

**HAMILTON AIR**

3143 Production Drive • Fairfield, Ohio 45014 • 513-874-3733

Model **HA-1000**

Installation and Service Manual

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## Model HA-1000 Installation and Service Manual

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# **Important Notice:**

## **All HA-1000 Units**

**Make sure all relays and timer are secure in their sockets.**

**All Micro-Switches should be checked for proper adjustment and operation by manually moving the door and safety bar before operating unit. This will insure that all adjustments and operations are satisfactory.**

**The HA1000 has been shipped with the relay box facing down. Vibrations created from shipping can cause relays to become loose in their sockets. Check all relays and timer for proper fit in their sockets.**

Check the wiring details sheet for the proper field connections.

## **HA-16 Teller Units**

Note the **High Velocity Turbines** used with HA-16 style down send teller require special wiring. Refer to drawing R533 for details.

## HA1000 Configurations

Hamilton makes several versions of the customer units and several versions of the teller units. HA1000 over head customer units work very well with HA-1000 under ground teller units and under ground HA1000 customer units work equally well with over head teller units. There are just a few points of caution:

- 1) When using the HA-16 style underground teller unit, a special high velocity turbine must be used in the underground customer unit and this turbine is different for the standard and extra deep. When you order a system from the factory, the proper turbine is supplied. Keep this in mind if you change configurations in the field.
- 2) The field wiring is determined by the teller unit. A four conductor cable is required for on over head teller. A five conductor control cable is required for any Teller unit with a motorized function. Hamilton also supplies an extra two conductors in this cable so that to power the outside LCD monitor when two-way Tell-R-TV is used. See data table below for proper wiring details.

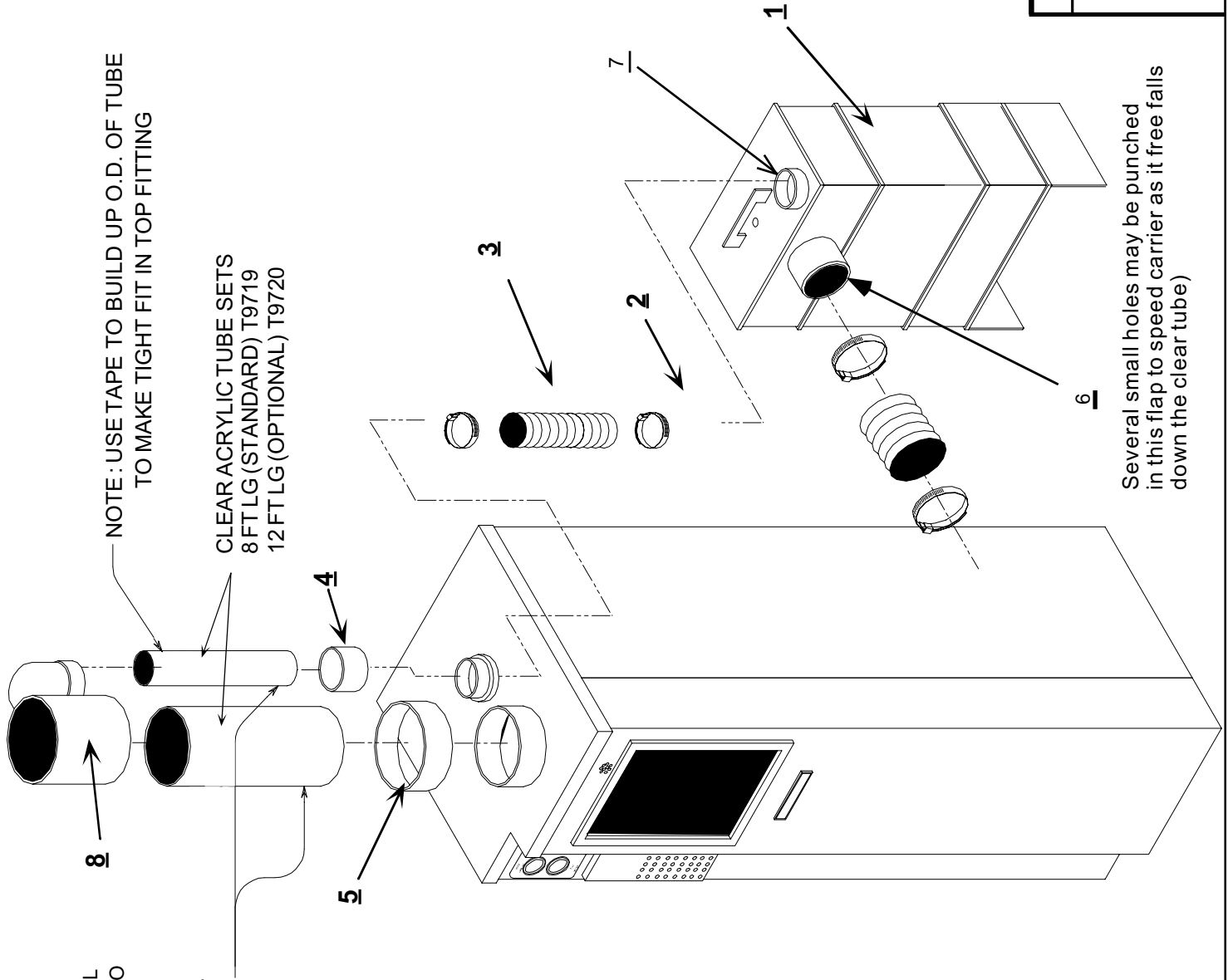
Customer Unit	Teller Unit	Interconnect Required	Field Wiring Drawing	Logic Diagram
Over Head	Over Head (Std.)	4 Cond.	R501	R502
Under Ground	Under Ground (Std.)	5 Cond.	R402 R401	R503 R403
Under Ground	Over Head (Std.)	4 Cond.	R501	R502
Over Head	CM2 Over Head	5 Cond.	R902 R901	R553 R903
Over Head	Double Sided Over Head	4 Cond.	R501	R502
Over Head	Under Ground (Std.)	5 Cond.	R402	R503 R403
Over Head	Counter Teller Under Ground	5 Cond.	R402 R401	R503 R403
Under Ground	CM2 Over Head	5 Cond.	R902 R901	R553 R903
Under Ground	Double Sided Over Head	4 Cond.	R501	R502
Under Ground	Counter Teller Under Ground	5 Cond.	R402 R401	R503 R403
Under Ground High Velocity	HA16-1000	4 Cond.	R533	R534

- 1 B4134 Turbine (Over Head)
- 2 H1076 2 1/4" Hose clamp
- 3 H1077 2 1/4" Hose
- 4 B4408 Brake tube sleeve
- 5 B4050 4 3/4" ID Adaptor sleeve
- 6 B3615 Lower Check Valve
- 7 B3614 Upper Check Valve Magnetic
- 8 B4406 Top Fitting

NOTE:  
USE TAPE TO SEAL  
ACRYLIC TUBES TO  
FITTINGS. SLIDE  
SLEEVES OVER  
TAPE TO SECURE.

NOTE: USE TAPE TO BUILD UP O.D. OF TUBE  
TO MAKE TIGHT FIT IN TOP FITTING

CLEAR ACRYLIC TUBE SETS  
8FTLG (STANDARD) T9719  
12FTLG (OPTIONAL) T9720



Several small holes may be punched  
in this flap to speed carrier as it free falls  
down the clear tube)

HAMILTON AIR

MODEL HA-1000

UPSEND CUSTOMER UNIT  
MECHANICAL CONNECTIONS

DWG No 99-500  
Rev 3 (8-30-07)

DATE 1-14-94

**NOTES:**

4 CONDUCTOR CABLE SUPPLIED BY HAMILTON AIR PRODUCTS  
 120 VOLT 30 AMP SERVICE BY OTHERS. WIRE SIZES SHOWN MUST BE FOLLOWED FOR PROPER OPERATION.

AUDIO CABLE NOT SUPPLIED BY HAMILTON  
 SEE AUDIO UNIT FOR RECOMMENDED CABLE

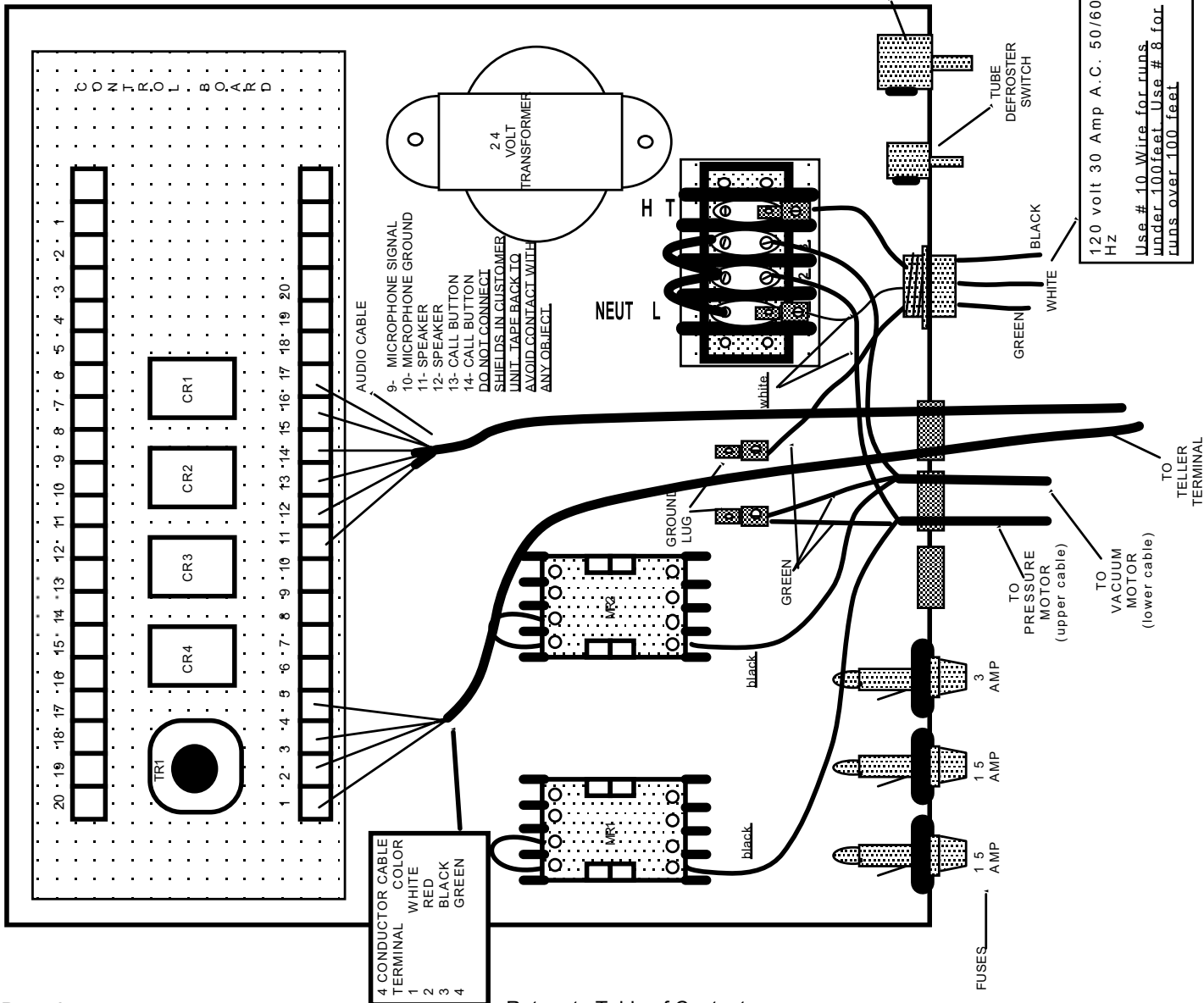
**FIELD INSTALLED CABLE RUNS**

1. 4 CONDUCTOR FROM CUSTOMER UNIT TO TELLER UNIT (1 REQUIRED)
2. AUDIO CABLE - 2 CONDUCTORS SHIELDED FOR MICROPHONE  
 2 CONDUCTORS SHIELDED FOR SPEAKER  
 2 CONDUCTORS FOR TELLER CALL TONE  
 SEE AUDIO INSTRUCTIONS FOR CABLE TYPE
3. CONNECT TURBINE MOTORS TO CONTACTORS AS SHOWN (CABLE PROVIDED)

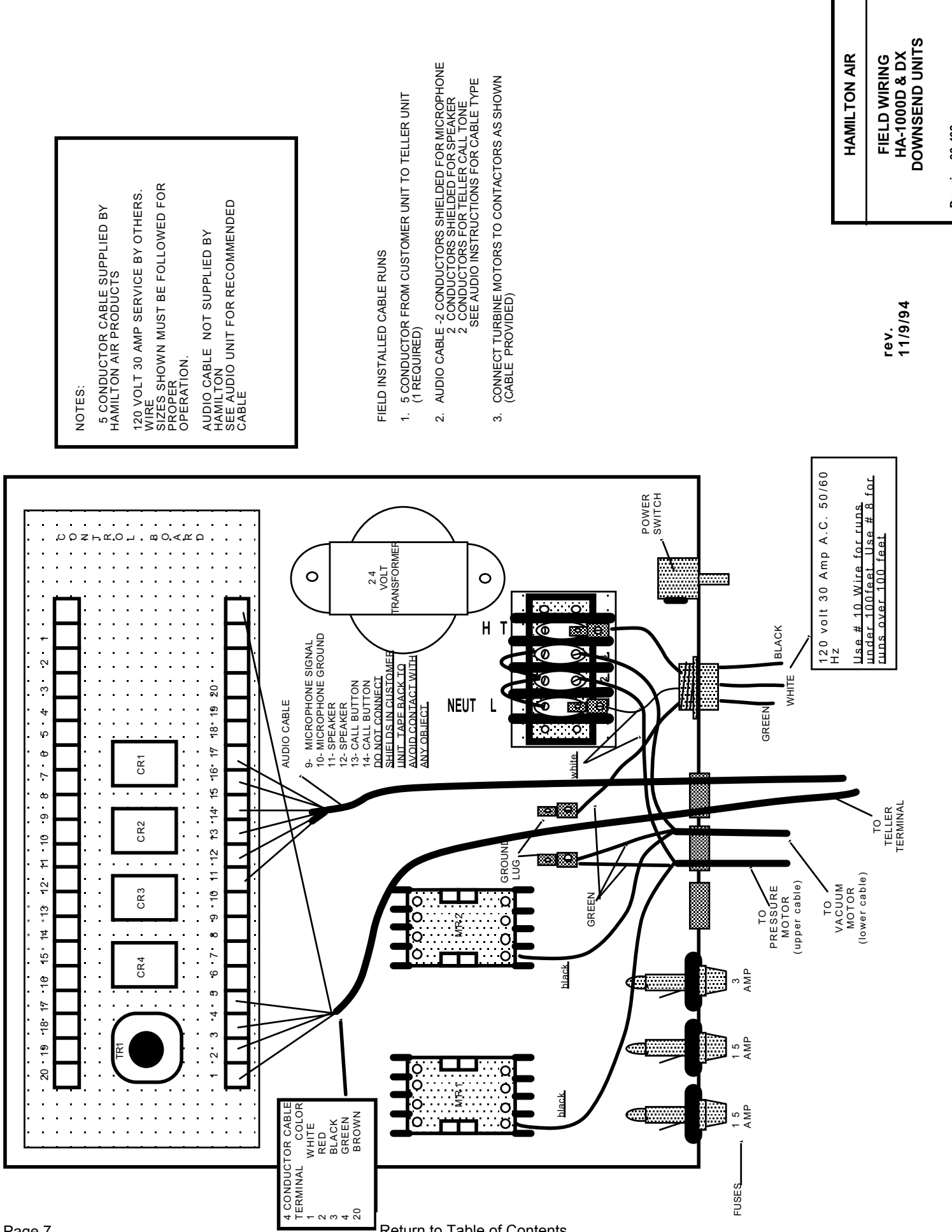
**HAMILTON AIR**

**HA-1000  
 FIELD WIRING  
 OVERHEAD UNITS**

Drawing 99-501 rev. 4/4/96



4 CONDUCTOR CABLE TERMINAL	COLOR
1	WHITE
2	RED
3	BLACK
4	GREEN



NOTES:

5 CONDUCTOR CABLE SUPPLIED BY HAMILTON AIR PRODUCTS

120 VOLT 30 AMP SERVICE BY OTHERS. WIRE SIZES SHOWN MUST BE FOLLOWED FOR PROPER OPERATION.

AUDIO CABLE NOT SUPPLIED BY HAMILTON AIR. SEE AUDIO UNIT FOR RECOMMENDED CABLE

FIELD INSTALLED CABLE RUNS

1. 5 CONDUCTOR FROM CUSTOMER UNIT TO TELLER UNIT (1 REQUIRED)
2. AUDIO CABLE - 2 CONDUCTORS SHIELDED FOR MICROPHONE  
2 CONDUCTORS SHIELDED FOR SPEAKER  
2 CONDUCTORS FOR TELLER CALL TONE  
SEE AUDIO INSTRUCTIONS FOR CABLE TYPE
3. CONNECT TURBINE MOTORS TO CONTACTORS AS SHOWN (CABLE PROVIDED)

HAMILTON AIR

FIELD WIRING  
HA-1000D & DX  
DOWNSEND UNITS

rev.  
11/9/94

Drawing 99-402

4 CONDUCTOR CABLE TERMINAL	COLOR
1	WHITE
2	RED
3	BLACK
4	GREEN
20	BROWN

120 volt 30 Amp A.C. 50/60 Hz

Use # 10 Wire for runs under 100 feet. Use # 8 for runs over 100 feet.

