

## *Installation and Operator Manual*





## 521 Series

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## System Features

The Model 521 is an overhead pressure/vacuum system that utilizes 4.5" tubes and carriers. The carrier travels from the teller unit to the customer unit under pressure and returns under vacuum. The blower unit is located near the teller unit.

- The Model 521 is configured with three major subsystems:

1. **521 Teller Unit (TU) P/N: 200501/200502**
2. **Blower Unit : P/N: 200217**
3. **521 Customer Unit (CU) P/N: 200500**
4. **521EZ Master Station (TU): P/N: 201057**
5. **521A Teller Unit (TU) P/N: 201194**

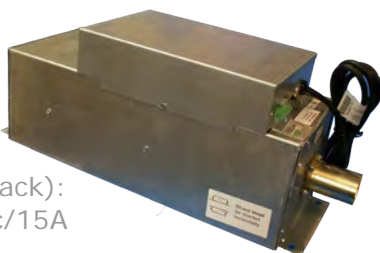


**521 EZ STATION  
Teller Unit  
TU-521-201057**

Teller operating unit which is placed on the countertop

**Single Pack UL  
Blowers  
BM-200-200217**

Features (Ea. Single Pack):  
 1 Power Cards 115Vac/15A  
 1 Blower for pressure  
 1 Blower for vacuum



**521 Manual or Automatic  
Teller Unit  
TU-521-200501/200502**

Teller operating unit which is suspended from the ceiling, typically over the counter top.



**521A CHUTE  
Teller Unit  
TU-521-201194**

Teller operating unit which is suspended above the countertop



**Customer Unit (CU)  
CU-521-200500**

Doorless stand alone unit with optional 2 way video.

# ***521A Teller Unit***

Model: ***TU-521-201194***



**1. System Power On/Off Switch**

**2. Control Panel**



Send Carrier  
to Customer

Retrieve Carrier  
from Customer





### 521A Teller Unit (TU) (P/N: 201194)

#### Switch Operating Instructions



#### **ON/OFF**

Power cycles the complete system (Inside Unit, Outside Unit & Blowers). Power ON the system power light will be present. Power OFF means complete system power down. If installed it will power down the Customer Video Module (CVM).

#### **SEND**

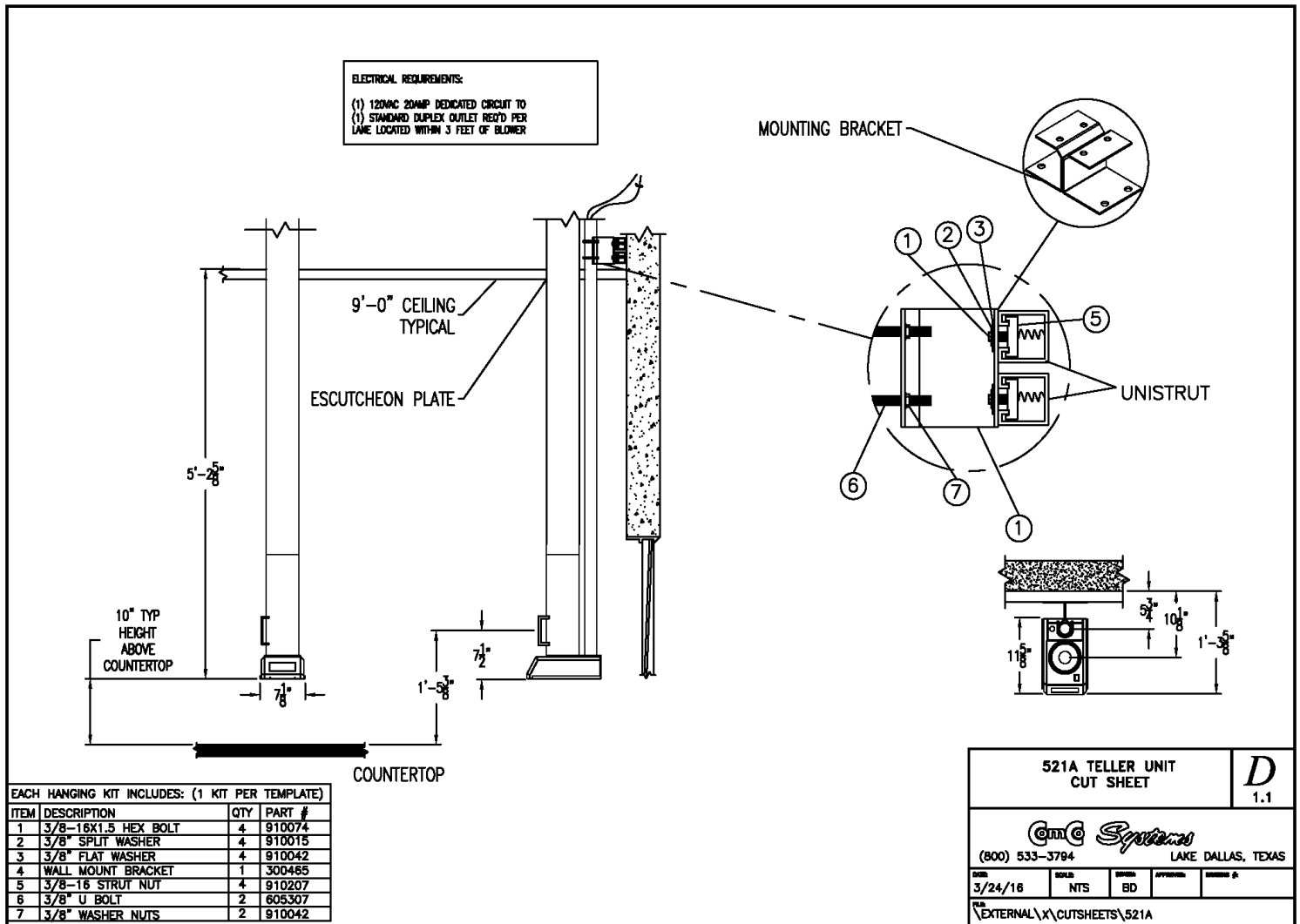
Sends a carrier to the customer unit.

#### **RECALL**

Recalls a carrier from the customer unit.

## 521A Teller Unit (TU) (P/N: 201194)

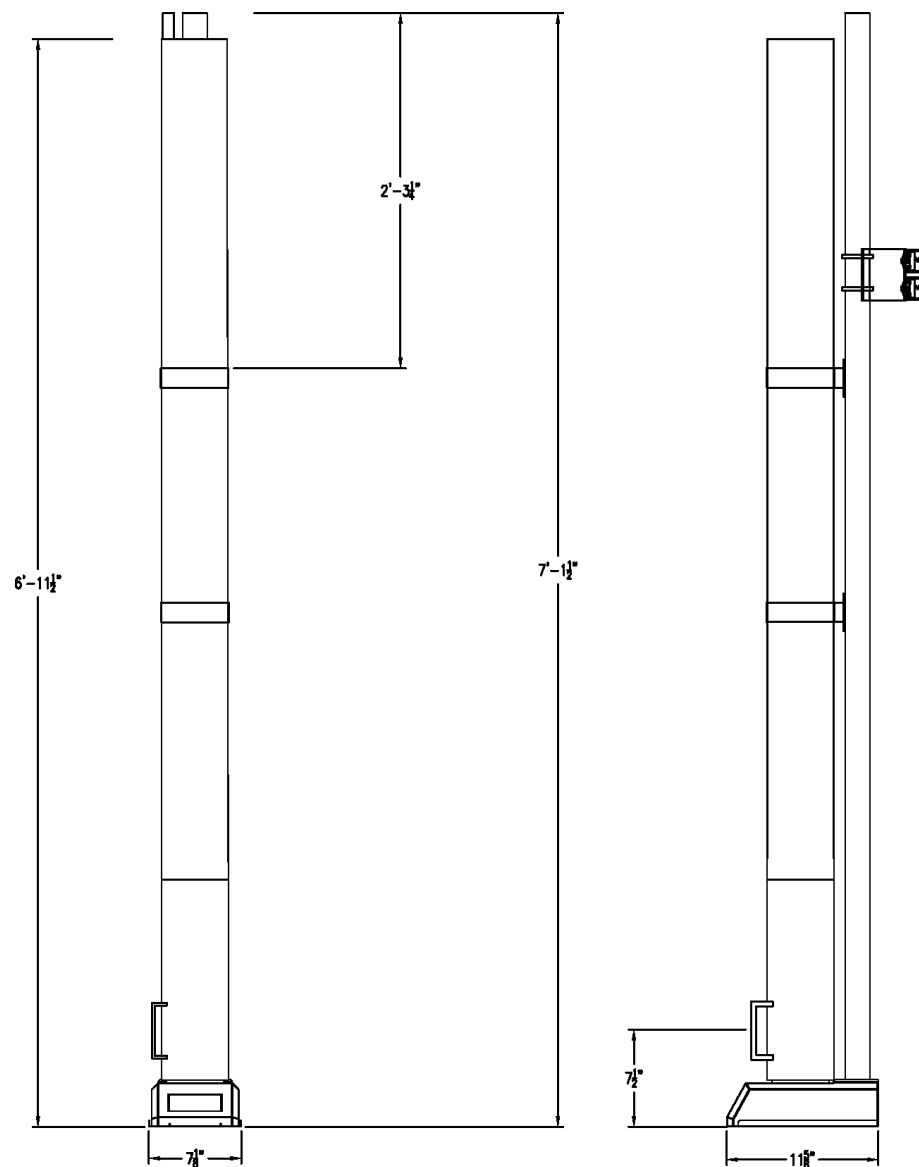
### Dimensional & Electrical Specifications



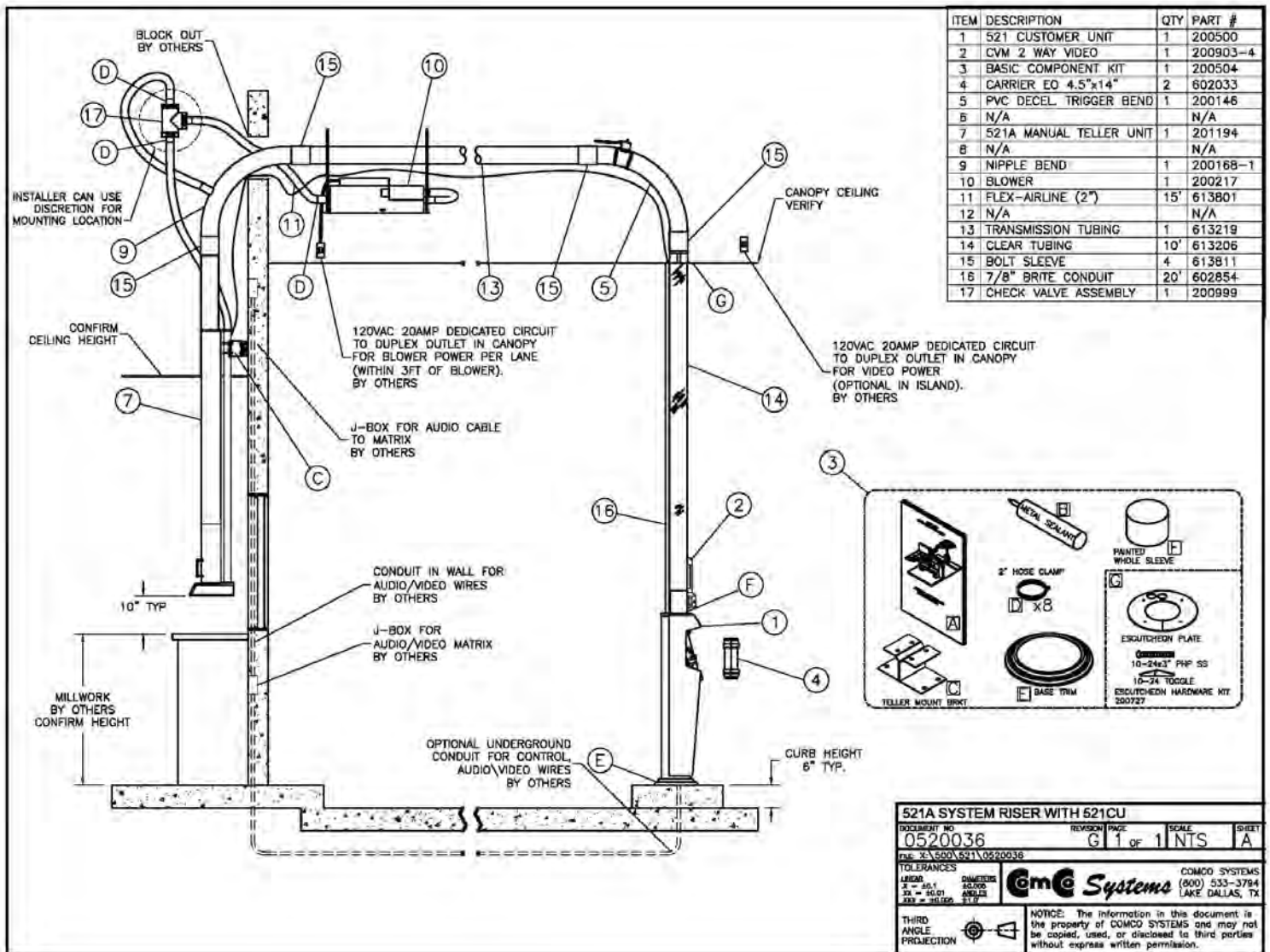


### 521A Teller Unit (TU) (P/N: 201194)

Dimensional Cont.

