

Installation and Operator Manual





921 Series

December 8th, 2020
ComCo Systems, INC. A division of Communications Conveyor Company

P/N: 500628 Rev. B

This publication contains materials protected by copyright. No part of this publication may be reproduced in any form or used as the basis for the sale or manufacture of apparatus without prior written consent by ComCo Systems.

©2013 ComCo Systems INC All rights reserved

Some of the materials and applications described in this publication may be protected under one or more of the following US patents: DES272076, 4180354, 4971481, 4984939, 5584613, 6039510, or other Patents Pending.

System Features	pg. 3
Manual Teller Unit	
Customer Unit	
Blower	
Operation	
Manual Teller Unit	pg. 4
Operations	
Specification	
Customer Unit	pg. 8
Operations	
Specification	
Blower	pg. 11
Operations	
Specification	
Carriers	pg. 13
Operations	
Specification	
Theory of Operation	pg. 14
Installation	pg. 16
System Setup and Installation	
Field Wiring Diagram	
Maintenance and Cleaning	pg. 25
Troubleshooting	pg. 26
Replacement Parts	pg. 27
Help Desk Information	pg. 30
Return Materials Authorization Procedure	
Contact Information	

System Features

The Model 921 is an overhead pressure/vacuum system that utilizes 4x7 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 921 is configured with three major subsystems:

1. Teller Unit (TU) P/N: 200430-1
2. Blower Unit P/N: 200281-3
3. Customer Unit (CU) P/N: 201280



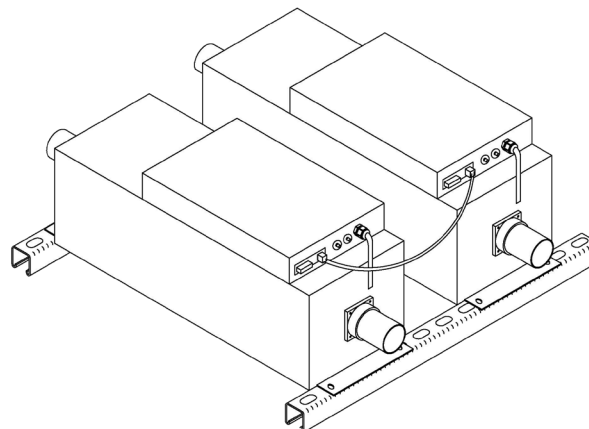
Teller Unit (TU)
TU-921-200430-1

Manual operated door unit, which is suspended from the ceiling, typically over countertop.



Customer Unit (CU)
CU-921-201280

Open carrier access design with optional 2-way video unit.



Dual Pack UL Blowers
200217-2(x2)

Features:
2 Power Cords
2 115Vac/15A
2 Blowers for pressure
2 Blowers for vacuum

Teller Unit

Model: ***TU-921-200430-1***



Manual Operated Teller Unit (TU) (P/N: 200430-1)

The manual teller unit utilizes a manually operated door. The teller unit's door *MUST* remain closed during a send or recall cycle for the system to function properly. The teller unit door should *only* be opened when a carrier is being inserted to send to the customer unit, or immediately after a carrier has arrived from the customer unit. *Opening the door will cancel operation.* To resume operation close door and press RECALL or SEND.

Please note the reference guide in Fig. 1.0.

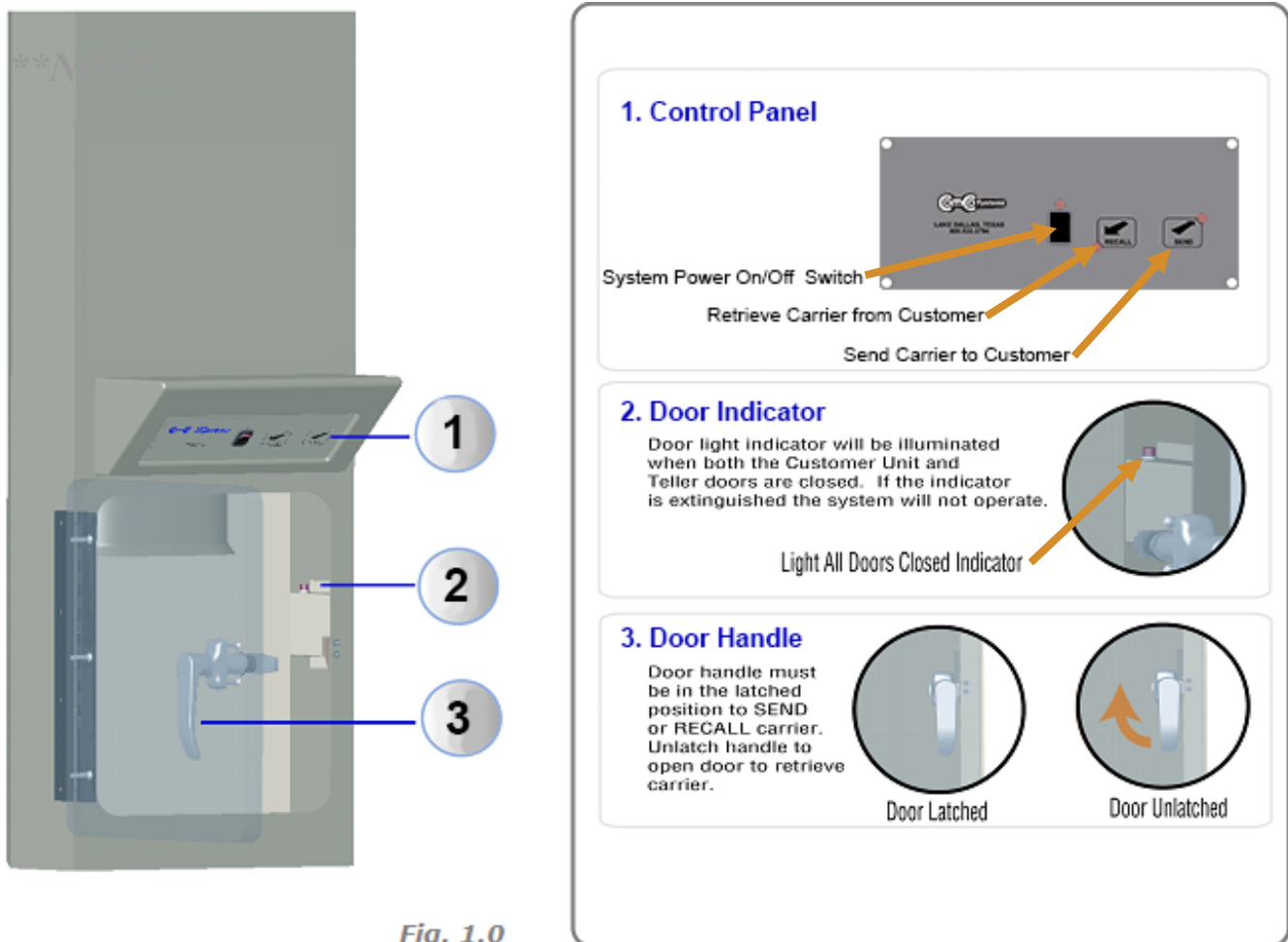
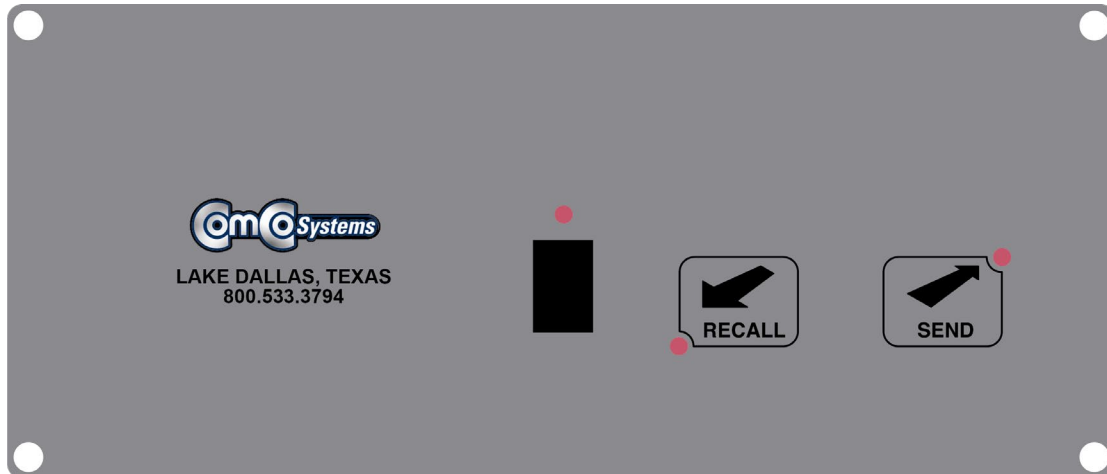


Fig. 1.0

Door Close Light next to the manual door handle MUST be ON to function properly!

