FORTIS
SECURITY PRODUCTS

3100 RT
Remote Teller System

Installation and Service Manual

February 23, 2010

Fortis Security Products

3100-RT Remote Teller System

Installation and Service Manual

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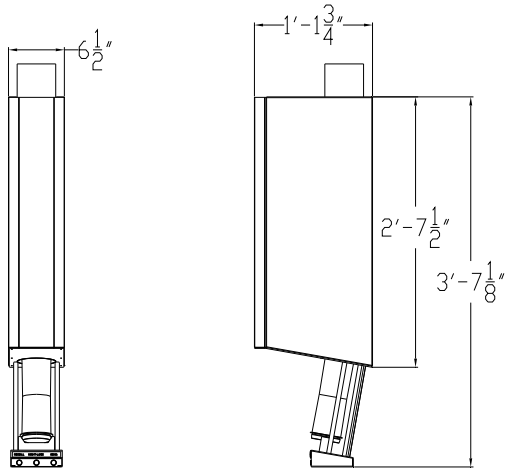
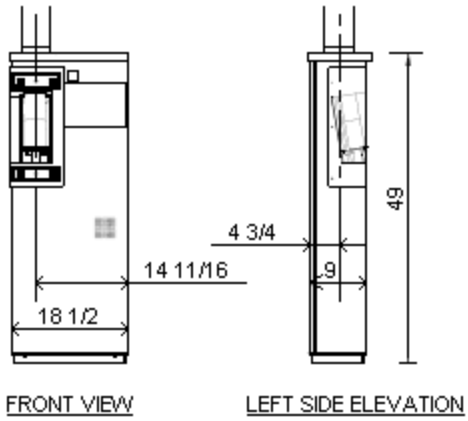
Specifications

Dimensional Specifications

Teller Unit



Customer Unit



Customer Unit

120 volt 15 amp circuit
(can be connected with the same circuit as the teller unit)

Electrical Specifications

Teller Unit

120 volt 20 amp dedicated circuit

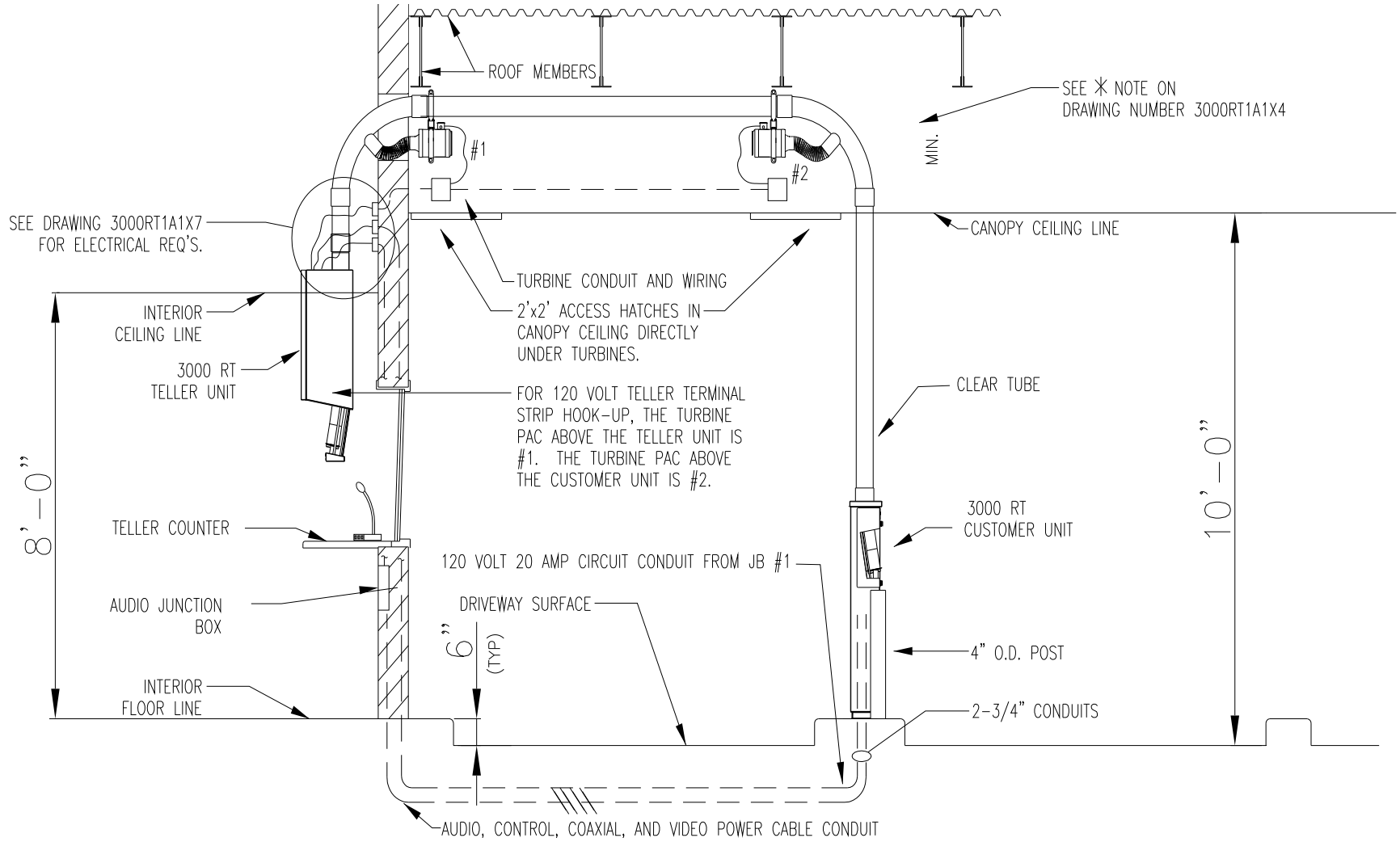
Control Cable

6 conductor 20 gauge min. For cable lengths over 200 ft use 18 gauge min.

Audio

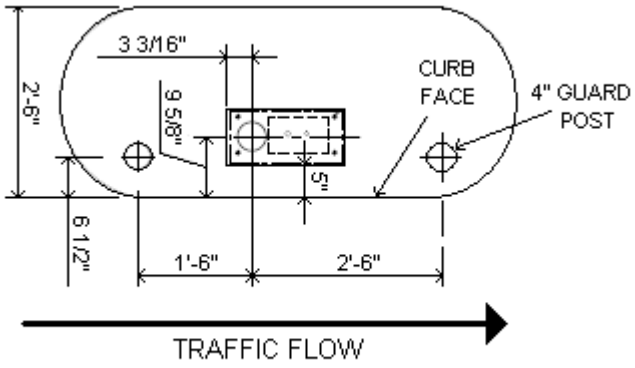
Speaker: 8 ohm
Microphone: 2 K Impedance condenser type