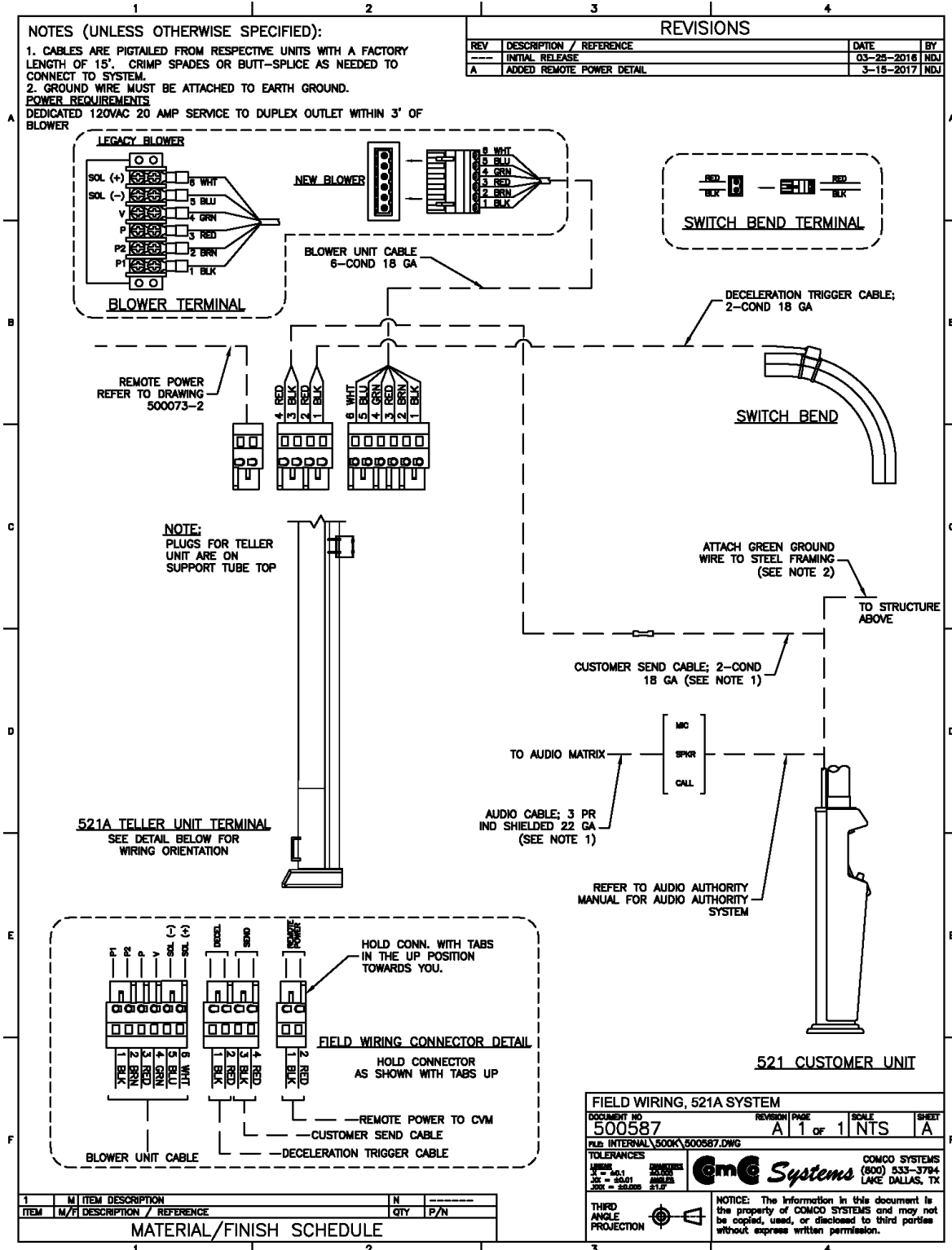


**521A System (P/N: 201194)**  
*System riser details*



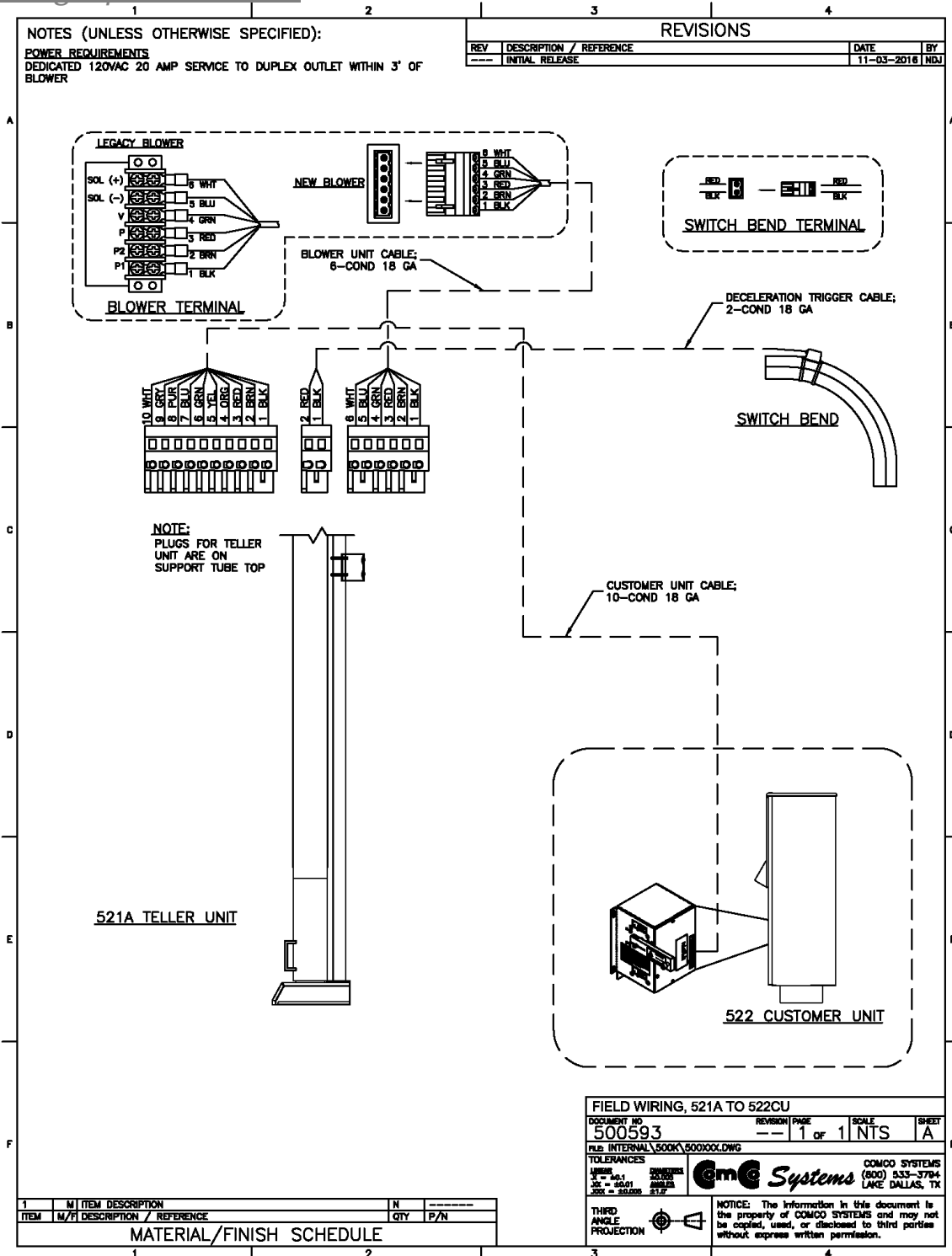
### 521A with 521CU System (P/N: 201194)

#### Field wiring Specifications



## 521A with 522CU System (P/N: 201194)

### Field wiring Specifications



# ***521 Teller Unit***

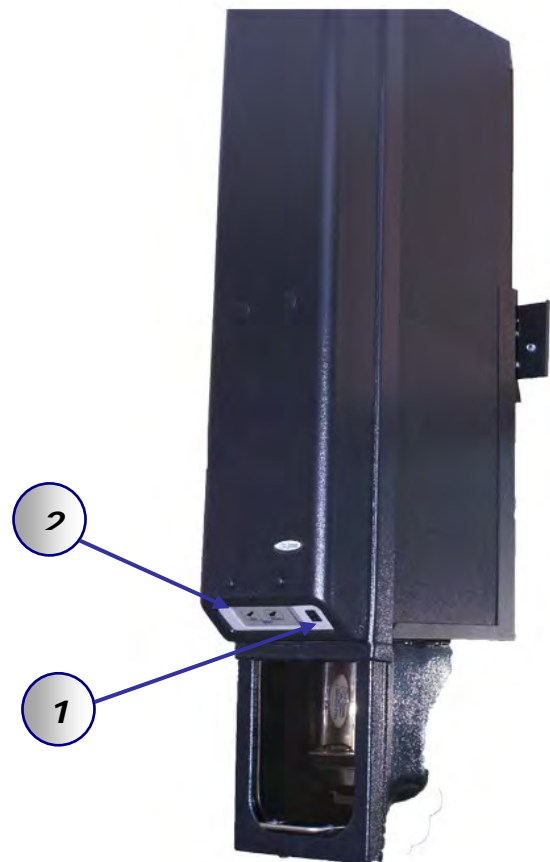
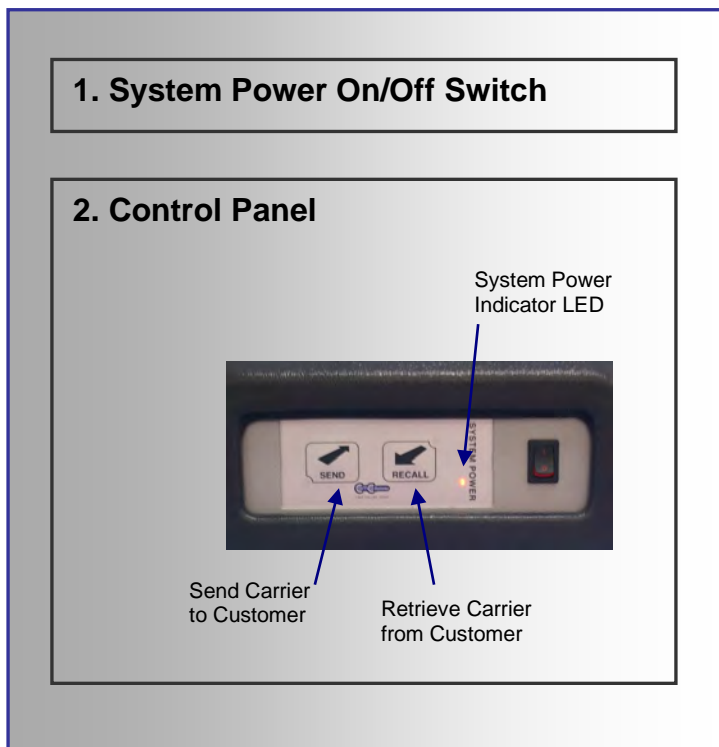
## ***Manual & Motorized***

Model: ***TU-521-200501/200502***



## 521 Teller Unit (TU) (P/N: 200501/200502)

The 521 teller terminal utilizes an automatic or manual door design. Insert the carrier in the unit and press Send. Carrier dispatches to the customer unit.





### 521 Teller Unit (TU) (P/N: 200501/200502) Switch Operating Instructions

Fig. 1.0



#### **ON/OFF**

Power cycles the complete system (Inside Unit, Outside Unit & Blowers). Power ON the system power light will be present. Power OFF means complete system power down. If installed it will power down the Customer Video Module (CVM).

#### **SEND**

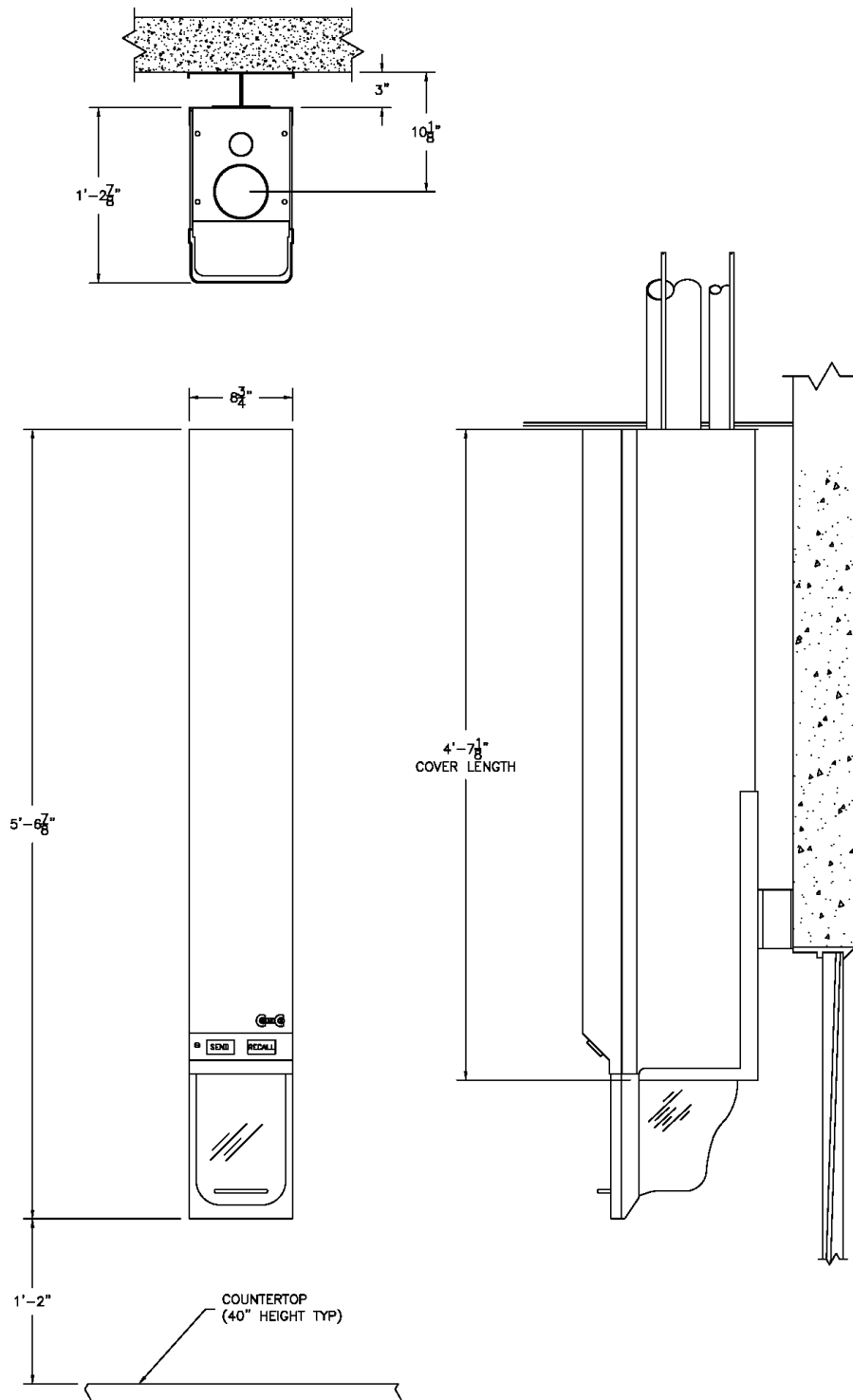
Sends a carrier to the customer unit.

#### **RECALL**

Recalls a carrier from the customer unit.

**521 Teller Unit (TU) (P/N: 200501/200502)**

Dimensional & Electrical Specifications



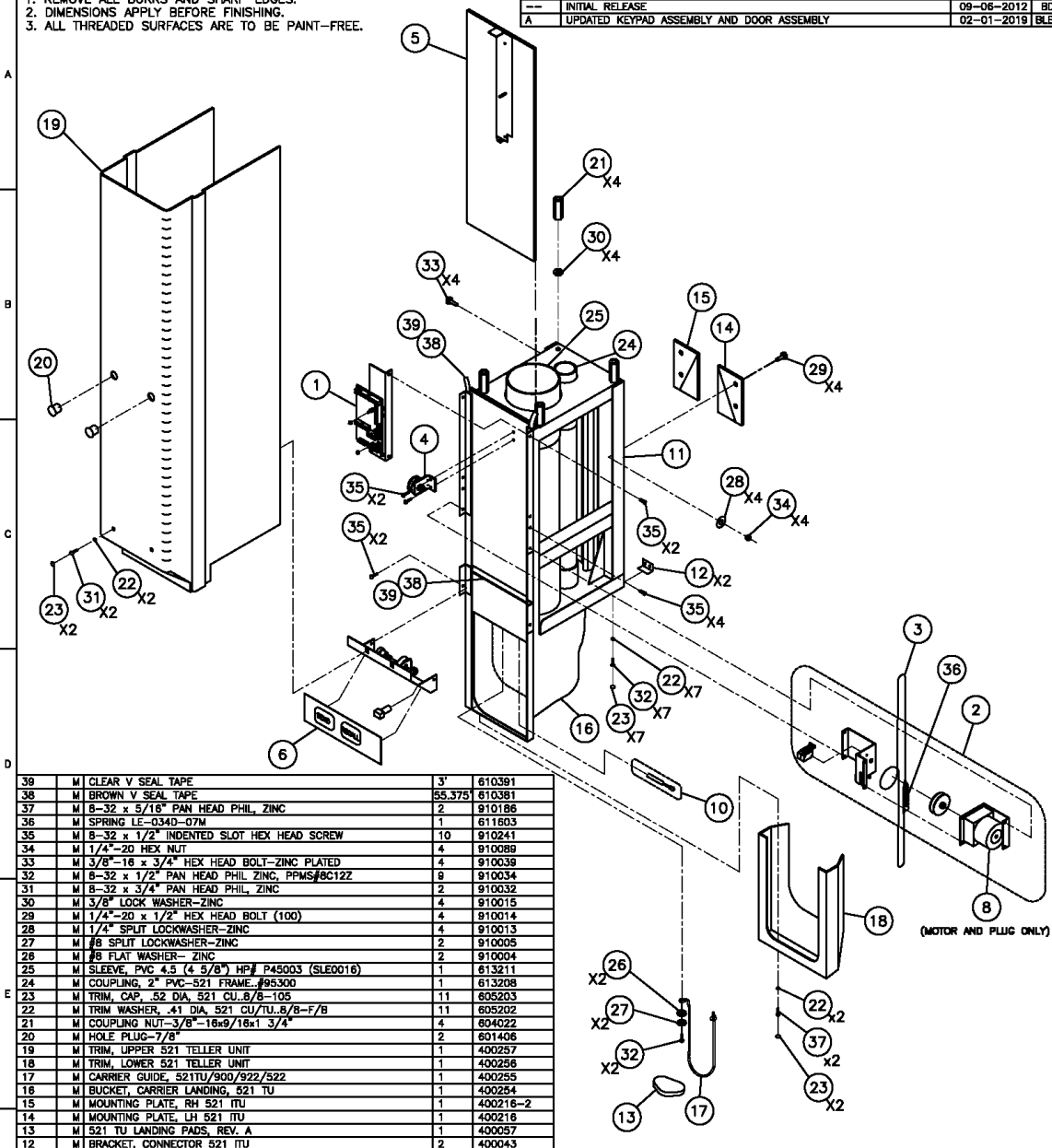
# 521 Teller Unit (TU) (P/N: P/N: 200501/200502)

## Parts Breakaway:

**NOTES (UNLESS OTHERWISE SPECIFIED):**

1. REMOVE ALL BURRS AND SHARP EDGES.
2. DIMENSIONS APPLY BEFORE FINISHING.
3. ALL THREADED SURFACES ARE TO BE PAINT-FREE.