Teller Unit (P/N: 200430-1) Switch Operating instructions



ON/OFF The power switch cycles the complete system (Inside Unit, Outside Unit & Blowers). Power ON: all lights will be present. Power OFF: complete system power down. If installed it will power down the Customer Video Module (CVM).

SEND Sends a carrier to the customer unit. The teller unit door must be closed in order to send a carrier to the customer unit.

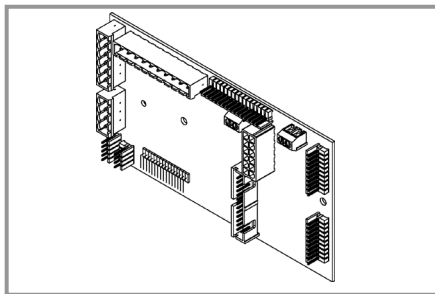
RECALL Recalls a carrier from the customer unit. The teller unit door must be closed in order to recall a carrier from the customer unit.

Teller Unit (P/N: 200430-1)

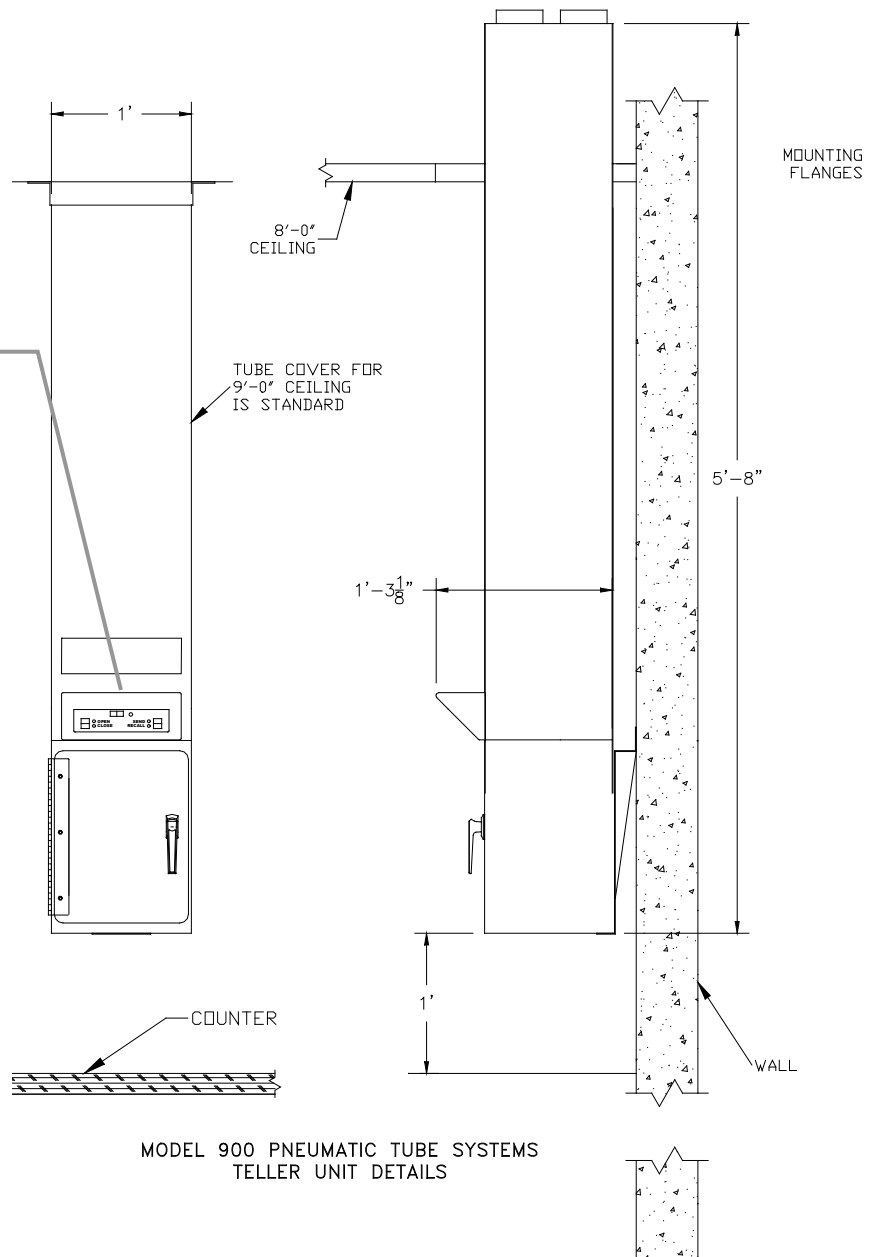
Dimensional & Electrical Specifications

Item	Measurements	Value
Teller Unit (TU-921-200430-1)	Nominal Voltage Current (max)	24 VAC From Blower 1 Amp

System Controller (P/N: 200155K)



See Appendix A
For System Settings



Customer Unit

Model: ***CU-921-201280***



Customer Unit (P/N: 201280) Machine & Switch Operating Instructions

SEND Sends carrier to Teller Unit.

CALL Generates audible tone at the Pharmacy/Teller Center when depressed.

Top Switch Keypad (P/N: 201327)



Bottom Switch Keypad (P/N: 201328)