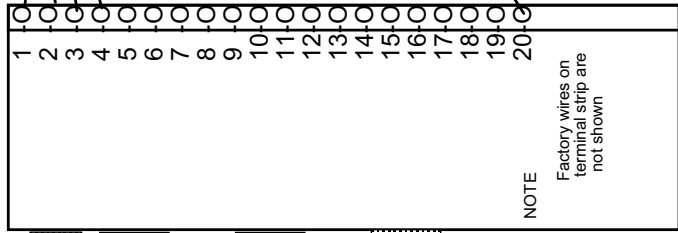
5 CONDUCTOR FROM CUSTOMER UNIT

1.5 Amp  
Slo-Blow Fuse

CR5

CR6

CR7



NOTE  
Factory wires on  
terminal strip are  
not shown

TELLER UNIT CONTROL PANEL

- 1--WHITE
- 2--RED
- 3--BLACK
- 4--GREEN
- 20--BROWN

NOTES:

5 CONDUCTOR CABLE SUPPLIED BY HAMILTON AIR PRODUCTS  
 120 VOLT 30 AMP SERVICE BY OTHERS, FOR EACH CUSTOMER UNIT SEE DRAWING 99-402 FOR DETAILS  
 120 VOLT 5 AMP FOR EACH TELLER UNIT BY OTHERS.  
 AUDIO CABLE NOT SUPPLIED BY HAMILTON SEE AUDIO UNIT FOR RECOMMENDED CABLE

FIELD INSTALLED CABLE RUNS

1. 5 CONDUCTOR FROM CUSTOMER UNIT TO TELLER UNIT (1 REQUIRED)
2. AUDIO CABLE -2 CONDUCTORS SHIELDED FOR MICROPHONE  
 2 CONDUCTORS SHIELDED FOR SPEAKER  
 2 CONDUCTORS FOR TELLER CALL TONE

SEE AUDIO INSTRUCTIONS FOR CABLE TYPE

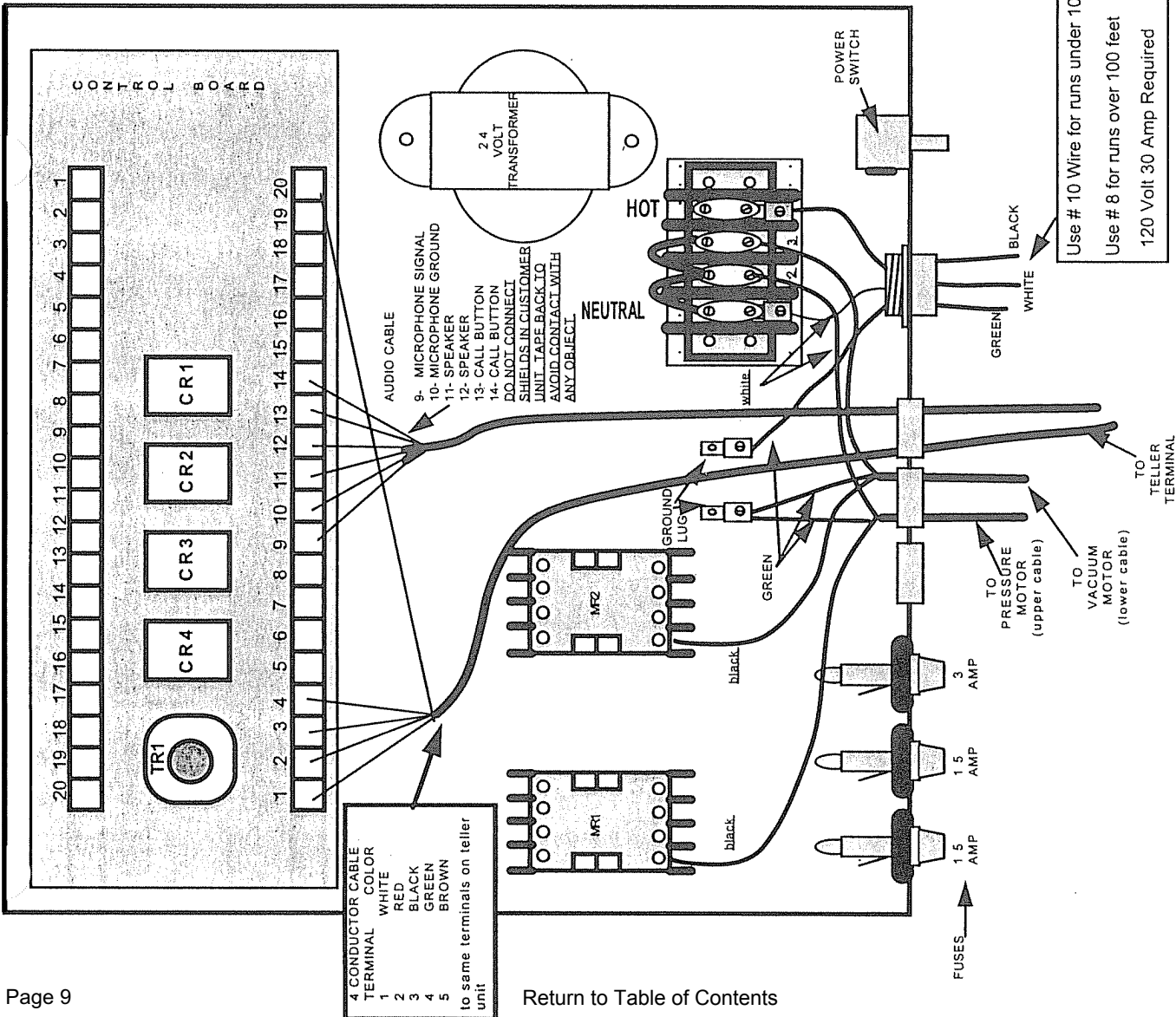
HAMILTON AIR

HA-1000D & HA-1000DX  
 DOWN SEND TELLER TERMINAL  
 FIELD WIRING

Drawing 99-401

rev. 9/3/91





**NOTES:**  
 4 CONDUCTOR CABLE SUPPLIED BY HAMILTON AIR PRODUCTS  
 120 VOLT 30 AMP SERVICE BY OTHERS. WIRE SIZES SHOWN MUST BE FOLLOWED FOR PROPER OPERATION.  
 AUDIO CABLE Part # E0680  
 SEE AUDIO UNIT FOR CONNECTIONS

**FIELD INSTALLED CABLE RUNS**  
**CONTROL CABLE:**

- 5 CONDUCTOR 18 ga FROM CUSTOMER UNIT TO TELLER UNIT
- AUDIO CABLE:  
 2 CONDUCTORS SHIELDED FOR MICROPHONE  
 2 CONDUCTORS 18 ga FOR SPEAKER  
 2 CONDUCTORS FOR TELLER CALL TONE  
 Cable is available from Hamilton Part # E0680
3. CONNECT TURBINE MOTORS TO CONTACTORS AS SHOWN (CABLE PROVIDED)

HAMILTON AIR  
 HA-1000  
 FIELD WIRING  
 With CM-2 Motorized Teller  
 rev. 3/9/99  
 Drawing F902

- 1--WHITE
- 2--RED
- 3--BLACK
- 4--GREEN
- 20--BROWN

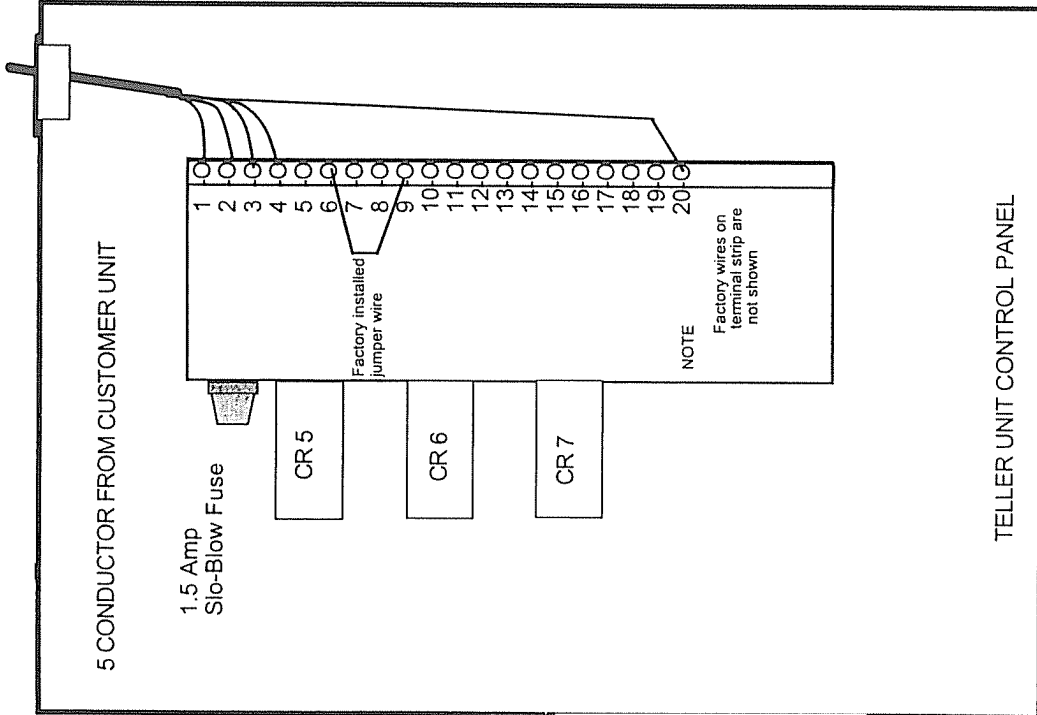
NOTES:  
 5 CONDUCTOR CABLE SUPPLIED BY HAMILTON AIR PRODUCTS  
 120 VOLT 30 AMP SERVICE BY OTHERS. FOR EACH CUSTOMER UNIT SEE DRAWING 99-402 FOR DETAILS  
 120 VOLT 5 AMP FOR EACH TELLER UNIT BY OTHERS.  
 AUDIO CABLE NOT SUPPLIED BY HAMILTON. SEE AUDIO UNIT FOR RECOMMENDED CABLE

FIELD INSTALLED CABLE RUNS

CONTROL CABLE: 5 CONDUCTOR 18 ga FROM CUSTOMER UNIT TO TELLER UNIT

AUDIO CABLE: 2 CONDUCTORS SHIELDED FOR MICROPHONE  
 2 CONDUCTORS 18 ga FOR SPEAKER  
 2 CONDUCTORS FOR TELLER CALL TONE

Use 6 conductor cable Hamilton Part Number E0680 for audio system  
 See Audio instructions for connection information



HAMILTON AIR

HA-1000  
 CM-2 Motorized Teller Unit  
 Field Wiring

rev. 3/8/99

Drawing R901

**NOTES:**

4 CONDUCTOR CABLE SUPPLIED BY HAMILTON AIR PRODUCTS

120 VOLT 30 AMP SERVICE BY OTHERS. WIRE SIZES SHOWN MUST BE FOLLOWED FOR PROPER OPERATION.

AUDIO CABLE NOT SUPPLIED BY HAMILTON SEE AUDIO UNIT FOR RECOMMENDED CABLE

- FIELD INSTALLED CABLE RUNS
1. 4 CONDUCTOR FROM CUSTOMER UNIT TO TELLER UNIT (1 REQUIRED)
  2. AUDIO CABLE - 2 CONDUCTORS SHIELDED FOR MICROPHONE 2 CONDUCTORS FOR SPEAKER 2 CONDUCTORS FOR TELLER CALL TONE SEE AUDIO INSTRUCTIONS FOR CABLE TYPE
  3. CONNECT TURBINE MOTORS TO CONTACTORS AS SHOWN (CABLE PROVIDED)
  4. CONNECT JUMPER WIRE FROM T2 OF MR1 MOTOR CONTACTOR (LEFT UNIT) TO TERMINAL 4 ON THE B TERMINAL STRIP (UPPER TERMINAL STRIP)

**NOTE:**

This drawing is for use with Down Send Units and High Velocity Turbine. Note the field installed jumper between motor starter MR1 & terminal Strip B

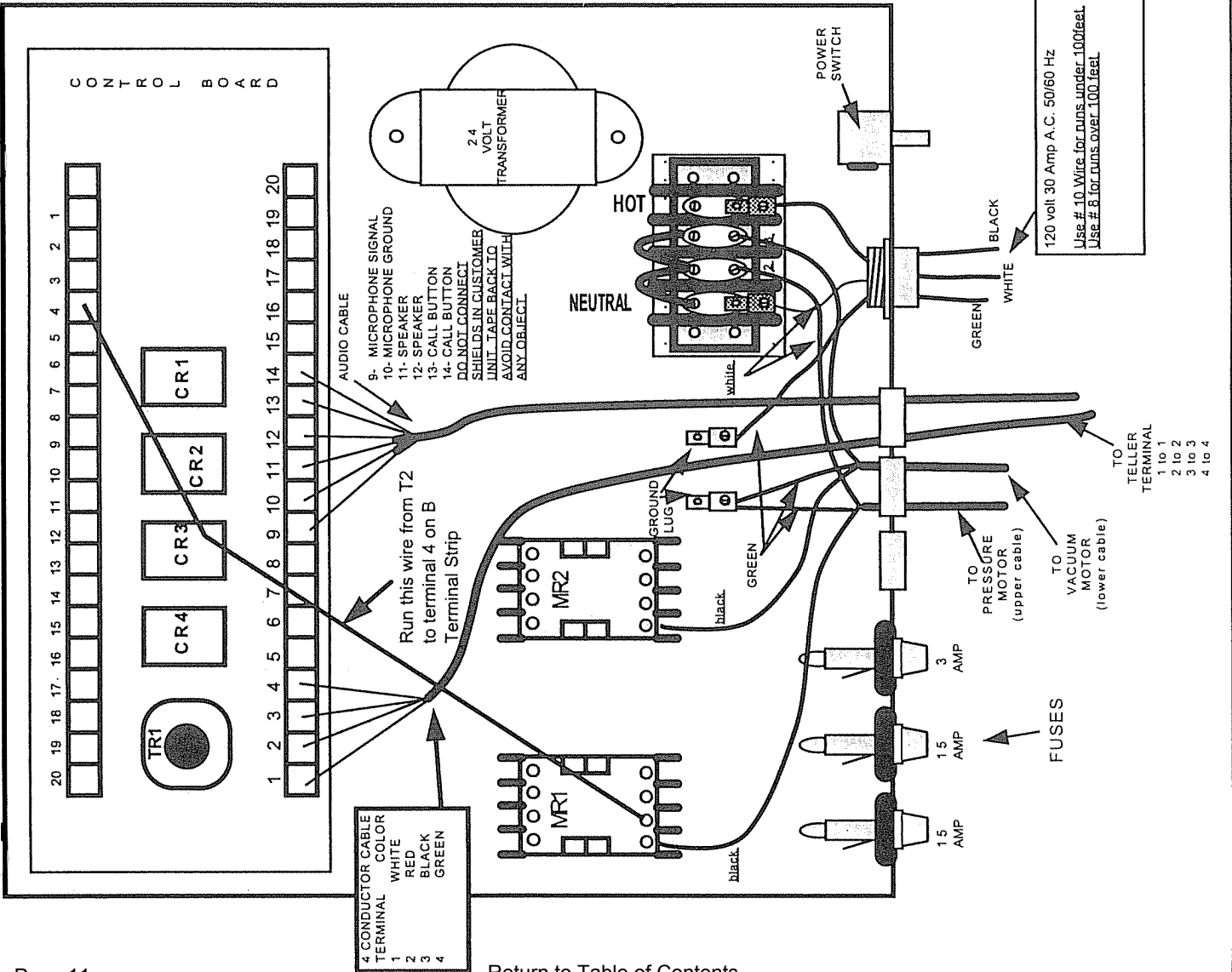
HAMILTON AIR

FIELD WIRING

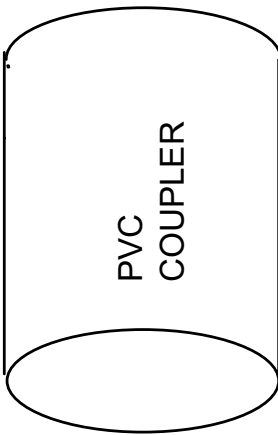
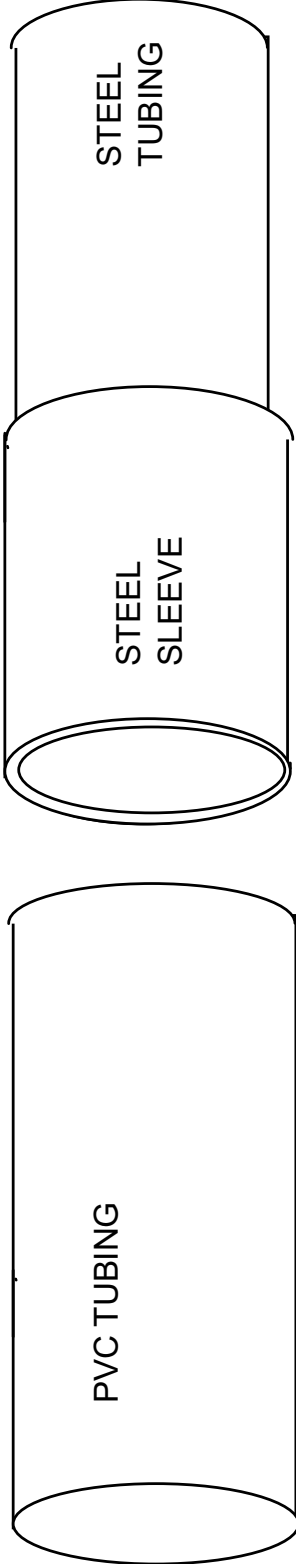
HA-1000 Down Send Units with HA-16 teller and High Velocity Turbine

Drawing R533

rev. 2/23/98

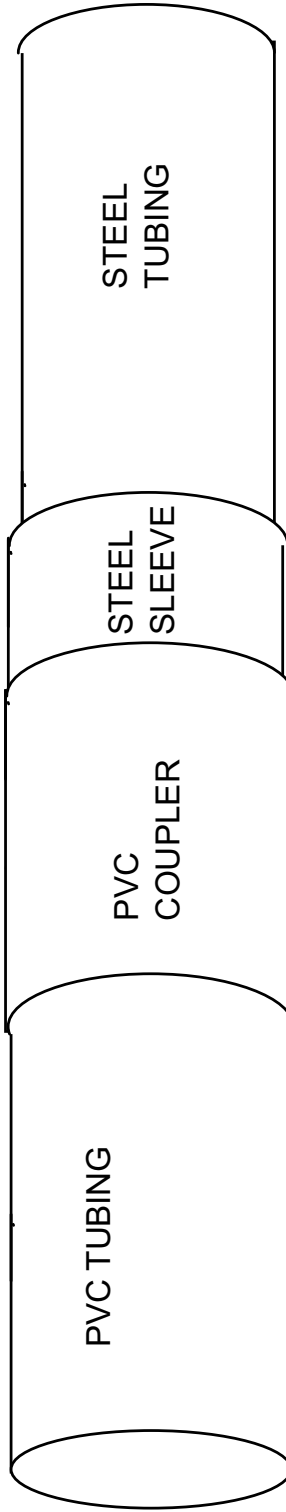


4 CONDUCTOR CABLE TERMINAL	COLOR
1	WHITE
2	RED
3	BLACK
4	GREEN



1. Slide Steel sleeve over the end of the steel tubing.

Tape joints with Duct Tape



**NOTE**  
Support this joint on each side of the couplings.

2. Apply a liberal coating of PVC cement to the end of the PVC tubing and the inside of the PVC Coupler.
3. Butt the PVC tubing to the steel tubing
4. Slide PVC Coupler over the PVC and steel sleeve.
5. Duct Tape Joints for stability
6. The joint will cure in about an hour at 70 Degrees. Longer at colder temps.