Typical System Specifications

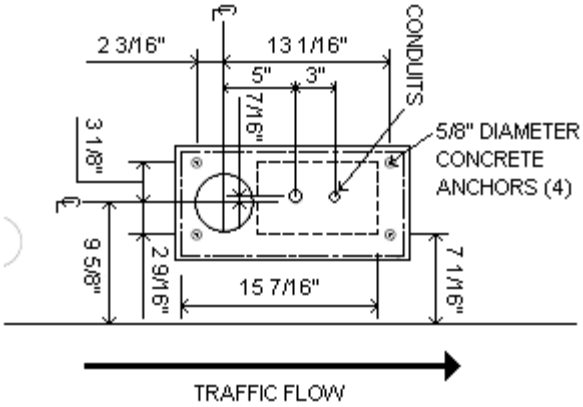


Recommended Customer Installation Specifications

Island Layout



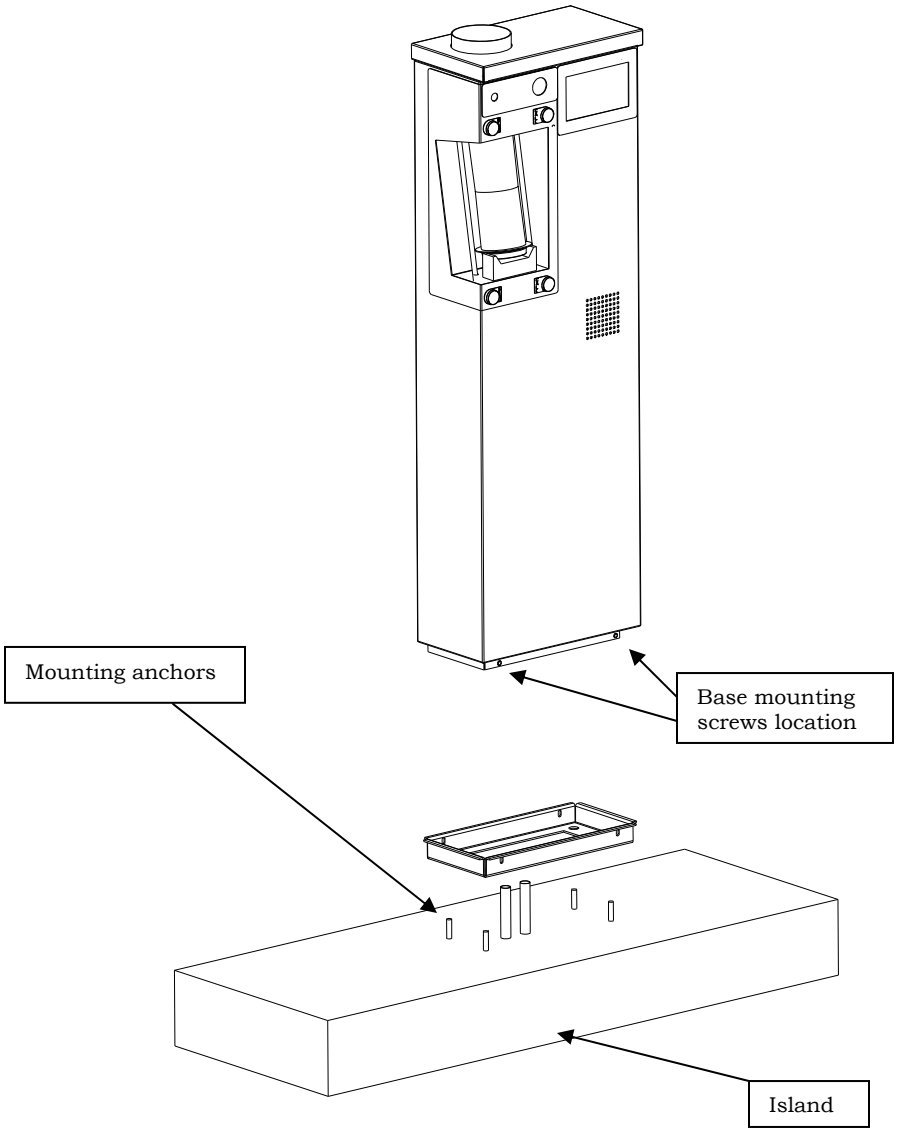
Conduit locations



Customer Unit Installation

Mounting the Customer Unit

Remove service panel and base of customer unit. Four screws hold the base to cabinet; they are located two each in the front and the back.
Once base is removed locate on island. Using four ⅜“ dia concrete anchors, secure base to island. Before final tightening of base anchors check level of base front to back and left to right. Make sure base is not twisted once fully tighten down to island. Reinstall cabinet to base.



Electrical Connections

The main power connection should be hardwired by an electrician.

Each station (customer and teller) has a pigtail plugged into the field wiring connectors. Each pigtail has four color coded wires which are to be connected to the field wiring cable that runs between each station.

Connect these wires color for color.

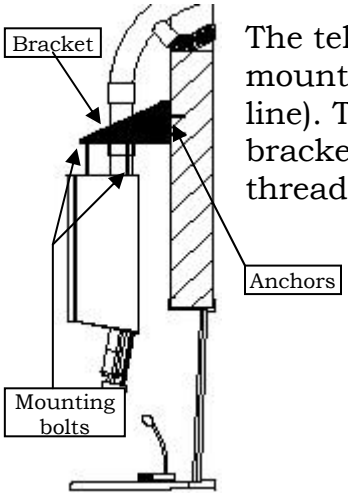
Connect microphone, speaker wires, and customer call wires (red) to the audio system. (Electrical panel cover may need to be removed to access speaker wire.)

Install and connect optional components. (pg 15-17)

Reinstall service panel.

Teller Unit Installation

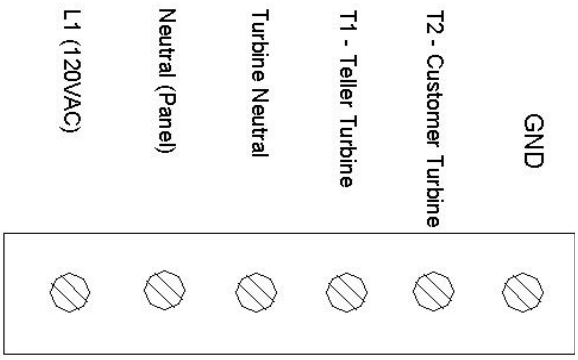
Mounting the Teller Unit



The teller unit mounts to a bracket (FS01-0076) which is mounted to the building structure (usually above the ceiling line). The Teller unit should then be secured to the mounting bracket using the ⅜" bolts and washers provided, or all-thread rods as needed.

Electrical Connections

Remove the service panel from the front of the unit.



The electrician should wire the main power, and turbine wiring connections as indicated by the drawing. It is important that the turbine wires are connected as indicated to ensure the system operates properly.
Connections should be made using 12GA wire minimum.

The field wiring pigtail is located at the bottom of the electrical panel. Connect these wires color for color with the field wiring cable running to the customer unit.

Tubing and Turbine Installation

Tubing Installation

For additional information on turbine and tubing installation see the specifications noted on pg 2.

Customer Tubing Connections

Clear tubing attaches to the top of the customer unit using the provided TU-12 adapter and the FS01-0211 rubber gasket. At the top of the clear tube use the trim ring (TU-009) at the ceiling opening and the TU-19 adapter to attach the clear tubing to the PVC (TU-10 when attaching to steel tubing).