Specification

921 Series



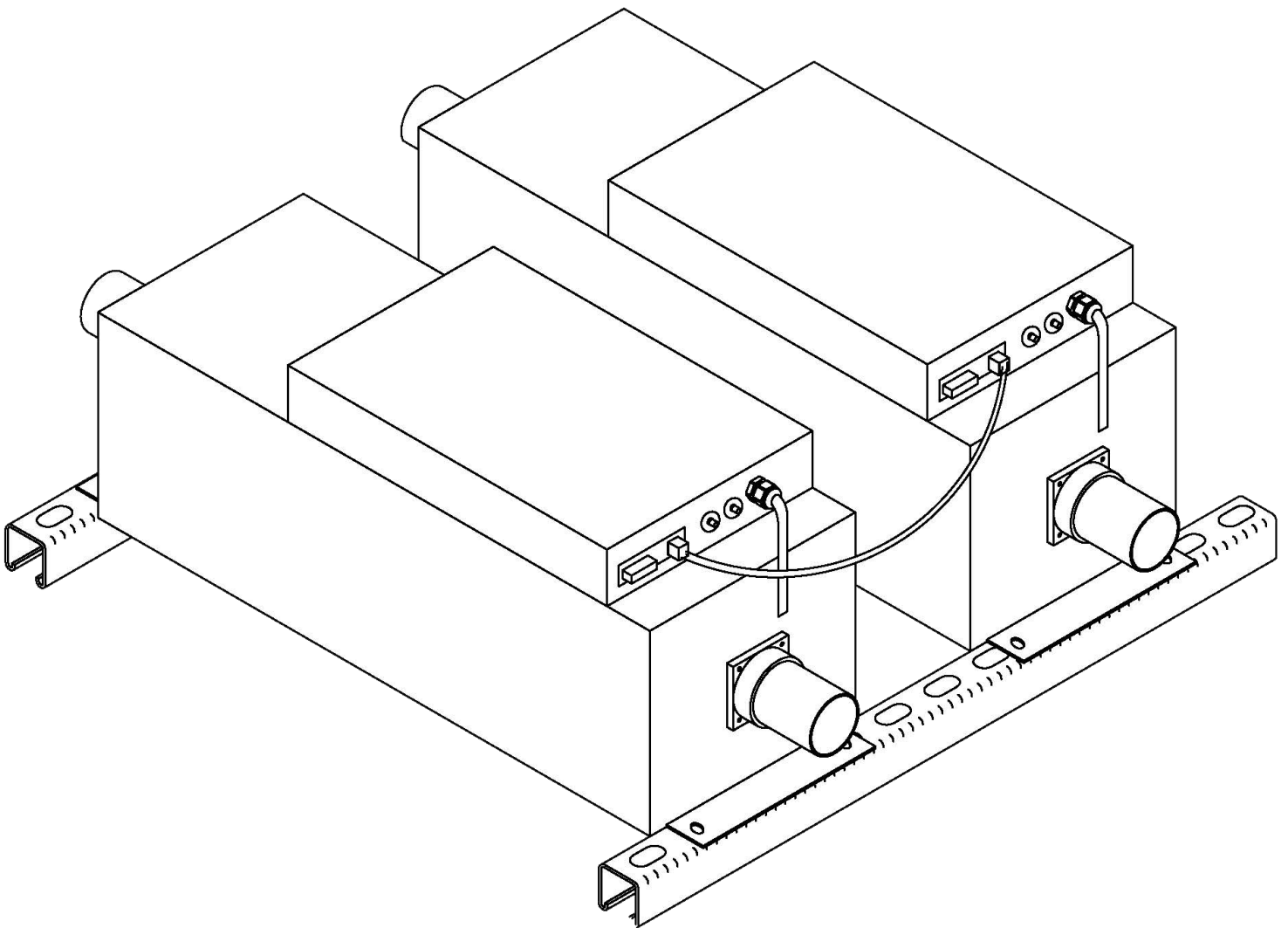
Customer Unit (P/N: 201280)

Dimensional & Electrical Specifications

<i>Item</i>	<i>Measurements</i>	<i>Value</i>
Customer Video Module (CVM-2000-200903-10)	Nominal Voltage Current (max)	12 VDC 3.5 Amps
1520 Lane Station (600651)	Nominal Voltage Current (max)	12 VDC 1.5 Amps

Dual Pack Blower

Model: 200217-2(x2)



Installation

Dual Pack Blower Module (P/N: 200217-2(x2))

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.

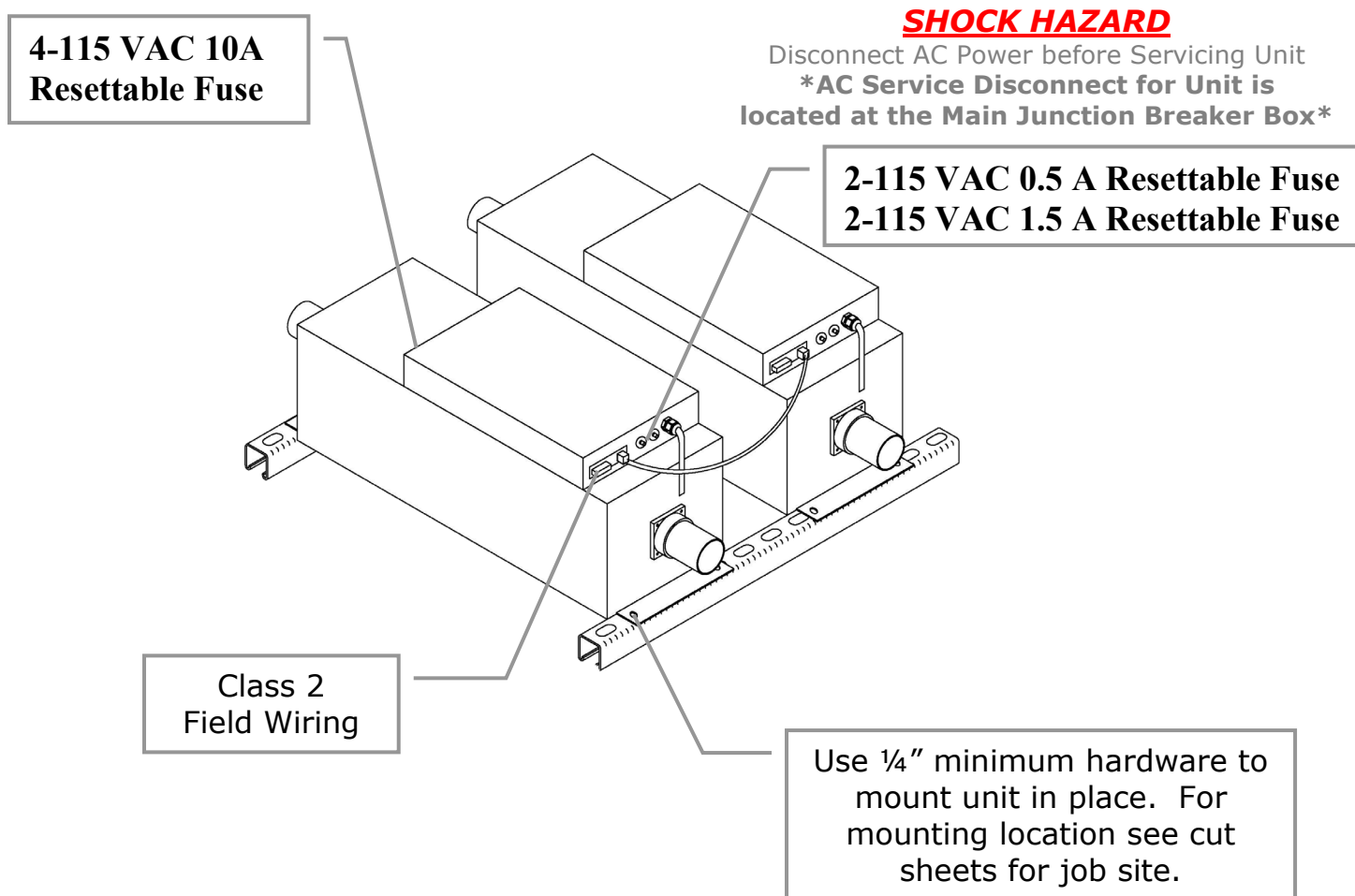
WARNING: SHOCK HAZARD

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 (x2) 115VAC @ 20A dedicated circuits 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.



4x7 Carrier (P/N: 400215-8)

Carriers must be fully closed 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 5lbs.

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 rocker switch in the center of the teller unit control panel controls power to the system. The adjacent red LED indicates “power on.”

NOTE: The power switch does **not** switch off 120VAC service to any component. It is only used to deactivate the system. Some components may remain energized and/or active when the system is “off.”