## Component Description and Function

<b>Component</b>	<b>Function</b>
CR1	Control Relay 1: <b><u>Teller Send Relay</u></b> . Latches itself on energize. Applies power to the timer and energizes motor relay 2 (MR2) to activate the vacuum turbine (carrier travel to customer unit). CR1 is de-energized by CR3.
CR2	Control Relay 2: <b><u>Customer door close relay</u></b> . Energized by LS2 (Limit Switch 2). Also de-energized by LS2. Controls closing of the customer door.
CR3	Control Relay 3: <b><u>Teller Send Relay</u></b> . Energized by the teller send switch or by opening the teller unit door. Allows CR1 to be energized when the teller door is closed. This permits teller send function without requiring the teller send switch to be pushed. De-energized by the timer.
CR4	Control Relay 4: <b><u>Teller Recall Relay</u></b> . Latches itself on energize. Activated by teller recall or customer send switch. Closes the customer unit door and applies power to the timer. Energizes MR1 to activate the pressure turbine. (carrier travel to teller unit) De-energized by the timer.
CR5 *	Control Relay 5: <b><u>Teller Send Relay</u></b> . Energized by the teller send switch. Coil wired in parallel with CR3 and operates in unison with CR3.
CR6 *	Control Relay 6: <b><u>Teller Door Close Relay</u></b> . Energized by LS6 (Limit Switch 6). Also de-energized by LS6. Controls closing of the teller door.
CR7 *	Control Relay 7: <b><u>Teller Recall Relay</u></b> . Latches itself on energize. Activated by Teller Recall or Customer Send Switch. Closes the teller unit door. Coil wired in parallel with CR4 and operates in unison with CR4.
TR1	Timing Relay 1: <b><u>Timer</u></b> . Controls length that the turbines run. De-energizes itself after the time has elapsed.
MR1	Motor Relay 1: <b><u>Pressure Motor Contactor</u></b> . Energized by CR4.
MR2	Motor Relay 2: <b><u>Vacuum Motor Contactor</u></b> . Energized by CR1.

\* Used on motorized teller units only. (CM2, Under Ground, Counter Top)

Component	Function
LS1	Limit Switch 1: <b><u>Teller Door Limit Switch.</u></b> Energizes CR3. Allows CR1 and CR4 to be energized. Prevents teller send, customer send or teller recall unless the teller unit door is closed.
LS2	Limit Switch 2: <b><u>Customer Unit Door Closed Limit Switch.</u></b> Controls CR2 to close the customer unit door.
LS3	Limit Switch 3: <b><u>Customer Door Open Limit Switch.</u></b> Removes power from the customer door open circuit when door is fully open. This switch does not operate a control relay.
LS4 & LS5	Limit Switches 4 & 5: <b><u>Customer Unit Door Safety Switches.</u></b> Opens customer unit door when activated.
LS6 *	Limit Switch 6: <b><u>Teller Unit Door Closed Limit Switch.</u></b> Controls CR6 to close the teller unit door.
LS7 *	Limit Switch 7: <b><u>Teller Unit Door Open Limit Switch.</u></b> Removes power from the teller door open circuit when door is fully open. This switch does not operate a control relay.
LS8 **	Limit Switch 8: <b><u>Teller Unit Air Pressure Limit Switch.</u></b> Removes power from door motor open circuit, when carrier is free falling below the air bypass valve, to prevent premature opening of the teller unit door thereby ensuring a soft landing.

Teller Send Switch

Energizes CR3 to start teller send function.  
Deactivates teller recall or customer send function.

Teller Recall Switch

Energizes CR4 to start teller recall function.  
Deactivates teller send function.

\* Used on motorized teller units only. (CM2, Under Ground, Counter Top)

\*\* Used on CM2 motorized teller unit only.

## **Test Procedures**

The HA1000 Remote units can be operated by simulating the action of the teller unit switches. This will save a few trips back and forth while servicing the unit.

**The following information should be used with caution....**

**Make certain you have the correct terminals before you proceed...**

Teller Send -- Touch Momentarily -- A1 to A2

Teller Recall -- Touch Momentarily -- A1 to A4

Customer Send-- Touch Momentarily -- A5 to A6

**Note:** If using a manual teller unit, the teller door must be closed for the unit to work in the above manner.

**The teller unit may be electrically disconnected from the remote unit to isolate suspected troubles in either the teller unit or the inter-connections.**

1) Remove the 4 wires from terminals A1, A2, A3, & A4.

2) Install a wire jumper between terminals A1 & A3.

Teller Send -- Touch Momentarily -- A1 to A2

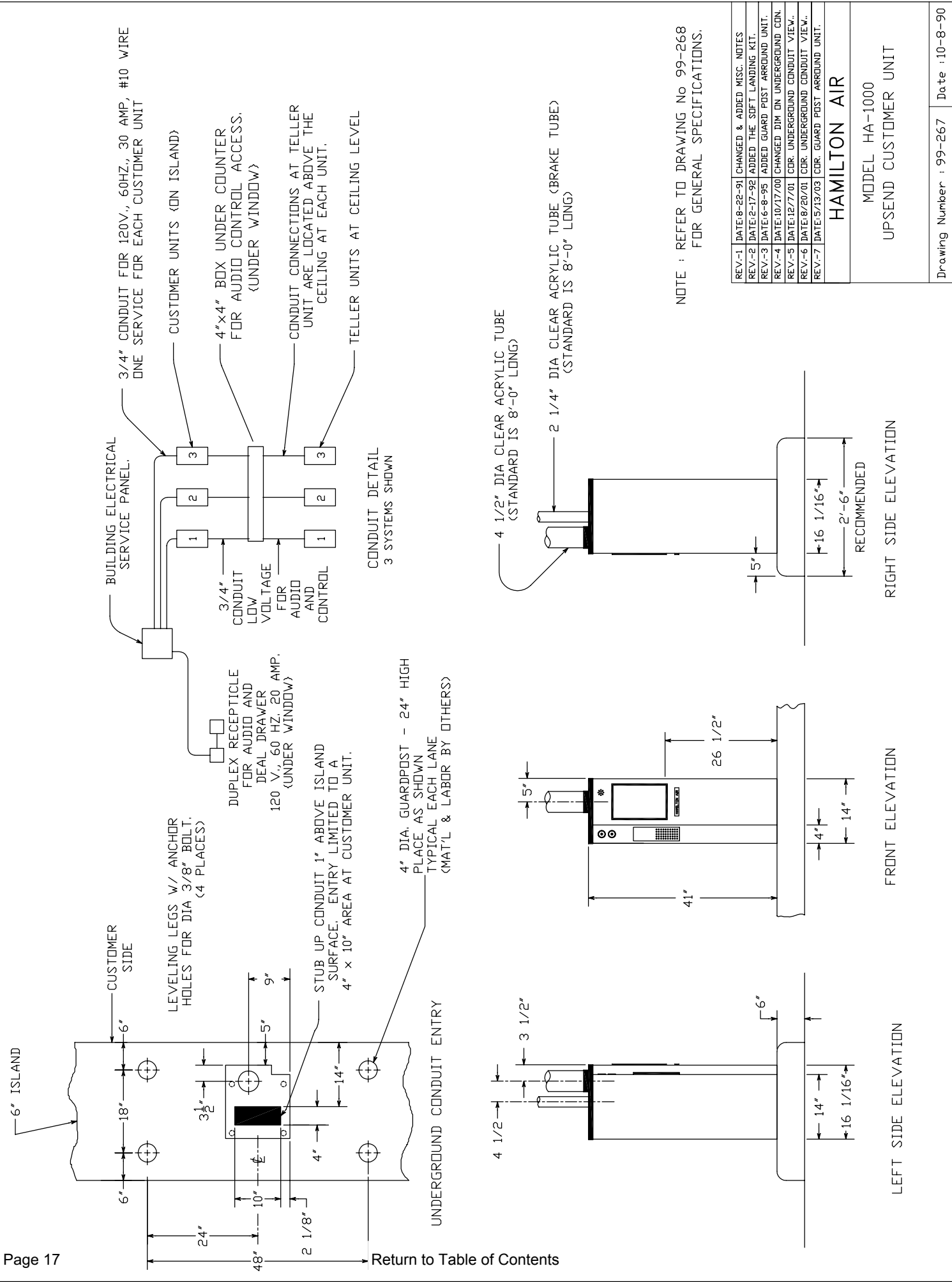
Teller Recall -- Touch Momentarily -- A1 to A4

Customer Send-- Touch Momentarily -- A5 to A6

## Test Points

A1 to A20	24 Volts AC: Power for the control relays
A2 to A20	24 Volts AC when teller door is open or teller send switch is pressed
A3 to A20	24 Volts AC when teller door is closed
A4 to A20	24 Volts AC when CR4 is energized
A6 to A20	24 Volts AC when teller door is closed and customer send switch pressed
A8 to A20	24 Volts AC CR2 is energized
B1 to B2	120 Volts AC: High voltage for door motor and motor relays
B4 to B6	120 Volts AC when CR1 is energized
B5 to B6	120 Volts AC when CR4 is energized
B6 to B7	120 Volts AC when CR4 is energized
B6 to B8	120 Volts AC when Safety bar is lifted
B6 to B9	120 Volts AC when CR4 is energized
B10 to B12	120 Volts AC when door is opening
B11 to B12	120 Volts AC when door is closing

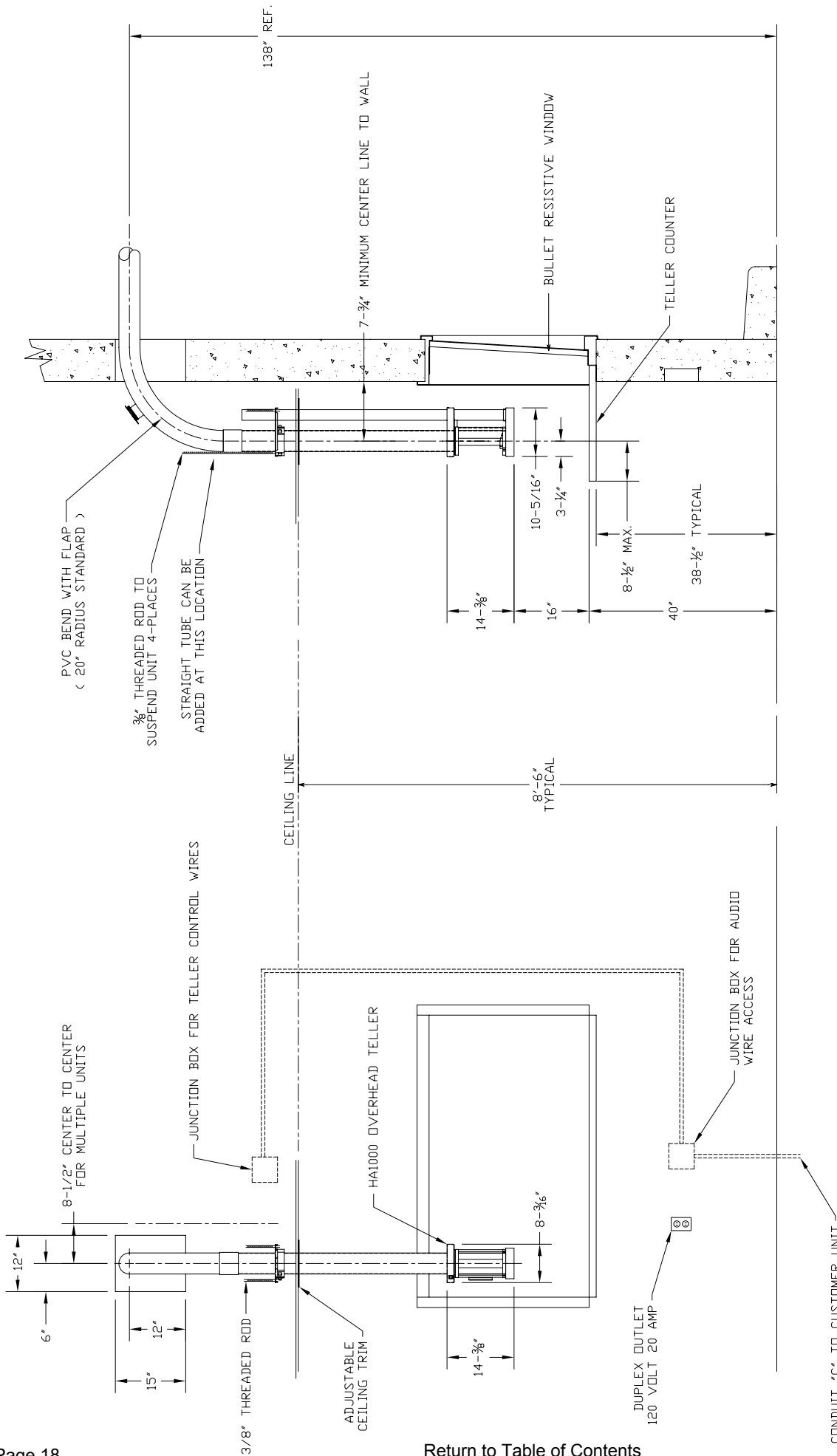




NOTE : REFER TO DRAWING No 99-268 FOR GENERAL SPECIFICATIONS.

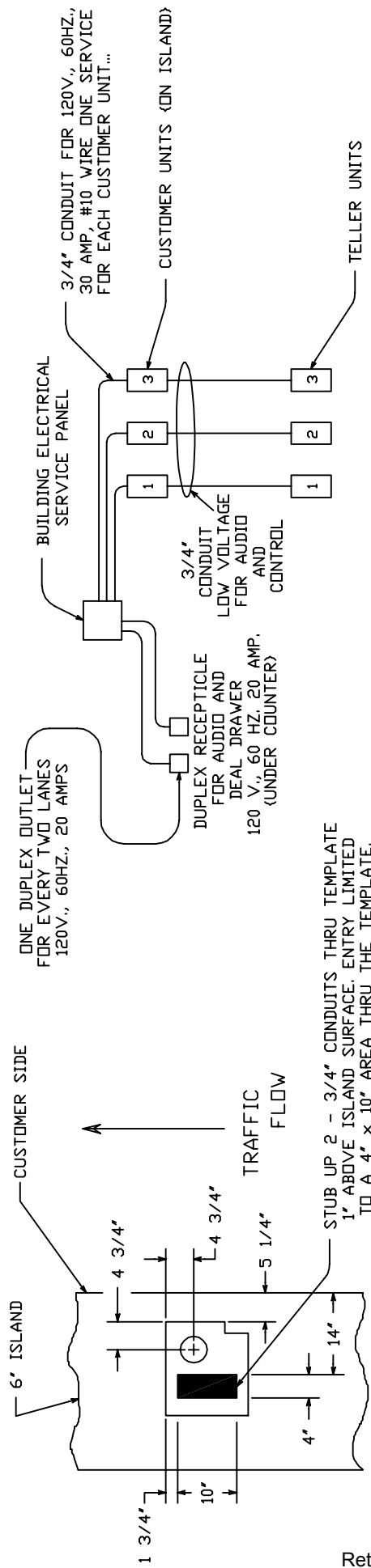
REV.	DATE	DESCRIPTION
REV-1	8-22-91	CHANGED & ADDED MISC. NOTES
REV-2	8-17-92	ADDED THE SOFT LANDING KIT.
REV-3	6-8-95	ADDED GUARD POST ARROUND UNIT.
REV-4	10/17/00	CHANGED DIM ON UNDERGROUND CON.
REV-5	12/7/01	CDR. UNDERGROUND CONDUIT V/E.W.
REV-6	8/20/01	CDR. UNDERGROUND CONDUIT V/E.W.
REV-7	5/13/03	CDR. GUARD POST ARROUND UNIT.

<b>HAMILTON AIR</b>	
MODEL HA-1000	
UPSEND CUSTOMER UNIT	
Drawing Number : 99-267	Date : 10-8-90



NOTE : REFER TO DRAWING 99-914 FOR GENERAL SPECIFICATIONS.