REVISIONS			
REV	DESCRIPTION / REFERENCE	DATE	BY
--	INITIAL RELEASE	09-06-2012	BD
A	UPDATED KEYPAD ASSEMBLY AND DOOR ASSEMBLY	02-01-2019	BLB



ITEM	M/F	DESCRIPTION / REFERENCE	QTY	P/N
39	M	CLEAR V SEAL TAPE	3'	610391
38	M	BROWN V SEAL TAPE	55.375	610381
37	M	8-32 x 5/16" PAN HEAD PHIL. ZINC	2	910186
36	M	SPRING LE-0340-07M	1	611603
35	M	8-32 x 1/2" INDENTED SLOT HEX HEAD SCREW	10	910241
34	M	1/4"-20 HEX NUT	4	910089
33	M	3/8"-18 x 3/4" HEX HEAD BOLT-ZINC PLATED	4	910039
32	M	8-32 x 1/2" PAN HEAD PHIL. ZINC, PPMS/BC12Z	8	910034
31	M	8-32 x 3/4" PAN HEAD PHIL. ZINC	2	910032
30	M	3/8" LOCK WASHER-ZINC	4	910015
29	M	1/4"-20 x 1/2" HEX HEAD BOLT (100)	4	910014
28	M	1/4" SPLIT LOCKWASHER-ZINC	4	910013
27	M	#8 SPLIT LOCKWASHER-ZINC	2	910005
26	M	#8 FLAT WASHER-ZINC	2	910004
25	M	SLEEVE, PVC 4.5 (4 5/8") HF# P45003 (SLE0016)	1	613211
24	M	COUPLING, 2" PVC-521 FRAME, #95300	1	613208
23	M	TRIM, CAP, .52 DIA, 521 CU./TU. 8/8-105	11	605203
22	M	TRIM WASHER, .41 DIA, 521 CU./TU. 8/8-F/B	11	605202
21	M	COUPLING NUT-3/8"-18x9/16x1 3/4"	4	604022
20	M	HOLE PLUG-7/8"	2	601406
19	M	TRIM, UPPER 521 TELLER UNIT	1	400257
18	M	TRIM, LOWER 521 TELLER UNIT	1	400256
17	M	CARRIER GUIDE, 521TU/900/922/522	1	400255
16	M	BUCKET, CARRIER LANDING, 521 TU	1	400254
15	M	MOUNTING PLATE, RH 521 ITU	1	400216-2
14	M	MOUNTING PLATE, LH 521 ITU	1	400216
13	M	521 TU LANDING PADS, REV. A	1	400057
12	M	BRACKET, CONNECTOR 521 ITU	2	400043
11	M	521 FRAME	1	300090
10	M	ASSEMBLY, CABLE, GROMMET AND LED, 521TU	1	201281
9	M	ASSEMBLY, CABLE JUMPER, 521TU	1	201083-1
8	M	ASSEMBLY, DOOR MOTOR WITH PLUG, 521/LTS	1	200443
7	M	LIMIT SWITCH WIRE HARNESS TO PC BOARD, 521, REV.B	1	200187
6	M	SWITCH/LOWER PULLEY ASSEMBLY	1	200256
5	M	521 DOOR ASSEMBLY W/HOLES DRILLED	1	200138-2
4	M	TOP PULLEY/DOOR BRAKE ASSEMBLY, MOTORIZED 521	1	200257-2
3	M	CABLE ASSEMBLY, DOOR DRIVE, MOTORIZED 521 TU	1	200037-2
2	M	DOOR SWITCH BRACKET ASSEMBLY, MOTORIZED, 521	1	200072
1	M	ASSEMBLY, 521 TELLER UNIT CONTROL, REV. B	1	200071

**ASSEMBLY, TELLER UNIT, MOTORIZED, 521**

DOCUMENT NO. **200502** REVISION PAGE **A** 1 of 1 SCALE **NTS** SHEET **A**

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TOLERANCES  
 LINEAR .001 DIMENSIONS .005  
 ANGLES .010 .015  
 SURF .0008 .015

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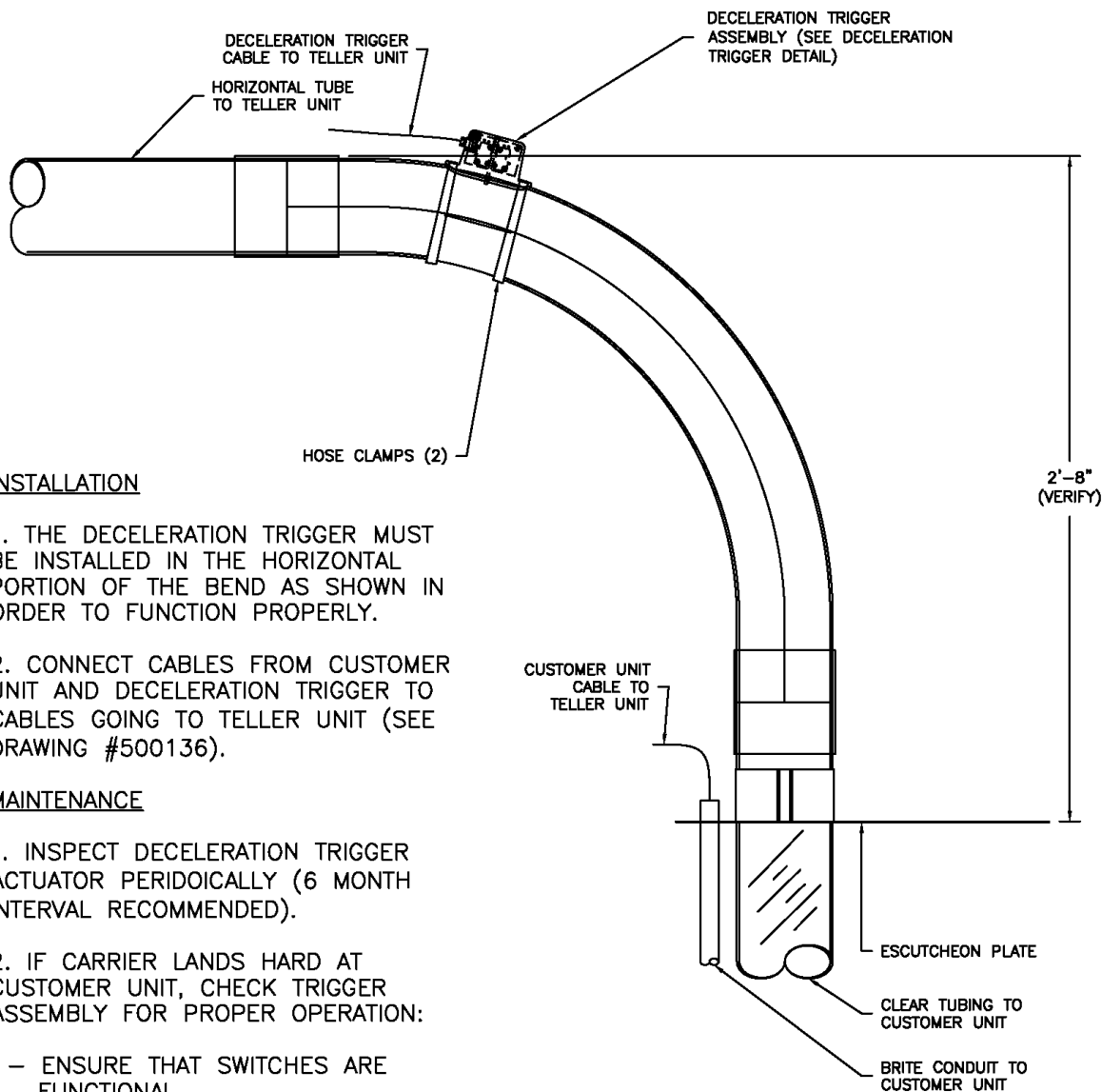
THIRD ANGLE PROJECTION

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**521 Teller Unit (TU)** (P/N: 200501/200502)Parts Descriptions:

### 521 Teller Unit Installation Detail

#### Switch Bend



#### INSTALLATION

1. THE DECELERATION TRIGGER MUST BE INSTALLED IN THE HORIZONTAL PORTION OF THE BEND AS SHOWN IN ORDER TO FUNCTION PROPERLY.

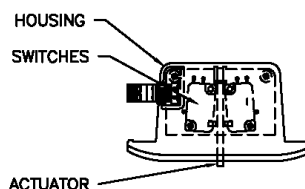
2. CONNECT CABLES FROM CUSTOMER UNIT AND DECELERATION TRIGGER TO CABLES GOING TO TELLER UNIT (SEE DRAWING #500136).

#### MAINTENANCE

1. INSPECT DECELERATION TRIGGER ACTUATOR PERIODICALLY (6 MONTH INTERVAL RECOMMENDED).

2. IF CARRIER LANDS HARD AT CUSTOMER UNIT, CHECK TRIGGER ASSEMBLY FOR PROPER OPERATION:

- ENSURE THAT SWITCHES ARE FUNCTIONAL
- ENSURE THAT ACTUATOR IS INTACT. IF ACTUATOR IS MISSING, WORN, OR CRACKED, REPLACE IMMEDIATELY
- ENSURE THAT HOUSING SEAL IS TIGHT AND IS SECURELY ATTACHED TO BEND.



DECELERATION TRIGGER DETAIL

## 521 Teller Unit Installation Detail

### Check Valve Bend

#### MOUNTING

1. MOUNT WALL BRACKET (A) TO WALL WITH MINIMUM 1/4" HARDWARE (4 PLC) ABOVE WINDOW FRAME. BUTT WALL BRACKETS EDGE-TO-EDGE FOR PROPER SPACING.

2. SLIDE TELLER TERMINAL (B) ONTO WALL BRACKET (A) FROM ABOVE AND SECURE WITH 1/4-20x1/2 HEXT BOLTS.

3. SUPPORT TELLER TERMINAL FROM ABOVE WITH 3/8-16 ALLTHREAD (C) (4 PLC). ATTACH RODS TO 3/8-16 COUPLING NUTS ON TELLER TERMINAL. SECURE ALLTHREAD TO OVERHEAD STRUCTURE WITH BEAM CLAMPS OR CONCRETE ANCHORS.

4. USE ANGLE CLIPS (D) TO ALIGN TERMINALS WHEN MULTIPLE UNITS ARE INSTALLED (SEE REAR VIEW).

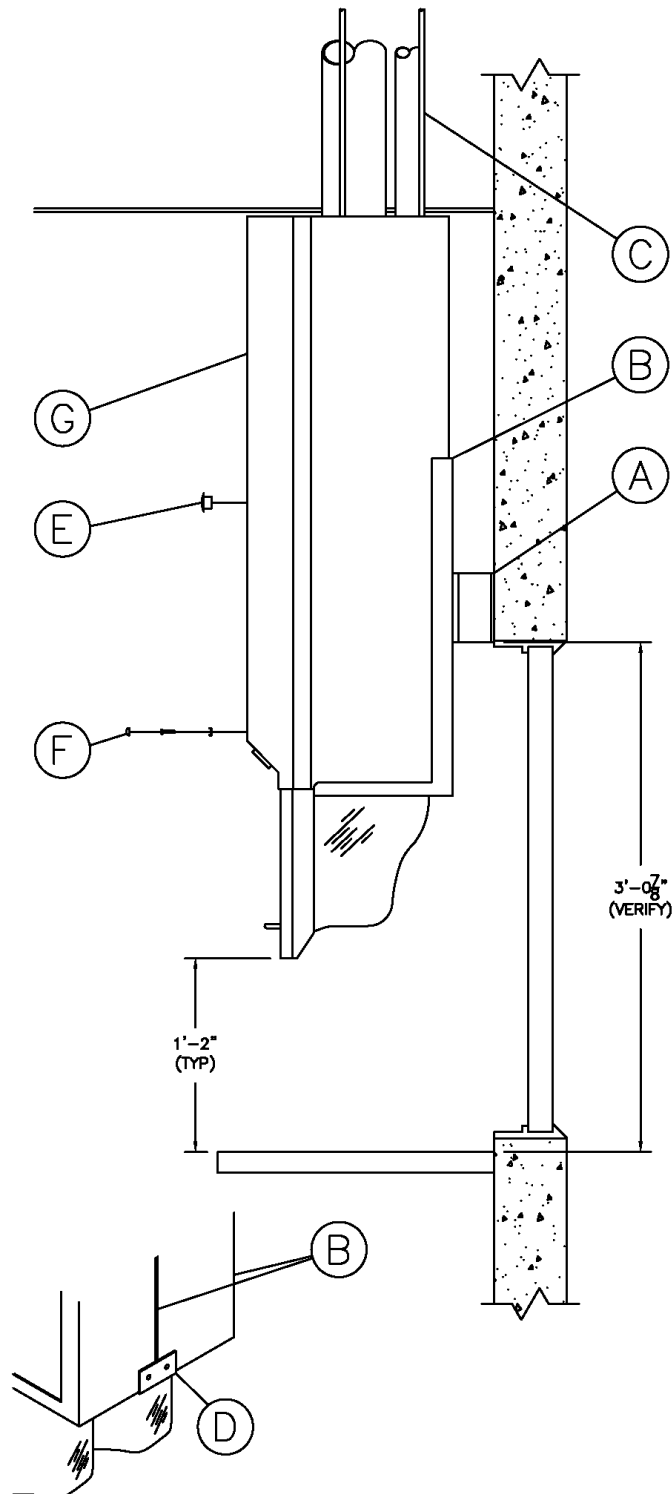
#### ACCESS

1. REMOVE HOLE PLUGS (E) FROM COVER (G).

2. REMOVE TRIM CAPS, SCREWS, AND TRIM WASHERS (F) FROM COVER (G).

3. PULL COVER (G) FROM TELLER UNIT (B) USING THUMB HOLES.

4. WHEN REPLACING COVER (G), ENSURE THAT BOTH SIDES OF COVER (G) SLIDE INTO FRAME CLIPS ON TELLER UNIT (B).





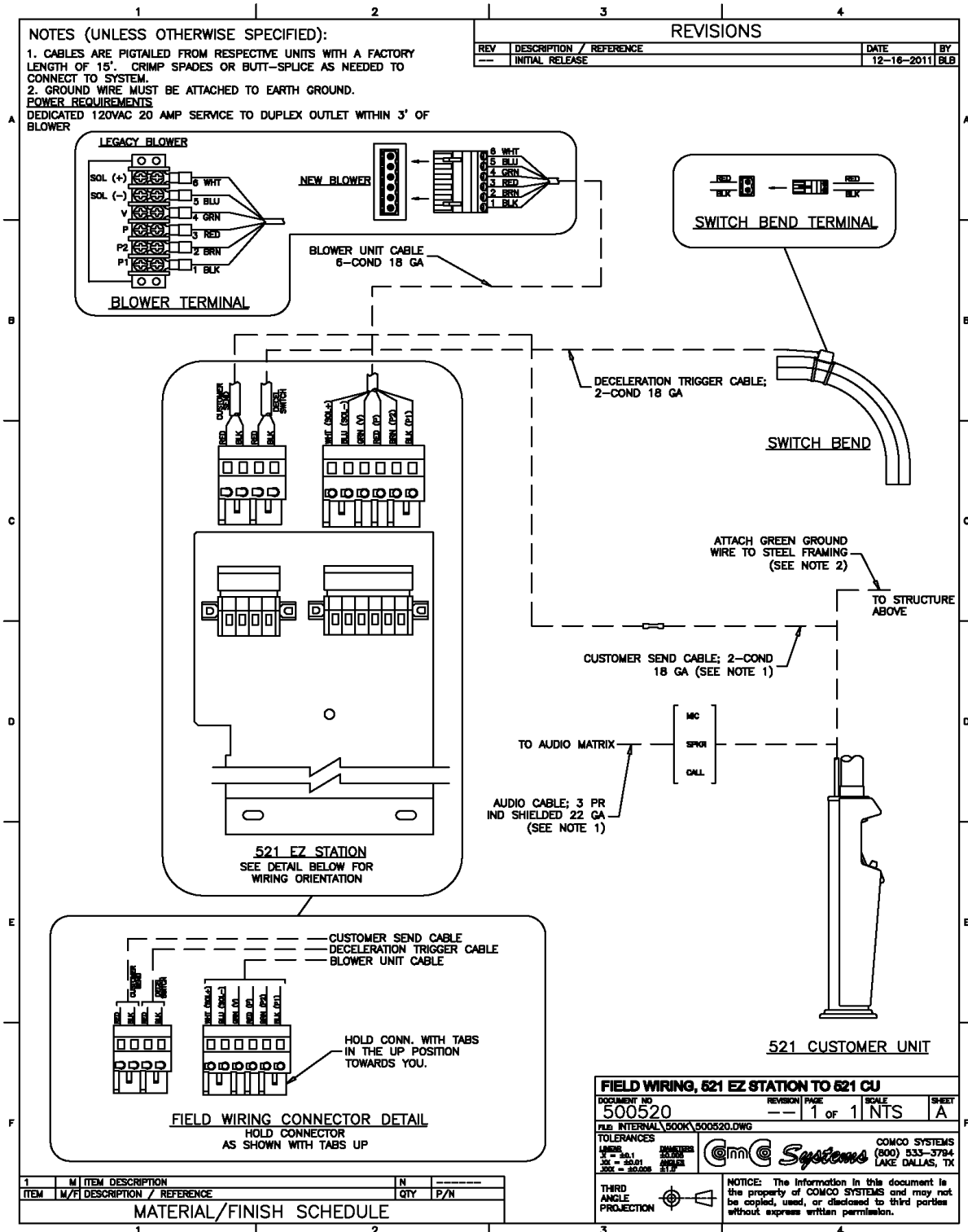
# ***521 EZ MASTER STATION***

Model: ***TU-521-201057***



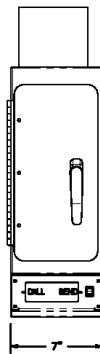
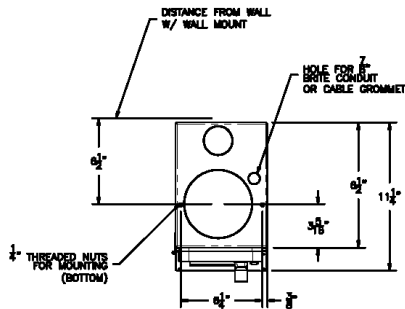
# 521EZ with 521CU System (P/N: 201057)

## Field wiring Specifications



## 521EZ System (P/N: 201057)

### Dimensional & Electrical Specifications



## Ezy-Flow Stations

Ezy-Flow stations are constructed of 14 gauge CRS, with a polyurethane finish. The heavy acrylic, gasketed door is equipped with a positive latch and chrome handle ensuring a tight seal under all conditions. The integral air valve opens under pressure, closes under vacuum, and is maintenance-free. All electrical components are accessible from inside the station.