Power ON

1. Technician/Teller switches power on
2. Power indicator illuminates
3. *CVM Systems only:* Camera and monitor in CVM are powered on
4. System is now in ready state

Power OFF

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

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

Send cycle

1. Technician/Teller inserts carrier into teller unit
2. Teller closes teller unit door and presses SEND
3. Send cycle begins
4. Pressure blower activates
5. The valve in the Teller Unit Check Valve closes and the valve in the Teller Unit opens, sending air pressure to Teller Unit
6. Carrier is propelled from Teller Unit into transmission tubing, towards Customer Unit
7. Carrier passes Deceleration Switch Tube over Customer Unit
8. Pressure blower deactivates
9. Carrier decelerates due to Solenoid engaging
10. Solenoid timer waits for Carrier to land.
11. Send cycle ends; 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 valve in the Teller Unit Check Valve opens, sending vacuum to the Customer Unit
6. Carrier is pulled from Customer Unit into transmission tubing towards Teller Unit
7. Carrier passes Teller Check Valve
8. Carrier is decelerated by pressure ahead of carrier (*valve in Teller Check Valve blocks pressure from Teller Unit*)
9. Carrier arrives at Teller Unit.
10. Cycle timer times out
11. Recall cycle ends – system is now in ready state

Installation

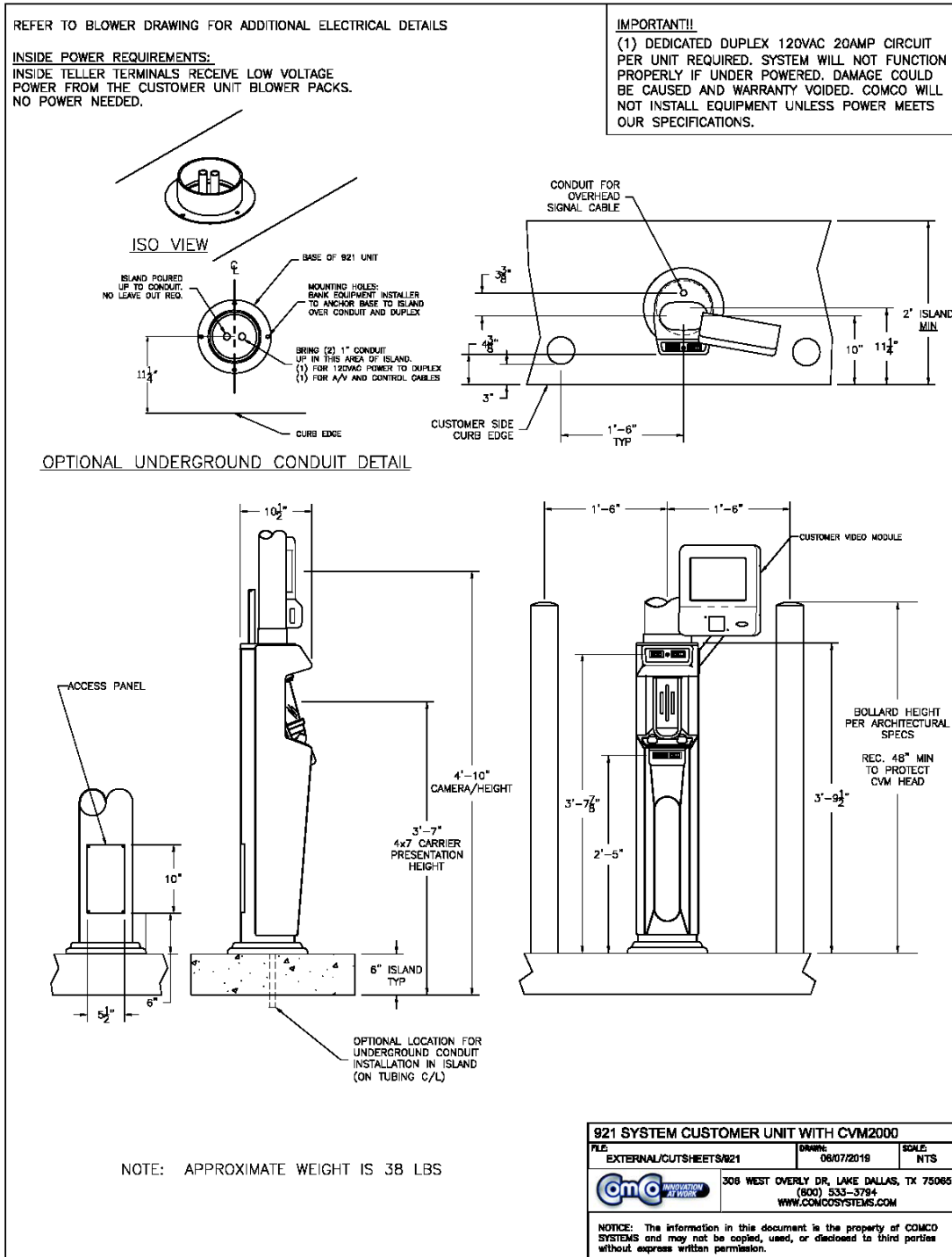
921 Series



Installation

Cut Sheets

NOTE:



Installation

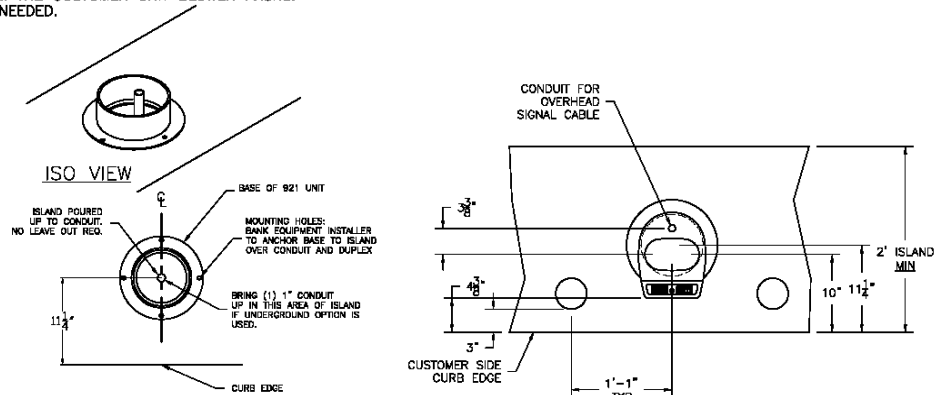
Cut Sheets

NOTE:

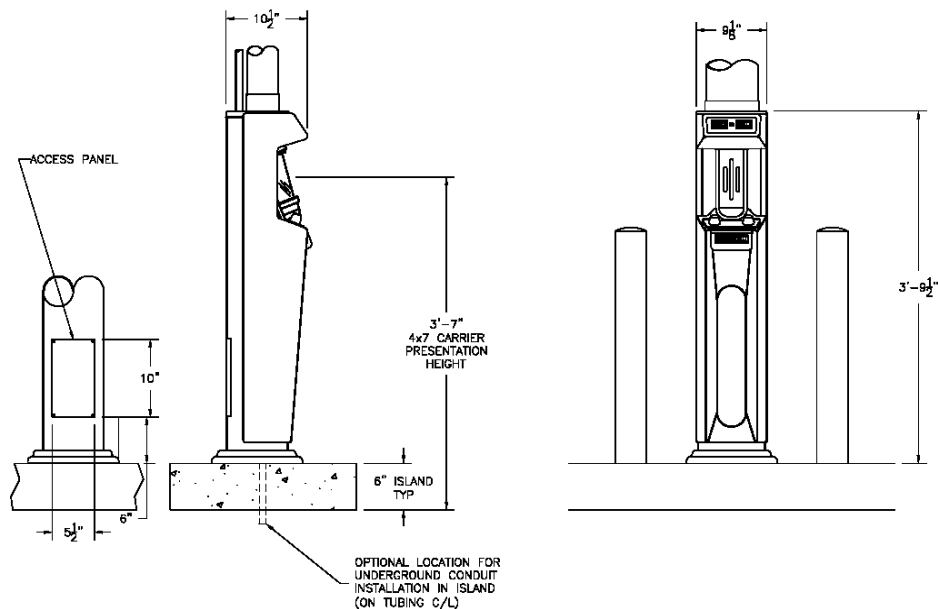
REFER TO BLOWER DRAWING FOR ADDITIONAL ELECTRICAL DETAILS

INSIDE POWER REQUIREMENTS:


INSIDE TELLER TERMINALS RECEIVE LOW VOLTAGE POWER FROM THE CUSTOMER UNIT BLOWER PACKS. NO POWER NEEDED.