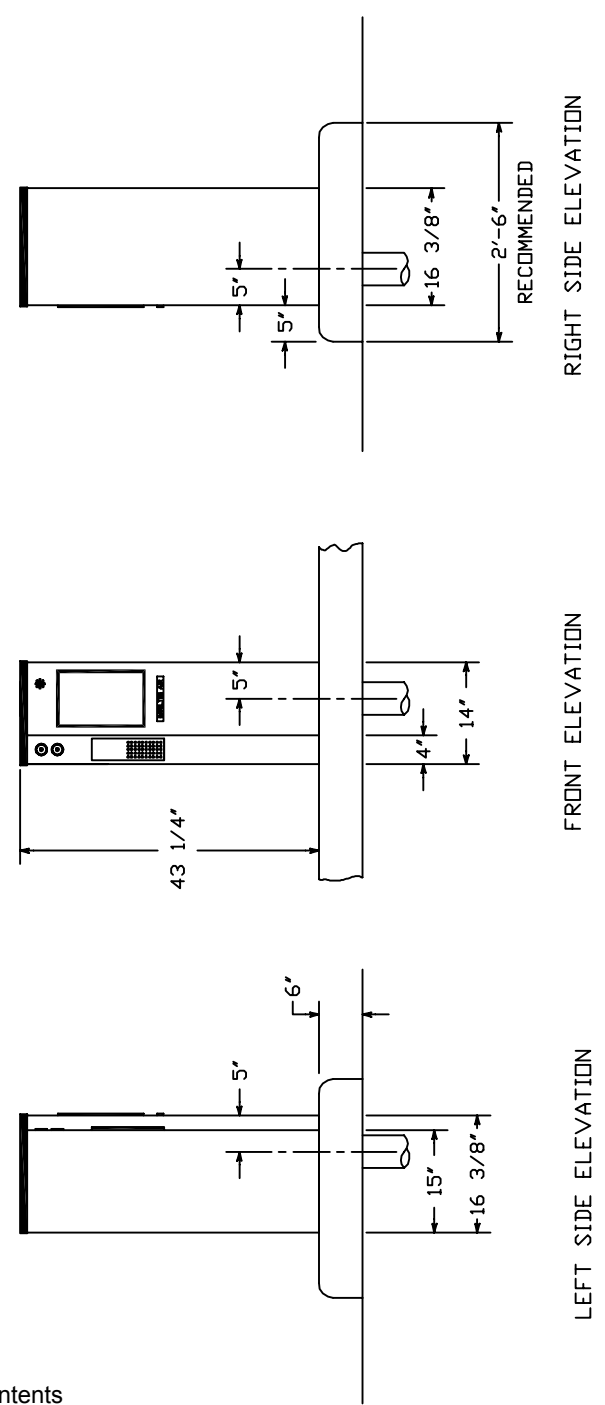
HAMILTON AIR  
 2006 OVERHEAD TELLER  
 INTERIOR DETAIL



CONDUIT DETAIL  
3 SYSTEMS SHOWN

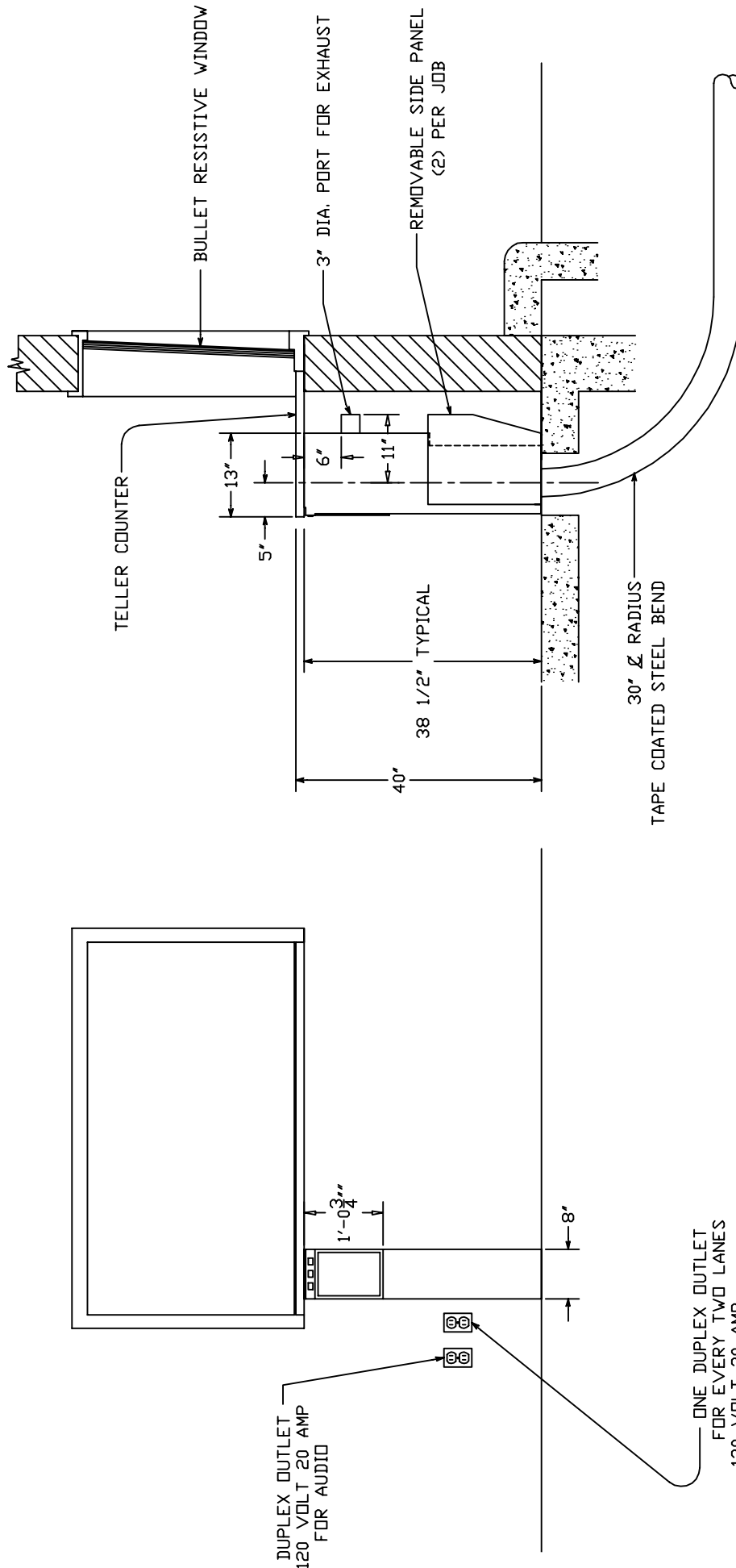
UNDERGROUND TEMPLATE LOCATION  
TEMPLATE IS INSTALLED IN ISLAND  
PRIOR TO TUBING INSTALLATION

[Return to Table of Contents](#)



NOTE : REFER TO DRAWING No 99-352  
FOR GENERAL SPECIFICATIONS.

REV-1	DATE: 3-19-92	CHANGED THE WIDTH OF CUST. UNIT
REV-2	DATE: 4-4-94	CHANGED THE DEPTH OF UNIT.
REV-3	DATE:	
<b>HAMILTON AIR</b>		
MODEL HA-1000-D		
DOWNSEND CUSTOMER UNIT		
Drawing Number : 99-350	Date : 8-23-91	



DUPLEX OUTLET  
120 VOLT 20 AMP  
FOR AUDIO

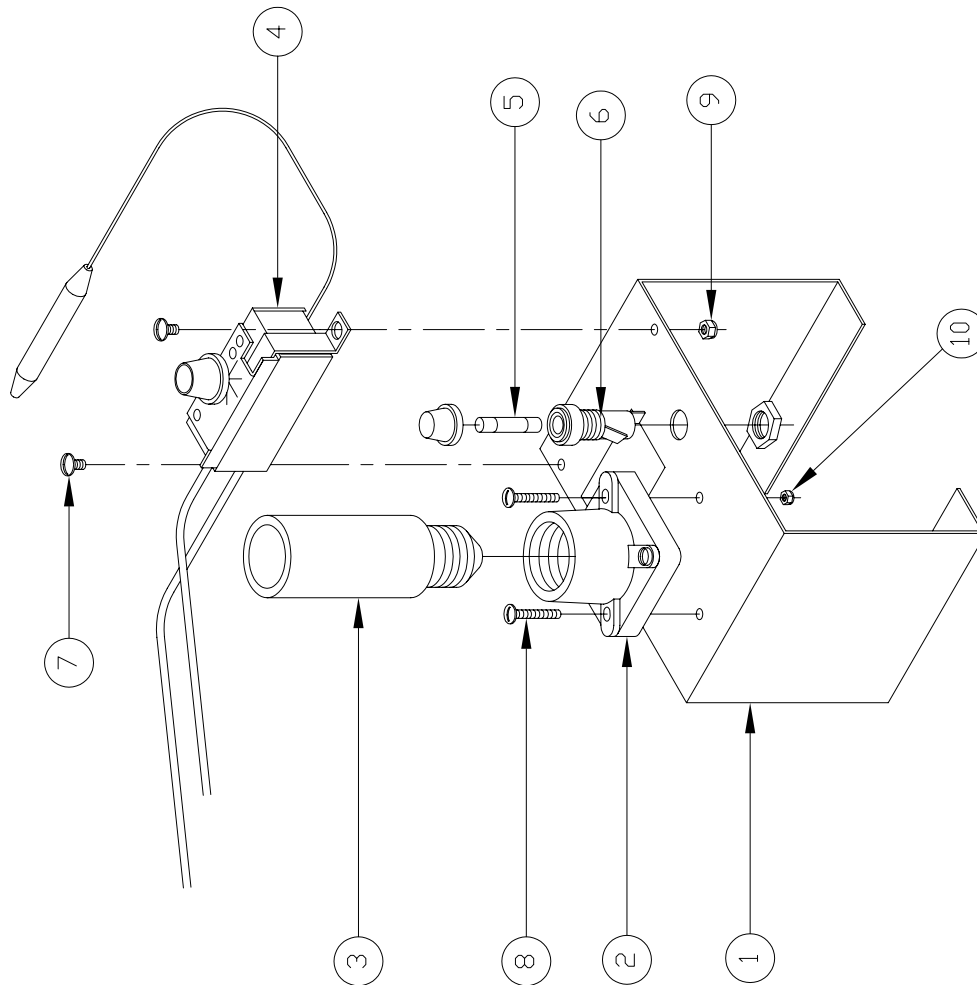
ONE DUPLEX OUTLET  
FOR EVERY TWO LANES  
120 VOLT 20 AMP.

NOTE : REFER TO DRAWING 99-352  
FOR GENERAL SPECIFICATIONS.

REV-1	DATE: 3-19-92	ADDED THE 11" DIM. ON TELLER UNIT.
REV-2	DATE:	
REV-3	DATE:	

**HAMILTON AIR**  
MODEL HA-1000-D  
DOWNSEND TELLER UNIT

Drawing Number : 99-349 Date : 8-23-91



ITEM	PART NO.	DESCRIPTION	QTY.
10	H0155	#6-32 ESNA STOP NUT ( PLATED )	2
9	H0189	#8-32 ESNA STOP NUT ( PLATED )	2
8	H0148	#6-32 X 1" THMS ( PLATED )	2
7	H0392	#8-32 X 3/8" PHILLIPS THMS ( SS )	2
6	E0088	FUSE HOLDER ( LITTLE FUSE #342858 )	1
5	E0496	FUSE ( BUSS # ACG-5 ) 5 AMP	1
4	E0103	THERMOSTAT GRAINGER # 2E552	1
3	E0507	HEATER CORE ( CHROMALOX #SCB-200 )	1
2	E0513	EAGLE PORCELAIN RECEPTACLE #0657	1
1	B3645	HA1000 HEATER MOUNTING BRACKET	1

**HAMILTON AIR**

SCALE: 1/4" = 1"  
 SCALE FACTOR: .4

MATERIAL: T.SYDNDOR  
 BY: T.SYDNDOR  
 BEND ALLOWANCE: .

TITLE: HA1000 HEATER EXPLODED ASSY.

DATE: FEB. 24 1995	DRAWING NUMBER: B4405	REVISION: ' ,
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**Installation**

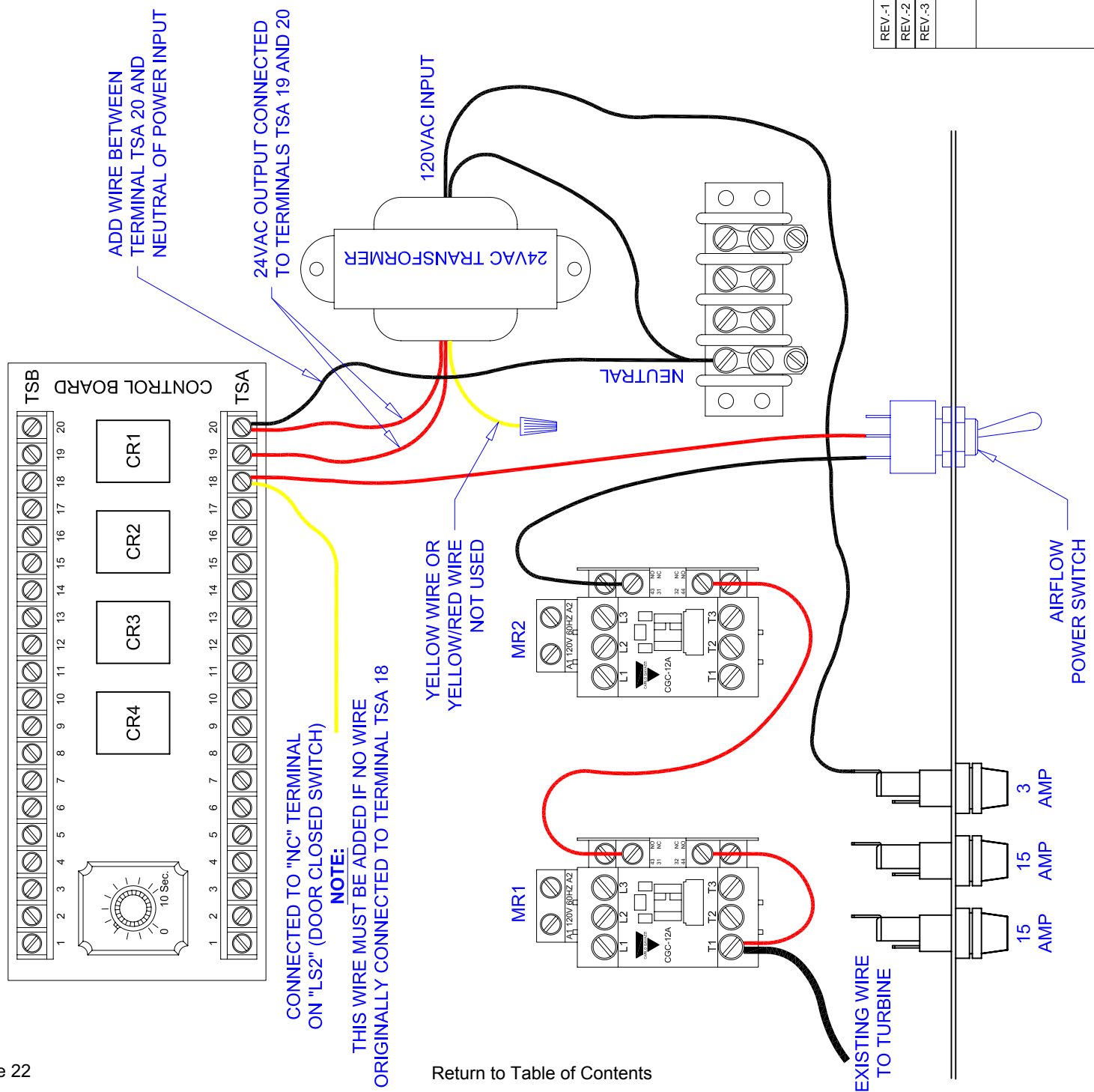
- 1) Remove existing transformer from unit.
- 2) Install larger transformer from kit.
- 3) Connect black wires. One to 120VAC Neutral, one to 120VAC 3 Amp fuse.
- 4) Connect red wires to TSA - #19 and #20 terminals.  
(Note) The larger transformer connects exactly as the existing unit was)
- 5) Connect wire from MR1 - T1 to MR1 - #31
- 6) Connect wire from MR1 - #31 to MR2 - #32
- 7) Connect wire from toggle switch to MR2 - #31
- 8) Connect other wire from toggle switch to TSA - #18.
- 9) Connect wire from TSA - #20 to Neutral of 120VAC input.