Teller Tubing Connections

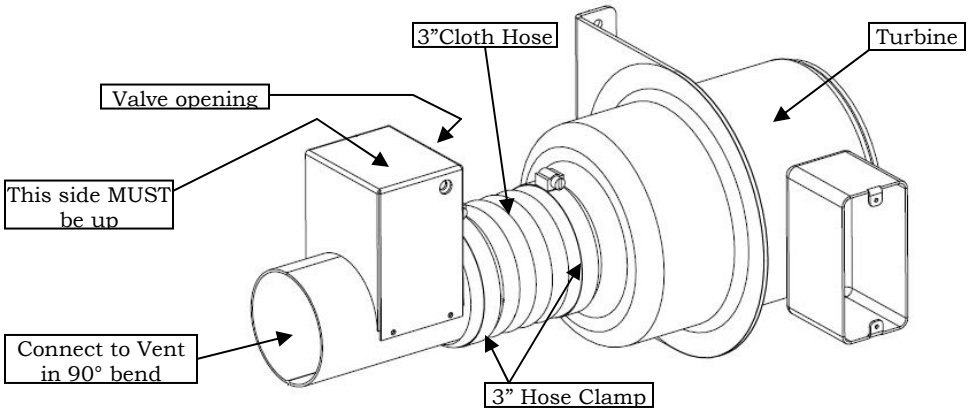
Use the TU-11 to attach the steel tube coming from the top of the teller unit to the PVC tubing. (a steel clamp sleeve TU-014 when attaching to steel tubing)

Turbine Installation

The turbines are attached to the vented 90° bends using a length of 3" cloth hose and 3" hose clamps. Turbine #1 is attached to the bend on the teller side and #2 is on the customer side. The turbines are to be mounted to the building structure using the attached bracket and ¼" diameter mounting screws minimum. Remove the cover from the electrical box to expose the wiring. Make the necessary electrical connections to the teller unit using 12GA wire minimum.

Whisper Valve Connection

The whisper valve is attached to turbine #1 then attached to the 90° bend on the teller side. *See drawing.*



Care and Maintenance

New Installation

Fortis Security Products recommends leaving any protective film on the unit during installation to protect finished surfaces.

In the case of new construction, adding protective coverings while construction is underway is advised. Dust, fine debris, and chemicals used to clean concrete and masonry, can be harmful to the finish and interfere with equipment functionality.

Once installation, construction, and project cleanup are complete:

- Remove all surface dirt and dust using a soft cloth
- General purpose surface cleaners can then be used on all Painted surfaces. Stainless Steel surfaces should only be cleaned using a Stainless Steel cleaner such as “3M Stainless Steel Cleaner”.
- **Never use a hose or pressure washer to clean the equipment!**

Annual Maintenance

Fortis Security Products recommends cleaning and inspecting the equipment as required. Minor scratches can be fixed by cleaning the surface and using enamel based paint. Stainless Steel blemishes can be repaired using a Stainless Steel Cleaner.

Additional Care maybe required if equipment is installed in harsh conditions such as; coastal regions (high salt), dust, industrial pollution.

3100RT Operation

Customer Unit Operation

Customer Send

Sends carrier from the customer station to the teller station. There are two buttons located on the front of the unit. One is located above the carrier for higher vehicles. The other is located below the carrier for normal height vehicles.

Customer Call

Activates the call signal on the audio system. There are two buttons located on the front of the unit. One is located above the carrier for higher vehicles. The other is located below the carrier for normal height vehicles.

Teller Unit Operation

Teller Send
Send carrier from teller station to customer station.

Teller Recall
Retrieve carrier from customer unit.

Teller Night Lock
Closes inside slide gate and disables system. Also minimizes any condensation that may form in the system.

System Operational Sequence

Teller Send-

1. Turbine #1 (Teller turbine) turns on for 2 seconds.
2. Teller gate closes.
3. Turbine #2 (Customer turbine) turns on for preset cycle time.
4. Customer gate opens.

Teller Recall /Customer Send-

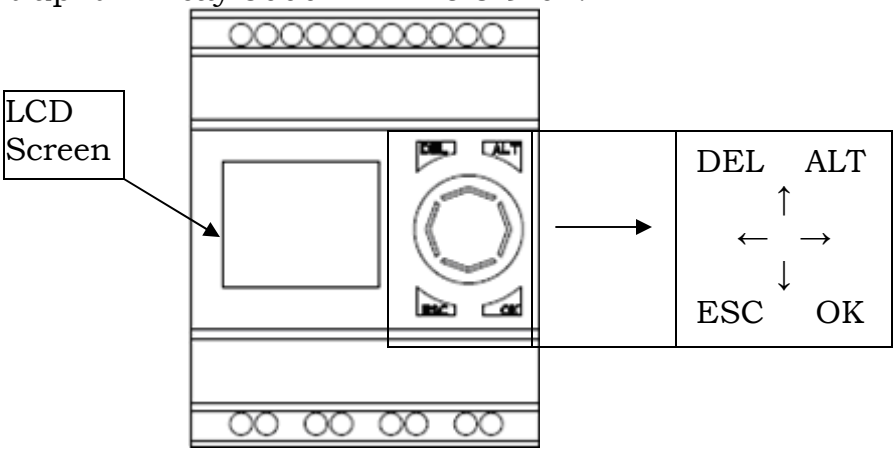
1. Turbine #1 turns on for preset cycle time.
2. Teller gate opens.
3. Customer gate closes.

Night Lock-

1. Teller gate closes.
2. Teller send and recall functions are disabled.

Turbine Run Time Adjustment

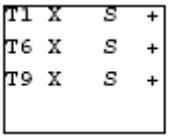
Remove the front cover off of the teller unit if it has not already been removed. Towards the bottom of the electrical panel you will see the control module which has a LCD screen on the front of it. If you have just powered it up it will say 3000RT WHIS 8-9-07.



To change the timer settings you must go to the parameters screen. By holding the OK key down momentarily the LCD Screen with display the following.

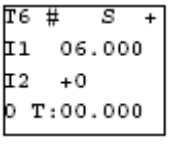
Password will be flashing.
Using the ↓ key move down until Parameter is flashing.
Press OK.

The timer screen will appear.



The cursor will be flashing on T1. T1 is not adjustable.
Use the ↓ key to move the cursor T6 or T13.
T6 is the outbound timer (teller to cust) T13 is the inbound (cust to teller)
Press OK

The adjustment screen appears.



The curser will be flashing on the first number of the I1 Line
Press OK to edit the value.
Use the ← and → keys to select the number to edit and the ↑ and ↓ keys to add or subtract time.

When the desired value is set press OK.
Press the ESC button three times to exit parameters.
You may now test the system to check your timing.