OPTIONAL UNDERGROUND CONDUIT DETAIL



NOTE: APPROXIMATE WEIGHT IS 38 LBS

921 SYSTEM CUSTOMER UNIT WITH AUDIO ONLY		
FILE	EXTERNAL/CUTSHEETS/921	DATE: 06/07/2019
SCALE	NTS	
		
308 WEST OVERLY DR. LAKE DALLAS, TX 75065 (800) 533-3794 WWW.COMCOSYSTEMS.COM		
NOTICE: The information in this document is the property of COMCO SYSTEMS and may not be copied, used, or disclosed to third parties without express written permission.		

Installation

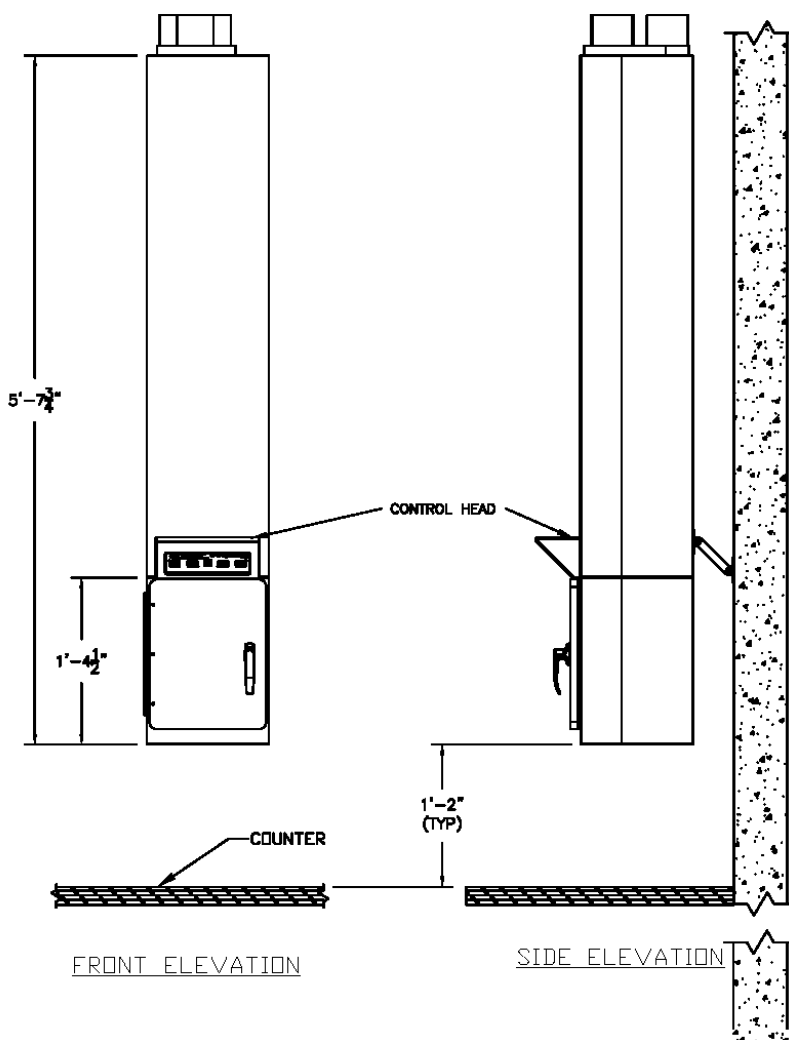
921 Series



Installation

Cut Sheets

NOTE:



NOTES:
TELLER UNIT RECEIVES LOW VOLTAGE POWER FROM BLOWERS LOCATED REMOTELY.
STANDARD UNIT COVER ACCOMODATES 40" COUNTER TOP WITH 9 FOOT CEILINGS. DIFFERENT COUNTERTOP OR CEILING HEIGHT WILL REQUIRE A DIFFERENT COVER. COMCO MUST BE NOTIFIED OF DIFFERENT HEIGHTS.

900 TELLER UNIT CUT SHEET					D 1.X
ComCo Systems (800) 533-3794 LAKE DALLAS, TEXAS					
DATE 09/25/08	SCALE NTS	DESIGN MPV	APPROVED	DRAWN BY	
FILED \\EXTERNAL\CUT SHEETS\900\900 TELLER UNIT					

Installation

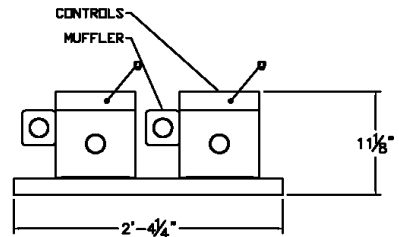
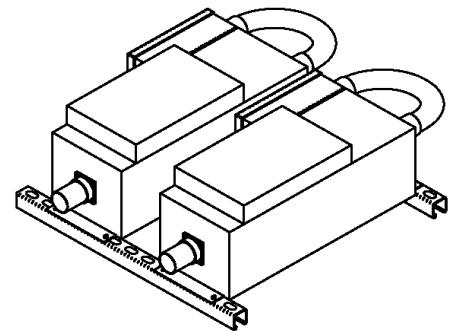
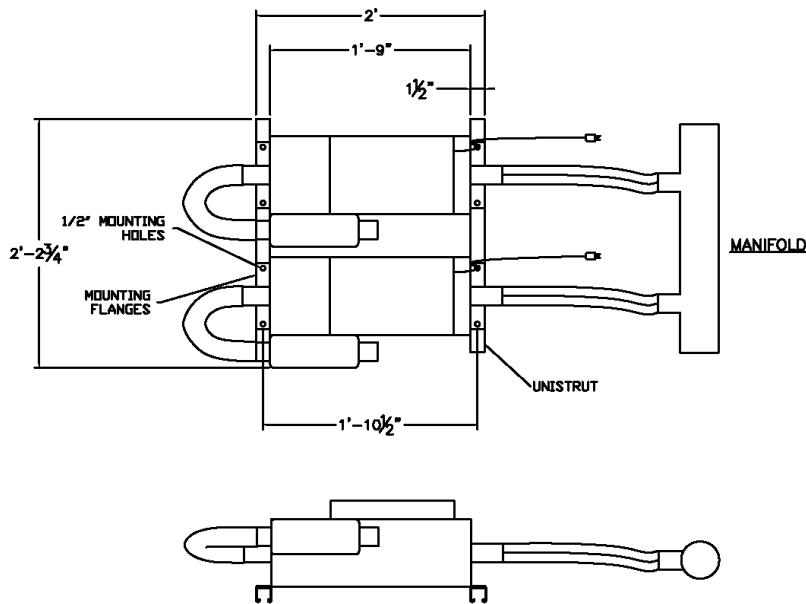
Cut Sheets

NOTE:

PRESSURE/VACUUM BLOWER SYSTEM

- USES 120VAC 20 AMP SERVICE TO STANDARD DUPLEX OUTLET PER BLOWER (WITHIN 3' OF UNIT)
- UL CERTIFIED
- INTEGRAL BYPASS VALVE INCREASES BLOWER EFFICIENCY AND REDUCES WEAR
- GALVANIZED 14 GAUGE STEEL HOUSING
- 2.0" AIRLINE IS STANDARD
- SUPPLIED WITH 124 CFM - 60" H2O

MODEL 521 DUAL BYPASS BLOWER DETAILS
TOTAL GROSS WEIGHT: 80lbs



NOTE:
(2) BLOWERS PER LANE USED - REQUIRES
(2) 120VAC 20 AMP DEDICATED CIRCUITS PER LANE REQ
(2) TOTAL CIRCUITS AND DUPLEX'S

IMPORTANT!!

