purpose, as there are no holes provided for this. Test the machine to ensure that there is nothing preventing the car from traveling through the flaps.

NOTE: CEILING TRIMS are designed to be mounted on the vertical tube and are not designed to be mounted on the FORMED RADIUS. When installing trims, make sure that the CAR moves freely through the trim and does not rub or bump the sides of this component.

Installing Tape

Remove the CUSTOMER SPEAKER PANEL. Feed the TAPE into the tape slot at the CUSTOMER SPEAKER OPENING insuring that it pushes smoothly all the way into the power unit of the TELLER VERTICAL UNIT. Cut the tape two feet longer than this dimension. Remove the tape and dress the ends (see page 13). Attach the CARRIER to the TAPE (see page 14). Before reinserting the prepared tape with CARRIER attached, take a section of the discarded tape (two feet will do) with square cut ends and run it through the system by hand with a screwdriver. If any rough spots or obstructions exist, correct them before proceeding. Reinsert the TAPE into the tape slot. At the TELLER VERTICAL UNIT, engage the tape with a small screwdriver pushing firmly down, without damaging the tape, consistently, but slowly, allowing the tape to engage the gear, wrap around and feed into the tape return slot. Do this until the magnet block of the CARRIER is engaging the upper black non-contact switch on the CUSTOMER VERTICAL UNIT. Replace the CUSTOMER SPEAKER PANEL.

Power Connection

The AC Line connection is at the top of the TELLER VERTICAL STANDOFF. Connection method should comply with all authorities having jurisdiction, (i.e. National, State or Local Electrical Codes). A 1/2" knockout is provided on a single gang box cover. Removing the cover will reveal three leads for termination.

The white wire is the neutral.
The black wire is the hot. (Single-phase 120vac)
Green is for ground.

NOTE: To reduce the risk of shock hazard of both line voltage and static, the ground must be connected to a good earth ground.

The wiring can be enclosed in flexible metallic or nonmetallic conduit. If a cord connection is acceptable, one is provided in the kit complete with strain relief. Please reduce the cord to a minimum length before connecting. Do not use an extension cord for permanent wiring and do not run the cord through or conceal in walls, ceilings and or other permanent fixtures.

Press the POWER BUTTON once. The LED above it should come on indicating that the unit has power. Pressing it again should toggle the power off. The AUDIO LED will mirror the POWER LED. Pressing the AUDIO BUTTON will alternate the audio between on and off.

Carefully jog the CARRIER inside and back outside while checking that there is nothing obstructing or binding the CARRIER.

With the power on, pressing the RECALL button should cause the CARRIER to come in. By pressing the CAR button, the CARRIER should go out to the lower car stop position. By pressing the TRUCK button, the CARRIER should go out to the higher truck stop position. Note that the microprocessor control will only allow one move between car and truck or truck and car before it will require the car to be recalled inside. If the carrier does not run, or does not run smoothly, please consult the factory for assistance.

Wiring

The wiring for the TransTraxII® P is connectorized and is enclosed within the tubing of the machine. The vertical cable extends through the top of the vertical assemblies and connects with the horizontal cable. The horizontal cable is identical on both ends and cannot be installed backwards.

For units dated before 06/2003

If the horizontal cable is too long, do not roll up the excess and place in the teller vertical standoff. Instead, cut out the excess cable and use the small wire connectors provided to connect the cable back together again color to color. Do not cut off the connectors on the ends of the horizontal cable.

After you have connected the horizontal harness, wrap both ends of the Audio & Connector Horizontal Harness with the electrical tape provided.

NOTE: A version of this unit dated before 05/2003 has the horizontal harness running directly from the outside base audio board to the inside audio board.

Shift Point Adjustment

Open the hinged TELLER STANDOFF LEFT COVER to get access to the MOTOR CONTROL BOARD. The shift point adjustments are next. There are three adjustments, SEND, RECALL and HIGH (see page 28). SEND adjusts when the CARRIER shifts from low into high speed when the CARRIER is sent from teller to customer. RECALL adjusts when the CARRIER shifts from low into high speed when the CARRIER is sent from customer to teller. HIGH adjusts how long the CARRIER stays in high speed.

The CARRIER should be in low speed when traveling through the AIRLOCK, RADII and in sight of users. It should be in high speed only in the HORIZONTAL section. If the car is in high speed in the radii, the CARRIER may flip out of the car. Adjust the SEND pot so that when the CARRIER is traveling from the teller to customer, it shifts into HIGH SPEED after it comes out of the AIRLOCK. Adjust the HIGH pot so that the CARRIER shifts back into low before it enters the CUSTOMER FORMED RADIUS. Adjust the RECALL pot so that when the CARRIER is traveling from the customer to the teller, it shifts into HIGH SPEED after it comes out of the CUSTOMER FORMED RADIUS.

Observe that the CARRIER shifts back into slow before it enters the AIRLOCK. Readjust as necessary so that the CARRIER is in high speed only in the HORIZONTAL SECTION but not in the AIRLOCK or FORMED RADII. Note: The shift points are controlled by a microprocessor that is monitoring the rotation of the sprocket shaft and the settings should not vary due to speed, voltage, temperature, age of machine, etc.

If there is a problem with a carrier missing a switch, check to see what the gap between the switch and the magnet is. Anything over 1/8" and the potential for missing switches exists. This can sometimes be adjusted by loosening the black carrier stabilizers and raising the side opposite the magnet, lowering the side with the magnet or a combination of both. Note that the carrier has to have some clearance to the stabilizers to prevent it from binding.

A run limit timer is factory preset at 45 seconds. If the CARRIER is obstructed during its travel, the motor will shut down after this delay. On all TT Microprocessor Boards dated 1/19/00 or after, the Run LED is on constant. The only time the Run LED goes out is if the CARRIER times out. If the Run LED is off, the run time limit has been exceeded. Toggling the on/off button will reset the timer.
Close and secure TELLER STANDOFF LEFT COVER.

Autocycler

The TransTrax II® P is equipped with an autocycler that can be activated to run the car in and out. This is useful to check the unit for proper operation after installation or service.

The procedure for doing this is as follows

1. Recall the car to the inside stop.
2. Turn the power off using the breaker/disconnect located on the bottom of the black standoff.
3. Press and hold the car and truck buttons on the teller control panel while turning the breaker back on.
4. When the car starts moving, release the car and truck buttons

To turn off the autocycler, press the power button on the teller control panel and turn off the unit. To resume normal operating procedure, press the power button and turn the unit on.

Audio Adjustment

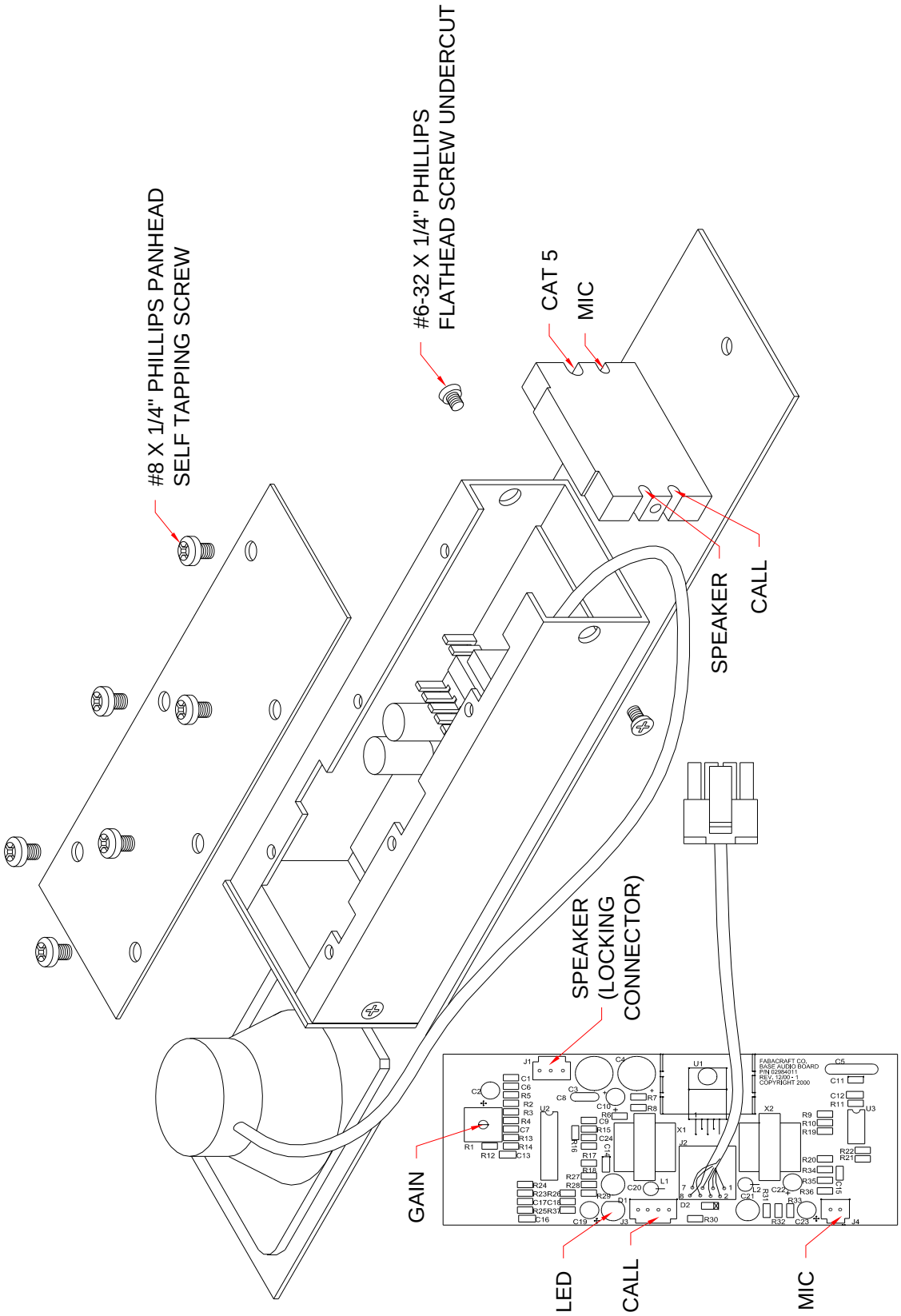
This unit has the BavSonic audio system. There is one NA Base Audio Board located behind the right door of the teller assembly standoff and one NA Base Audio Board located on the back of the customer speaker panel assembly, inside the weatherproof enclosure.