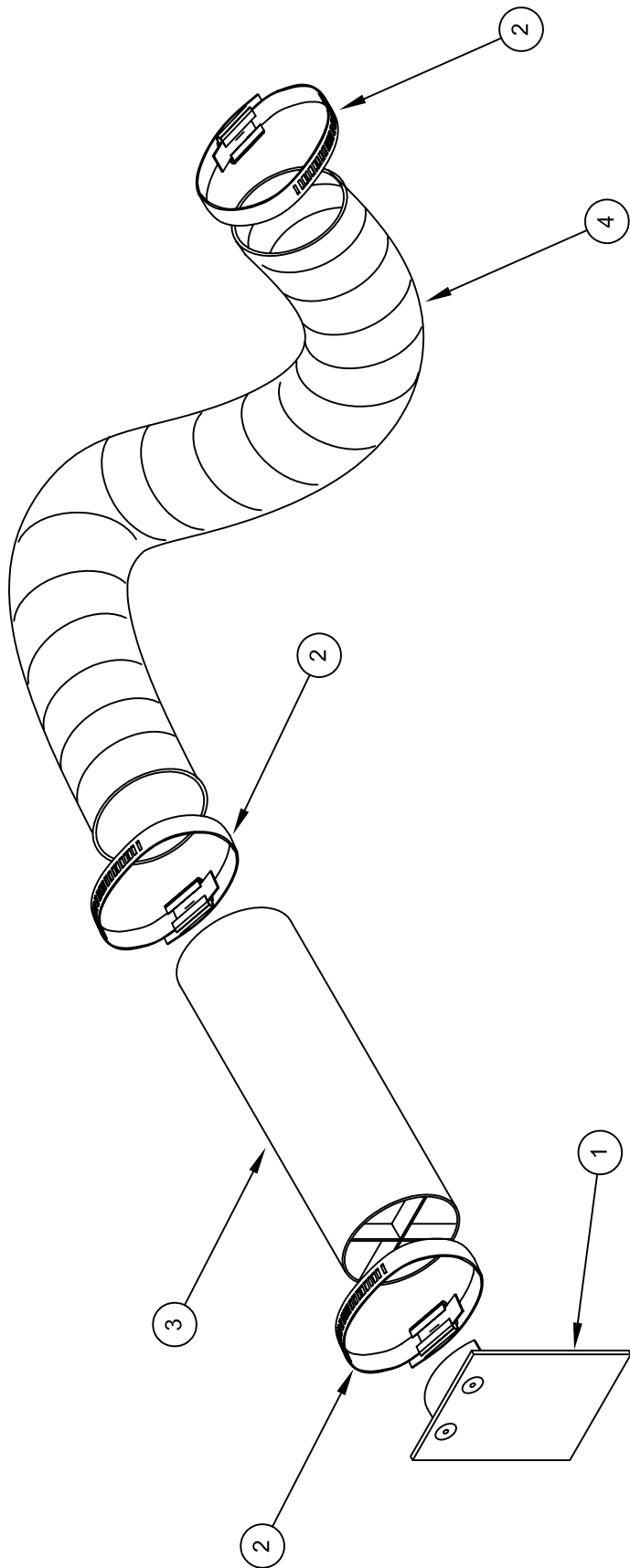
**Operation**

When customer door is closed and neither motor relay (MR1 or MR2) is engaged, 24 volts AC is placed on MR1 Terminal #T1. (Measure voltage between Neutral and MR1 - T1) Toggle switch turns Airflow off.

THESE DRAWINGS ARE THE PROPERTY OF HAMILTON AIR CO. AND SHALL NOT BE REPRODUCED OR COPIED OR USED AS THE BASIS FOR MANUFACTURE OR SALE OF APPARATUS WITHOUT PERMISSION

REV.-1	DATE:	--
REV.-2	DATE:	--
REV.-3	DATE:	--
<b>HAMILTON AIR</b>		
AIRFLOW KIT B3653-1		
ELECTRICAL CONNECTION		
DETAIL for HA1000 / HA45		
Drawing Number :	99-900	Date : 2/9/05





ITEM	PART NO.	DESCRIPTION	QTY.
1	T9715	FLAP VALVE, TELLER BEND, INCLUDES (1) H1074	1
2	H1074	CLAMP, 3" HOSE	3
3	T9402	3" DIA. x 10' LG STEEL TUBE WITH CROSS	1
4	B2948-30	HOSE, 3" FLEX 30" LONG	1

# HAMILTON AIR

SCALE: ...	MATERIAL:	DRAWN BY: B.D
SCALE FACTOR: .		BEND ALLOWANCE: .

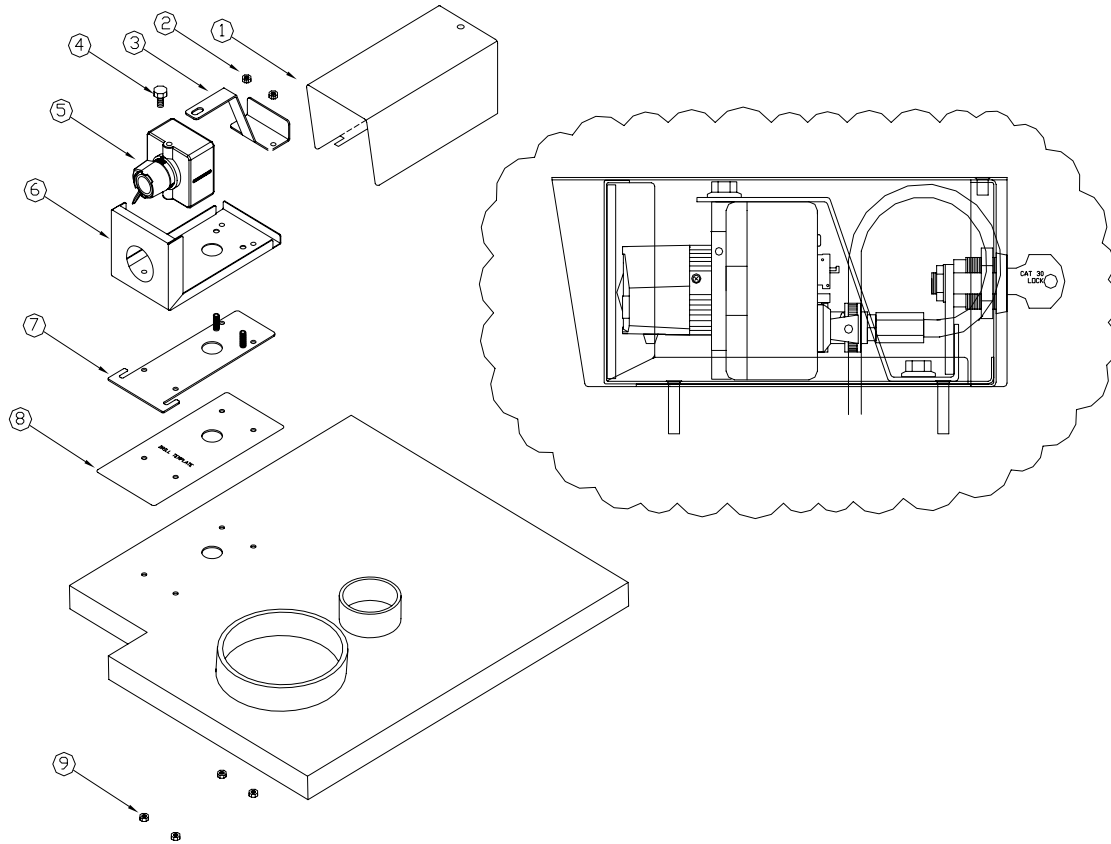
TITLE: COLD WEATHER EXPLODED ASSY.

DATE: SEPT. 4 2007	DRAWING NUMBER: T9605	REVISION: .
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# HAMILTON

3143 Production Drive • Fairfield, Ohio 45014 • 513-874-3733

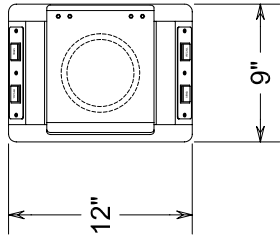
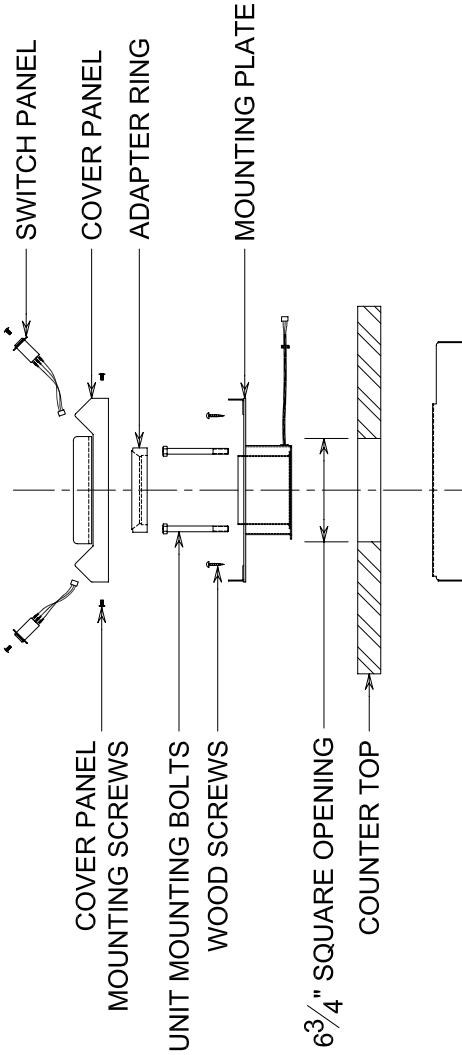
## E0465-2 INSTALLATION INSTRUCTIONS



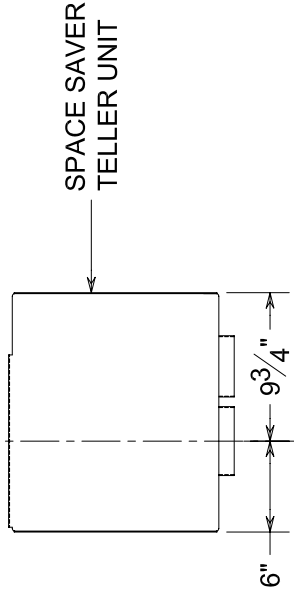
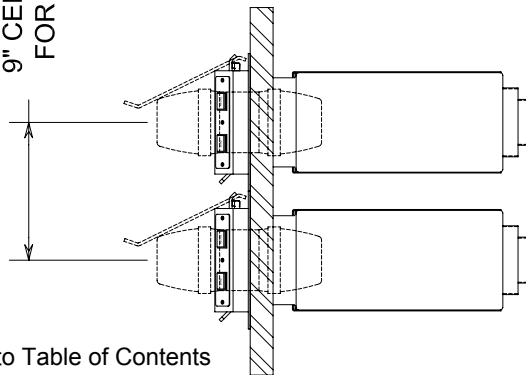
- A. Use drill template (#8) to mark holes in the location, housing is to be mounted. (Making sure no wires or moving parts are in the way of installation.)
- B. Drill 1 hole in center  $\frac{3}{4}$ ", and 4 outer holes  $\frac{3}{16}$ " (clean off drill shavings)
- C. Apply clear silicone (not supplied) around each hole to seal.
- D. Place Bottom Hold Plate (#7) in place, then the Bottom Front Plate (#6) over it. (using press studs to align both parts together and through mounting holes.)
- E. Use 4,8-32 nuts (#9) to tighten in place.
- F. Use  $\frac{1}{4}$ -20 bolt (#4) to attach bracket (#3) to camera ( finger tight until final adjustments)
- G. Attach bracket (#3) and camera to studs on plate (#7) using 10-32 nuts (#2)
- H. Wire in Video coaxial and 24 volt AC(#19, #20 on terminal strip of HA1000) to camera through  $\frac{3}{4}$ " hole ( being careful not to route wire and cable near any moving objects.)
- I. Make all adjustment, and focus camera
- J. Slide cover (#1) under Bottom Front Plate (#5), being careful not to pinch any wires with cover, and lock (lock will latch on back of bracket (#3)).
- K. Remove key



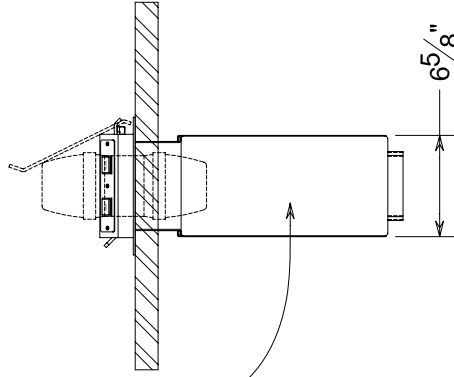
**NOTE:**  
 ELECTRICAL REQUIREMENTS  
 SINGLE PHASE 117V 60HZ 20A CIRCUIT  
 FOUR UNITS CAN BE POWERED  
 BY ONE 20A CIRCUIT



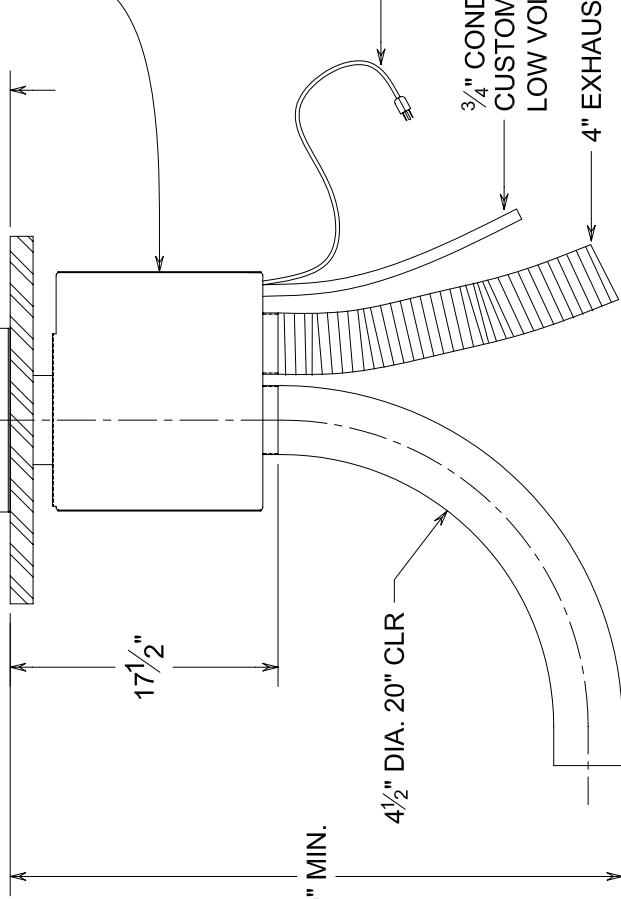
9" CENTER TO CENTER  
 FOR MULTIPLE UNITS



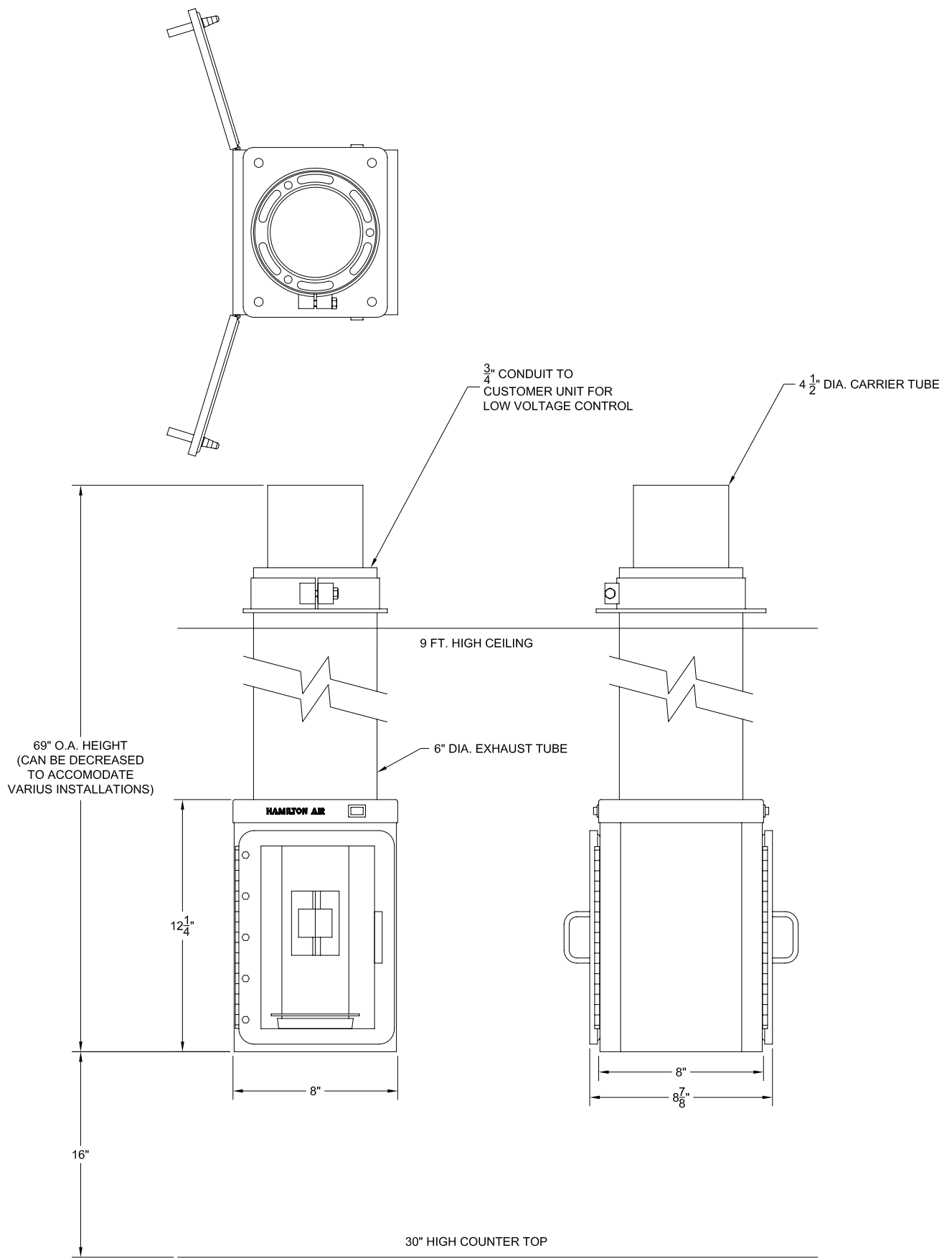
SERVICE ACCESS PANEL



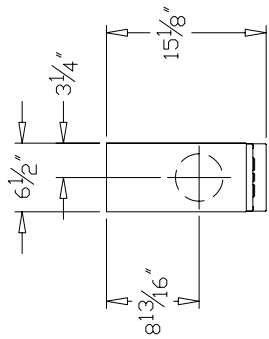
2 3/8"



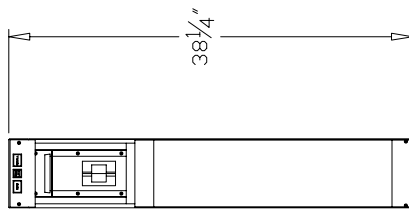
HAMILTON AIR	99-846	Date : 9/18/02
COUNTER TELLER UNIT		
STANDARD DIMENSIONS		