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

PLEASE SEE CUSTOMER UNIT DRAWING FOR CUSTOMER UNIT POWER REQUIREMENTS

ITEM	M/F	DESCRIPTION / REFERENCE	QTY	P/N
MATERIAL/FINISH SCHEDULE				

DUAL BYPASS UL BLOWER ASSEMBLY				
DOCUMENT NO.	REVISION	PAGE	SCALE	SHEET
		1 of 1	1=4	A
FILE:				
TOLERANCES		COMCO SYSTEMS		
FRACTIONS		(800) 533-3794		
DECIMALS		LAKE DALLAS, TX		
ANGLES				
THIRD ANGLE PROJECTION		NOTICE: The information in this document is the property of COMCO SYSTEMS and may not be copied, used, or disclosed to third parties without express written permission.		

Installation

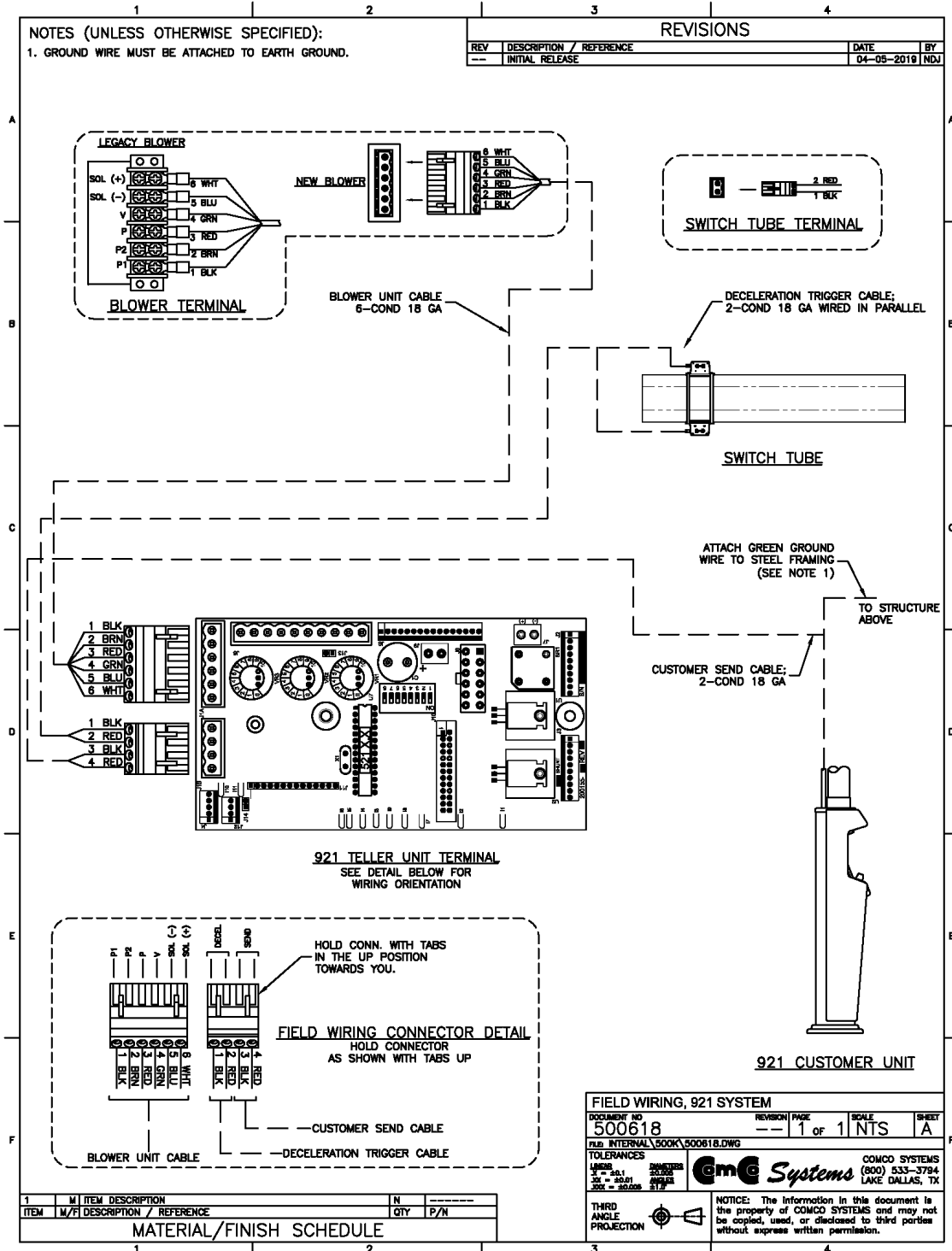
921 Series



Installation

Field Wiring Diagram (D/N: 500618)

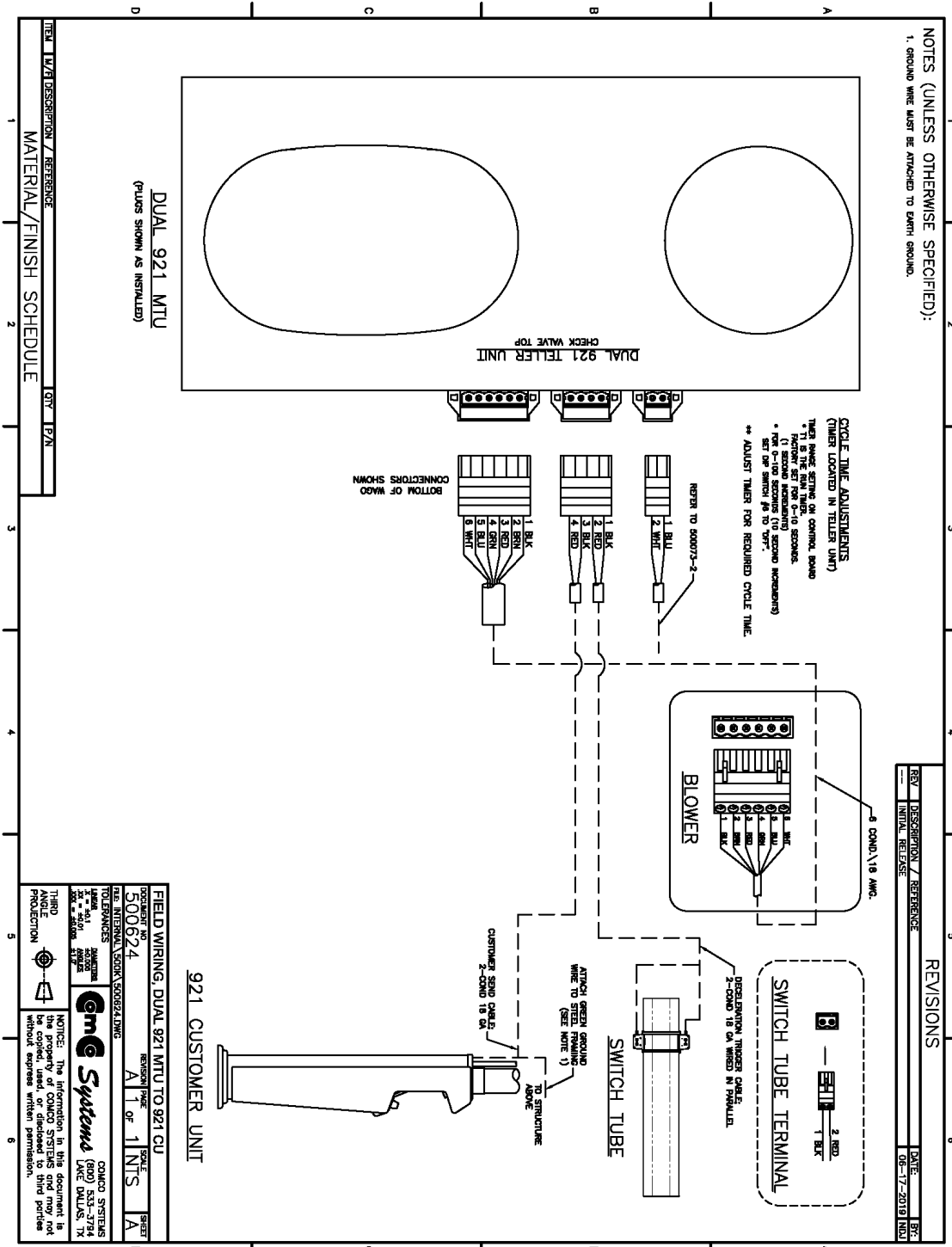
NOTE: *Deceleration switches MUST be wired in Parallel*