The teller assembly NA Base Audio Board adjusts the incoming volume of the audio to the teller. The customer assembly NA Base Audio Board adjusts the outgoing volume of the audio to the customer. Please see diagram below.

Audio Call Flasher

There is an Audio Call Flasher built in on the audio LED of the teller control panel. The power board is located in the teller standoff assembly. When the audio LED is illuminated for on, the LED will flash for 30 seconds after the call button is pressed. It will stop flashing after that time or when the audio is turned off.

Customer Base Audio Board



TRACK PREPARATION

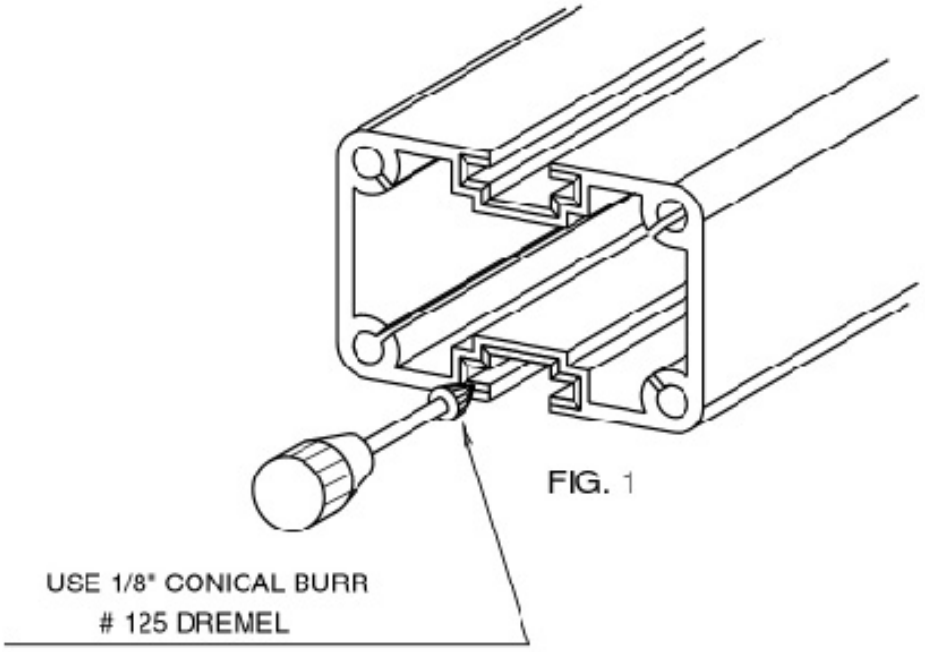


FIG. 1

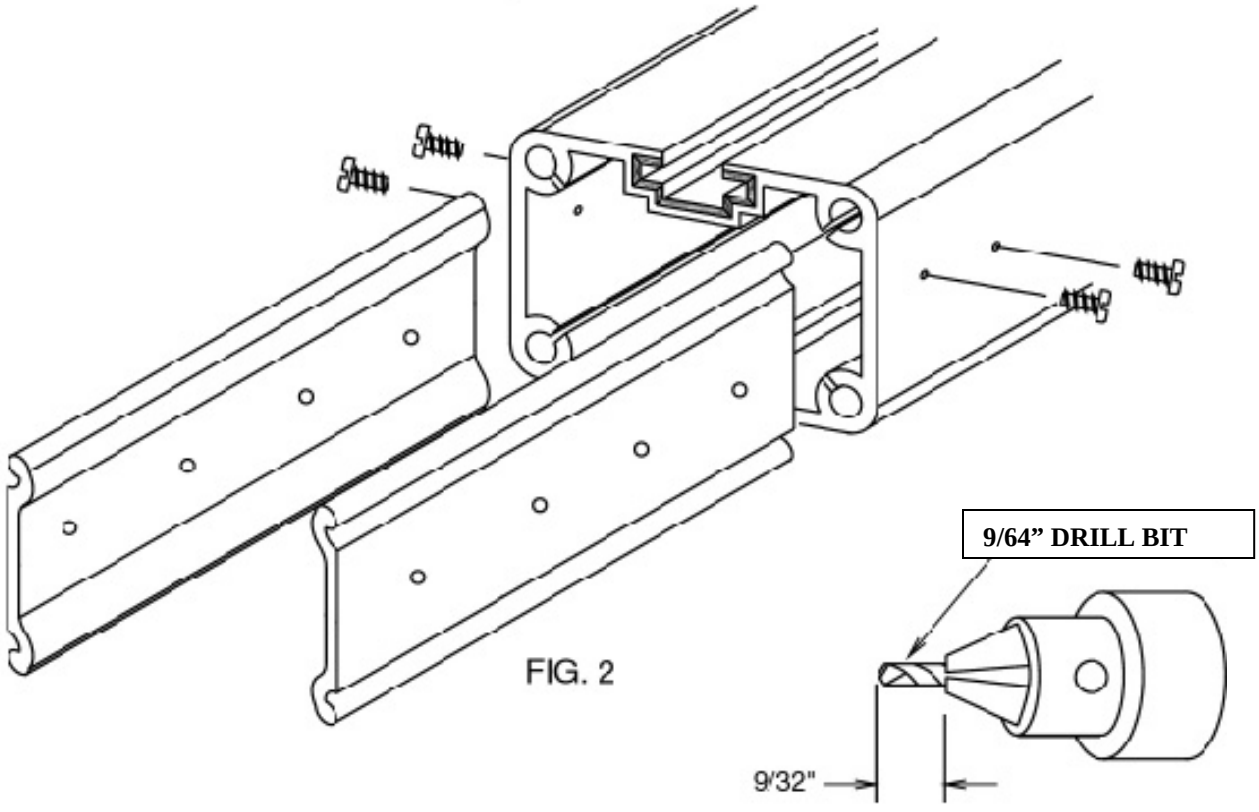
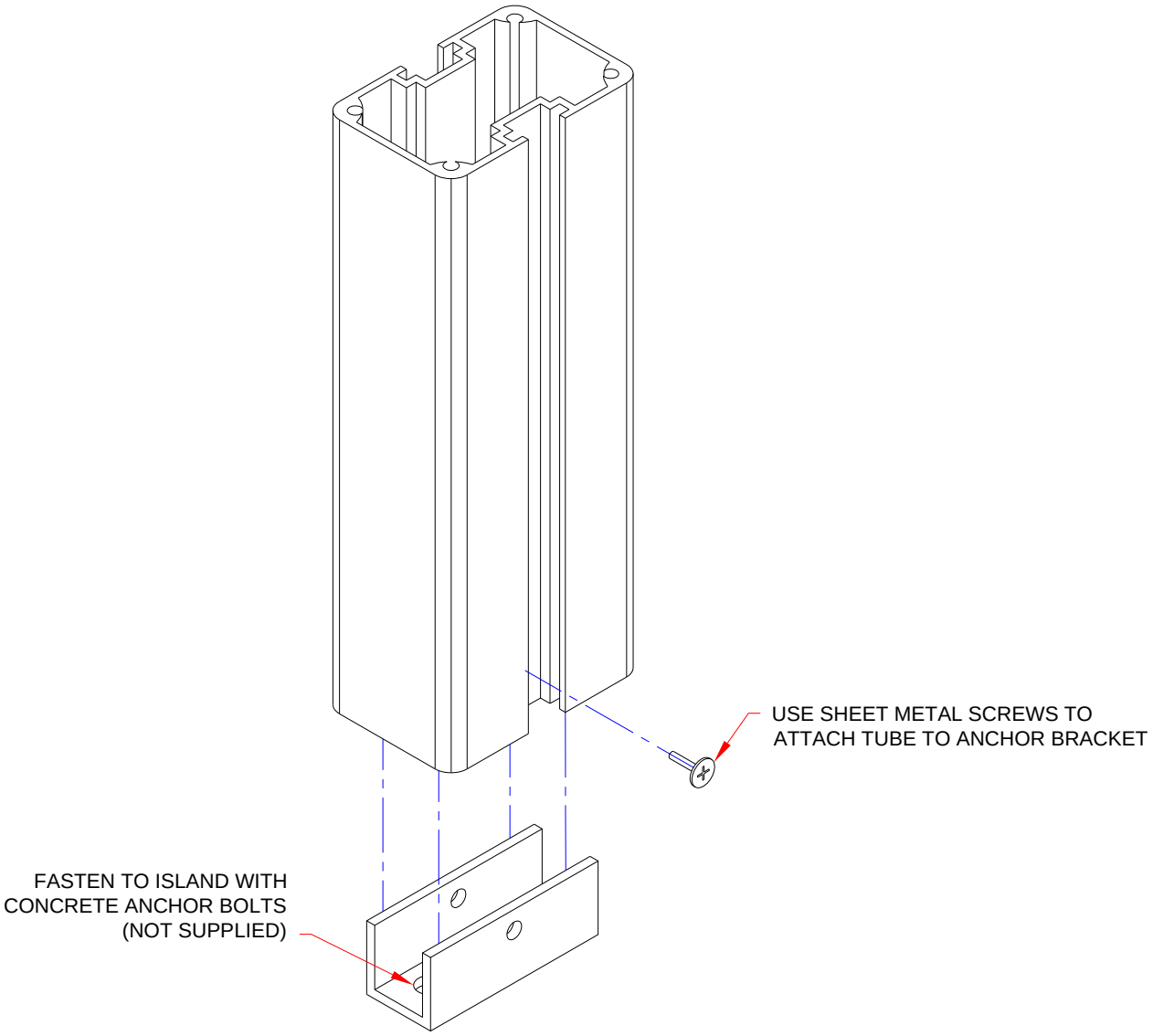
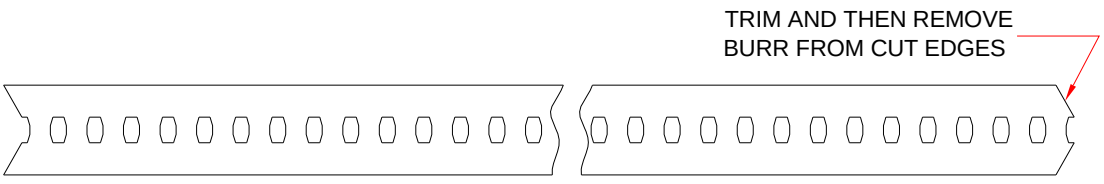