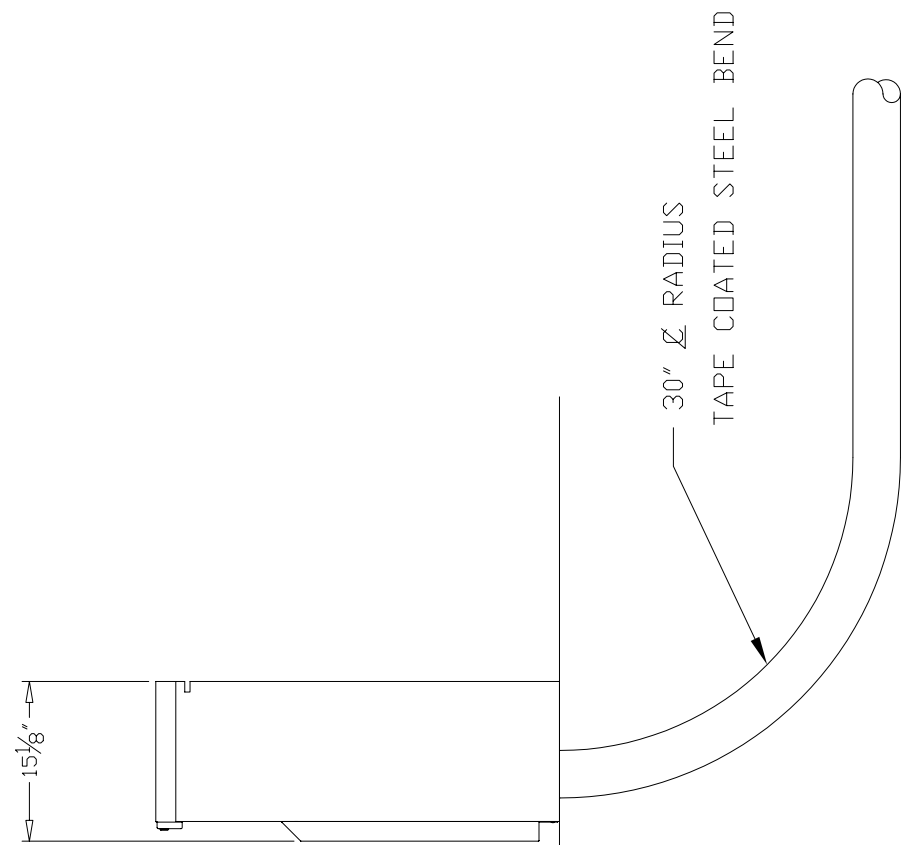
<b>HAMILTON AIR</b>	
DOUBLE SIDED TELLER HINGED SAME SIDE STANDARD DIMENSIONS	
Drawing Number :	99-920
Date :	3/14/07



DUPLEX OUTLET  
120 VOLT 20 AMP  
FOR AUDIO



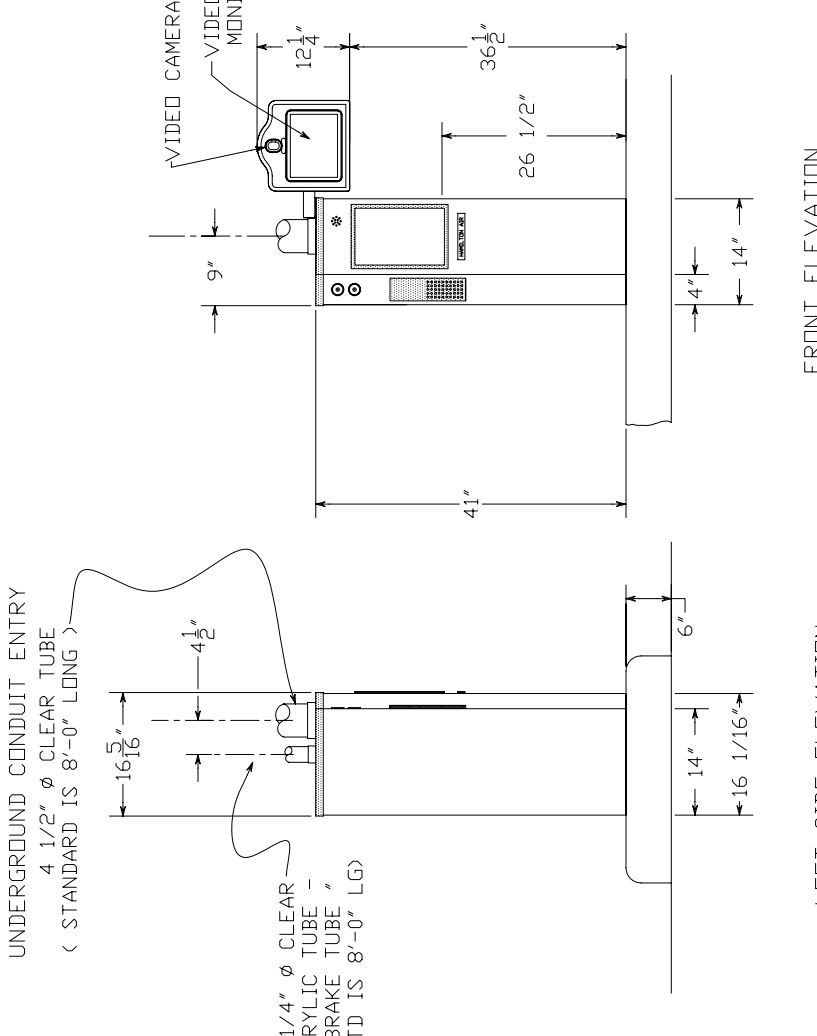
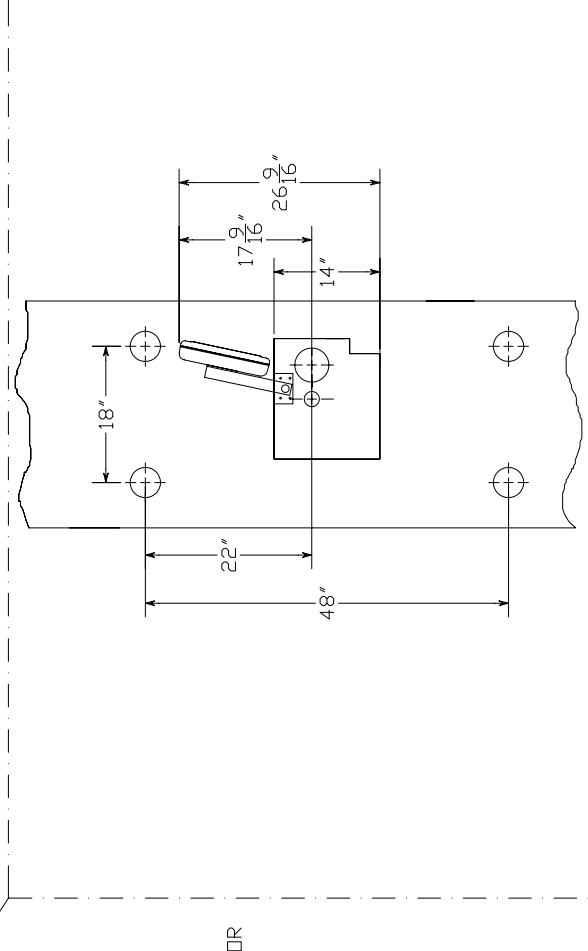
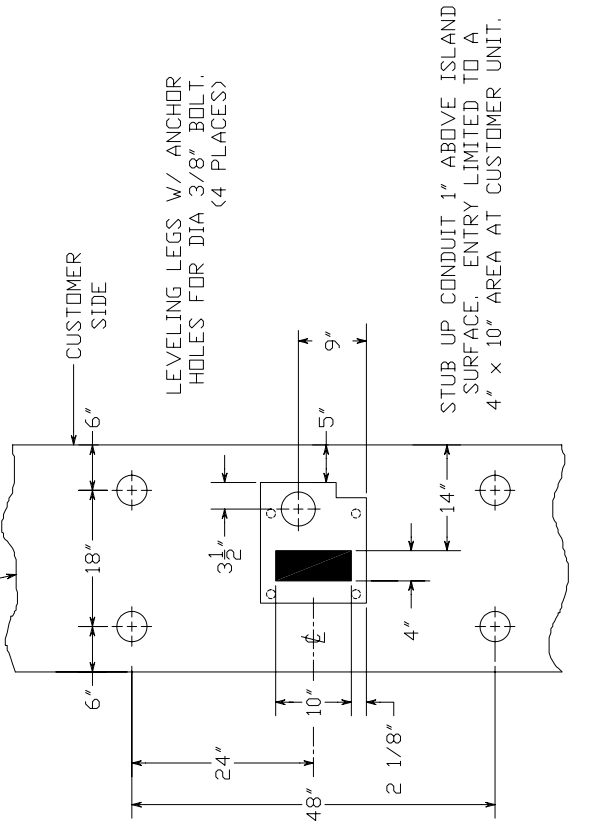
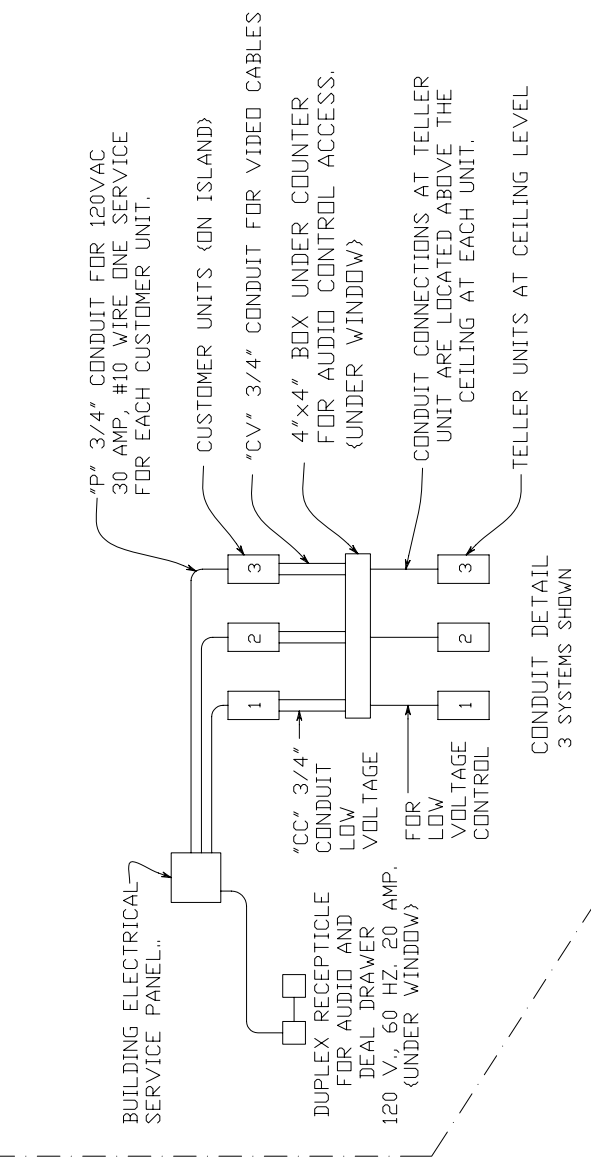
ONE DUPLEX OUTLET  
FOR EVERY TWO LANES  
120 VOLT 20 AMP.



NOTE: THIS UNIT CAN BE FOR 4" DIA. OR 4-1/2" DIA. TUBE SYSTEM

REV-1	DATE: -
REV-2	DATE: -
REV-3	DATE: -
<b>HAMILTON AIR</b>	
COMPACT DOWNSEND TELLER UNIT #73 PART NUMBER 99-847 GENERAL SPECIFICATIONS	
Drawing Number : 99-855	Date : 8-26-03

Rev - 1
Rev - 2



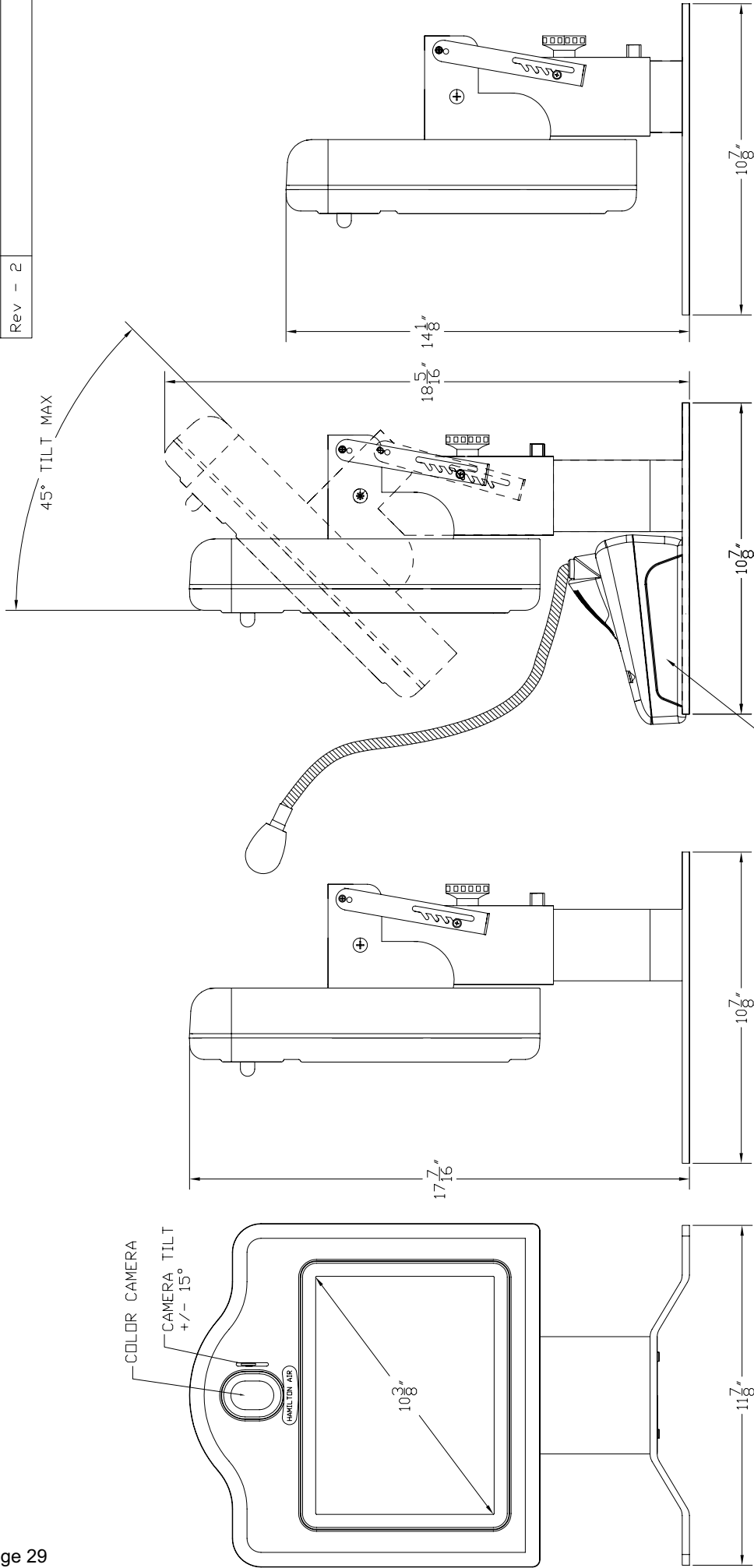
PLAN VIEW OF HA-1000 WITH MODEL 5517 TELL-R-TV

**HAMILTON AIR**

MODEL HA-1000  
 UPSEND CUSTOMER UNIT  
 W/ MODEL 5517 TELL-R-TV

Drawing Number : 99-924 Date : 11/15/02

Rev - 1  
Rev - 2



FRONT

SIDE W/ MAX HEIGHT SHOWN

SIDE W/ ADJUSTING MOUNT (MAX SHOWN)

SIDE W/ MIN HEIGHT SHOWN

SHOWN WITH 5501 SERIES AUDIO CONSOLE

[Return to Table of Contents](#)

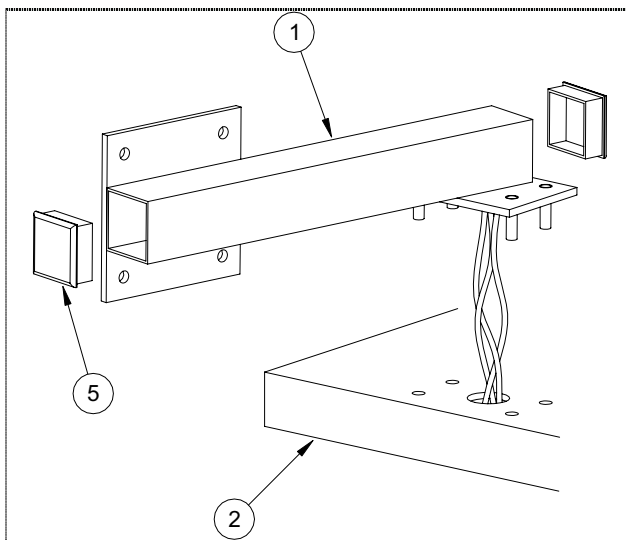
<b>HAMILTON AIR</b>	
MODEL 5550 TELL-R-TV	
10.4" LCD TELLER VIDEO CONSOLE WITH STAND	
Drawing Number : 99-933	Date : 4/25/07

OPTIONAL NOTE:  
MODEL 5550-1 IS WITHOUT CAMERA FOR 1-WAY VIDEO APPLICATIONS

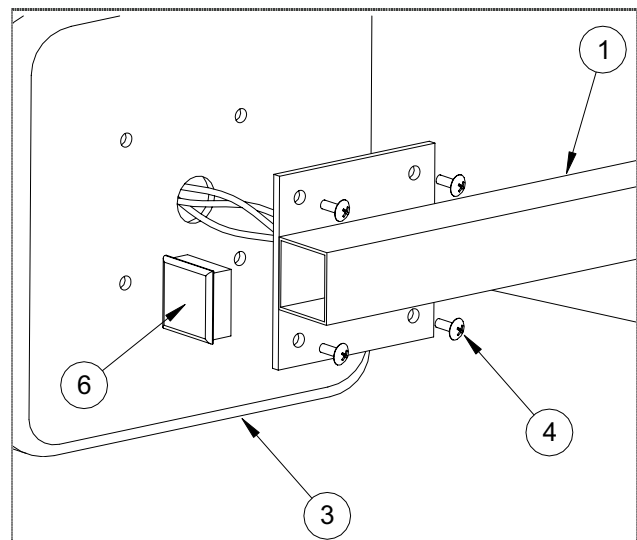
## Model 5517

### Tell-R-TV Customer unit Installation Instructions

**Step#1** Drill mounting holes in top of customer unit, as shown on template drawing #5517-TTVMI



**Step#2** Apply a small amount of silicone sealant to the bottom of the plate on the mounting arm (#1) to seal between customer unit and plate. Attach mounting arm (#1) to top of customer unit (#2) with supplied hardware.