## Standard Features

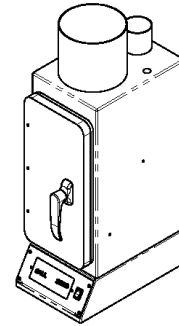
In Use/Arrival light glows green when the system is ready for use, glows yellow when the system is in use, and glows red upon carrier arrival until carrier is removed.

Door interlock to insure that door is closed when blower is running.

**Fits all carrier lengths (specify).**

Available for steel or PVC tubing.

Low voltage wiring is used to connect stations and blower unit.

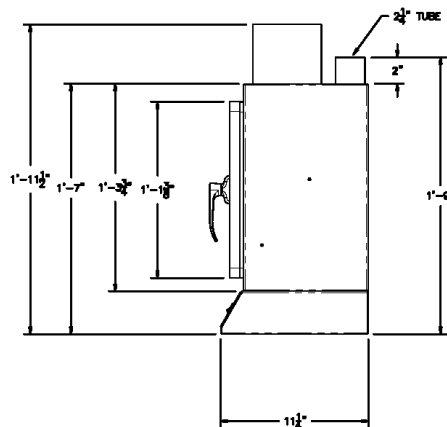


### Optional Features

Photo-eye to detect presence of carrier.

Audible signal to announce carrier arrival.

ISO VIEW



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521 EZY-FLOW  
"A" SERIES UPSEND MASTER STATION  
DETAILS



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LAKE DALLAS, TEXAS

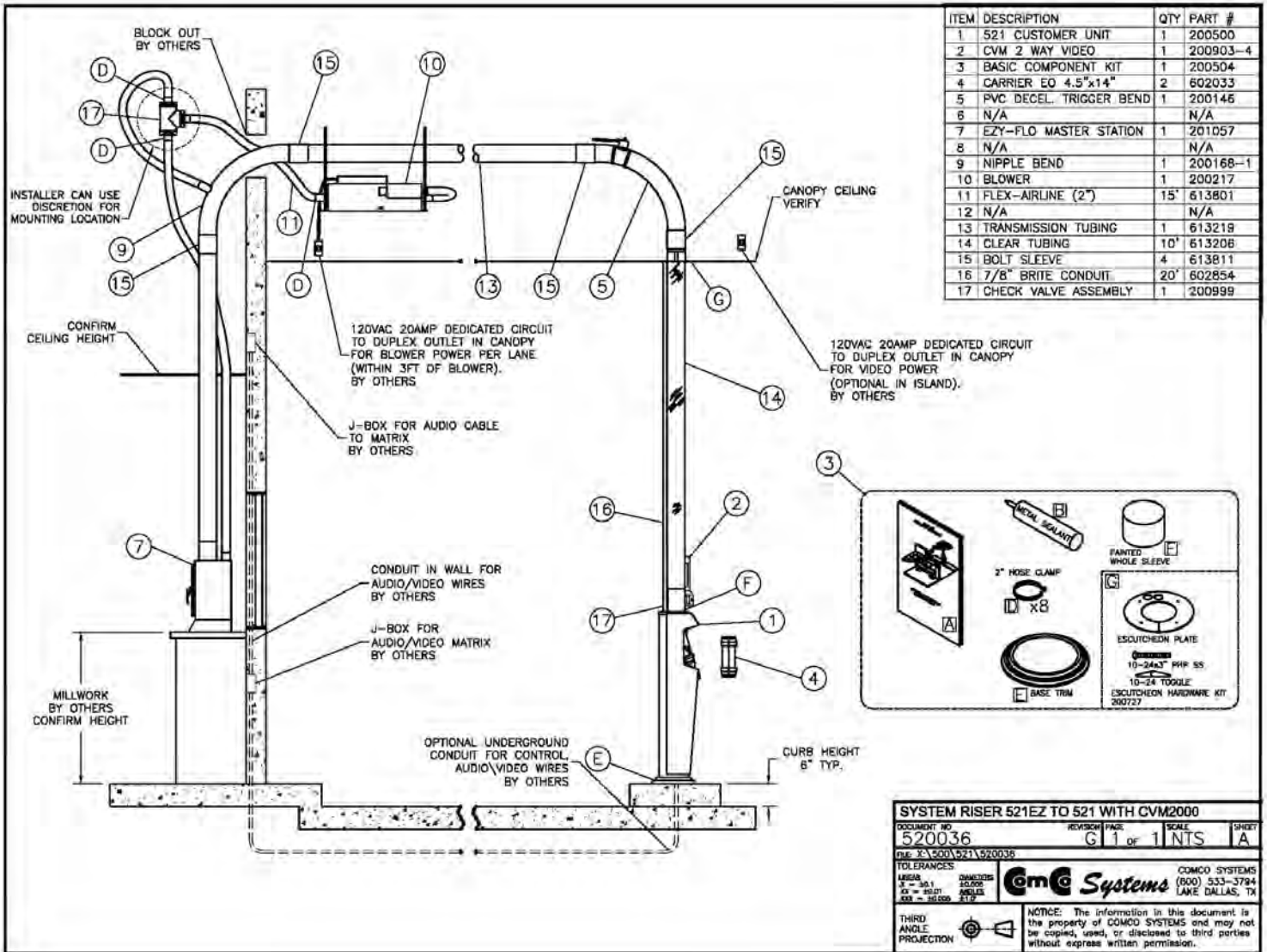
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\EXTERNAL\POINTSYS\521 EZ

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**521EZ System (P/N: 201057)**  
*System Riser Details*





# ***Customer Unit***

Model: ***CU-521-200500***

## Customer Unit with optional 2 Way Video (P/N: 200500) Machine & Switch Operating Instructions

**SEND** Sends carrier to Teller Unit.  
(NOTE: DO NOT INSERT LOOSE ITEMS DIRECTLY INTO UNIT)

**CALL** Generates an audible tune at the Teller Center when depressed.

*Upper Switch Panel (P/N: 200573)*



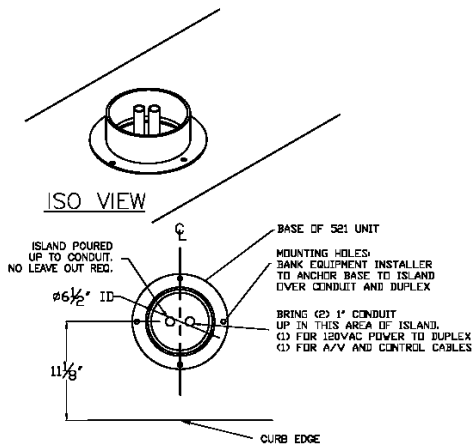
*Lower Switch Panel (P/N: 200574)*



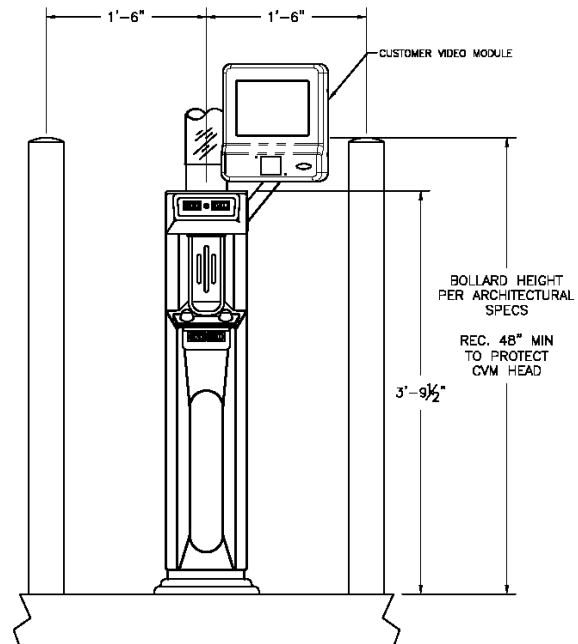
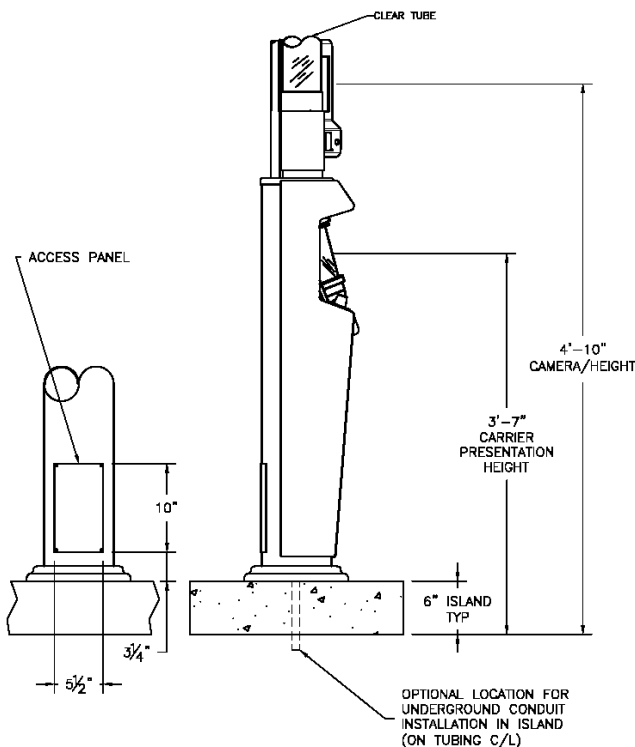
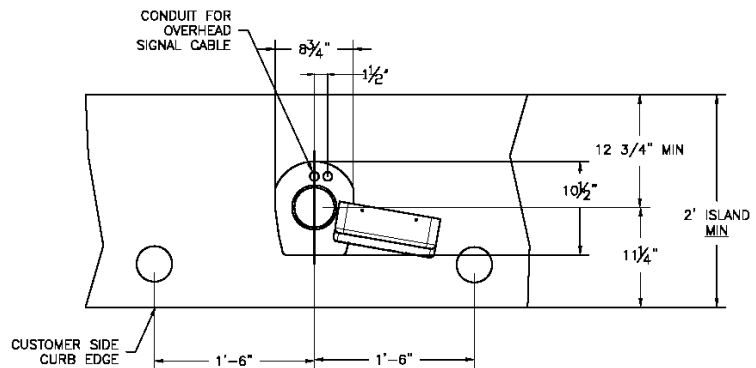


### Customer Unit (P/N: 200500) Dimensional & Electrical Specifications

Item	Measurements	Value
Customer Video Module (CV-100-200203)	Nominal Voltage Current (max)	12 VDC 1.2 amps

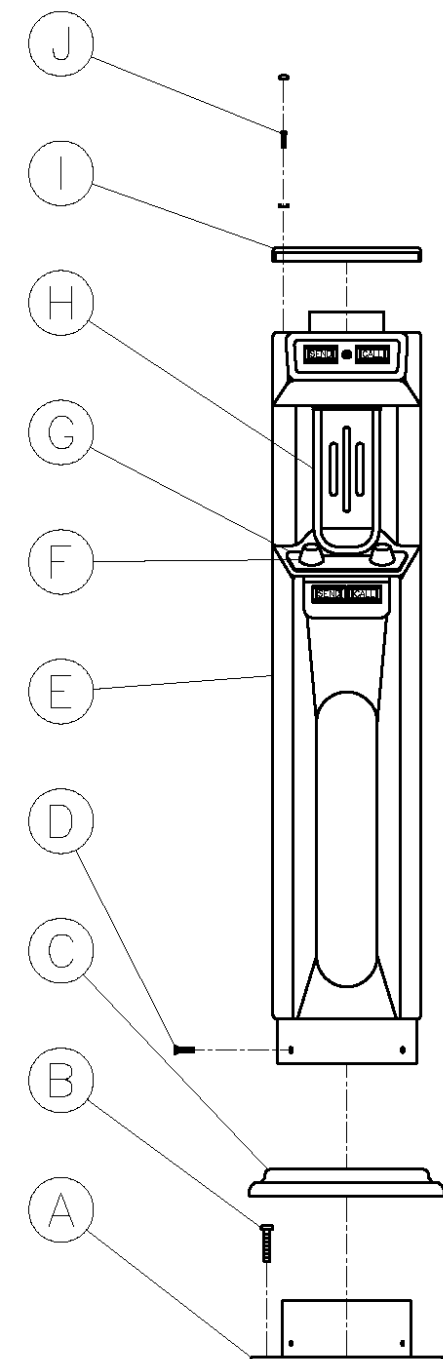


OPTIONAL UNDERGROUND CONDUIT DETAIL



## Customer Unit (P/N: 200500)

### Mounting & Access



#### MOUNTING

1. FASTEN MOUNTING BRACKET (A) TO ISLAND, USING MINIMUM 1/4" HARDWARE (B) (SET OF 4). POSITION LEADING EDGE OF BRACKET 8" FROM EDGE OF ISLAND AND SHIM IF NECESSARY TO LEVEL.
2. PLACE BASE TRIM (C) OVER MOUNTING BRACKET (A).
3. PLACE UNIT OVER MOUNTING BRACKET AND SECURE WITH 1/4" SCREWS (D) (SET OF 4).

#### SERVICE ACCESS

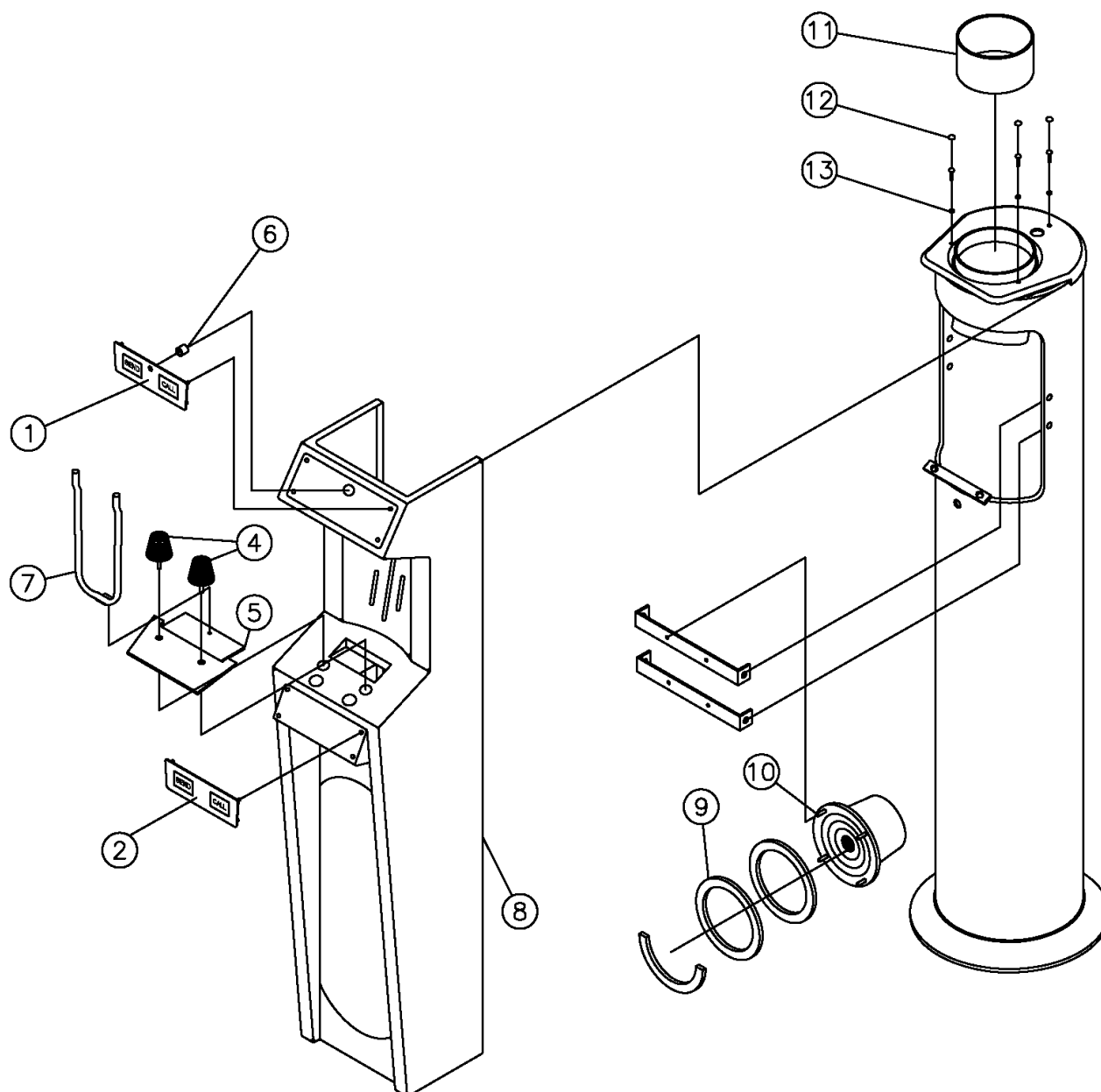
1. REMOVE TRIM CAPS, SCREWS, AND TRIM WASHERS (J) (SET OF 3) FROM TOP TRIM (I).
2. UNSCREW LANDING KNOBS (F) AND CARRIER GUIDE (H) FROM LANDING PLATE (G).
3. REMOVE BASE COVER (E) FROM BASE BY PULLING FORWARD – BEING CAREFUL NOT TO SCRATCH PAINT OR SEVER WIRES.