Troubleshooting and Repair

Problem	Possible cause	Correction
The carrier is inside, send and recall functions are not working.	Night Lock is active.	De-activate Night Lock.
	The control module is not powered.	Check control voltage. Check fuse.
	Platform harness is not connected or loose.	Check platform harness connection.
When teller send is pressed the turbine runs but the carrier stays in the teller unit.	Customer gate is open.	Check customer unit.
	Vent flap(s) on turbine(s) obstructed/damaged.	Inspect vent flaps. The flap should be closed when the opposite turbine is running.
	Whisper valve obstructed/damaged.	Check the whisper valve to make sure that it is closing.
	Open tubing joint.	Reseal tubing joint.
Customer/Teller gate does not open/close.	Motor is bad or in thermal overload. (Motor has thermal protection)	Check to see if motor is hot, allow motor to cool and check for gate obstruction. Replace motor (14-15).
	Gate switch(s) bad.	Replace switch(s). *(pg 14-15)*
	Fuse blown.	Replace fuse.
	Gate is obstructed.	Remove obstruction.
When customer send or teller recall is pressed the turbine runs but carrier remains in the customer unit.	Teller gate is open.	Check teller unit.
	Vent flap(s) on turbine(s) obstructed/damaged.	Inspect vent flaps. The flap should be closed when the opposite turbine is running.
	Whisper valve obstructed/damaged.	Check the whisper valve to make sure that it is closing.
	Open tubing joint.	Reseal tubing joint.
Teller/Customer gate opens before carrier arrives in terminal.	Improper run time set.	Increase time *(Pg.12)*
Gates open and close but turbine does not run.	Turbine motor bad.	Replace turbine motor.
	Fuse blown.	Check and replace fuses.

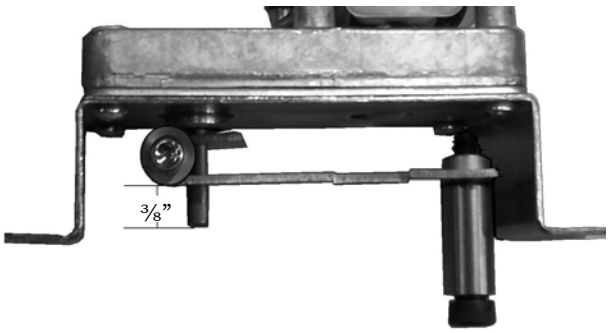
Replacing Customer Gate Motor and Switches

Replacing Switches

- Remove the customer service panel if it hasn't been already.
- Unplug the motor wiring harness from the electrical panel.
- Remove the two locknuts from either side of the motor bracket.
- Carefully remove the motor and switch assembly from the unit.
- Remove and replace any bad switches. *Take note of the wire locations before removing the wires from the switches you are replacing.*

Replacing the Motor

- Same steps as above for removing the motor and switch assembly.
- Remove the switch wires from the capacitor, and then remove the motor wires.
- Disconnect the motor common.
- Remove the gate arm, noting its position on the motor spindle. *See picture below*
- Remove the four screws from the motor bracket and remove the motor.
- Replacement is reverse of removal.



Replacing Teller Gate Motor and Switches

Replacing Switches

- Remove the service panel if it isn't already.
- Remove the nut from the switch mount plate and carefully remove the switches and capacitor.
- Replace any faulty switches. *Take note of the wire locations and make sure that the wires are in the same location.*
- Installation is reverse of removal.

Replacing the Motor

- Remove the service panel.
- Unplug the motor wiring harness from the electrical panel.
- Remove the nuts from both sides of the motor bracket. *Note: A magnetic holder is advisable for removal and re-installation of the nuts.*
- Carefully remove the motor and switch assembly.
- Remove the switch wires from the capacitor and then remove the motor wires.
- Detach the motor common, and set the switches aside.
- Remove the gate arm, noting its position on the motor spindle. *See picture on page 14*
- Remove the four screws from the motor bracket and remove the motor.
- Replacement is reverse of removal.

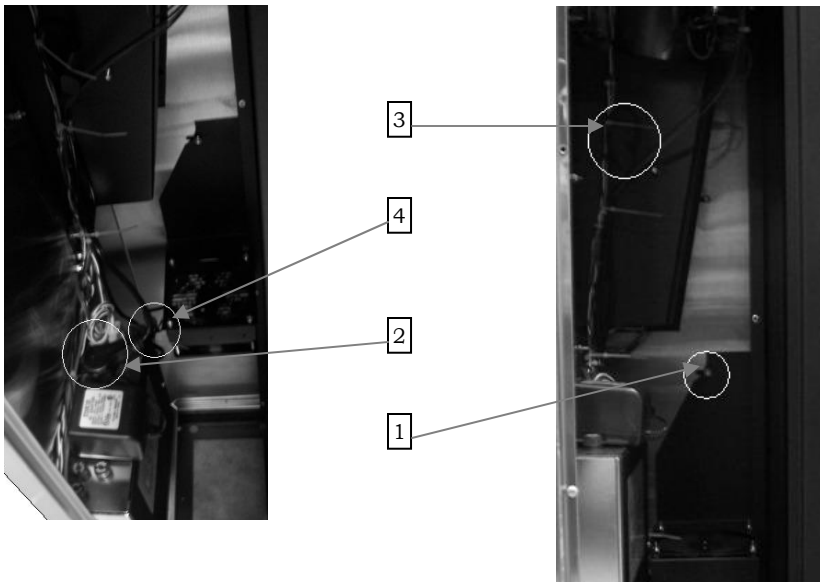
Optional Equipment

HTR-1 Heater

The heater unit is thermostat controlled, pre mounted to a bracket and all wiring is provided. Thermostat is preset at 50° (heater and fan will run until cabinet temperature around thermostat reaches approximately 50°). **When installing the HTR-1 you must replace the 5A heater fuse with the 10A fuse provided.**

Installation

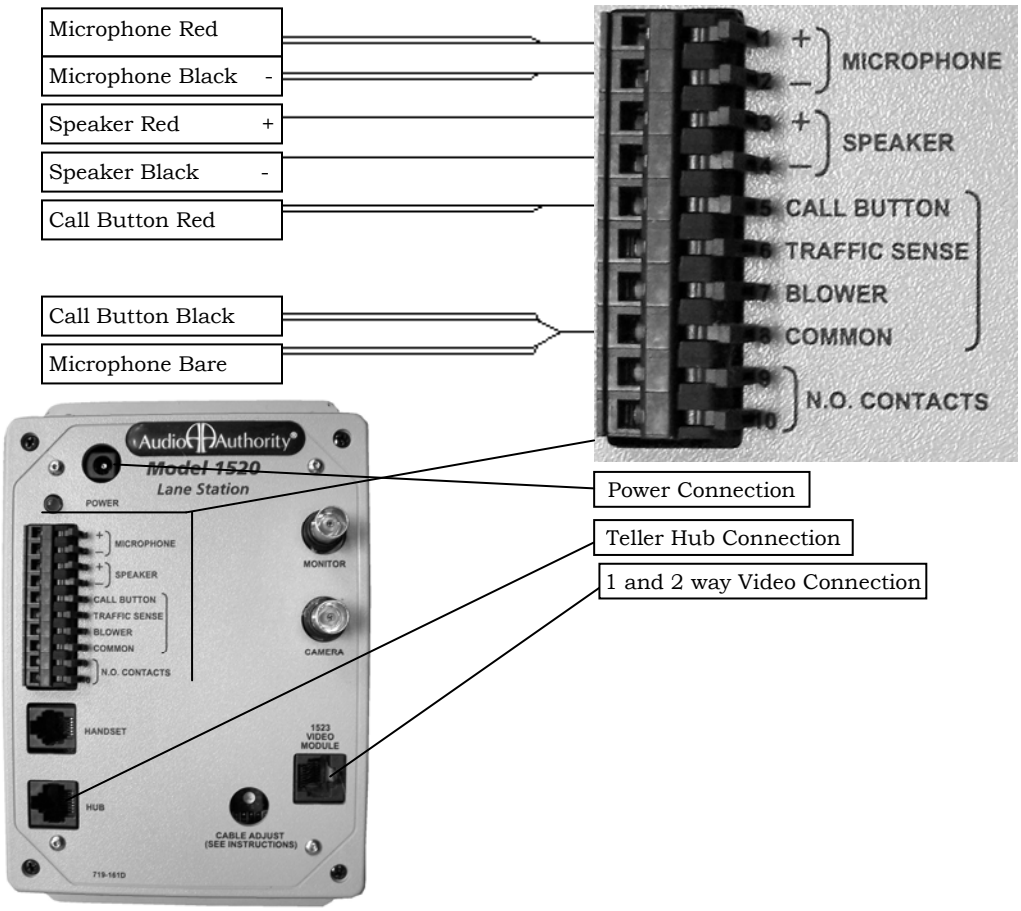
1. Turn off power to the customer unit.
2. Remove the service panel.
3. Remove the nut from the carrier compartment as shown (1) use the stud to mount the heater and replace the nut.
4. Plug the heater into the heater outlet on the electrical panel. (2)
5. Run the wire from the plug with the existing wiring up towards the top of the unit.
6. Loop the wiring back down at the thermostat, use wire ties to hold the wires into place. (3)
7. Bundle the remaining wire with a wire tie near the heater. (4)
8. Remove the 5A heater fuse and replace it with the 10A fuse provided.
9. Replace the service panel.