Installation

Field Wiring Diagram (D/N: 500624)

NOTE: *Deceleration switches MUST be wired in Parallel*



Installation

NOTE: *Deceleration switches MUST be wired in Parallel*

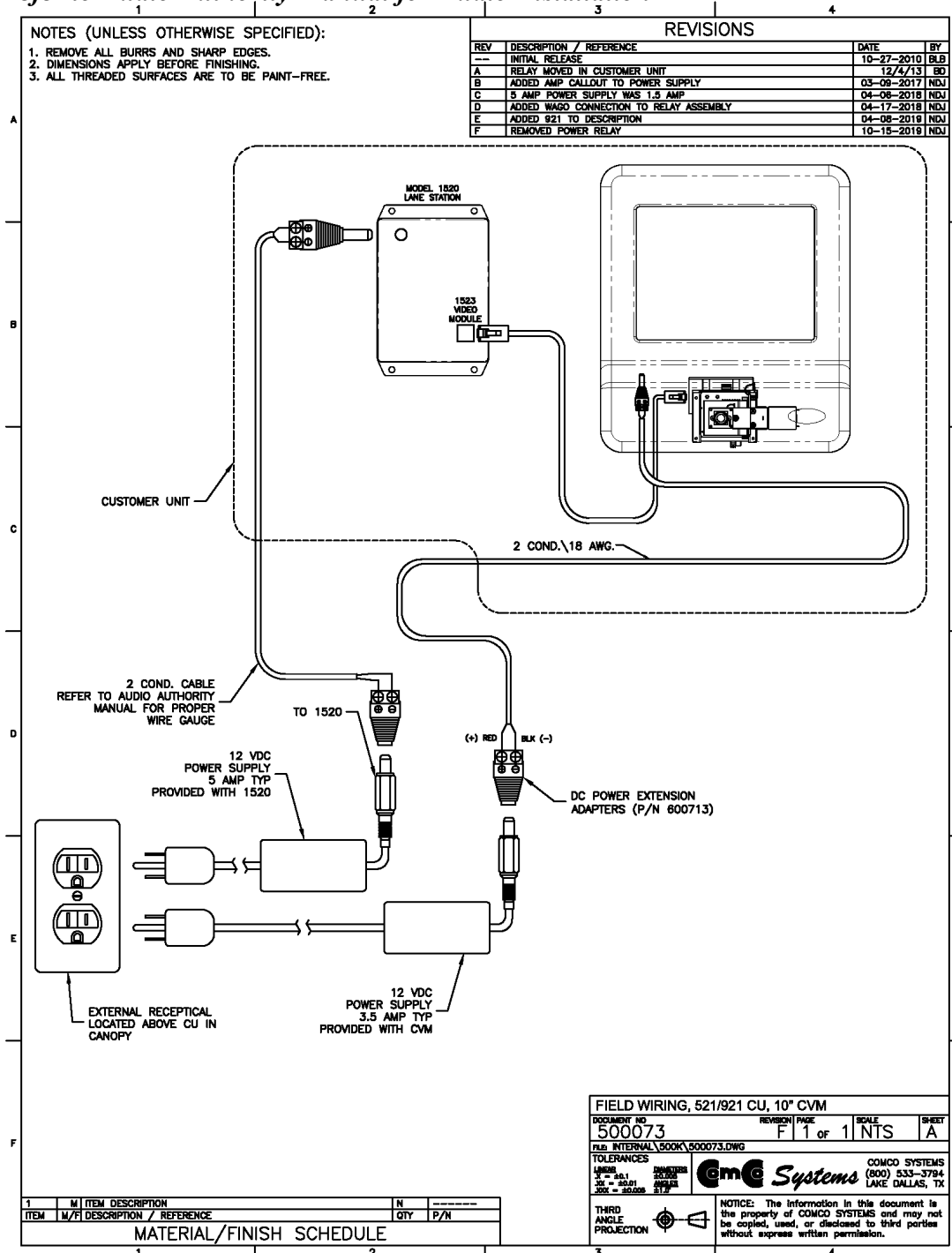
NOTE:



Installation

Control/Audio Field Wiring Diagram (D/N: 500073)

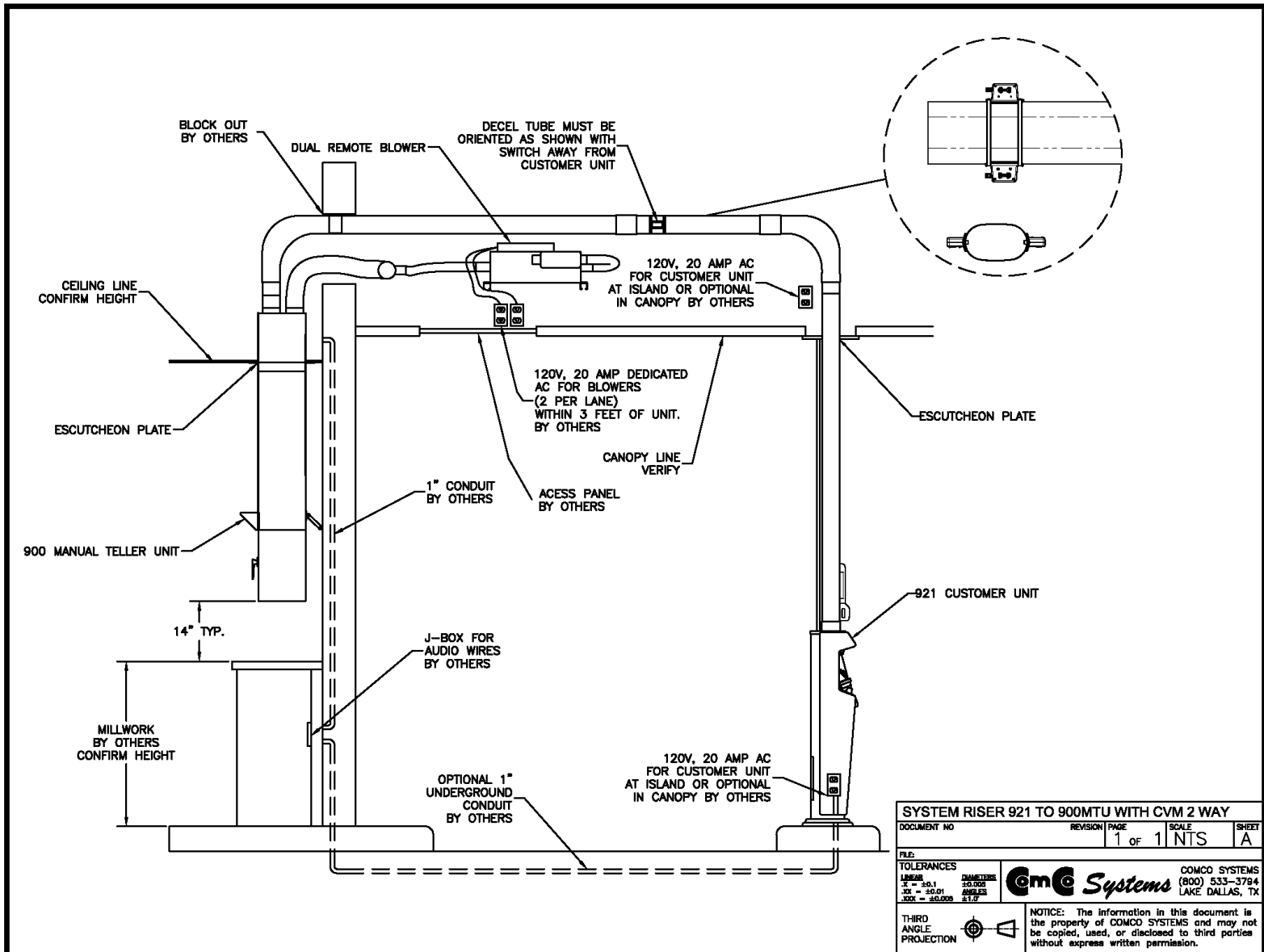
NOTE: Refer to Audio Authority Manual for Audio Installation



Installation

System Riser Diagram & Options

Parts Descriptions:



Blower

All blower packs are suitable for installation in restricted access locations at maximum operating ambient 40C deg/104F deg.