#### FOR UNDERGROUND WIRING

1. REMOVE TRIM CAPS, SCREWS, AND TRIM WASHERS (J) (SET OF 3) FROM TOP TRIM (I).
2. REMOVE 4 SCREWS HOLDING ACCESS PLATE (NOT SHOWN – BOTTOM REAR OF UNIT) TO UNIT.
3. THREAD WIRES DOWN THROUGH UNIT.
4. TERMINATE WIRES WITH SPADES AND CONNECT TO TERMINAL STRIP IN BASE.
5. CONNECT UNDERGROUND WIRING IF AVAILABLE
6. ATTACH GREEN GROUND WIRE TO EARTH GROUND. IF CONDUIT IS USED, A HOLE MUST BE TAPPED IN THE CONDUIT AND A SCREW USED TO SECURE GROUND WIRE TO CONDUIT.
7. REPLACE COVER AND ACCESS PLATE.

### Customer Unit (P/N: 200500)

#### Parts Breakaway:

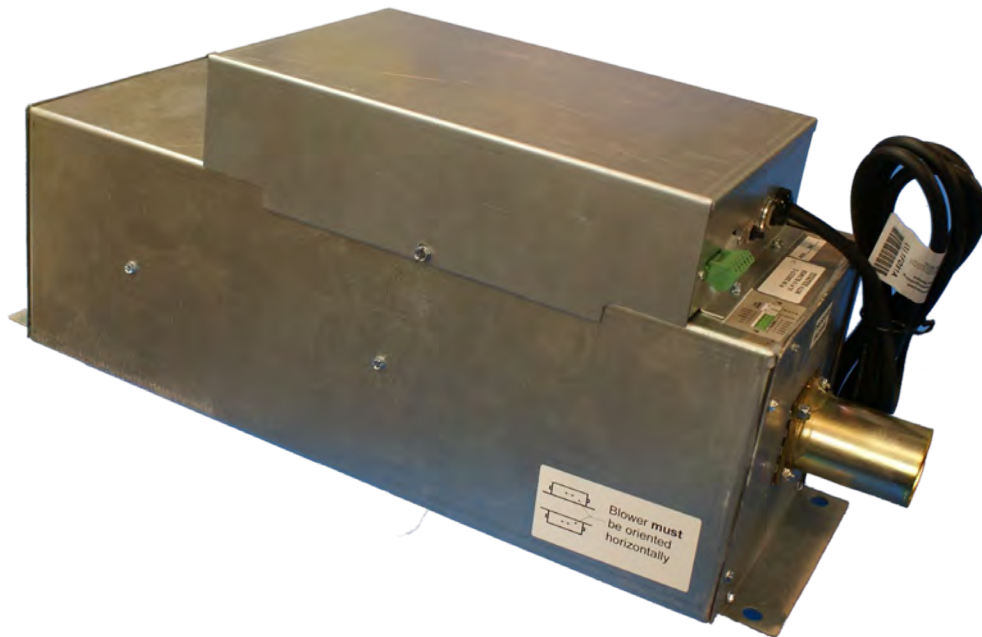


**Customer Unit** (P/N: 200500)**Parts Descriptions:**

ITEM	DESCRIPTION	QTY	PART #
1	ASSY KEYPAD, 521	1	200573
2	ASSY. KEYPAD, UNIVERSAL	1	200574
3	N/A	0	---
4	KNOB	2	605204
5	LANDING PLATE	1	400058
6	MICROPHONE ASSEMBLY	1	200066-1
7	CARRIER GUIDE	1	300084
8	COVER	1	---
9	SPEAKER GASKET	3	613206
10	SPEAKER ASSEMBLY	4	200067
11	SLEEVE (PAINTED)	1	400361
12	TRIM CAP	3	605203
13	TRIM WASHER	3	605202

# ***Single Pack Blower***

Model: ***BM-200-200217***



## Single Pack Blower Module (P/N: 200217)

### Line Voltage Installation

For Installation of this unit refer to construction site plans or cut sheet for locating the unit. If the blower is installed in a closed canopy, the exhaust port must be vented to outside air to prevent overheating. Refer to field service wiring kit (P/N: 200438) for all control and 115 VAC plugs.

### **WARNING: SHOCK HAZARD**

Disconnect AC Power before Servicing Unit Only to be serviced by Qualified Personnel

**\*AC Service Disconnect for Unit is located at the Main Junction Breaker Box\***

### **NOTE:**

*There must be a 115VAC @ 20A dedicated circuit within 3.0 ft of the unit. All Line Power must be done in compliance with the NEC (National Electrical Code) by authorized/qualified personnel.*

### **SHOCK HAZARD**

Disconnect AC Power before Servicing Unit

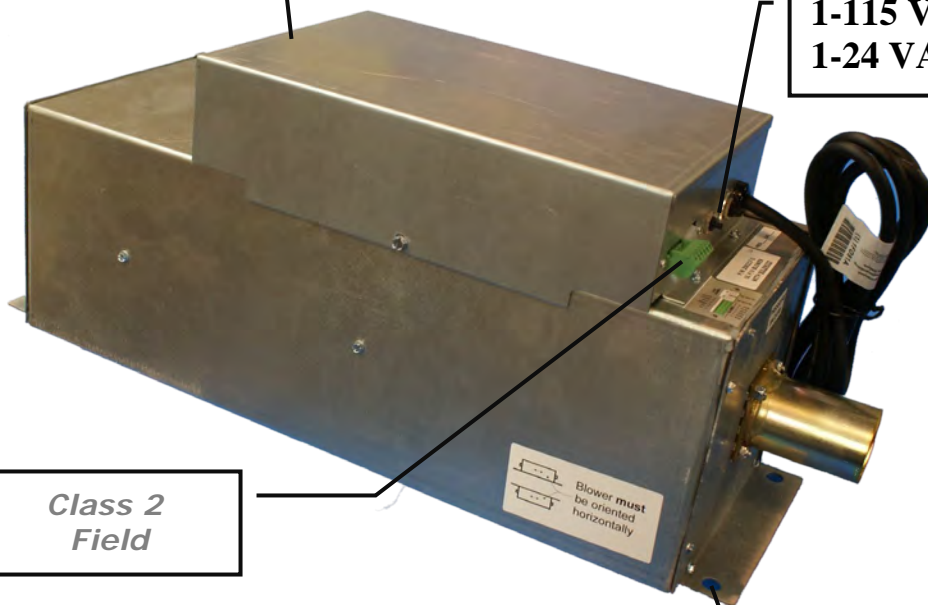
**\*AC Service Disconnect for Unit is located at the Main Junction Breaker Box\***

**2-115 VAC 10A  
Resettable Fuse**

**1-115 VAC 0.5A Resettable Fuse  
1-24 VAC 1.5A Resettable Fuse**

**Class 2  
Field**

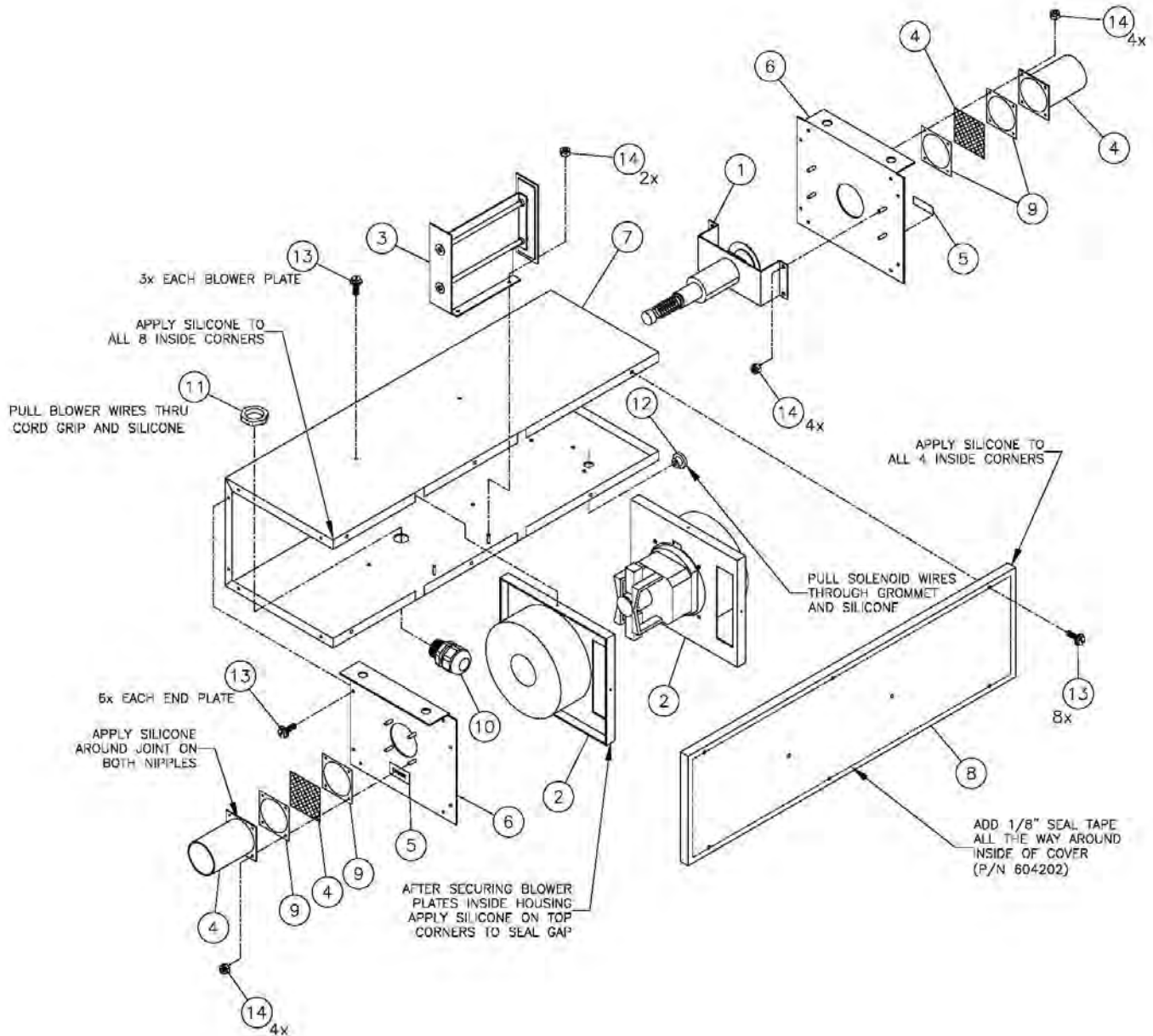
Use ¼" minimum hardware to mount unit in place. For mounting location see cut sheets for job site.





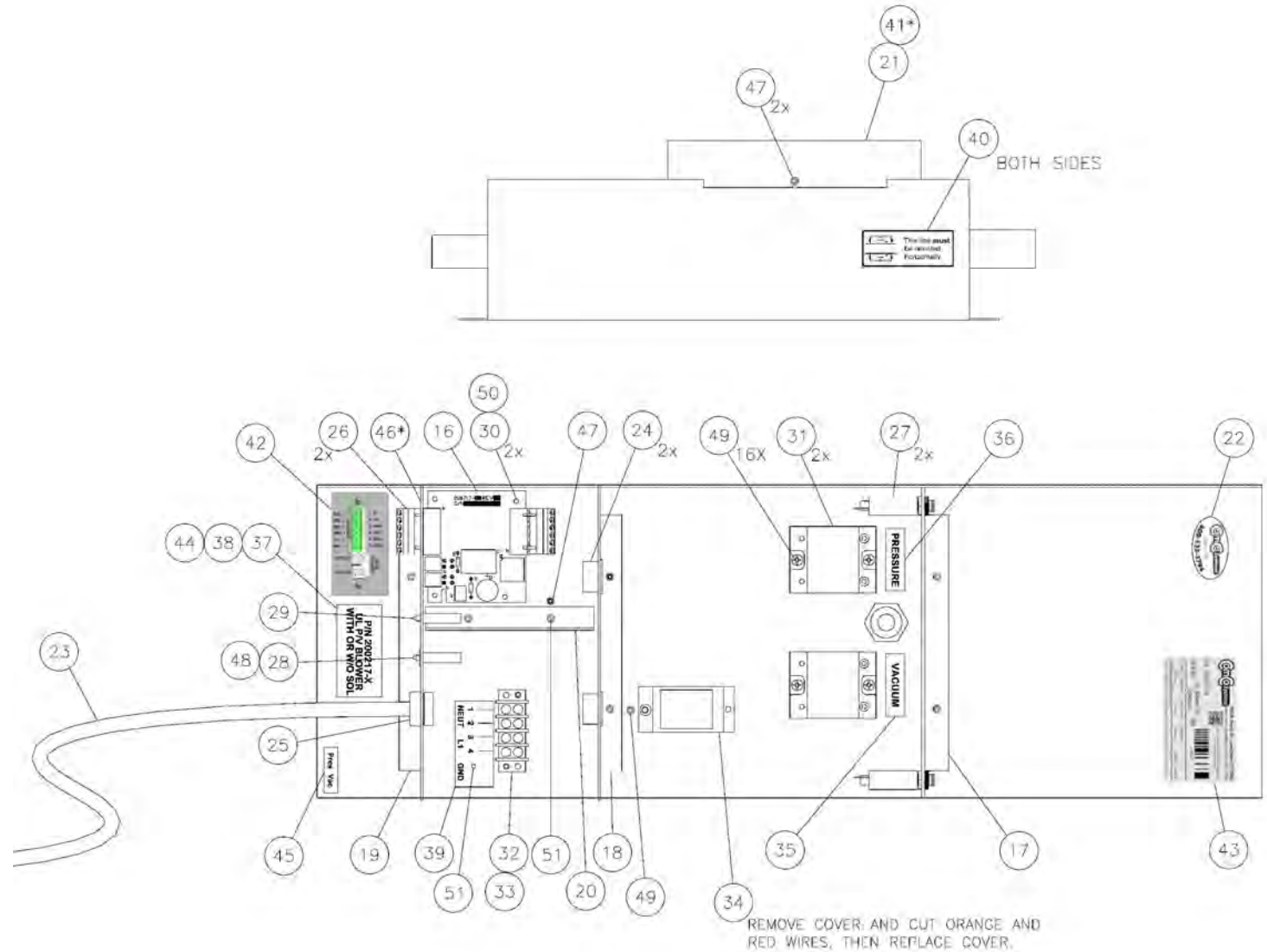
### Single Pack Blower Module (P/N: 200217)