FIG. 2

Customer Mounting & Tape Preparation Diagram



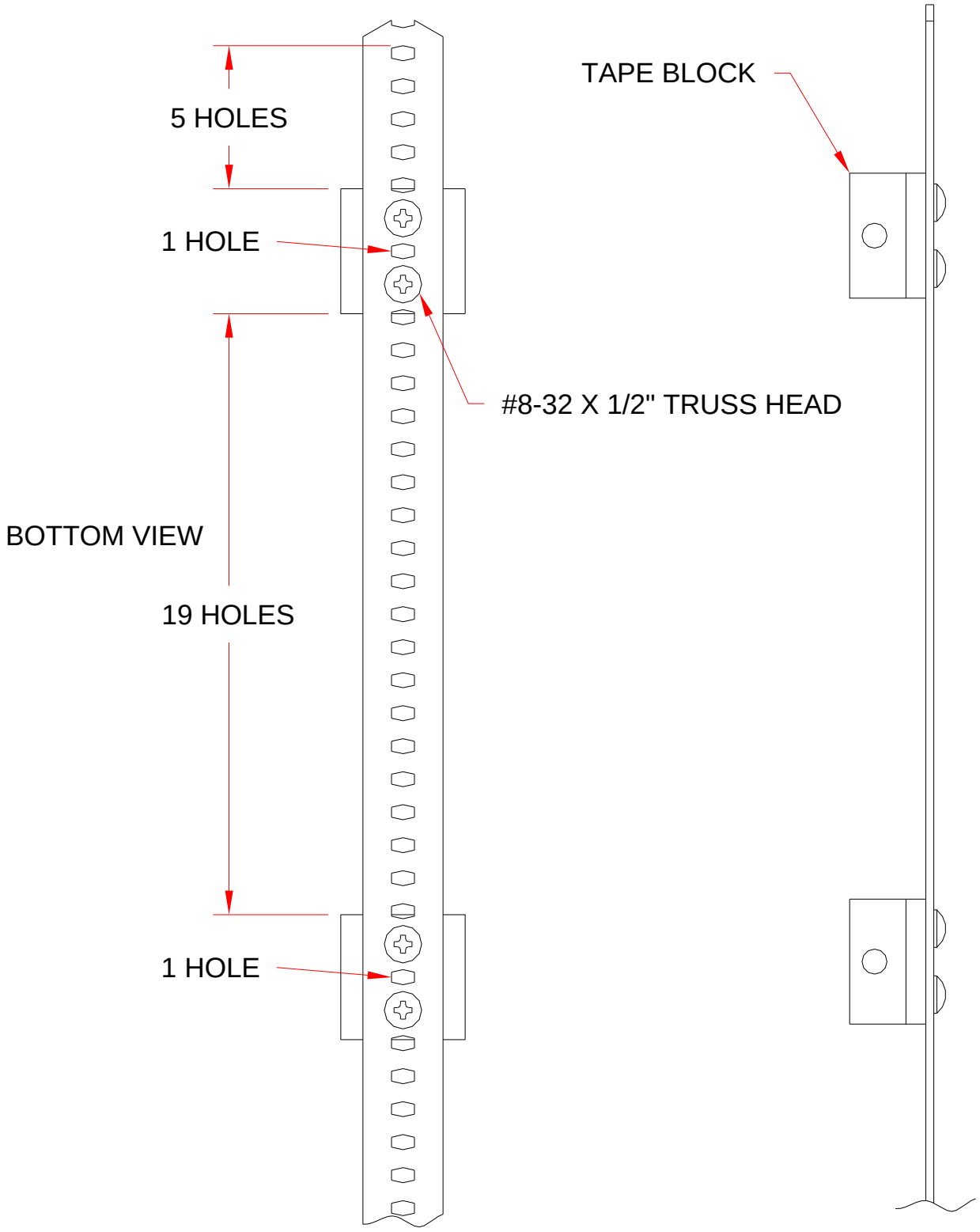
TAPE PREPARATION



TAPE-CLEANING END
USE ONLY FOR CLEANING BEFORE THE NEW TAPE
IS INSTALLED, THEN RESHAPE TO FINISH END.

TAPE-FINISH END
(BOTH ENDS OF TAPE)

Mounting Blocks Diagram



TransTrax® Optional Skin

Note that the customer CEILING TRIM that contains the flaps is not used in conjunction with the skin kit.

Installation Procedures:

This skin kit is of a two-piece design that makes installation much easier and includes a lid that gives full coverage for the backside of the customer unit. The skins now come 12' tall as standard, which has eliminated the need for extensions on very tall installations.

Remove the CUSTOMER SPEAKER PANEL and then remove the speaker from it. The speaker will get reattached to the speaker plate with the #4-40 nuts provided.

Cut both the skin and lid to suit the site requirements. Be sure to protect the powder-coated surfaces with duct tape to prevent scratches when cutting. Cut the amount equal to the height of the island off of the BOTTOM of the skin, and then cut the amount off of the TOP of the skin necessary to fit under the canopy ceiling.

Note that the TT CEILING FLANGE should be slipped over the skin and customer tube during this step, as it will need to be installed later. Mount the back of the two-piece skin to the back of the tubing with the sheet metal screws provided. The "C" skin then goes around the CUSTOMER VERTICAL TUBE and control panel and mounts to the skin back. As always, be careful if pre-drilling screw holes or driving screws to not hit any of the wiring.