Note: 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.

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 Appendix A for switch settings and other timing settings.

Maintenance

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 wear bands on carrier.

Carriers should be replaced regularly – usually every 3-6 months, depending on usage.

Customer Unit & Teller

The carrier deceleration switches are required for proper operation. If they are inoperable, the carrier will land hard at the customer unit.

No System Power

- Check main outlet breakers.
- Check low voltage control breakers on front of blower pack.

Weak or Loss of Suction/Pressure

- Check blower motors for function.
Blower motors can be tested individually by connecting a 9v battery to pins 3(+) and 4(-) of Solid State Relay.
- To replace blower motors, see video link below.
[Blower Replacement Video](#)

Carrier Arrives Hard at Customer Unit

- Verify carriers are in good condition.
- Ensure that the solenoid is engaging at end of cycle.
Check that I7 LED is turning on at end of cycle.
Refer to Appendix A for LED details.

Replacement Parts

921MTU

Description	Part Number	Usage per Lane
Keypad	201292	1
Keypad Interface Cable	200967	1
Power Switch Assembly	200391-3	1
Control Board	200155K	1
Door Handle Assembly	201140	1
Brass Keeper	400178	1
Door Switch Assembly	200471-1	1
Door Assembly	200027-1	1
Membrane Valve for Receiver Box	401468	1
Membrane Valve for Check Valve	400116-1	1

Dual Door 921MTU

Description	Part Number	Usage per Lane
Keypad	200923-1	2
Keypad Interface Cable	200967	2
Power Switch Assembly	200391-1	2
Interface Board	200354	2
Control Board	200155K	1
Control Interface Harness	200559	1
Left Hand Door Handle Assembly	201140	1
Right Hand Door Handle Assembly	201140-1	1
Brass Keeper	400178	1
Left Hand Door Assembly	200027-1	1
Right Hand Door Assembly	200027-2	1
Membrane Valve for Receiver Box	401468	1
Membrane Valve Assembly for Check Valve	200663	1

QT-2010 Conversion

Description	Part Number	Usage per Lane
Keypad	201078-1	1
Power Switch Assembly	200391-2	1
Keypad Interface Harness	200190	1
Control Box	200703-4	1
Membrane Valve for Check Valve	400116-1	2

Replacement Parts Cont.

Customer Unit

Description	Part Number	Usage per Lane
Upper Switch Plate	201327	1
Lower Switch Plate	201328	1
Upper Keypad(Legacy)	200573-2	1
Lower Keypad(Legacy)	200574-2	1
Rubber Bumpers	605204	2
Microphone Assembly	200746	1
Speaker Assembly	200067	1
Main Harness	200665	1
Relay Assembly	200551-1	1
1520 Interface Harness	200880	1

Blowers

Description	Part Number	Usage per Lane
Blower Motor	601003	4
Blower Motor Assembly	200785	4
Blower Interface Board	200717	2
Dual Blower Interface Harness	200748	1
Solid State Relay	609819	4
Transformer Assembly	201170	2
.5 Amp Circuit Breaker	604414	2
1.5 Amp Circuit Breaker	604435	2
10 Amp Circuit Breaker	604412	4
Solenoid Assembly	200282	2

Carriers

Description	Part Number	Usage per Lane
4x7 Hybrid Carrier	400215-8	2

Misc.

Description	Part Number	Usage per Lane
Deceleration Switch	200599	2

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.

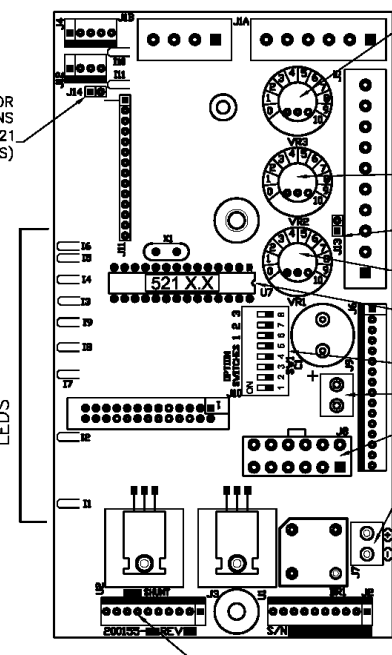
OPTION SWITCHES
 (1) 521/LOBBY TELLER APPLICATION:
 OFF=521 APPLICATION(STD)
 ON=LOBBY TELLER APPLICATION
 (2) DISABLES AUTOTEND:
 OFF=MANUAL TELLER
 ON=MOTORIZED TELLER
 (3) DOOR OPEN DELAY AFTER CYCLE:
 OFF=NO DELAY AFTER CYCLE
 ON=ADJUSTABLE DELAY WITH TIMER #2.
 (4) STOP VALVE DELAY: SELECT PROCESSOR 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). LEDs 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). LEDs INDICATE DOOR OPEN/CLOSED STATE-CONTROLLED
 BY RELAY.

REVISIONS

REV	DESCRIPTION / REFERENCE	DATE	BY
NC	INITIAL RELEASE - NEW REV K CONTROLLER	12-13-2007	JNB
A	PCB LAYOUT REVISED, ADDED LED LEGEND	12-15-2007	JNB
B	ADDED NOTE FOR SHUNT ON PINS 7 & 8 (522 TO CHUTE)	01-22-2007	SMJ
C	ADDED J14 JUMPER SHUNT	04-01-2008	BLB
D	ADDED NOTE FOR J-13	08-05-2008	SMJ
E	UPDATED J13	01-14-2015	NDJ



JUMPER REQUIRED FOR ALL APPLICATIONS (ONLY REMOVE FOR 521 DIVERTER APPLICATIONS)

T3: SOLENOID ENGAGE STOP DELAY (CU Auto Door Closure)

T2: DOOR OPEN DELAY

J13: USED FOR 900 TO 922 APPLICATIONS

T1: CYCLE TIMER

MICROPROCESSOR CODE VERSION

OPTION SWITCHES

J9: LOCAL POWER SWITCH

J8: 910ATU OPTIONAL CONNECTOR

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 1 OF 1 SCALE 1/2=1 SHEET A

FILE: INTERNAL\500K\500356.DWG

TOLERANCES

LINEAR	ANGULAR
3" = .001	3" = .001
3/16" = .001	3/16" = .001
3/32" = .0005	3/32" = .0005

THIRD ANGLE PROJECTION

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

NOTICE: The information in this document is the property of COMCO SYSTEMS and may not be copied, used, or disclosed to third parties without express written permission.

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#).
- 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
 - Part Serial Number
- 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 call our Customer Service Representatives with your RMA#.

ComCo Systems
www.comcosystems.com

24/7 Toll Free Number
Fax

800.533.3794
940.222.2699

• **Customer Service & Technical Support**

service@comcosystems.com
support@comcosystems.com

800.533.3794 Option 1

• **Parts Orders**

parts@comcosystems.com

800.533.3794 Option 2

• **Equipment and System Sales**

sales@comcosystems.com

800.533.3794 Option 3

• **Project Management**

800.533.3794 Option 4

• **Accounting**

accounting@comcosystems.com

800.533.3794 Option 5

<https://www.facebook.com/ComcoSystems>

<https://twitter.com/comcosystems>