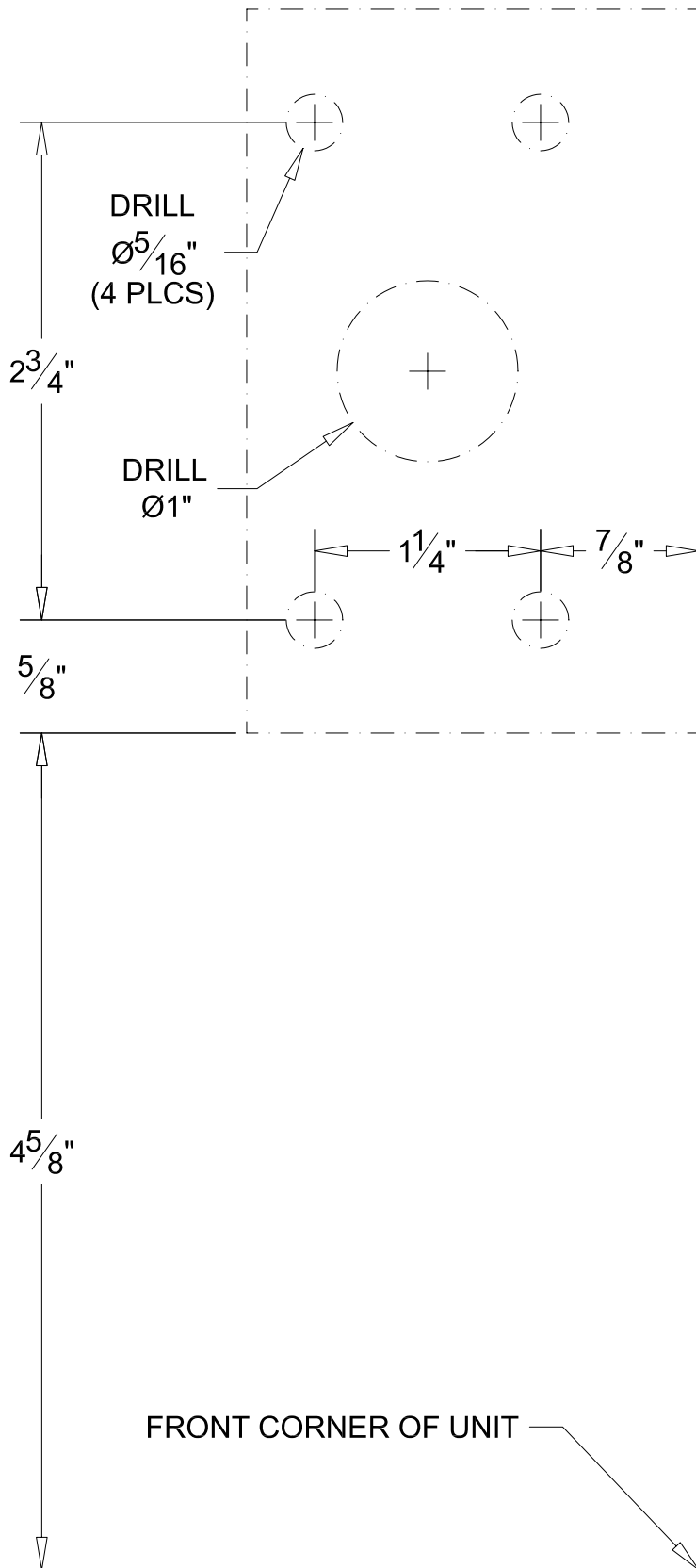


**Step#3** Apply a small amount of silicone sealant to the mounting plate on the mounting arm (#1) to seal between TTV unit (#3) and plate. Attach TTV unit (#3) to mounting arm (#1) with supplied hardware (#4).

**Step#4** Chase wires through the mounting arm (#1) and into the TTV unit (#3) and connect all power and video as shown in electrical instructions. Test all video and power connections.

**Note:** You may want to install the cables through the arm before it is mounted.

**Step#5** Apply a small amount of silicone sealant to the end caps (#5) and (#6) and insert them into the mounting arm (#1).



**5517 TELL-R-TV**  
**MOUNTING INSTRUCTIONS**  
 CUT OUT TEMPLATE,  
 LOCATE ON CUSTOMER TOP  
 RIGHT SIDE FRONT CORNER,  
 MARK FIVE HOLE CENTER LOCATIONS,  
 DRILL FOUR MOUNTING HOLES 5/16",  
 DRILL CENTER CABLE HOLE 1",  
 APPLY SMALL AMOUNT OF SILICONE  
 SEALER TO THE BOTTOM OF THE  
 MOUNTING PLATE TO SEAL BETWEEN  
 CUSTOMER UNIT TOP AND MOUNTING ARM,  
 MOUNT ARM TO UNIT WITH SUPPLIED  
 HARDWARE AND TIGHTEN.

ROUTER:	
1)	-
2)	-
3)	-
4)	-
5)	-
6)	-

HAMILTON		
PLOT SCALE: 1.000" = 1.000"	--	DRAWN BY: B.DETHERAGE
ACTUAL SCALE: 1.000" = 1.000"		--
TITLE: 5517 TELL-R-TV MOUNTING INSTRUCTIONS		
DATE: 1/25/07	DRAWING NUMBER: 5517-TTVM1	REVISION: --

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 PROPERTY OF HAMILTON SAFE CO.  
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 OR COPIED OR USED AS THE BASIS  
 FOR MANUFACTURE OR SALE OF  
 APPARATUS WITHOUT PERMISSION

TOLERANCES UNLESS OTHERWISE NOTED:  
 FRACTIONS: ± 1/64"  
 DECIMALS: ± .005  
 ANGLES: ± 1/2°

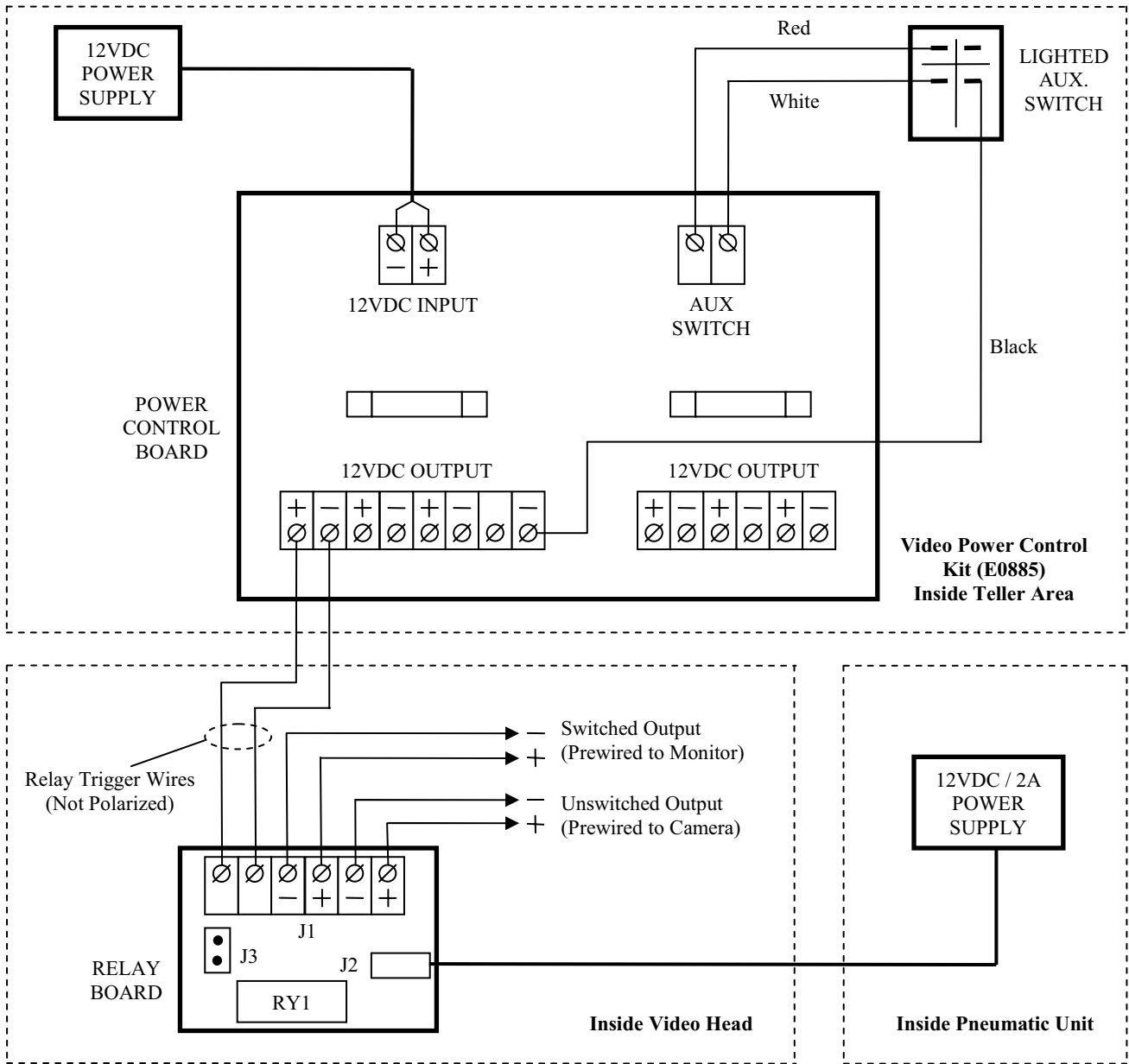
# B5517 Remote Video Unit

---

The B5517 Remote Video Unit requires 12VDC at approximately 1.5A to operate properly. This requires that power be provided directly at the pneumatic unit to avoid the power drop associated with long wire runs. Each B5517 is supplied with a 12VDC, 2A power supply. An optional 5500 Video Power Control Kit (E0885), ordered separately, is used to control the relay board in each video head so the monitors, and optionally the cameras, can be turned off when desired. For larger installations it may be desirable to have more than one power control kit if some lanes are closed at times while other lanes are open.

- The video head will be positioned to the top right of the pneumatic unit as viewed by the customer. Use the enclosed template to drill holes in the top of the pneumatic unit for the bracket and cables. *(The template ensures that the video head will not stick out past the front of the pneumatic unit where it could be damaged by a vehicle.)*
- Feed the video cables, the 2A power supply cable and the relay trigger wires from the power control kit from inside the pneumatic unit through the top of the unit and through the video mounting bracket. Attach the mounting bracket to the pneumatic unit with the (4) supplied washers and nylon lock nuts.
- Remove the screws from the back of the video head and then remove the front cover. Note that not all screws for the cover are installed at the factory. The remaining screws are in the bag of accessories.
- Route the cables from the bracket through the back of the video head and up behind the monitor. *(Use care when fishing the wires behind the monitor to avoid damage to the circuit boards.)* Attach the video head to the mounting bracket with (4) screws provided in the accessory bag. Two of the screws are security type. A driver bit is included for the security screws.
- Connect the monitor cable to the top left BNC connector and the camera cable to the top right BNC connector in the video head as labeled. Connect the power supply cable and the relay trigger wires to the relay board near the top rear of the monitor per Figure 1 on the back of this document. Slide the excess cable back through the bracket and into the pneumatic unit and then install the end caps from the accessory bag into both ends of the bracket.
- Plug the power supply into a 110VAC outlet.
- Place the unit in “service” mode by placing the service switch at the upper left of the video head to the rear position. This will connect the camera video directly to the monitor. *Note: If the video power control kit in the teller area is not yet installed or turned on, it will be necessary to temporarily move the video power wires from the switched to the unswitched terminals of the relay board to test the video unit.*
- Tilt the camera vertically in its bracket to achieve the desired viewing angle. The camera has been focused at the factory and no further adjustment should be necessary. If focusing is required, loosen the small set screw on the side of the lens and then rotate the lens to the desired focus. Tighten the set screw when finished.
- No adjustments should be necessary to the monitor but a menu board with adjustment buttons is located directly under the screen for those familiar with adjusting LCD screens.
- Once all adjustments are satisfactory, place the unit in “normal” mode by placing the service switch to the forward position. Replace the front cover and secure using all the screws. Two of the screws are security type. A driver bit is included for the security screws.





**Figure 1**

When using the Video Power Control Kit (E0885) shown above, be sure to follow the color code when connecting the lighted switch to the control board. The switch can be mounted in any suitable location, including the foot of one of the B5550 Teller Video Unit stands. The power control kit should only be used to control power to the relay boards in the video units as shown. **DO NOT** power video units directly with the power control kit.

The monitor power is prewired to the switched output and the camera power is prewired to the unswitched output of the relay board as shown. Move the wires as appropriate if your application is different. **(Be sure to unplug the power supply before changing any wiring on the relay board.)**

# B5550 Teller Video Unit

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The following instructions are for the B5550 that contains both a camera and monitor for two way video. The B5550-1 is the same unit without a camera installed for one way video.

## **Video & Power Connections**

- Using 75 ohm CCTV coax (Belden 1426A or equivalent) with BNC connectors at each end, connect the camera and monitor (connections at rear of stand) to the video matrix. Make sure to match up the audio and video port numbers at the matrixes. For example if the audio console is connected to Console 2 of the audio matrix, then the video cables from that same teller position must be connected to Console 2 of the video matrix.
- Connect the supplied 12VDC power supply to the power socket on the back of the stand and plug it into a 110VAC outlet. If a different power supply must be used for some reason, it must be rated for at least 2A. The center conductor of the 2.1mm barrel connector is positive. Do not power this unit using the power distribution board which was previously used with the older B5450 unit. The B5550 requires approximately 1.5A of current per unit.

## **Operation**

- Turn on power to the video head using the toggle switch on the lower left of the stand.
- Adjust the height of the video head as necessary by first loosening the adjustment knob on the back of the stand. Tighten the knob when the desired height is achieved. Note that there are two holes in the back of the stand for the adjustment knob. Using the top hole the height can be adjusted between approximately 14.5"-19". Using the bottom hole the height can be adjusted between approximately 14.5"-16". The bottom hole also allows for a greater upward tilt angle at the lowest height allowing the video unit to be placed under a hanging pneumatic terminal if desired.
- Tilt the video head up by grasping the sides of the unit. The tilt latch bracket will lock the video head into place in steps. Tilt the head back down by first slightly tilting further up to release pressure on the tilt latch bracket and then pulling the handle of the bracket forward allowing the video head to drop down. Note that there are two holes in the top of the tilt latch bracket. Mounting the bracket using the opposite hole will allow the tilt angle to change slightly at each latch position.
- Use the lever beside the camera opening to tilt the camera up or down.