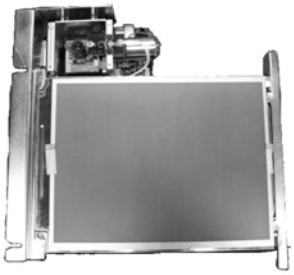


AV-1520 Lane Station

The 3100 RT is designed to have audio and video communications from customer unit run through the AV-1520 Lane Station.
The microphones, call buttons, and speaker are hard wired within the 3100 RT to be connected to a lane station module.
The module is mounted on two studs on the electrical panel.
The module's power supply is plugged into the video power outlets on the electrical panel and connected to the module.

The microphone wires (two shielded cables):
Positive (red) negative (black) and common (bare)
The speaker wires (two red, two black wires):
Positive (red) and negative (black)
The call button wires (two sets of red and black twisted together):
Signal (red) and common (black)





AV-0210 2 Way Video w/ Motorized Tilt Camera

The AV-0210 kit includes a motorized tilt camera, 10" video display, 10" display lens with gasket, mounting brackets, and hardware. System is powered by an AV-1520 lane station.

Installation

1. Remove service panel.
2. Remove the three nuts securing the video opening cover and remove the cover.
3. Remove the protective paper from both sides of the display lens and gasket.
4. Attach the display lens to the stainless from the inside. Press firmly around the edges to make sure the lens is securely in place and the gasket has a good seal.
5. Remove the top two ⅜" nuts from the carrier compartment. (Figure 1)
6. Remove the lens cap from the camera and protective film from the monitor, and attach the Cat5 cable to the port on the camera.
7. Position the video kit so that the left bracket (from the rear) slides into the grove on the inside of the stainless and the camera will slide around the motor. (Figure 2)
8. Position the assembly so that the two slots on the right bracket align with the two open studs from the carrier compartment. Move the assembly onto the two studs and replace the nuts. (Figure 3)
9. Pull the left bracket back to align the mounting holes with the holes in the stainless. Attach the bracket with two 6-32 screws. (Figure 4)
10. Route the Cat5 cable down and thru the channel around the electrical panel and connect to the AV-1520 lane station.
11. Replace the service panel.