#### Parts Breakaway:



# Single Pack Blower Module (P/N: 200217)

## Parts Breakaway:



## Single Pack Blower Module (P/N: 200217)

### Parts Descriptions:

51	M	SCREW, GREEN GND 10-32 x 3/8" HEX SLOT SELF TAPPING	2	910305
50	M	SCREW, 8-32 x 1 1/4", HEX WASHER HEAD, THREAD CUTTER	2	910382
49	M	SCREW, 8-32 x 1/2", HEX WASHER HEAD, THREAD CUTTER	17	910110
48	M	WASHER, FLAT, 5/16"	1	910102
47	M	SCREW, 10-32 x 1/2", HEX WASHER HEAD, THREAD CUTTER	3	910078
46	M	LABEL, INSTALL FIELD WIRING, UL BLOWER	1	700239
45	M	LABEL, PRESSURE/VACUUM, INSTRUMENT READINGS, UL BLOWER	1	700238
44	M	LABEL, UL, P/V BLOWER w/o SOLENOID, SLAVE, 200217-4	1	700237
43	M	LABEL, SERIAL, GENERAL	1	700160
42	M	LABEL, SET, UL BLOWER	1	700177
41	M	LABEL, WIRING DIAGRAM, UL BLOWER	1	700049
40	M	LABEL, BLOWER OREINTATION	2	700031
39	M	LABEL, AC POWER, TERMINAL STRIP	1	700030
38	M	LABEL, UL, P/V BLOWER W/O SOLENOID, 200217-3	1	700029
37	M	LABEL, UL, P/V BLOWER W/SOLENOID, 200217-2	1	700028
36	M	LABEL, PRESSURE	1	700027
35	M	LABEL, VACUUM	1	700026
34	M	TRANSFORMER, 120/24 VAC, FM	1	612803
33	M	MARKER, STRIP, TERMINAL, 4 POSITION	1	612412
32	M	STRIP, TERMINAL, 4 POSITION	1	612404
31	M	RELAY, SS, 25A, MOTOR RATED	2	609819
30	M	SPACER, #8 x .750 ALUMINUM	2	605267
29	M	CIRCUIT BREAKER, 1.5 AMP	1	604435
28	M	CIRCUIT BREAKER, 0.5 AMP	1	604414
27	M	CIRCUIT BREAKER, THERMAL, 10A	2	604412
26	M	PLUG, PHOENIX, 6 POSITION	1	603084
25	M	STRAIN RELIEF, 7/8" 12 GA	2	601414
24	M	BUSHING, UNIVERSAL, 7/8"	2	601405
23	M	CABLE, 3X8' POWER CORD	1	601212
22	M	LABEL, QC	1	400516
21	M	COVER, CONTROLS, UL BLOWER	1	400450-1
20	M	DIVIDER, PLATE	1	400241-10
19	M	PCB ENDPLATE	1	400241-18
18	M	CONTROLS ENDPLATE	1	400241-15
17	M	BACK PLATE	1	400241-6
16	M	ASSEMBLY, PCB, INTERFACE, SOLENIOD, UL BLOWER	1	200717
15	M	ASSEMBLY, HARNESS, UL BLOWER	1	200219
14	M	NUT, LOCK, 8-32	14	910108
13	M	SCREW, 8-32 x 1/2", HEX WASHER HEAD, THREAD CUTTER	26	910110
12	M	CABLE, BUSHING, 1/2' X 1/4"	1	601419
11	M	LOCKNUT, 1/2" CABLE STR	1	601402
10	M	CORD GRIP, NPT1/2PA	1	601401
9	M	GASKET, UL BLOWER, NIPPLE	4	401496
8	M	COVER	1	400241-17
7	M	HOUSING	1	400241-4
6	M	END PLATE	2	400241-3
5	M	LABEL, BLOWER, PRESSURE/VAC/EXHAUST	1	400176
4	M	WELDMENT, NIPPLE, UL BLOWER	2	300468
3	M	ASSEMBLY, BYPASS VALVE, UL BLOWER	1	200558
2	M	ASSEMBLY, PLATE, MOTOR, UL BLOWER	2	200785
1	M	ASSEMBLY, SOLENOID, UL BLOWER	1	200282

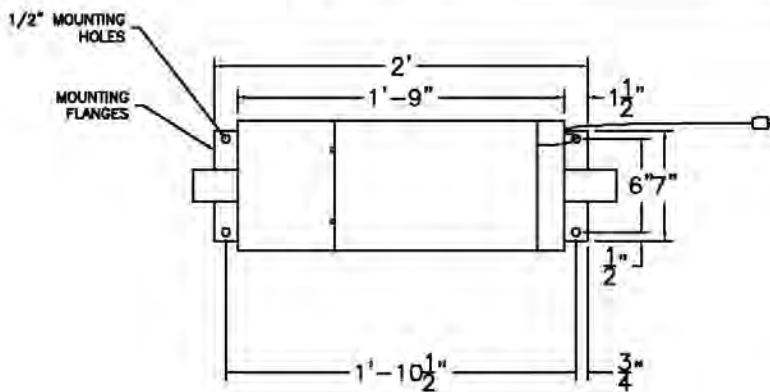


## Single Pack Blower Unit (P/N: 200217)

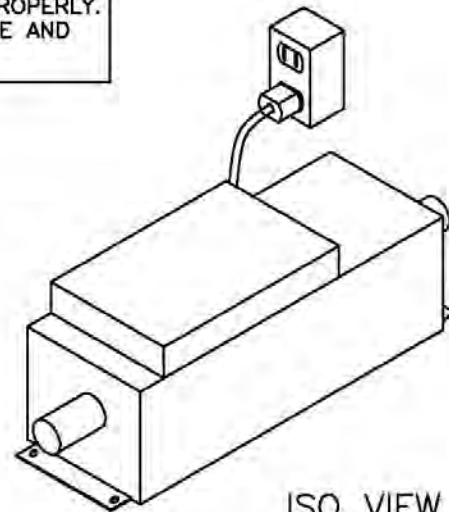
### Dimensional & Electrical Specifications

**IMPORTANT!!**

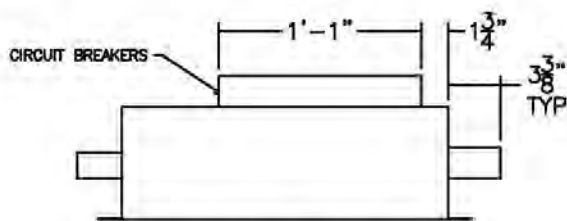
EACH BLOWER MUST HAVE ITS OWN 120VAC 20AMP DEDICATED CIRCUIT TO FUNCTION PROPERLY. ANY LESS WILL CAUSE EQUIPMENT FAILURE AND VOID WARRANTY.



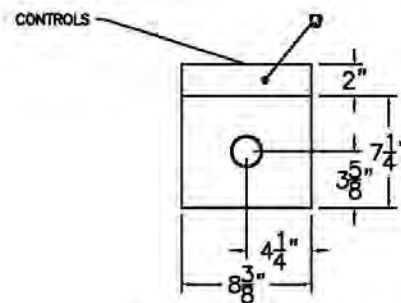
PLAN VIEW



ISO VIEW



SIDE VIEW



FRONT VIEW

PLEASE SEE CUSTOMER UNIT DRAWING FOR CUSTOMER UNIT POWER REQUIREMENTS

### Glossary of Terms

**Customer Unit:** Customer operating unit which is typically mounted outside on an island for the customer to drive up next to. This is the unit the customer uses to send the carrier to the teller.

**Teller Unit:** Teller operating unit which is suspended from the ceiling, typically over the counter top. This is the unit the Teller uses to send and recall the carrier from the customer.

**Deceleration Switch:** Switch that is mounted either over the Customer unit or the Teller unit to slow the carrier down before landing in the unit. Once carrier has passed the decel switch the blowers stop and the solenoid is engaged.

**Carrier:** Transports the various transactions back and forth between the Customer unit and the Teller unit.

**Check Valve:** Rubber valve/flap that diverts the air in order to slow the carrier down before entering the unit.

**CVM (Customer Video Module):** Video unit typically mounted to the top or the side of the customer unit. Displays promotional video and also shows the teller to the customer.

**TVM (Teller Video Module):** Video unit typically mounted on an interior wall or on the counter using a stand. Displays the overview image of the exterior lanes and also show the customer to the teller.

### 4 1/2" Carrier (P/N: 602033)

Carriers must be closed fully before they are inserted into either the teller unit or the customer unit. Carriers that are not fully closed may fail to leave the sending unit, may become lodged within the transmission tubing, or possibly lose their contents during transmission.

If coins are to be sent, it is recommended that they be rolled and placed in a pouch or bag. Loads that can shift during transmission may cause malfunction or damage to the carrier or system.

Carriers are not to exceed a gross weight of **4 lbs.**

The contents of the carrier must be fully within the carrier and not caught between edges. Multiple transmissions should be used if a load is too large to fit within the single carrier.



## Theory of Operation

### Powering the System

The green pushbutton on the left side of the teller unit control panel controls power to the entire system. Within the switch is a green LED that indicates “power on.”

#### Power ON

1. Teller switches power on
2. Power indicator illuminates
3. *Automatic Teller Units only:* Teller Unit door opens
4. *CVM Systems only:* Camera and monitor in CVM are powered on
5. System is now in ready state

#### Power OFF

1. Teller switches power off
2. Power indicator extinguishes
3. *Automatic Teller Units only:* Teller Unit door closes
4. *CVM Systems only:* Camera and monitor in CVM are powered off
5. System is now off

The power switch may be used to recover from unusual system conditions simply by switching it off for at least 30 seconds and on again – this will reset the system.

### Send cycle

1. Teller inserts carrier into teller unit
2. *Manual Teller Units only:* Teller closes teller unit door and Send cycle begins
3. *Automatic Teller Units only:* Teller presses SEND and Teller Unit door closes
4. Send cycle begins
5. Pressure blower activates
6. The check valve in the Valve bend opens and the relief valve closes, sending air pressure to Teller Unit
7. Carrier is propelled from Teller Unit into transmission tubing, towards Customer Unit
8. Carrier activates Deceleration Trigger – ending send cycle (*Note: if deceleration trigger is not activated, the cycle timer times out and send cycle ends, but steps 10 & 11 do not occur*)
9. Pressure blower deactivates
10. Stop Valve is activated by stop solenoid, blocking air behind carrier (*simultaneous to step 9*)
11. Carrier decelerates due to vacuum behind carrier
12. Carrier arrives at Customer Unit
13. System is now in ready state

## Recall cycle

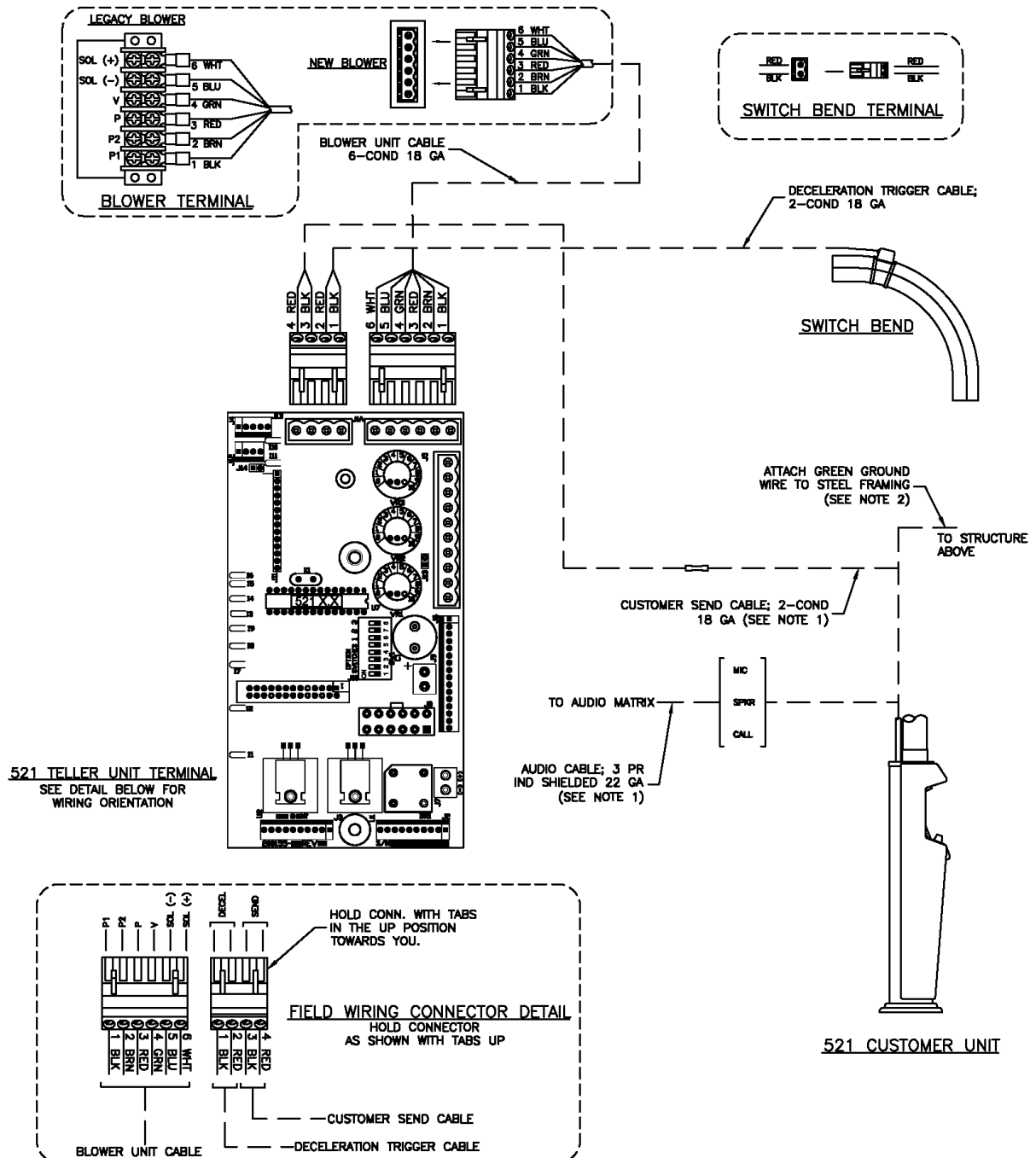
1. Customer inserts carrier into Customer unit
2. Customer presses SEND
3. Recall cycle begins
4. Vacuum blower activates
5. The check valve in the Valve bend closes and the relief valve opens, pulling vacuum from Customer Unit
6. Carrier is pulled from Customer Unit into transmission tubing towards Teller Unit
7. Carrier passes relief valve
8. Carrier is decelerated by pressure ahead of carrier (*check valve in Valve Bend blocks pressure from Teller Unit*)
9. Carrier arrives at Teller Unit
10. Recall timer times out
11. *Automatic Teller Units only:* Teller Unit door opens
12. *Manual Teller Units only:* teller opens Teller Unit door
13. Recall cycle ends – system is now in ready state



## Installation

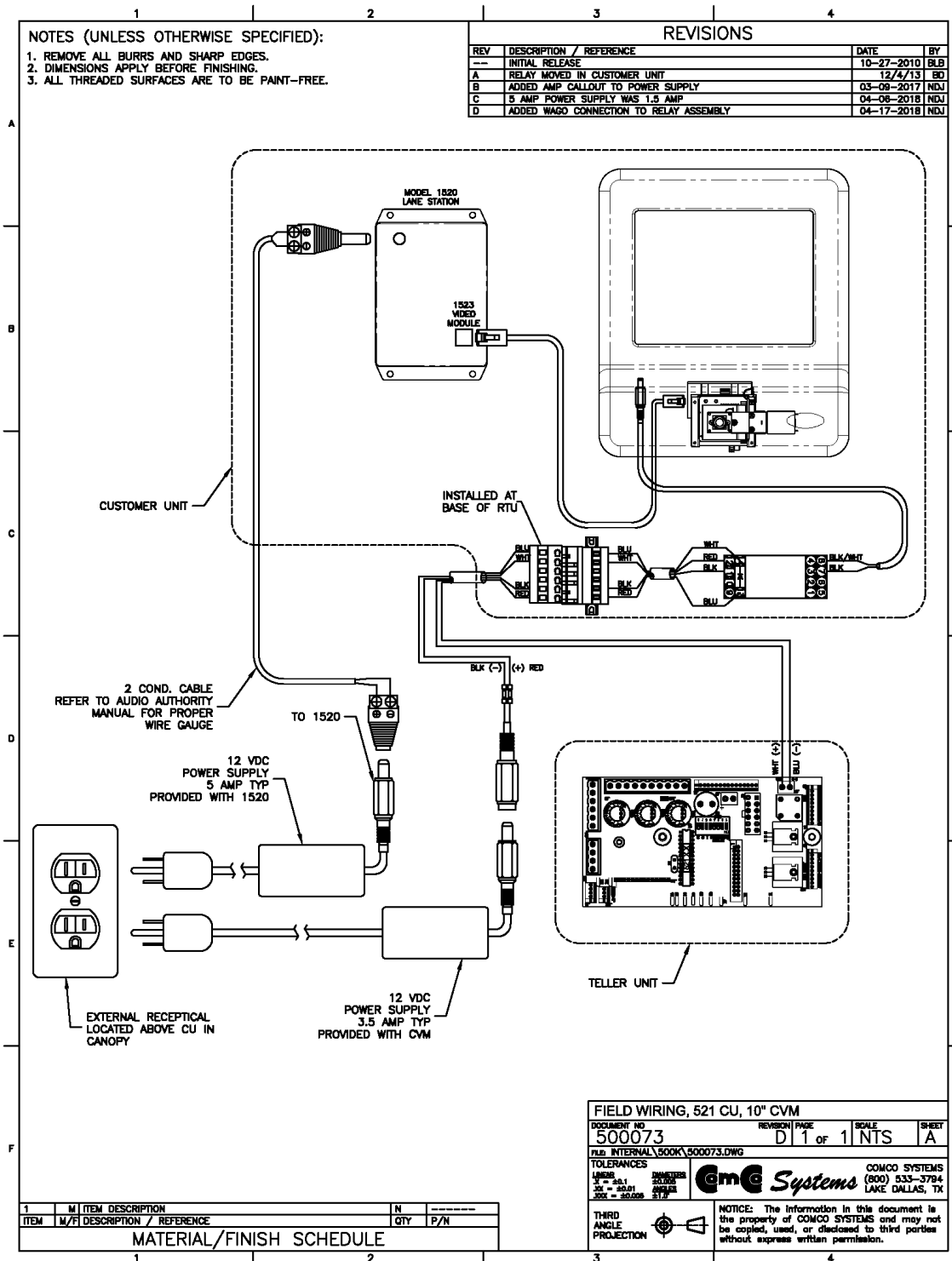
### Control Field Wiring Diagram (P/N: 500136)

**NOTE:** All Class 2 interconnecting cabling must be done in compliance with the ARTICLE 800.33 (A) FPN No.2, exception No.2, of the NEC (National Electrical Code) by an authorized/qualified personnel.