Mount the speaker filler plate over the speaker grid on the inside of the CUSTOMER SPEAKER PANEL with the #4-40 nuts provided. Remove the speaker harness from the audio board. The harness is attached to the audio board with a locking connector. Use a small screwdriver to unlock the connector. Attach the speaker extension harness to lengthen the harness between the audio board and speaker. Run the speaker extension harness down the tape slot of the customer vertical. Attach the CUSTOMER SPEAKER PANEL back on the customer vertical being careful not to run the bottom flat head screw into or pinching the speaker extension harness. See diagram on page 16.

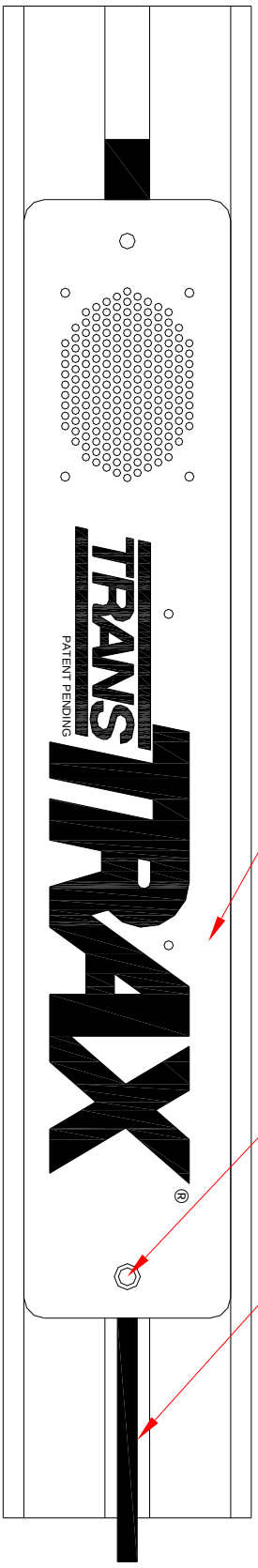
Run the speaker extension harness through the skin and connect to the speaker harness extending from the speaker on the speaker plate. Mount the plate to the face of the skin with the sheet metal screws provided.

Install the TT CEILING FLANGE to the tubing with self-drilling sheet metal screws provided and to the skin on the outer face of the skin (see page 18). Then attach the TT CEILING FLANGE to the ceiling.

> **NOTE:** The Square Trim Bottom Panel and the TT Ceiling Flange are necessary to prevent the SKIN from twisting and interfering with the CARRIER.

Test the machine to ensure that there is no interference with the carrier.

Speaker Panel Mounting Diagram



FOR UNITS WITH A CUSTOMER SKI
RUN THE SPEAKER
EXTENSION CABLE
OUT THE BOTTOM
OF THE SPEAKER PLATE

MOUNT THE SPEAKER PANEL
THE SAME WAY AS YOU
REMOVED IT.

BE SURE THAT YOU
DO NOT CUT OR PINCH
THE SPEAKER EXTENSION
CABLE WHEN TIGHTENING
THE FLAT HEAD SCREW.

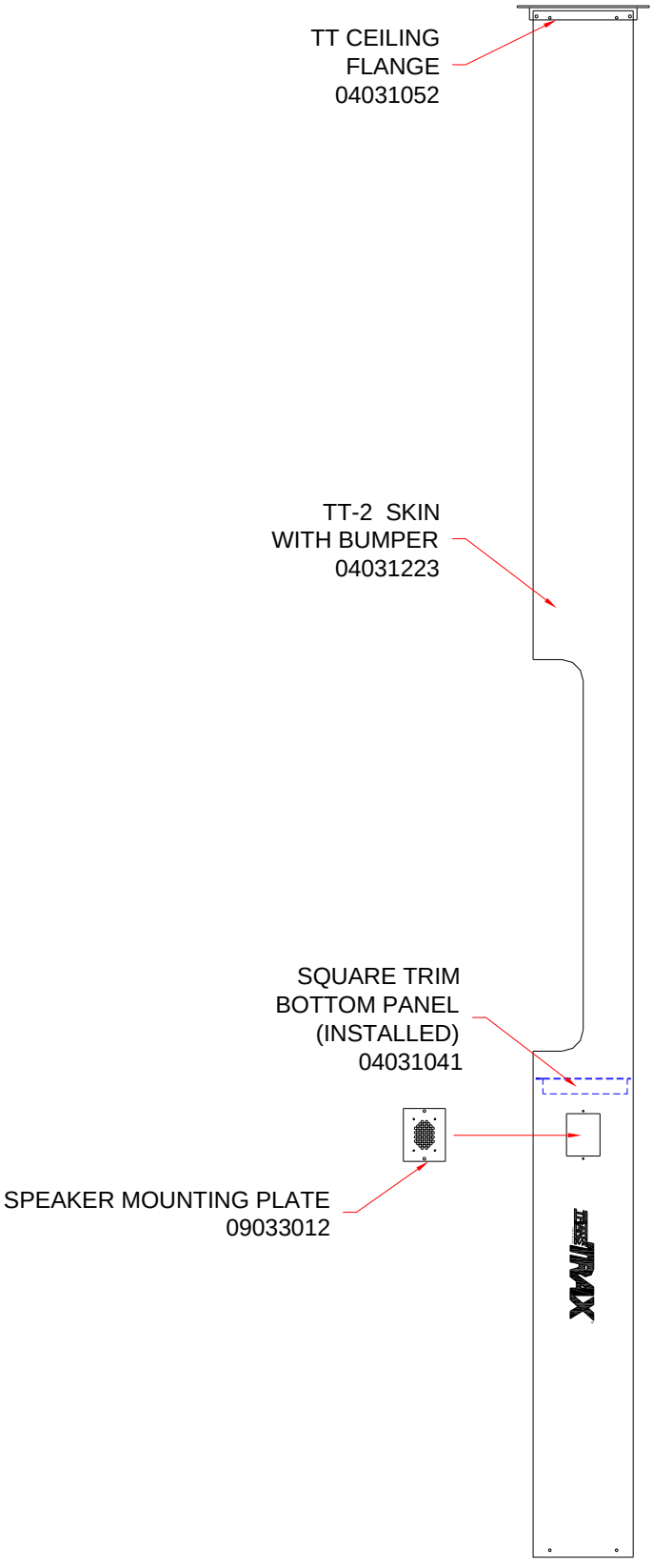
CONNECT THE SPEAKER
EXTENSION CABLE TO THE
SPEAKER HARNESS COMMING
FROM THE CUSTOMER SPEAKER.