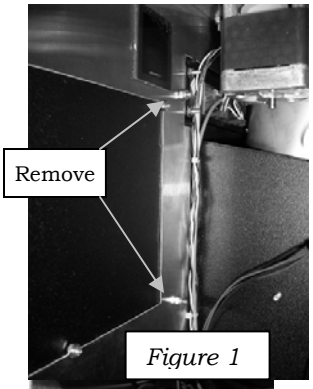


Figure 1

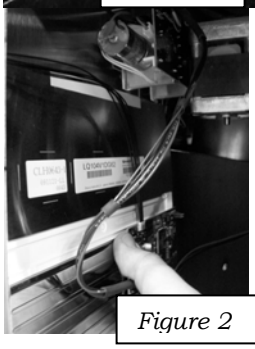


Figure 2

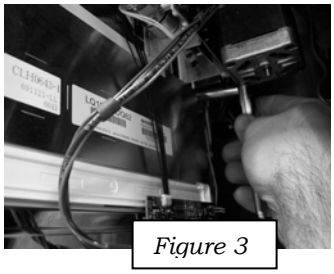


Figure 3

Figure 4

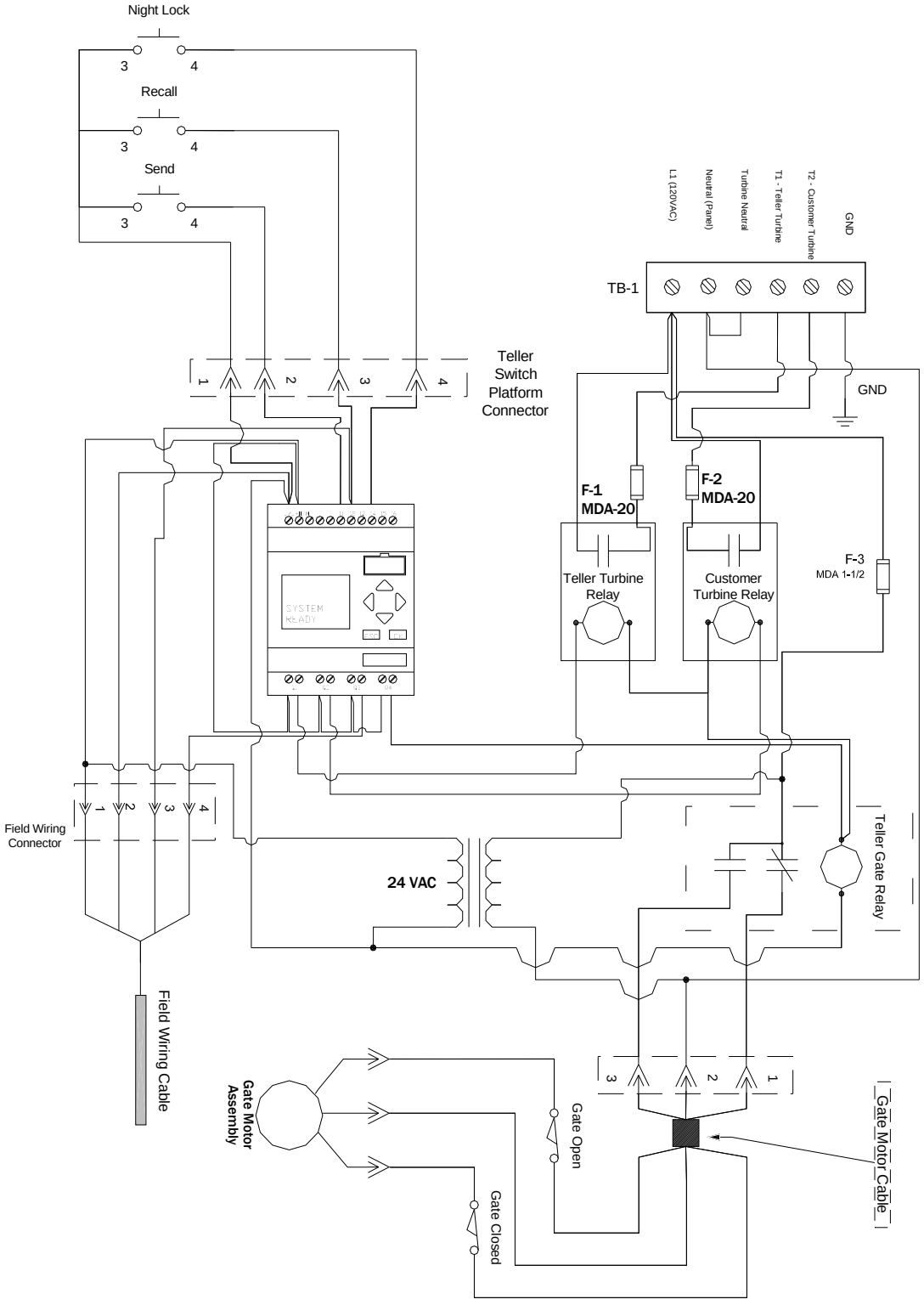
AV-1547-H Traffic Sensor

Kit includes a sensor, connector, and housing.

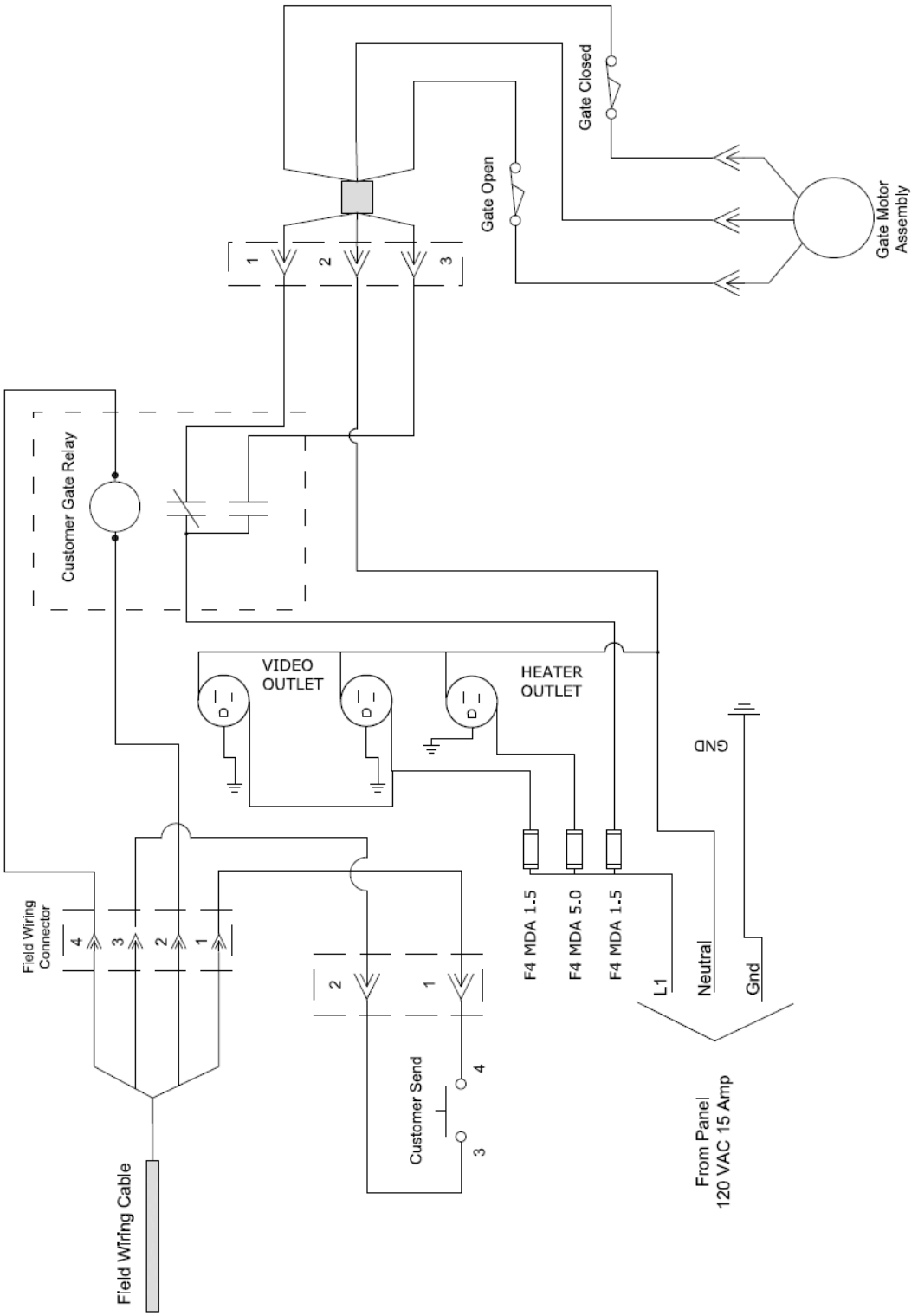
Installation

- Using a flat blade screwdriver, carefully remove the knockout from the bottom of the AV-1520 lane station. (This is where the sensor will connect)
- On the right side of the unit, measure 18 ½“ from the ground and 7/8” from the front. Mark the location.
- From that location measure up and down 9/16” and an additional 3/16” in from the front. Mark both locations.
- At the first marked location drill a 9/16” hole for the cable. At the other two locations drill 5/32” holes for the mounting studs
- Once the holes are drilled, feed the cable thru the 9/16” hole and attach the sensor to the unit.
- Remove the mounting screw from the cover of the assembly.
- Slide the cover off to expose the sensor.
- Connect the cable to the lane station.
- A green LED on the sensor indicates that power is supplied to the sensor. The orange LED indicates the sensor is tripped.
- Adjust the sensor so that an object approximately 4’ from the face of the sensor trips the output. Set an object 4’ from the sensor.
- Adjust the potentiometer (close to the front of the sensor) so that the orange LED illuminates. Move the object in and out several times to make sure the sensor is tripped.
- The selector switch on the sensor should stay in the “D” position.