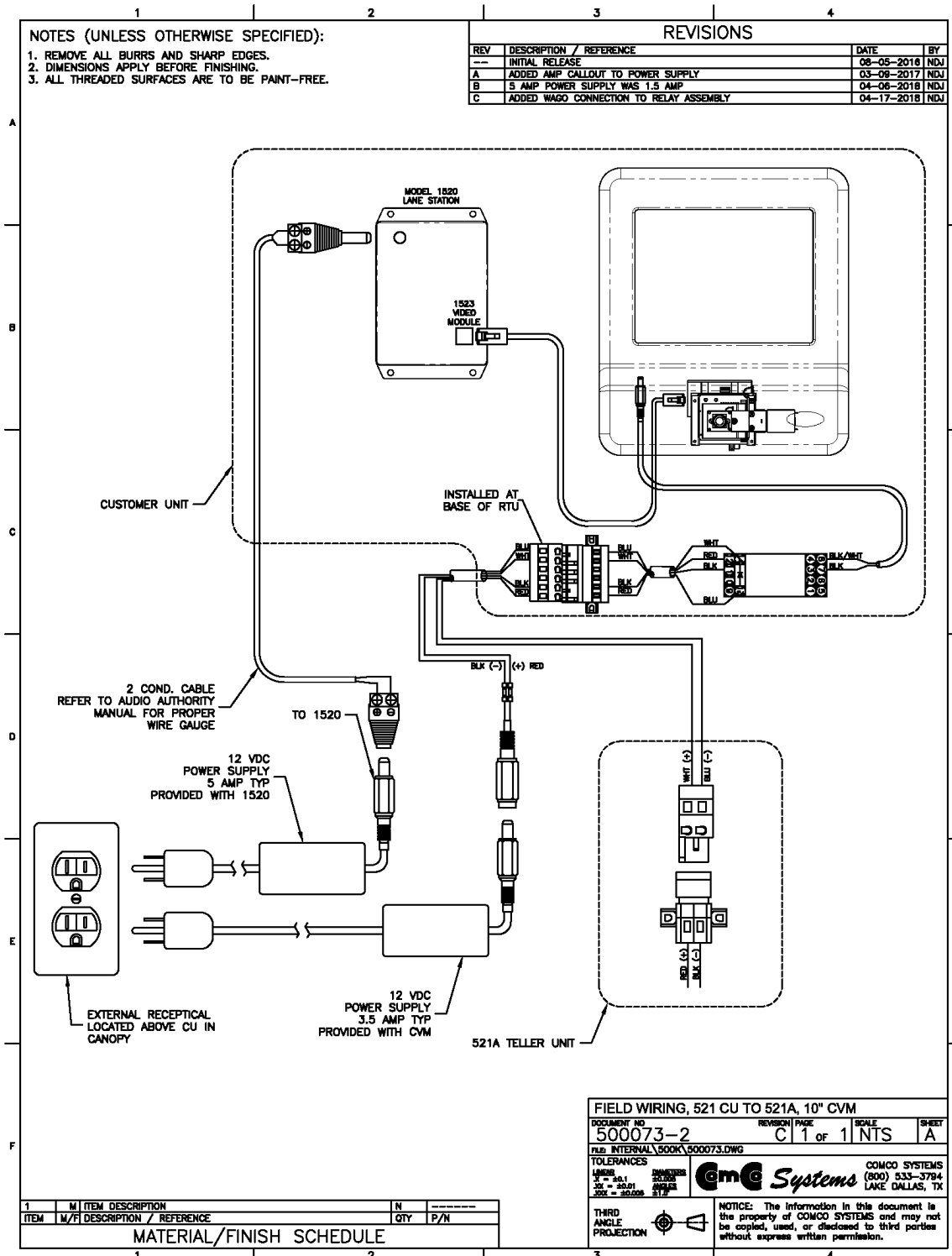
## Installation

### Optional CVM Field Wiring Diagram (P/N: 500073)



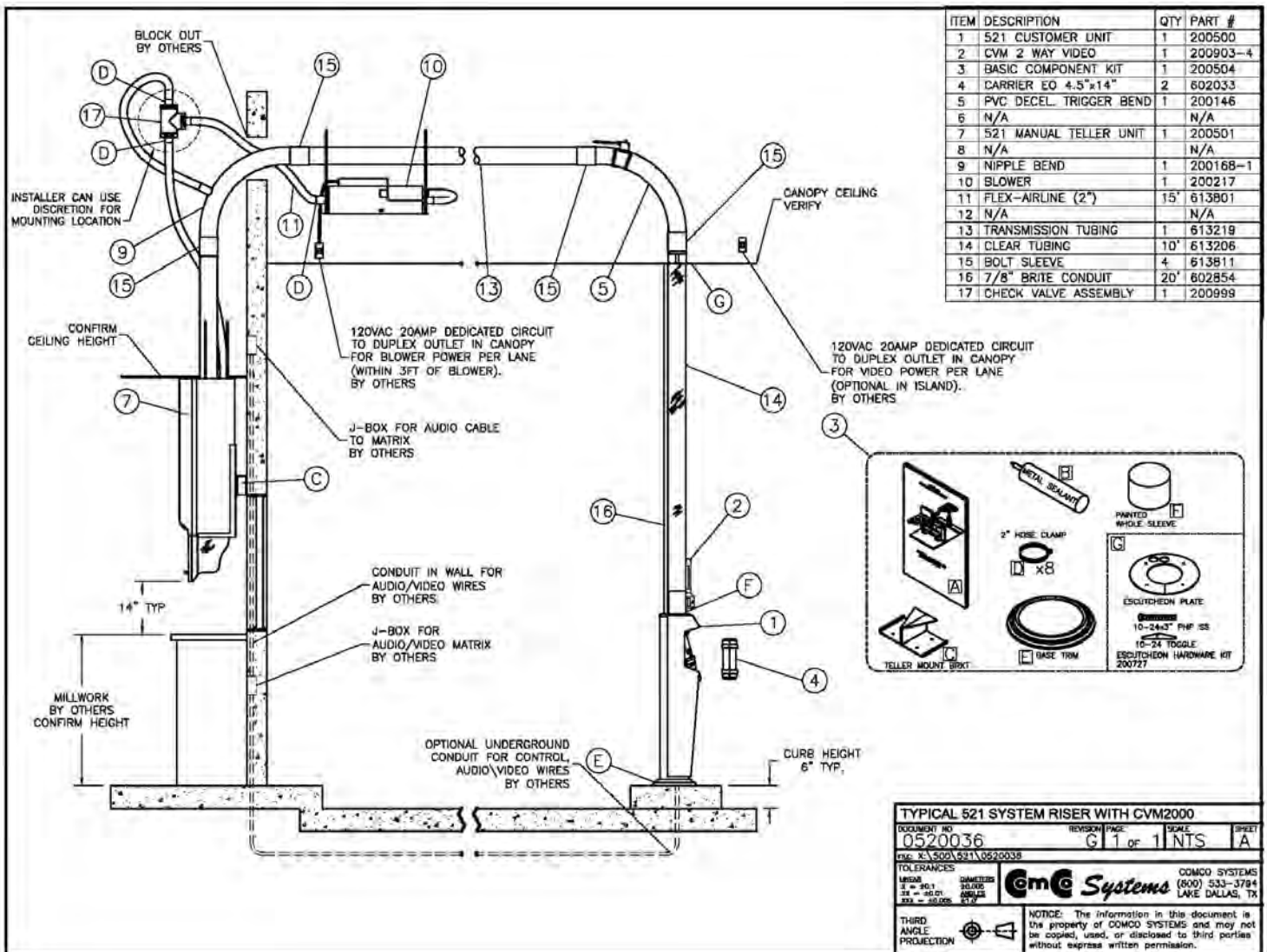
### Installation

#### Optional CVM Field Wiring Diagram (P/N: 500073-2)



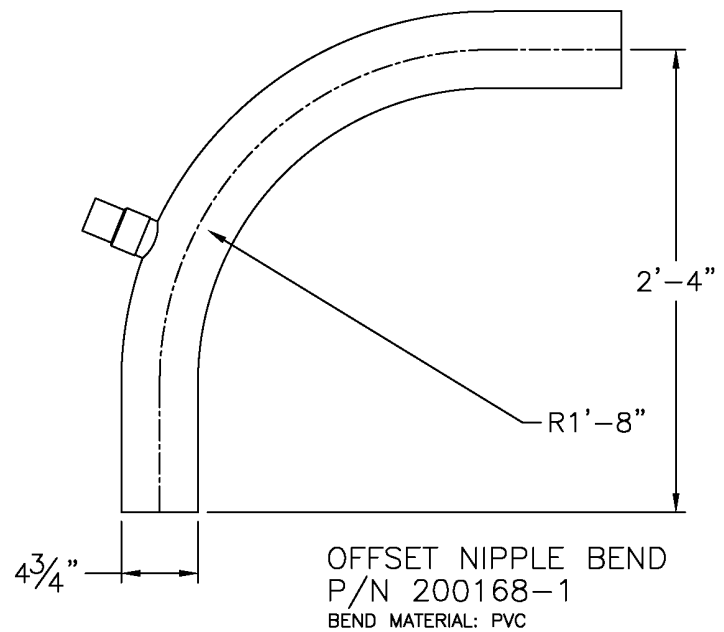
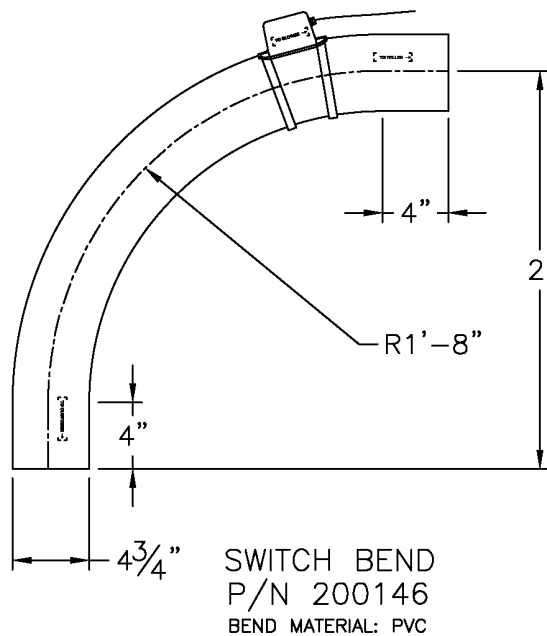
System Riser Diagram & Options

Parts Descriptions:



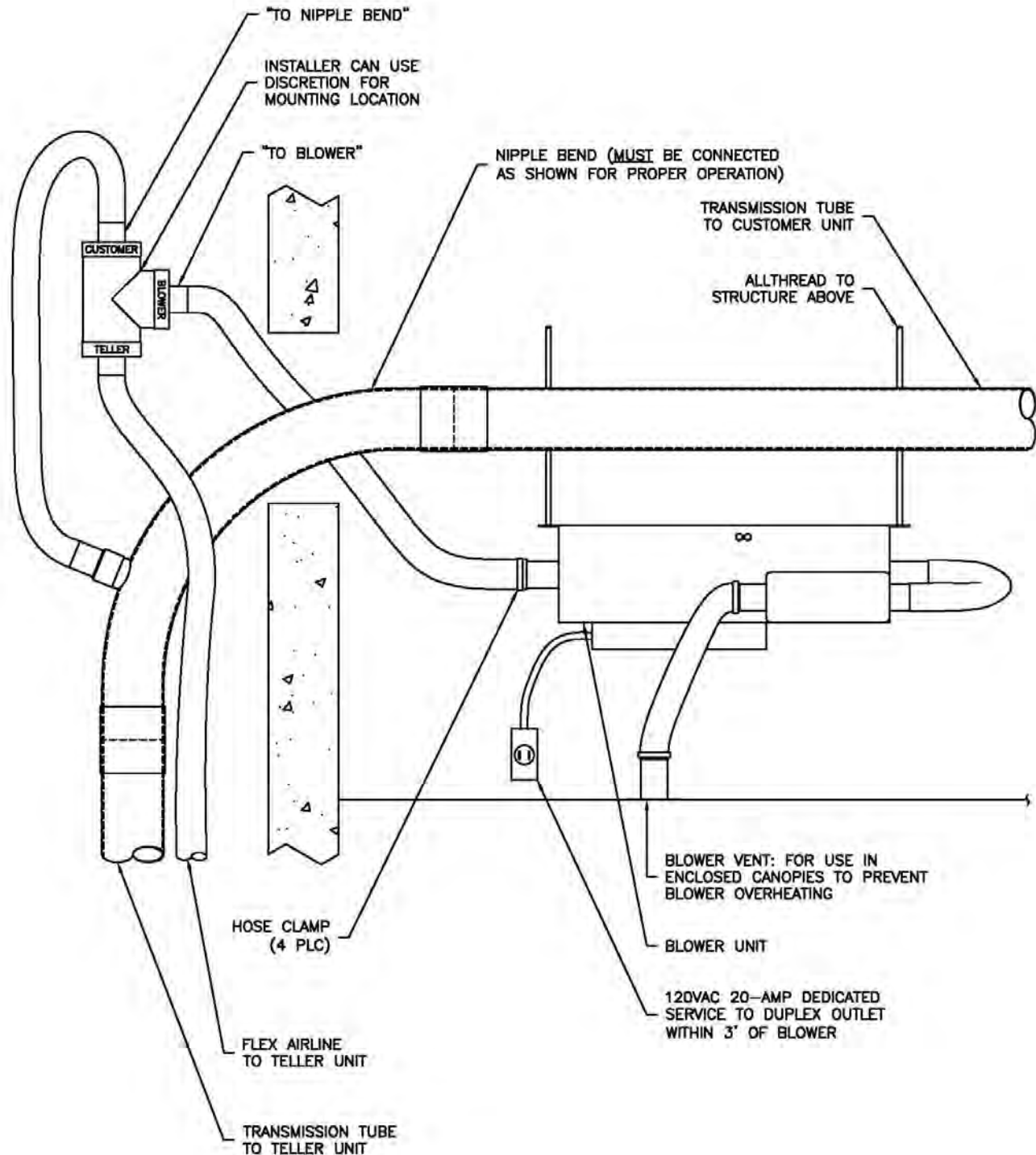
### Specification Detail

#### Valve & Switch Bend



## Installation Detail

### Check Valve and Nipple Bend



## Special Installation Procedures

### Customer Unit

The deceleration trigger *must* be installed in the horizontal orientation shown in drawing #0520033A in order to function properly. If it is not installed in the correct orientation, the carrier may land hard at the customer unit.

### Teller Unit

#### Hanging

The teller unit *must* be supported by all thread rods secured to structure above. The quick-mount wall bracket is only to be used for *temporary* support of the teller unit during installation, and as a stabilizer in a permanent installation. Do not support the teller unit by the wall bracket alone for more than 4 hours.

Guard against dropping debris into teller unit while cutting holes and during installation. The teller unit door assembly *must be kept clean from debris* for proper operation. It is recommended that the top of the teller unit be covered with paper or plastic while construction takes place. Vacuum the bottom of the door track after installation is complete.