CUSTOMER SPEAKER
PANEL

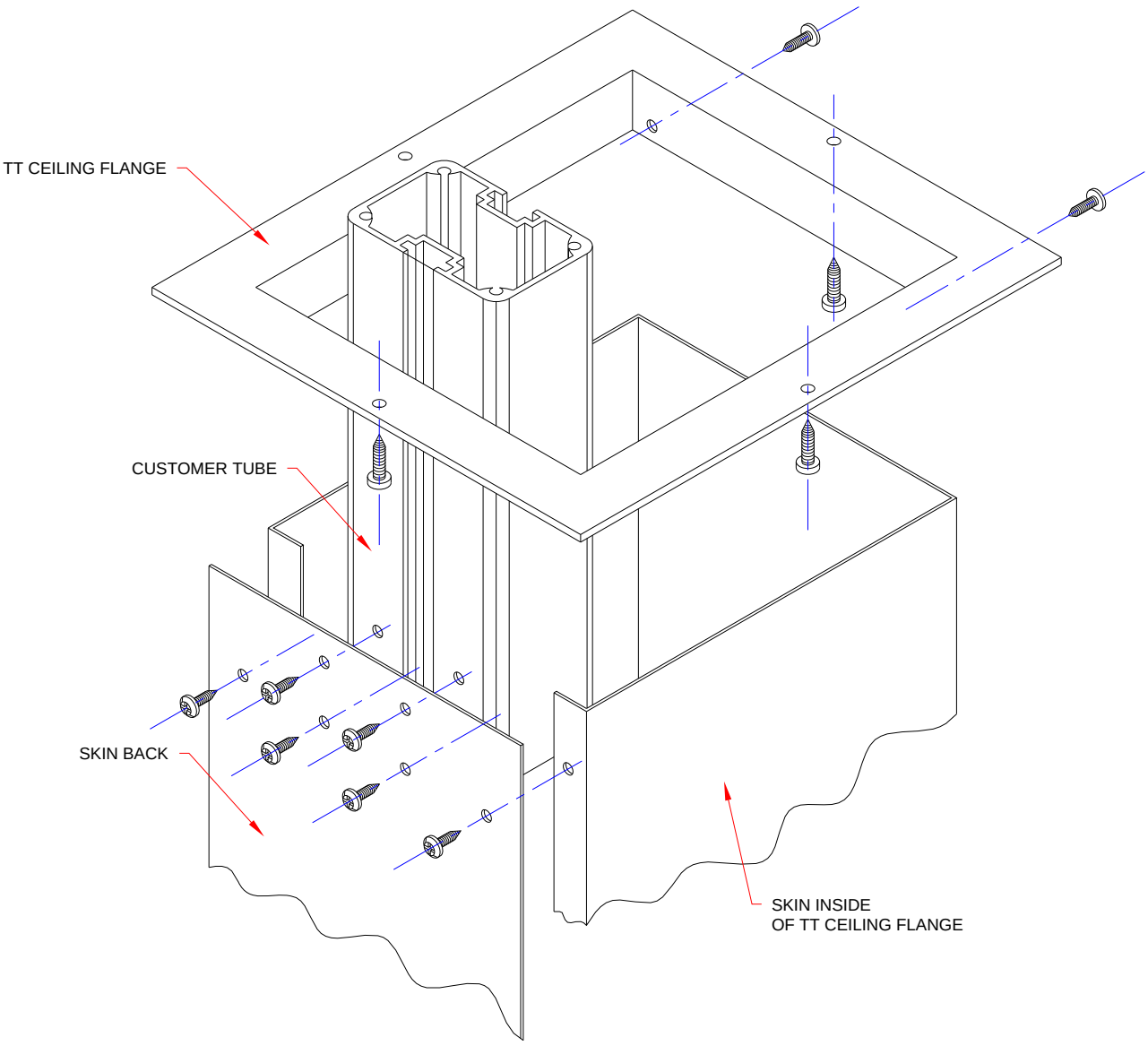
FLATHEAD
SCREW

SPEAKER EXTENSION
HARNESS

Customer Skin Diagram



Skin Mounting Diagram



Troubleshooting the TransTrax®

This section assumes that the machine in question has been inspected for loose, damaged or missing parts, tape, belts, wiring, etc.

If the unit has a connector board located behind the customer speaker panel, remove the connecting and audio wires from the connector board and hardwire together matching color to color.

CAUTION

Before replacing any board, please make sure that the Line power LED marked D35 (Green) is completely out. The risk of electric shock is present, with a chance of shorting out the board, when this LED is illuminated. See PWM/LED Layout Page 29 & 30.

Nothing Works

Check the CIRCUIT BREAKER on the bottom of the INSIDE STANDOFF. Reset it by toggling it off and back on. Nothing still works, check to ensure that there is 110 VAC power coming into the machine. If there is no AC Power, have an electrician restore power to the machine. If there is power and nothing still works, please consult the factory,

The Power on LED Will Not Come on or Go Off

Check the LED marked D8 (POWER) while pressing the INSIDE POWER SWITCH. The LED should only be on while the switch is depressed. If the LED is on all the time, or does not come on when switch is depressed, replace INSIDE SWITCH ASSEMBLY. If the LED still does not come on, replace the PWM CONTROL BOARD.

The Car Will Not Run in When the Recall Button Is Depressed

This presumes that the CAR will run out. Check the LED marked D10 (TELLER LIMIT). The LED should not be on. If it is, replace the INSIDE STOP SWITCH. If the LED still does not come on, press the INSIDE RECALL BUTTON. The LED marked D11 (RECALL), should be on. If the LED still does not come on, replace the INSIDE SWITCH ASSEMBLY. If the LED does come on, replace the PWM CONTROL BOARD.

The Car Will Not Run in When the Customer Start Button Is Depressed

This presumes that the CAR will run out. Check the LED marked D10 (TELLER LIMIT). The LED should not be on. If it is, replace the INSIDE STOP SWITCH. If the LED still does not come on, press the CUSTOMER START BUTTON. When the START BUTTON is depressed, the LED marked D20 (RECALL) should be on. If the LED still does not come on, replace the CUSTOMER START SWITCH(S). If the LED does come on, replace the PWM CONTROL BOARD.

The Car Will Not Run Out When the Car Button Is Depressed

This presumes that the CAR will run in. Check the LED marked D15 (CAR LIMIT). The LED should not be on. If it is, replace the CAR STOP SWITCH. If the LED still does not come on, press the INSIDE CAR BUTTON. When the CAR BUTTON is depressed, the LED marked D22 (SEND) should be on. If the LED does not come on, replace the INSIDE SWITCH ASSEMBLY. If the LED does come on, replace the PWM CONTROL BOARD.

The Car Will Not Run Out When the Truck Button Is Depressed

This presumes that the CAR will run in. Check the LED marked D5 (TRUCK LIMIT). It should not be on. If it is, replace the TRUCK STOP SWITCH. If the LED still does not come on, press the INSIDE TRUCK BUTTON. When the TRUCK BUTTON is depressed, the LED marked D22 (SEND) should be on. If the LED still does not come on, replace the INSIDE SWITCH ASSEMBLY. If the LED does come on, replace the PWM CONTROL BOARD.

The Car Will Not Run in Either Direction

This presumes that the LED marked D8 (POWER) works properly. If it does not, go to the paragraph NOTHING WORKS on page 20. If the carrier still does not run, see if you have power going to the drive motor. You should have 36VDC with the motor connected and 106VDC with the motor disconnected. If you have voltage, replace the DRIVE ASSEMBLY. If you still do not have power, check your BRAKE SWITCH (if applicable), to see if it is activated when the brake is released. If it is not activated, adjust the brake switch. If it does activate, check for continuity from the BRAKE SWITCH to the PWM CONTROL BOARD. If you do not have continuity, replace the BRAKE SWITCH and/or BRAKE SWITCH HARNESS. If you still do not have power, replace the PWM CONTROL BOARD.

The Carrier Will Not Shift into High Speed

Adjust the speed shift points as instructed on page 10 & 28. If the car will still not run in high speed, monitor the voltage to the motor at the connections to the motor in the power module. These connections are fully insulated quick connects; however, there is room to carefully slip meter leads into them sufficient to make contact for measuring purposes. The motor must be connected for this test. Run the car. The voltage should be approximately 36vdc in slow and 87vdc in high. If the voltage changes and the speed doesn't inspect the machine for anything causing excessive drag such as damaged tape, bows, sags or misalignment in the track or bad bearings in the surround. If the voltage does not change, observe the LED marked D3 (MOTOR COUNTER). This LED should flash on twice for each revolution of the motor pulley. If connection is good, replace the MOTOR COUNTER. If the LED still does not come on, replace the PWM CONTROL BOARD.

The Car Is in High Speed in the Vertical Sections

Adjust the speed shift points on the PWM CONTROL BOARD as instructed on page 10 & 28 . If this does not solve the problem, replace the PWM CONTROL BOARD.

The Car Overruns the Stop Position on the Inside Vertical

First, insure that the CAR is traveling in the slow speed in the vertical section. Check to ensure that the gap between the magnet and the black switch is 1/8" or less. With the CAR at the inside stop position and the magnet positioned on one of the INSIDE STOP SWITCHES, check the LED marked D10 (TELLER LIMIT). The LED should be on. If it is not, replace the INSIDE STOP SWITCH. If the LED still is not on, replace the PWM CONTROL BOARD.

The Car Overruns the Car or Truck Stop Position on the Customer End

First, insure that the CAR is traveling in the slow speed in the vertical section. Check to ensure that the gap between the magnet and the black switch is 1/8" or less. With the CAR at the customer stop position and the magnet positioned at the TRUCK or CAR STOP SWITCH, check to see if LED marked D5 (TRUCK LIMIT) or D6(CAR LIMIT) is on. The LED should be on. If it is not, replace the TRUCK STOP SWITCH. If the LED still is not on, replace the PWM CONTROL BOARD.

The Unit Shuts Off When the Car Is in Motion

Check the LED marked D29 (CAUTION). This LED should not be on. If it is, check the unit for obstructions, tube misalignment, and worn drive tape etc. If everything looks good, replace the PWM CONTROL BOARD.

AUDIO WON'T WORK

It is assumed that the machine and call tone work properly. If not, refer to the paragraph "NOTHING WORKS". Press the audio on/off switch and the audio LED should come on. If it does not, replace the TELLER SWITCH ASSEMBLY. If the audio LED will still not come on, replace the CONTROL BOARD. With the audio LED on and still no audio, check the power LED on the BASE AUDIO BOARD at both ends. If there is not a lit LED on the CUSTOMER BASE AUDIO BOARD, but the LED is lit on the TELLER BASE AUDIO BOARD, check the wiring connections at both ENDS. If the connections are good, replace the CUSTOMER BASE AUDIO BOARD.