Appendix A - 3000 RT Teller Electrical Diagram



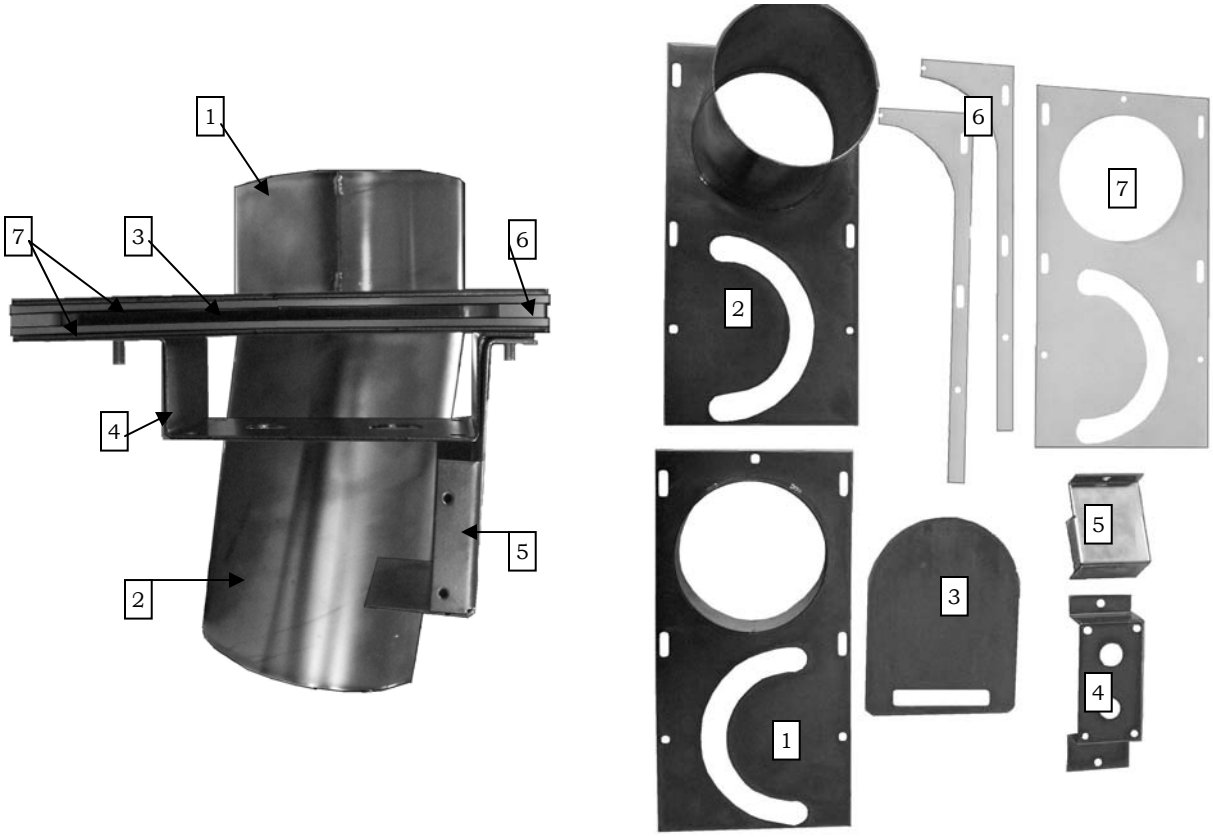
Appendix B – 3100 RT Customer Electrical Diagram



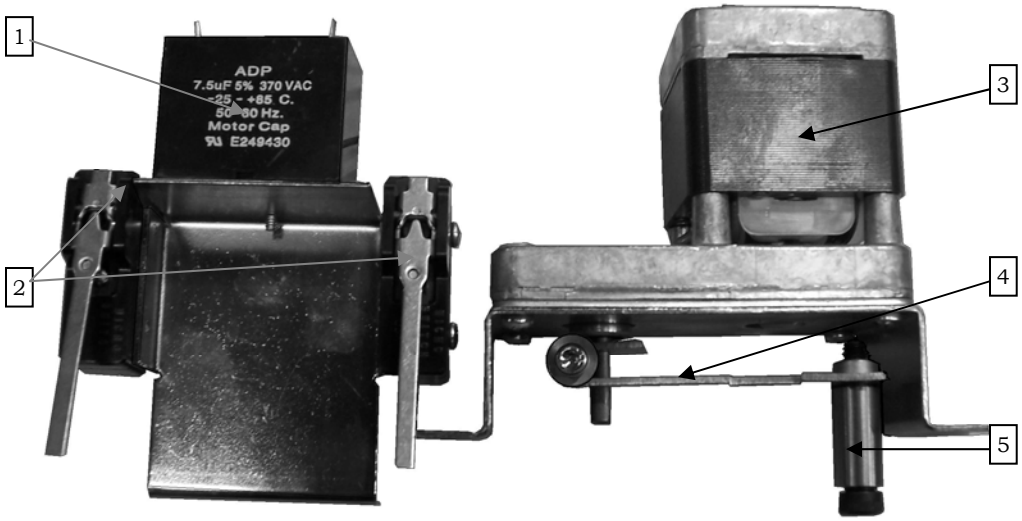
Appendix C – Customer Unit Replacement Parts List

Customer Gate Assembly

Num	Description	Part Number
1	Customer Upper Valve Plate Weldment	FS01-0020
2	Customer Lower Valve Plate Weldment	FS01-0021
3	Customer And Teller Slide Plate	FS01-0015
4	Customer And Teller Motor Mount	FS01-0014
5	Customer And Teller Limit Switch Mount	FS01-0011
6	Slide Gate Side Guide	FS01-0060
7	Slide Gate Top and Bottom Friction Plate	FS01-0061

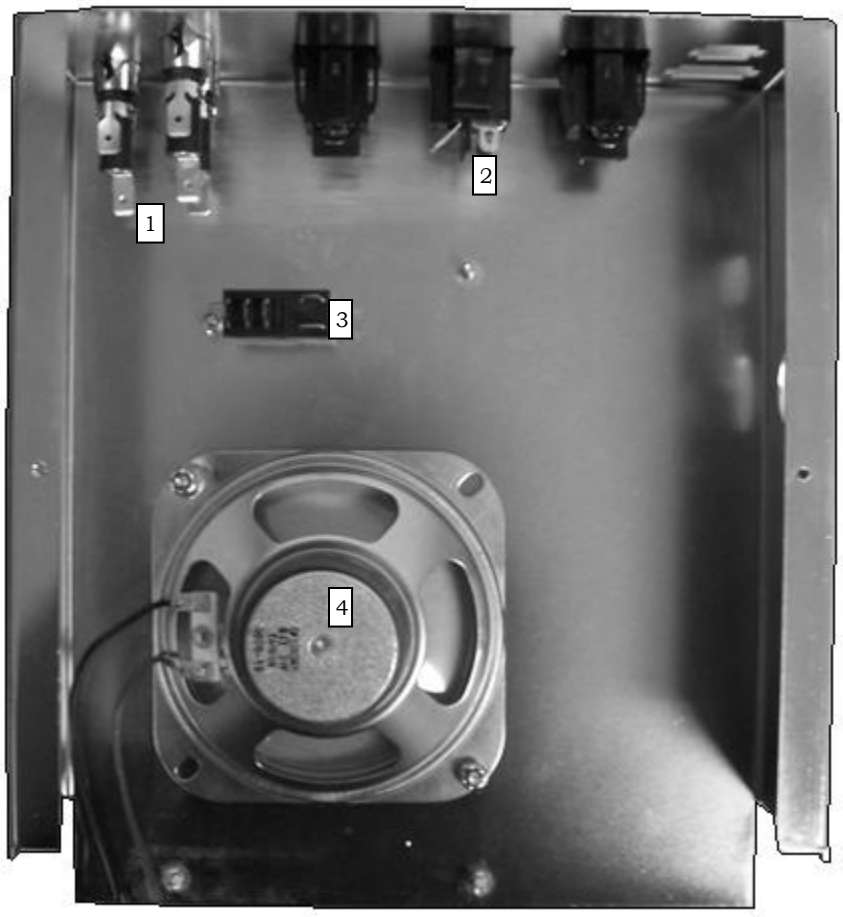


Customer and Teller Motor and Switch Assembly



Num	Description	Part Number
1	Capacitor 7.5µF	MT-005
2	Gate Limit Switch	SR-0006
3	Gate Motor	MT-005
4	Linkage Arm	FS01-0012
5	Linkage Arm Roller	FS01-0062