#### Timer adjustment

Adjust timer T1 for approximately 5 seconds greater than the time required for an empty carrier to be recalled from the customer unit to the teller unit (this should be 2-3 seconds after the carrier lands at the teller unit).

See drawing number 500354 (page 38) for additional controller settings.

### Blower Unit

The blower unit *must* be installed in a horizontal orientation as indicated by the stickers on the housing.

If blower is installed in a closed canopy, the exhaust port must be vented to outside air to prevent overheating.

### Tubing

All tubing *must* be sealed properly. *Seal all joints* – especially those at the teller and customer units.

All inside edges of tube joints *must be de-burred and ground to an angle* to prevent excessive wear on carriers.



## Maintenance Procedures

### Blower Unit

The 521 Blower Unit is equipped with 10-amp circuit breakers to protect the motors from overload.

If the system does not work in one or both directions, check to see if either circuit breaker on blower has tripped. Also, if SEND or RECALL lights but blower fails to run, confirm that door is fully closed.

If circuit breakers trip regularly, arrange for an authorized service agent to diagnose the problem.

### Deceleration Trigger Bend

Proper deceleration trigger function is essential to good system performance.

If carrier lands hard at Customer Unit, inspect the deceleration trigger. If it is cracked, worn, or missing, it ***must be replaced immediately***.

The deceleration switch assembly has 4 switches in it – only one switch is required for proper operation. If the assembly is inoperable, it ***must be replaced immediately***.

### Carriers

Carriers should be inspected regularly for signs of wear. Carriers landing hard at either customer or teller unit may be a sign of worn air discs or rubbing bands on carrier.

Replace air discs and/or rubbing bands as required.

### NOTES:

**TIMERS**

(T1) CYCLE TIMER. CONTROL TIME RANGE WITH OPTION SWITCH 6.

(T2) DOOR OPEN DELAY TIMER. DELAY DOOR OPENING WITH OPTION SWITCH 3.

(T3) SELECT PROCESSOR VER. LEVEL  
(CHIP VER. 2.0 AND HIGHER)  
SOLENOID ENGAGE TIMER. SWITCH 4 NOT USED.  
TIME SOLENOID STAYS ENGAGED, RANGE 5-15 SEC.  
(CHIP VER. PRIOR TO 2.0)  
STOP VALVE DELAY. NOT NORMALLY USED.  
ACTIVATE/DEACTIVATE WITH OPTION SWITCH 4.

**OPTION SWITCHES**

(1) 521/LOBBY TELLER APPLICATION:  
OFF=521 APPLICATION(STD)  
ON=LOBBY TELLER APPLICATION

(2) DISABLES AUTOSEND:  
OFF=MANUAL TELLER  
ON=MOTORIZED TELLER

(3) DOOR OPEN DELAY AFTER CYCLE:  
OFF=NO DELAY AFTER CYCLE  
ON=ADJUSTABLE DELAY WITH TIMER #2.

(4) STOP VALVE DELAY: SELECT PROCESSOR VER. LEVEL  
(FOR VERY SHORT RUNS OR OTHER NONSTANDARD INSTALLATIONS).  
NORMALLY "OFF".  
(CHIP VER. 2.0 AND HIGHER)  
OFF=INACTIVE  
ON=ACTIVE (500 MILLISECOND-FIXED)  
(CHIP VER. PRIOR TO 2.0)  
OFF=INACTIVE  
ON=ACTIVE, ADJUST DELAY WITH T3, RANGE 100-400MS

(5) SELECT PROCESSOR VER. LEVEL  
(CHIP VER. 2.0 AND HIGHER)  
DIVERTER OPTION:  
OFF=INACTIVE  
ON=ACTIVE (DOOR OPENS EACH CYCLE)  
(CHIP VER. PRIOR TO 2.0)  
NOT USED:

(6) CYCLE TIMER RANGE:  
OFF=T1 RANGE 0-100 SEC.(10-SECOND INCREMENTS)  
ON=T1 RANGE 0-10 SEC.(1-SECOND INCREMENTS)

(7) SELECT PROCESSOR VER. LEVEL  
(CHIP VER. 2.0 AND HIGHER)  
900A OPTION: (CARRIER DETECT, DOOR CONTROL)  
OFF=INACTIVE  
ON=ACTIVE  
(CHIP VER. PRIOR TO 2.0) NOT USED:

(8) SELECT PROCESSOR VER. LEVEL  
(CHIP VER. 2.0 AND HIGHER)  
DOOR REVERSAL OPTION: (LTS TO 521TU)  
OFF=INACTIVE  
ON=ACTIVE  
(CHIP VER. PRIOR TO 2.0) NOT USED:

**CONNECTORS**

(J1) FIELD WIRES: ALL SIGNALS FROM REMOTE UNIT

(J2) CONTROL SWITCHES: TELLER UNIT CONTROLS

(J3) MOTOR/LIMIT SWITCHES: TELLER UNIT OPERATIONS

(J4) REMOTE DOOR: JUMPER ON PINS 4-5 IF NO REMOTE DOOR, OTHERWISE REMOTE DOOR SIGNALS

(TB1) REMOTE POWER: USED TO CONTROL POWER RELAY AT CVM OR OTHER REMOTE ACCESSORY

**RELAY/LED FUNCTIONS**

(RLY5) LOCAL DOOR: CONTROLS TELLER UNIT AUTOMATIC DOOR (IF PRESENT). LED<sub>s</sub> INDICATE DOOR OPEN/CLOSED STATE-CONTROLLED BY RELAY.

(RLY4) VACUUM: CONTROLS VACUUM BLOWER. LED INDICATES VACUUM SIGNAL ACTIVE.

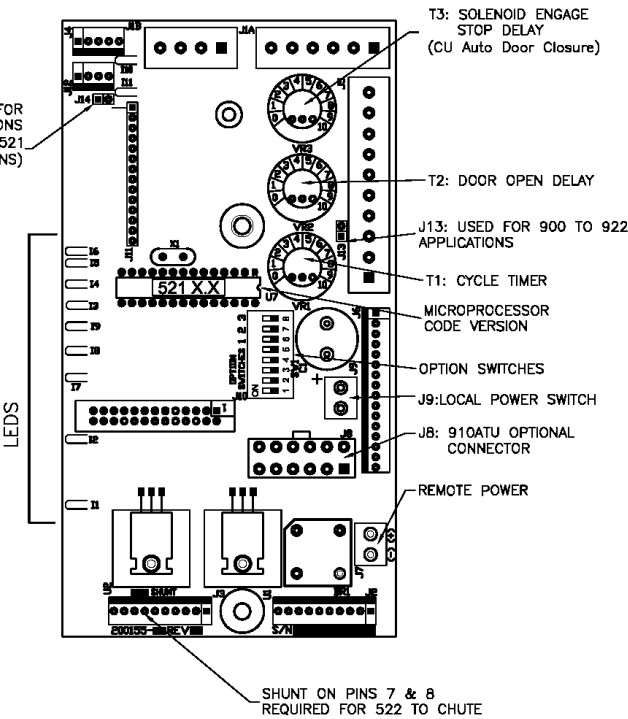
(RLY3) PRESSURE: CONTROLS PRESSURE BLOWER. LED INDICATES PRESSURE SIGNAL ACTIVE.

(RLY2) SOLENOID: CONTROLS STOP SOLENOID. LED INDICATES SOLENOID SIGNAL ACTIVE.

(RLY1) REMOTE DOOR: CONTROLS CUSTOMER UNIT AUTOMATIC DOOR (IF PRESENT). LED<sub>s</sub> INDICATE DOOR OPEN/CLOSED STATE-CONTROLLED BY RELAY.

### REVISIONS

REV	DESCRIPTION / REFERENCE	DATE	BY
NG	INITIAL RELEASE - NEW REV K CONTROLLER	12-13-2007	JNB
A	PCB LAYOUT REVISED, ADDED LED LEGEND	12-18-2007	JNB
B	ADDED NOTE FOR SHUNT ON PINS 7 & 8 (522 TO CHUTE)	01-22-2008	SJM
C	ADDED J14 JUMPER SHUNT	04-01-2008	BLB
D	ADDED NOTE FOR J-13	08-05-2008	SJM
E	UPDATED J13	01-14-2015	NDJ



Labels in diagram: J14, J13, T3, T2, T1, J13, J9, J8, REMOTE POWER, SHUNT ON PINS 7 & 8 REQUIRED FOR 522 TO CHUTE, LEDS, J14, J13, T3, T2, T1, J13, J9, J8, REMOTE POWER, SHUNT ON PINS 7 & 8 REQUIRED FOR 522 TO CHUTE.

**LED LEGEND**

- (I1): Local Door Closed
- (I2): Local Door Open
- (I3): Send
- (I4): Recall
- (I5): All Doors Closed
- (I6): Decel Switch
- (I7): Solenoid
- (I8): Vacuum
- (I9): Pressure
- (I10): Remote Door Closed
- (I11): Remote Door Open

**GUIDE, ADJUSTMENT, CONTROLLER, 521-K**

DOCUMENT NO: 500356 REVISION PAGE: E 1 of 1 SCALE: 2=1 SHEET: A

FILE: INTERNAL\500K\500356.DWG

**TOLERANCES**

LINEAR	DIMENSIONS
± .01	± .005
± .001	± .001
± .0005	± .0005

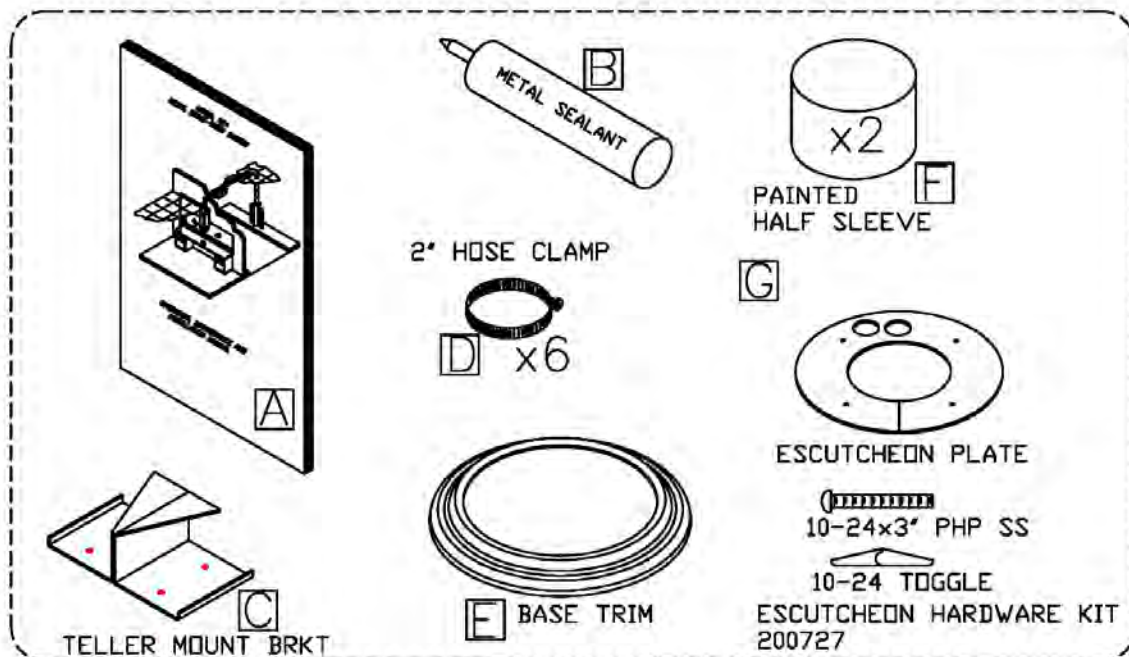
**THIRD ANGLE PROJECTION**

**COMCO SYSTEMS**  
(800) 533-3794  
LAKE DALLAS, TX

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## 521 System Basic Component Kit (P/N: 200504)

Field Service Wiring Kit				200504
Part Number	Description		U/M	Quantity
613811	2" Hose Clamp		Ea	6
613219	PVC Painted Half Sleeve		Ea	1
300023	Teller Unit Wall Bracket		Ea	1
200148	521 CU Escutcheon Plate Kit		Ea	1
200727	521/522 CU Escutcheon Hardware Kit		Ea	1
400253	Base Trim		Ea	1
613801	Flex Hose		FT	3
200186	Tube Metal Sealant		Ea	1
500169	Installation Manual		Ea	1



## 521 Spare Parts List

Teller Unit		
	Mechanical Components	Usage
200037-1	Door cable – manual teller	1
200037-2	Door cable – automatic teller	1
611609	Spring – door cable tension	1
611606	Spring – pulley tension	1
200138-1	Door assembly – manual teller	1
200138-2	Door assembly – automatic teller	1
605212	Door handle – manual teller	1
605215	Shoulder washers – manual teller door handle	4
	<b>Electrical Components</b>	1
200155 Rev. K	521 controller assembly	1
200127-2	Power switch assembly (Legacy)	1
200391-1	Power Switch	1
612210	Recall pushbutton (Legacy)	1
612211	Send pushbutton (Legacy)	1
200925-1	Send/Recall Keypad Assembly	1
612209	Switch lamp (Legacy)	2
200443	Door motor – automatic teller	1
612202	Roller limit switch	2-3
	<b>Trim</b>	
605202	Trim Washer	7
605203	Trim Cap	7
601406	7/8" hole plug	2

Customer Unit		
	Mechanical Components	
400058	Landing plate	1
605204	Knob – carrier landing	2
605202	Trim Washer	7
605203	Trim Cap	7
	<b>Electrical Components</b>	
200067	Speaker assembly	1
200746	Microphone assembly	1
200728-2	Microphone Ext. Cable	1
200573-2	Upper Keypad Assembly	1
200574-2	Lower Keypad Assembly	1
612208	CALL pushbutton assembly	1
612207	SEND pushbutton assembly	1
400238-3	Speaker gasket	3

### Blower

200282	Solenoid Valve Replacement Assembly	1
601003	Blower – 124 CFM	2
609819	Solid-State Relay	2
201170	Transformer Assembly – 120V-24V	1

### CVM

#### Mechanical & Trim

400404	Faceplate For 6.4" CVM	1
401190-2	Front cover for 10" CVM	1
400426	Monitor glass	1
400208	Camera glass	1
601437	1.25" vent plug	2
607802	Conduit grommet – 7/8" ID	3
604205	Seal tape 1/4" (per foot)	1.5
604202	Seal tape 1/8" (per foot)	2
200910-1	Key set W/ Keyring	1

#### Electrical

201000	6.4" LCD monitor replacement kit	1
614061	10.4" Monitor	1
609801	24VDC relay – 4PDT	1
600654	Tilt Camera for 10" CVM	1
600676	Tilt Camera for 6.4" CVM	1
614073	Color CCTV Camera	1
805081	Auto-iris CCTV lens	1
614065	Compact camera	1

### Miscellaneous components

400116-1	Check valve membrane – 4.0"	1
400116-2	Check valve membrane – 3.5"	1
400361	Customer unit tube sleeve	1
200599	Deceleration trigger assembly	1
200693	Kit Assembly Decel Replacement Parts	1

### Carriers

602033	Carrier – 4.5" end-opening	2
602013	Air ring – 4.25 3-ply – 4.50 EO carrier	2
602052	Wear band – Velcro – 4.5" (2 per carrier)	2

# *Return Material Authorization Procedure*

**Please follow the instructions below to return any items to ComCo Systems for repair.**

- Call ComCo Systems at 800.533.3794 to request a Return Materials Authorization number (RMA#). EMAIL: PARTS@COMCOSYSTEMS.COM
- Please give the Customer Service Representative the following information;
  - Company Name and Phone Number
  - Company Contact
  - Store#
  - Component (s) being returned for repair
  - Description of problem
  - Serial number of product
- Send your return items to the following address;

ComCo Systems  
306 W. Overly Dr.  
Lake Dallas, TX. 75065

RMA# XXXX

All RMAs will be processed in the order they are received. ComCo Systems will not accept any returns that do not have an RMA# assigned.

To check on the status of an RMA email or call our Customer Service Representatives with your RMA#.

**ComCo Systems**  
**[www.comcosystems.com](http://www.comcosystems.com)**

24/7 Toll Free Number  
Fax

800.533.3794  
940.222.2699

• **Customer Service & Technical Support**

[service@comcosystems.com](mailto:service@comcosystems.com)  
[support@comcosystems.com](mailto:support@comcosystems.com)

800.533.3794 Option 1

• **Parts Orders**

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800.533.3794 Option 2

• **Equipment and System Sales**

[sales@comcosystems.com](mailto:sales@comcosystems.com)

800.533.3794 Option 3

• **Project Management**

800.533.3794 Option 4

• **Accounting**

[accounting@comcosystems.com](mailto:accounting@comcosystems.com)

800.533.3794 Option 5

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