If the LED is not lit on both BASE AUDIO BOARDS, check the wiring from the CONTROL BOARD to the POWER BOARD and from the POWER BOARD to the TELLER BASE AUDIO BOARD. If the wiring is good, replace the TELLER POWER BOARD. If the audio still won't work, replace the CONTROL BOARD.

AUDIO WON'T WORK INCOMING

This presumes that there is outgoing audio. Perform the audio adjustment as outlined on page 10. If there is no incoming audio, see if there is a lit LED on the TELLER BASE AUDIO BOARD. If not, see Audio "WON'T WORK". If there is, replace the CUSTOMER MICROPHONE. If no incoming audio is heard, replace the INSIDE SPEAKER. If there is still no incoming audio, replace the TELLER BASE AUDIO BOARD.

AUDIO WON'T WORK OUTGOING

This presumes that there is incoming audio. Perform the audio adjustment as outlined on page 10. If there is no outgoing audio, see if there is a lit LED on the CUSTOMER BASE AUDIO BOARD. If there is not, see audio won't work. If there is, replace the TELLER MICROPHONE, if no incoming audio is heard, replace the OUTSIDE SPEAKER. If there is still no outgoing audio, replace the CUSTOMER BASE AUDIO BOARD.

CALL TONE WON'T WORK

This presumes that there is incoming and outgoing audio. See if you have a FABAFLASHER LED (TT-2 only) on the TELLER PANEL SWITCH. If you do not, replace the CUSTOMER CALL BUTTONS. If you do, replace the POWER BOARD.

FABAFLASHER DOES NOT WORK

This presumes that the audio works. Check to make sure the two-pin connecter is connected to the TELLER CONTROL PANEL SWITCH ASSEMBLY. Check and make sure your audio LED lights up when the AUDIO BUTTON is pushed. If it does not, replace the TELLER SWITCH ASSEMBLY. If it does, replace the POWER BOARD.

Maintaining the TransTrax®
Overview

The TransTrax® was designed to require very little maintenance; however, what is required is critical in order for the unit to operate as trouble free as possible.

NOTE: Cleaning is the single most important aspect of TransTrax II® P maintenance.

Weekly Maintenance

Weekly, or even daily, the TransTrax® should be wiped down on both the customer and teller end to remove road grime and other environmental contaminants.

One may also notice a light grey to black dust. This material is produced by the TransTrax® in its process of self-lubrication. It is normal for this dust to form. However, it should be removed in the cleaning process.

CAUTION: The TransTrax II® P does not require any form of lubrication as part of any maintenance. Do not put oil, grease, WD-40 or any other form of lubrication on any component of the TransTrax II® P. Doing so voids all warranties on the product.

Annual Maintenance

Annually, we recommend replacement of the drive tape and inspection of the drive sprocket and drive surround. At that time, we also recommend a complete cleaning of the track system with the tape removed.

Under plant conditions, the drive tape lasts between 60,000 and 100,000 cycles in the TransTrax®. However, conditions of the "real world" may be harsher than the environment found in our plant. Given the relative low cost of tape replacement on a scheduled basis compared to the cost of an unpredictable down time and loss of customer service if and when the tape fails are the basis of this recommendation.

If the tape is run until the point of failure, there is a danger that either the drive sprocket or the drive surround will be damaged.

Other Components

The motor is designed to provide in excess of 600,000 cycles under plant conditions. Actual life under "real world" conditions will vary. Since the TransTrax II® P uses a totally enclosed non-vent DC motor, the failure after its rated life is caused by worn out brushes. While it is possible to re-brush the motor, it is not recommended, nor does the factory support it.

The other drive components are designed to outlast the motor; however, they can be damaged during a tape failure. It is, therefore, recommended that the annual tape replacement practice be followed.

User Instructions

Car Movement

Once the power button has been pressed and the Power LED is illuminated, pressing the SEND, CAR, or TRUCK button sends the car out to the customer end of the unit. Pressing the RECALL button brings the car back into the teller end of the unit.

Audio

The audio is activated when the AUDIO button is pressed and the LED is illuminated. All adjustments for audio volume levels are set at time of installation. See the audio section of this manual in order to make adjustments.

Overloaded Carriers

If a customer overloads a carrier, there are two possible outcomes when the car is sent in toward the teller end:

1. The Car does not move

If the carrier does not move when the send or recall button is pressed by either the customer or teller, remove the overloaded car box from the car. Send it into the teller and then return it to the customer end. The TransTrax II® P is now ready for use.

2. The Car does not arrive at teller station

If an overloaded car box has been sent into the bank and has not arrived at the teller station, there are three options:

2A. Press the button again

Press the RECALL button repeatedly until the car arrives. If, after several attempts, this does not work, perform manual retrieval.

2B. Manual retrieval

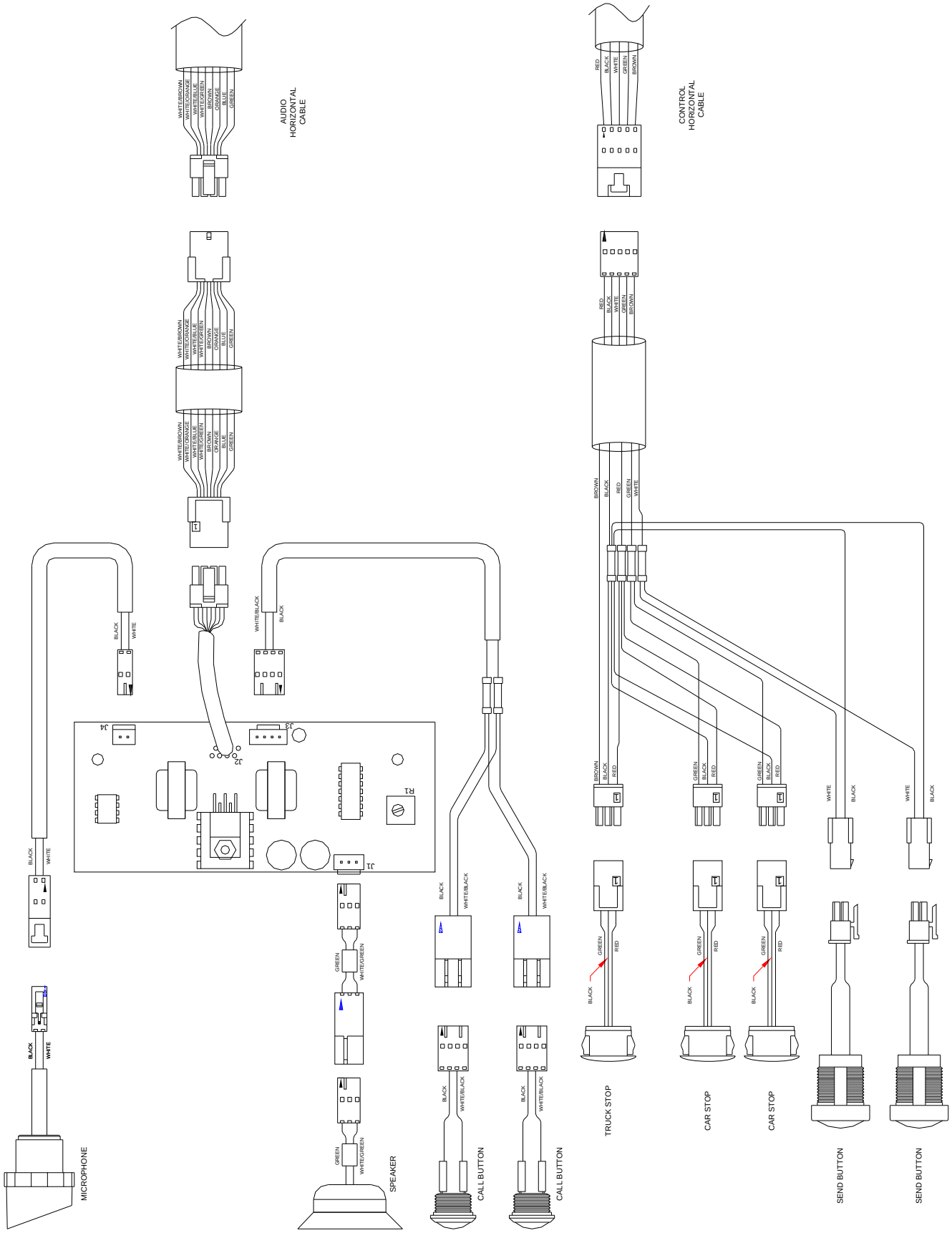
Turn off all power to the machine. Place something like a pen or small screwdriver into one of the holes in the tape and gently and slowly apply downward pressure to move the car toward the teller end. Once the car is in reach, remove the carrier from the car. Then turn on the power and press the recall button. The machine should now be reset for normal use.