Electrical Box Components



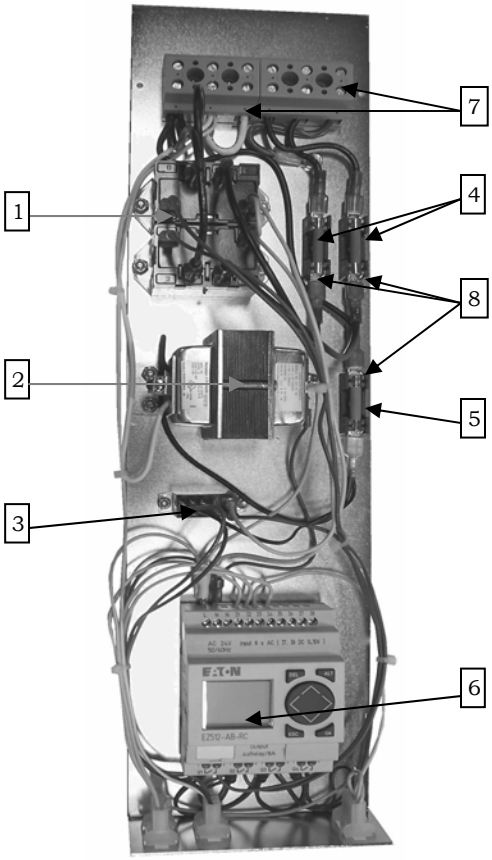
Num	Description	Part Number
1	Thru-panel Fuse Holder	SR-0026
2	Thru-panel Outlet	SR-0029
3	Gate Motor Relay	SR-0015
4	Mylar 4” SQ Speaker	AV-0005
	1.5A MDA Fuse	SR-0022
	5A MDA Fuse	SR-0023

Customer Cabinet

Num	Description	Part Number
1	3100RT Customer Unit Rubber Tube Band	FS01-0211
2	Microphone Assembly	FS30-0071
3	Call Send Keypad	FS30-0041
4	Customer Carrier Support Rods	FS01-0023
5	Customer Carrier Compartment	FS01-0308
6	Customer Landing Pad	FS01-0055-A
7	Call Send Keypad Mount Bracket	FS01-0346
8	Customer Top	FS01-0343
9	Video Lens	FS60-0115
10	Video Blank Cover	FS01-0324
11	Customer Stainless Front	FS01-0302
12	Customer Base	FS01-0305
13	Service Panel Latch	LC-0007
14	Customer Back Panel	FS01-0304
15	Customer Service Panel	FS01-0303

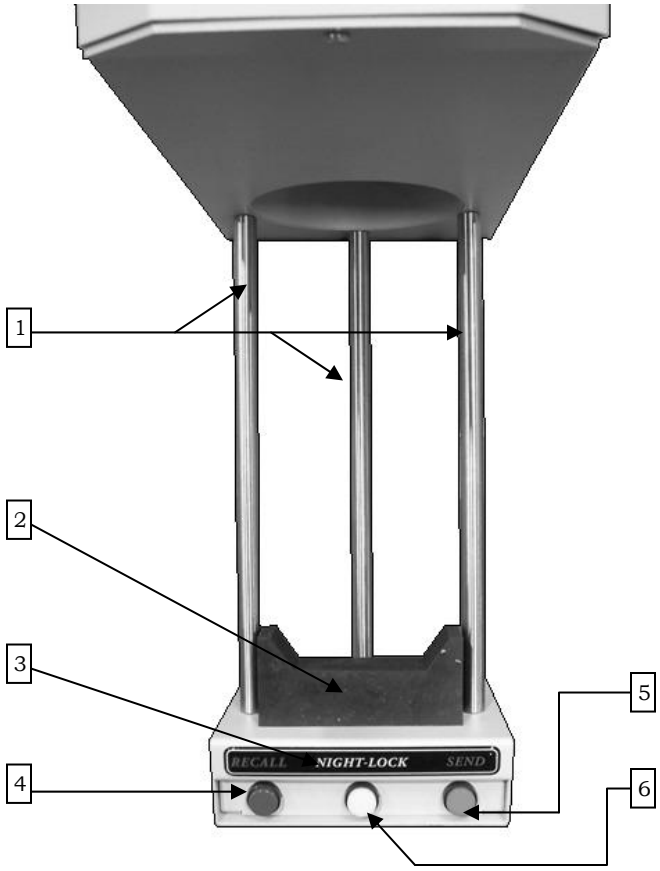
Appendix D – Teller Unit Replacement Parts List

Electrical Components



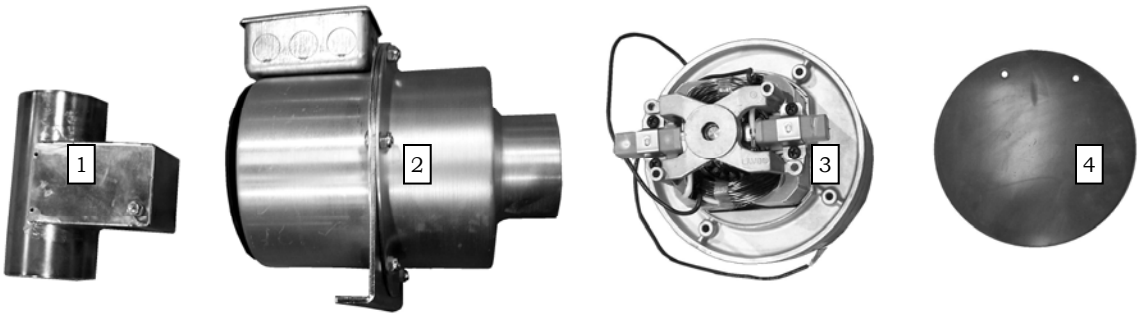
Num	Description	Part Number
1	Turbine Relays	SR-0014
2	Transformer	MT-003
3	Gate Motor Relay	SR-0015
4	20A MDA Fuse	SR-0024
5	1.5A MDA Fuse	SR-0022
6	Controller Module	SR-0107
7	Terminal Block	SR-0027
8	Fuse Holder Panel Mount	SR-0025

Teller Components



Num	Description	Part Number
1	Teller Switch Platform Support Rods	FS01-0053
2	Teller Landing Pad	FS01-0055
3	3000 RT Teller Label	FS01-0214
4	Recall (Red) Switch Teller	SR-0001
5	Send (Green) Switch Teller	SR-0002
6	Night Lock (White) Switch Teller	SR-0003

Appendix E – Turbine and Whisper Valve



Num	Description	Part Number
1	Whisper Valve	WHI-3000RT
2	3000 RT Turbine Assembly	FS01-0102
3	Vacuum Motor	MT-001
4	Turbine Exhaust Flap	FS01-0078