2C. Remove carrier and retrieve

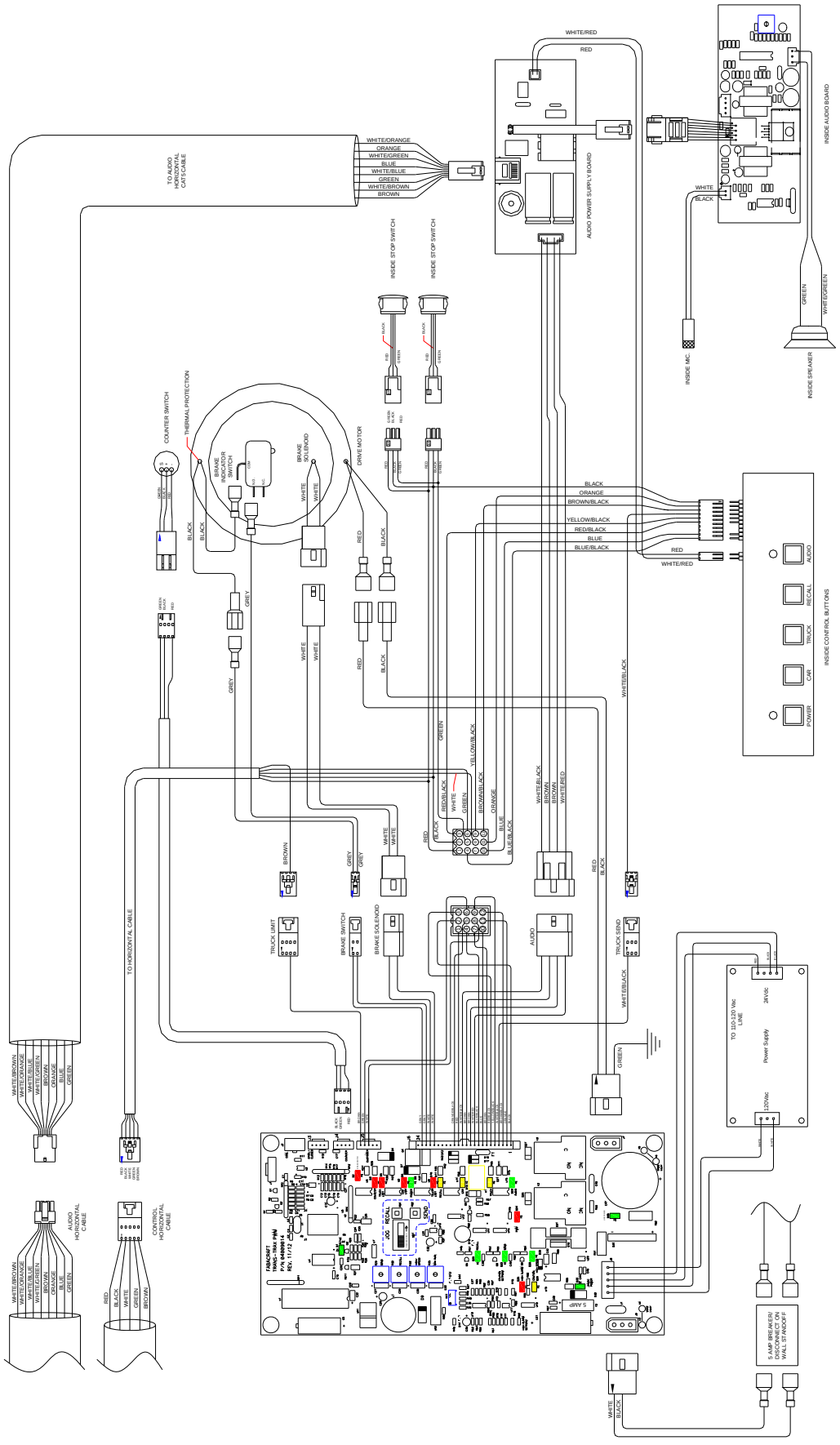
Have a serviceperson get to where the car is located. Remove the overloaded car and then have a user press the RECALL button. The car should move to the teller end and upon arrival be ready for normal use.

As you can see, operation of the unit was designed to be simple.

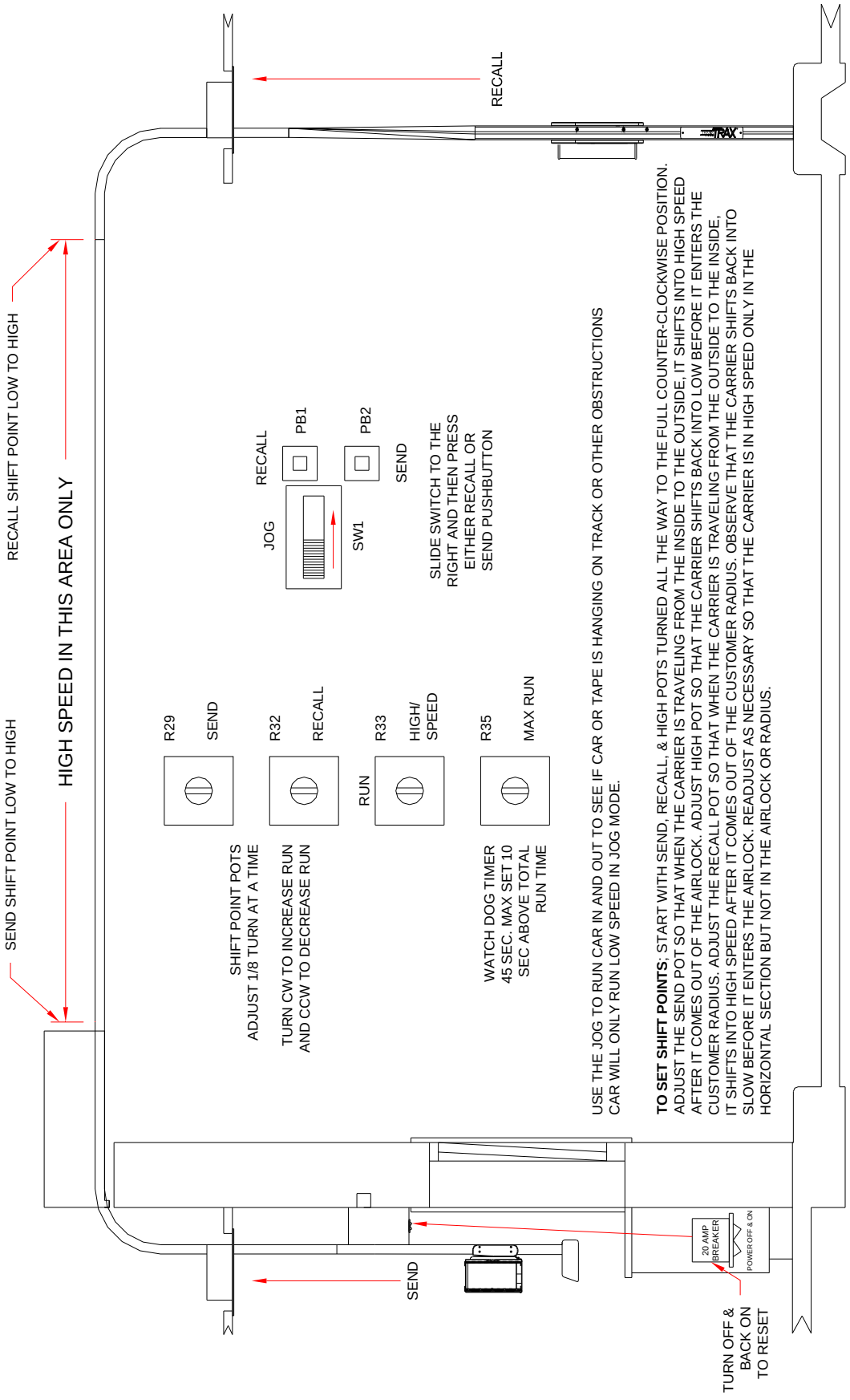
TransTrax II® P Customer Wiring



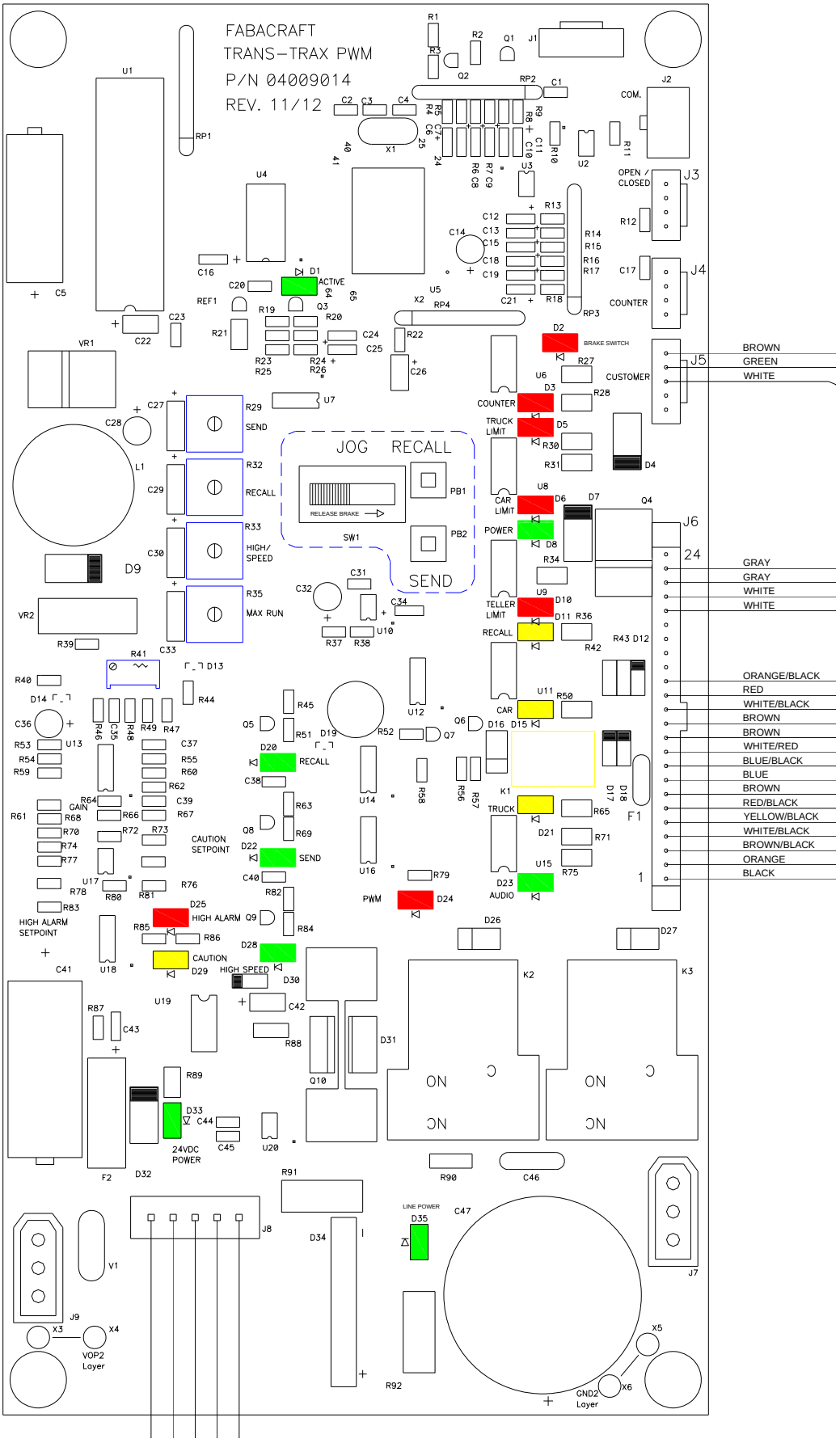
TransTrax II® P Teller Wiring



TransTrax II® P Points and Switch Settings



PWM LED Layout



PWM CONTROL BOARD LED FUNCTION CHART

D1 - BOARD ACTIVE - Lights green when power is supplied to the control board**.**

D2 - BRAKE RELEASE - Lights red when the brake is released.

D3 - MOTOR COUNTER - Flashes red counting the rotation of the large motor pulley.

D5 - TRUCK LIMIT - Flashes red when the car passes over the customer truck stop.

D6 - CAR LIMIT - Flashes red when the car passes over the customer car stop.

D8 - POWER - Flashes green when the inside power button is pressed.

D10 - TELLER LIMIT - Flashes red when the car passes the inside stop.

D11 - RECALL - Flashes yellow when the inside recall button is pressed.

D15 - CAR - Flashes yellow when the inside car button is pressed.

D20 - RECALL - Lights green when the car is being recalled.

D21 - TRUCK - Flashes yellow when the inside truck button is pressed.

D22 - SEND - Lights green when the car is traveling out to the truck or car position.

D23 - AUDIO - Flashes green when the inside audio button is pressed.

D24 - PWM - Lights red when the car is in motion.

D25 - HIGH ALARM - Lights red shutting the unit down when the current reaches an overload level.

D28 - HIGH SPEED - Lights green when the car is traveling in high speed.

D29 - CAUTION - Lights yellow when the current reaches caution level.

D33 - 24VDC POWER - Lights green when the board is powered up.

D35 - POWER DISCHARGE - Lights green until all power is discharged for the board.

PWM CONTROL BOARD WIRING FUNCTION CHART

OPEN/CLOSE

O
O
O
O

COUNTER

O	**Black**	To the motor counter.
O	**Green**	To the motor counter.
O		
O	**Red**	To the motor counter.

CUSTOMER

O	**Brown**	To the customer truck stop.
O	**Green**	To the customer car stop.
O	**White**	To the customer send switches.
O		
O		
O		

O	**Grey**	To the inside brake switch.
O	**Grey**	To the inside brake switch.
O	**White**	To the inside brake assembly.
O	**White**	To the inside brake assembly.
O		
O		
O		
O		
O	**Orange/Black**	To the inside stop switch.
O	**Red**	24vdc power +
O	**White/Black**	To the inside power supply board.
O	**Brown**	To the inside power supply board.
O	**Brown**	To the inside power supply board.
O	**White/Red**	To the inside power supply board.
O	**Blue/Black**	To the inside switch panel power led.
O	**Blue**	To the inside switch panel power led.
O	**Brown**	
O	**Red/Black**	To the inside switch panel power switch.
O	**Yellow/Black**	To the inside switch panel car switch.
O	**White/Black**	To the inside switch panel truck switch.
O	**Brown/Black**	To the inside switch panel audio switch.
O	**Orange**	To the inside switch panel recall switch.
O	**Black**	Power -

Tools Necessary for Installation

Phillips head screwdriver #2 tip

Flat tip screwdriver, #1F2R tip (miniature)

Screwrunner, #2 Phillips tip

Level

Tape measure

Half Round Bastard File 19/32 x 5/32 x 6

Power Miter Box with carbide tipped blade

Hammer Drill and Anchors

1/8 Shaft conical rotary cutter (Dremel tool preferred)

TransTrax II® P Shipping Manifest
Car/Truck Dual Height
Part 04002992

Qty.	Description	Part Number
1	Horizontal Section 10'	04005591 _____
1	Car Assembly	04010111 _____
1	Teller Vertical Extension	04013195 _____
1	TTP Inside Vertical Assembly	04013602 _____
1	Customer Vertical Assembly	04015594 _____
2	Formed Radius	04016222 _____
1	TT Airlock Assembly	04017111 _____
2	Ceiling Trim Assemblies	04021223 _____
1	TT Horizontal Harness	04144011 _____
33 ft.	Drive Tape	06820012 _____
1	TransTrax II® P Documentation Manual	00900289 _____

Installation Accessories:

6	1" corner brace	01008492 _____
2	9/64" Short Drill Bit	55555237 _____
1	High speed dremel cutter	01081021 _____
1	Inside Mic Windscreen Kit	22018991 _____
1	Power Cord	02926031 _____
1	Customer Base	04023011 _____
14	TT Splice Plate	04058112 _____
1	Romex Connector	06926011 _____
1	Bag of Splice Plate Screws	04224011 _____
5	#8-32 x 1/2 Truss Head Screws	93082723 _____
12	#8 x 5/8 sheet screws	93101621 _____
1	Electrical Tape	22016011 _____
4	Carriers	00321011 _____

Motor/Machine S/N_____

Control Board S/N_____

TransTrax® II Skin Shipping Manifest

TT Model II Part # 04031993

Qty.	Description	Part Number	
1	Speaker Extension Harness	01022011	_____
1	TT Skin Lid	04031013	_____
1	TT Skin With Bumper	04031223	_____
1	Square Trim Bottom Panel	04031041	_____
1	TT Ceiling Flange	04031052	_____
1	Speaker Mounting Plate	09033012	_____
5	#4-40 nuts	91005001	_____
3	#8 x 1/2 flathead sheet metal screws	93080123	_____
25	#8 Self-Drilling Screws	93101623	_____
4	1" x 8 SST pan head sheet metal screws	93160623	_____
1	Speaker Blank Plate	04170011	_____