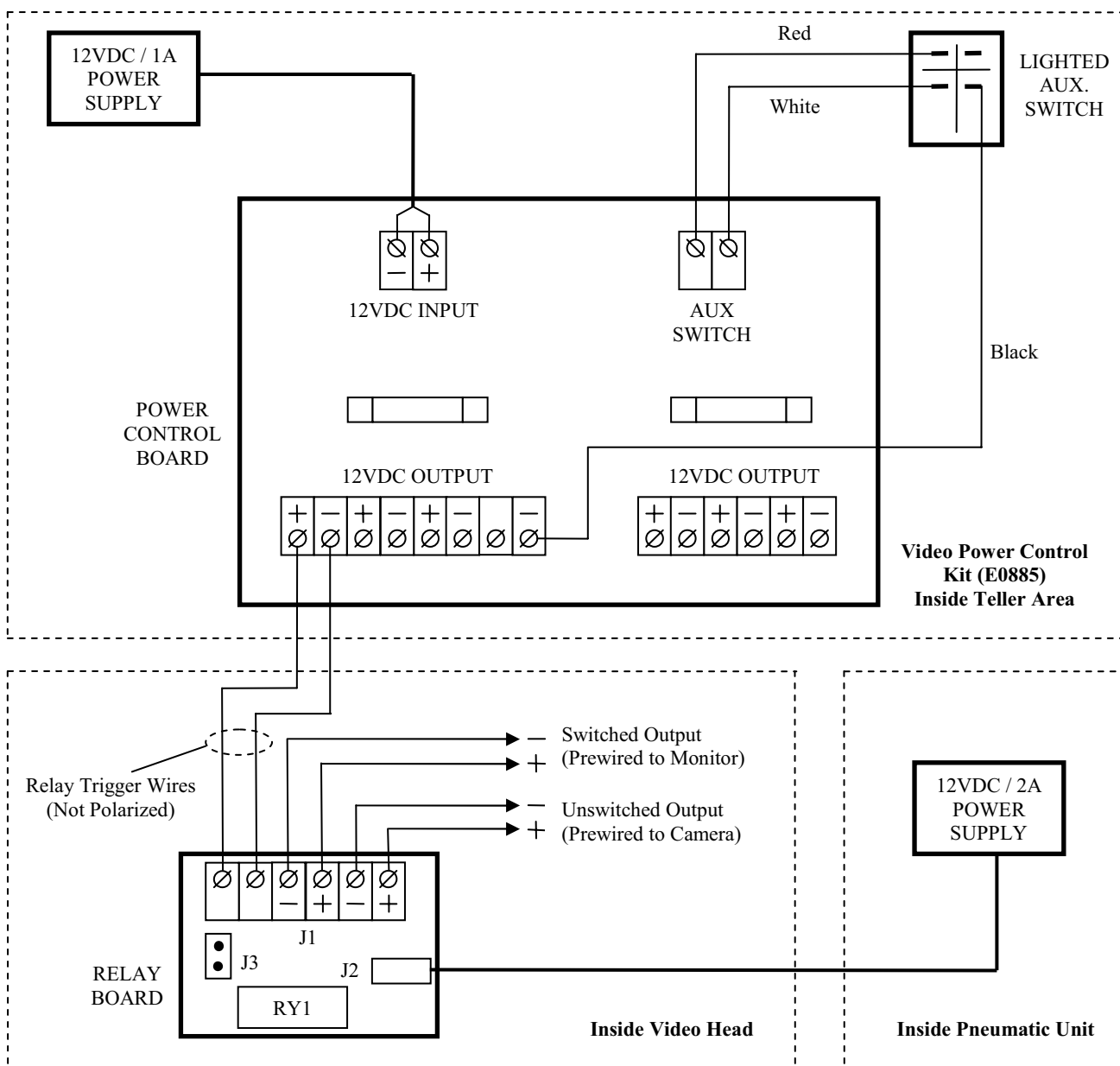
## **Service Adjustments**

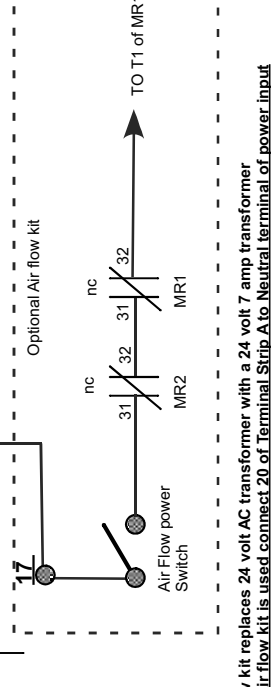
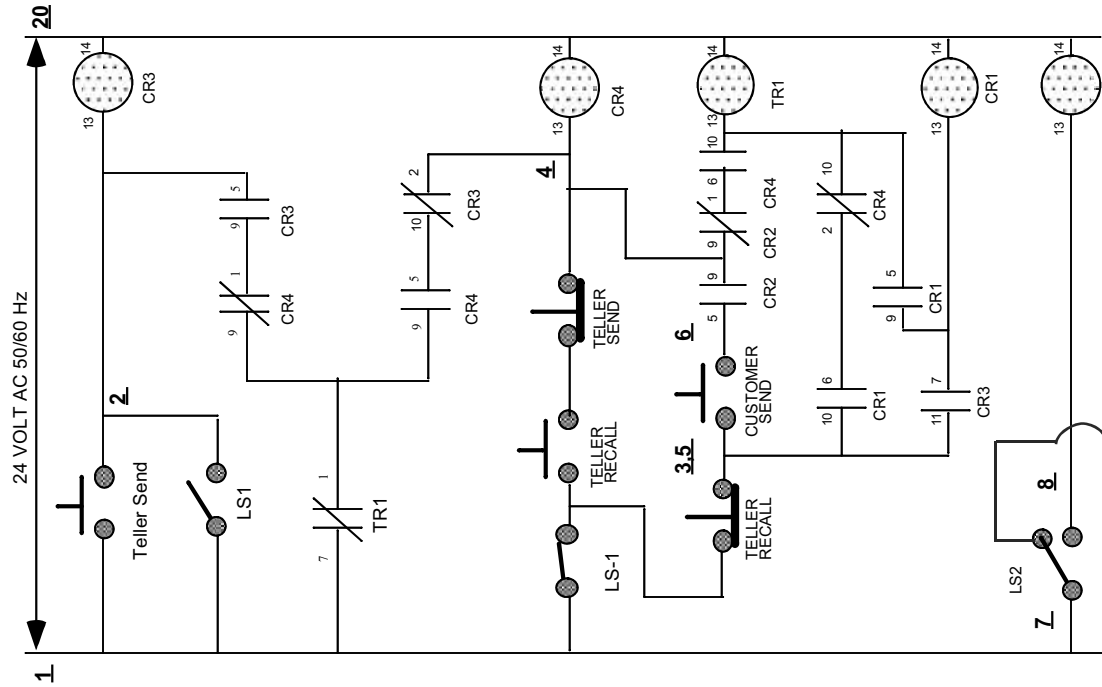
- Service adjustments require access to the inside of the video head. Remove the 6 screws from the back side and remove the front cover.
- Place the unit in "service" mode by placing the service switch at the upper left of the video head to the rear position. This will connect the camera directly to the monitor. *Note that the service mode will result in a blank screen on the 5550-1 since no camera is present.*
- No adjustments should be necessary to the monitor but a menu board with adjustment buttons is located directly under the screen for those familiar with adjusting LCD screens.
- The camera has been focused at the factory and no adjustment should be necessary. If focusing is required, loosen the small set screw on top of the lens and then rotate the lens to the desired focus. Tighten the set screw when finished.
- Once all adjustments are satisfactory, place the unit in "normal" mode by placing the service switch to the forward position. Replace the front cover.

# E0885 Video Power Control Kit

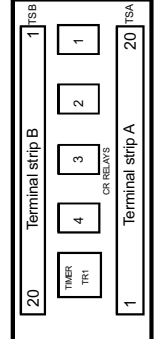
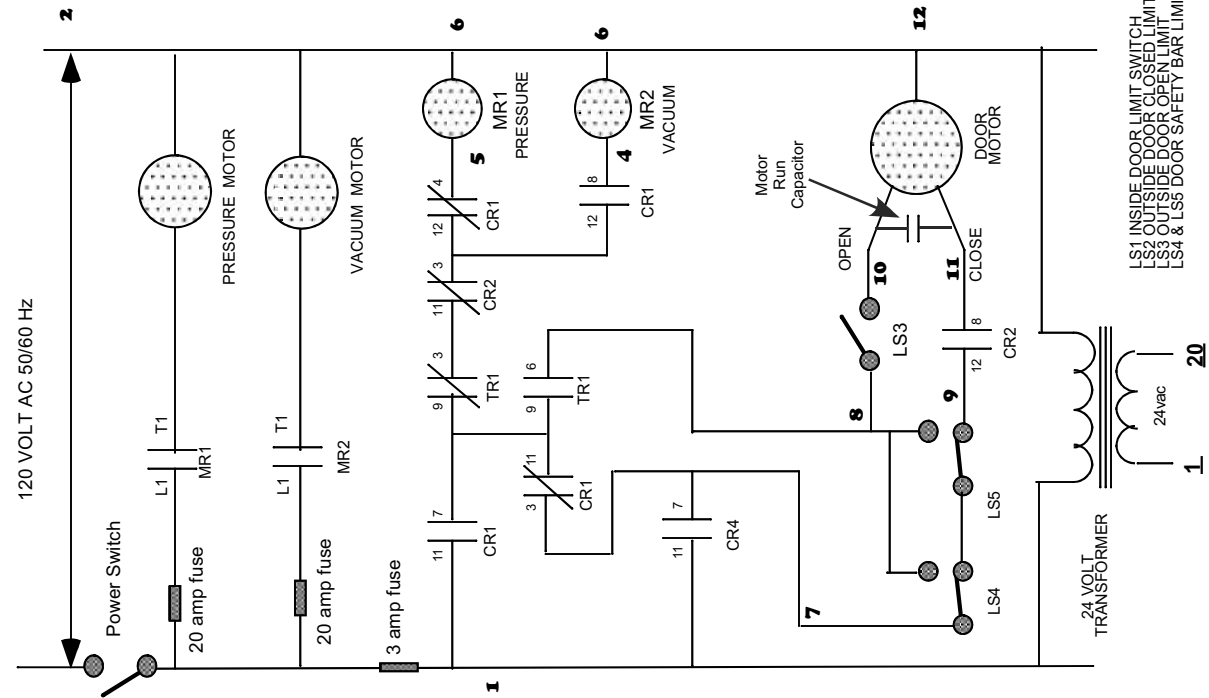
The B5517 Remote Video Unit requires 12VDC at approximately 1.5A to operate properly. This requires that power be provided directly at the pneumatic unit to avoid the power drop associated with long wire runs. Each B5517 is supplied with a 12VDC, 2A power supply. A Video Power Control Kit (E0885) can be used to control the relay board in each video head so the monitors, and optionally the cameras, can be turned off when desired. For larger installations it may be desirable to have more than one E0885 kit if some lanes are closed at times while other lanes are open.

Follow the wiring diagram below. Wire gauge for the relay trigger wires is not critical since the current draw for each relay coil is only 22ma. Be sure to follow the color code when connecting the lighted switch to the control board. The switch can be mounted in any suitable location, including the foot of one of the B5550 Teller Video Unit stands. The E0885 kit should only be used to control power to the relay boards in the video units as shown. **DO NOT** power video units directly with the power control kit.





Air Flow kit replaces 24 volt AC transformer with a 24 volt 7 amp transformer  
When Air flow kit is used connect 20 of Terminal Strip A to Neutral terminal of power input

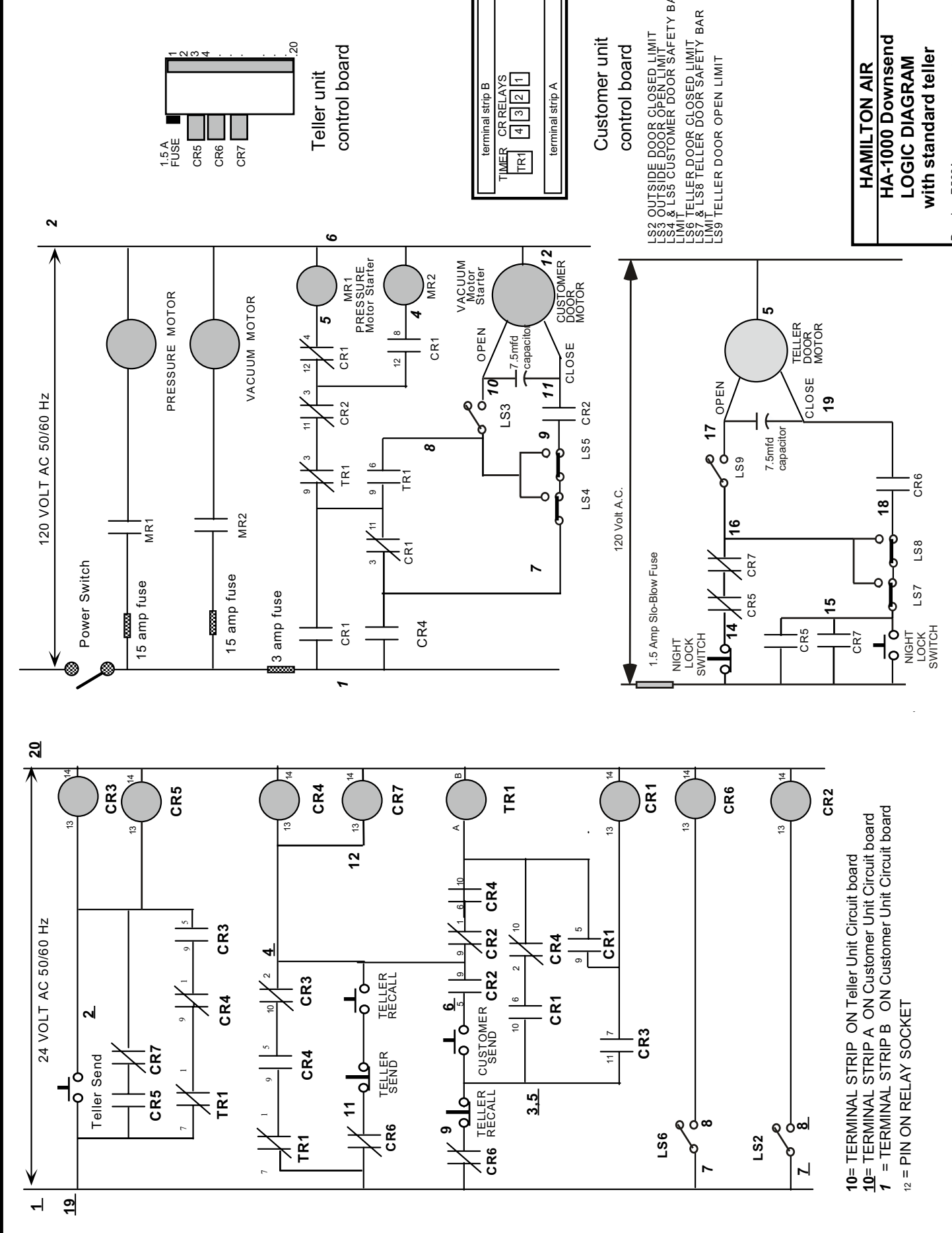


12 = PIN ON RELAY SOCKET  
10 = TERMINAL STRIP A  
1 = TERMINAL STRIP B

LS1 INSIDE DOOR LIMIT SWITCH  
LS2 OUTSIDE DOOR CLOSED LIMIT  
LS3 OUTSIDE DOOR OPEN LIMIT  
LS4 & LS5 DOOR SAFETY BAR LIMIT

**HAMILTON AIR**  
**HA-1000**  
**Overhead Unit**  
**LOGIC DIAGRAM**

Drawing 99-502 R3 Rev. 1/11/2004



10= TERMINAL STRIP A ON Teller Unit Circuit board  
 10= TERMINAL STRIP A ON Customer Unit Circuit board  
 1 = TERMINAL STRIP B ON Customer Unit Circuit board  
 12 = PIN ON RELAY SOCKET

**HAMILTON AIR**  
**HA-1000 Downsend**  
**LOGIC DIAGRAM**  
 with standard teller

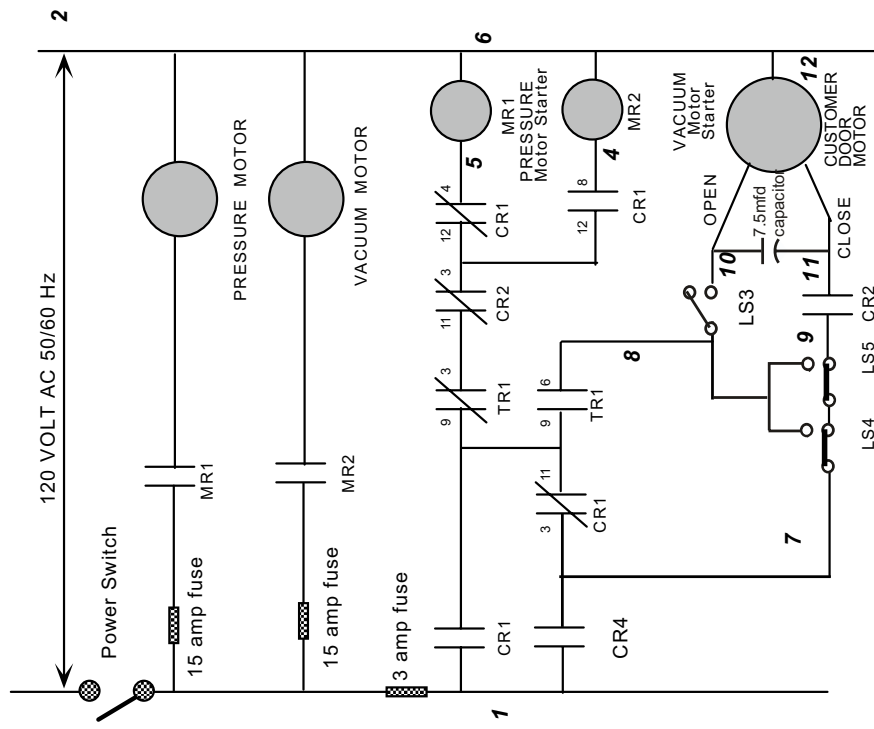
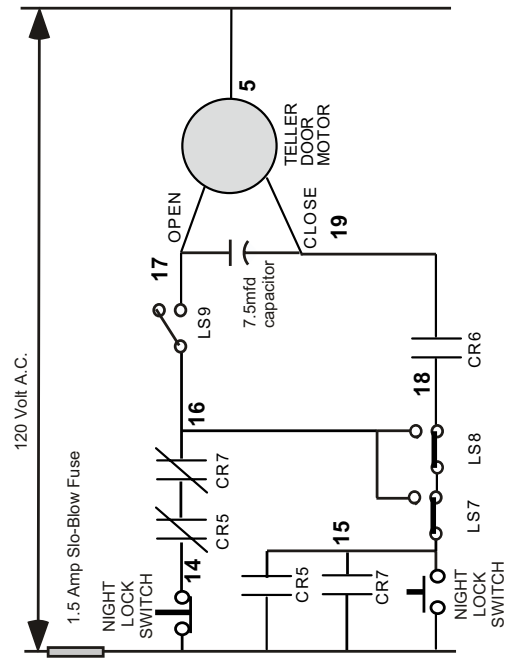
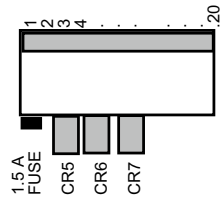
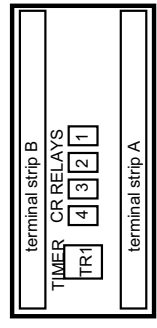
Drawing R503A Rev 5 (8/30/07)

NOTE: USE THIS DRAWING FOR DOWN SEND UNIT ONLY

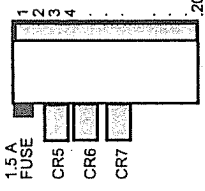
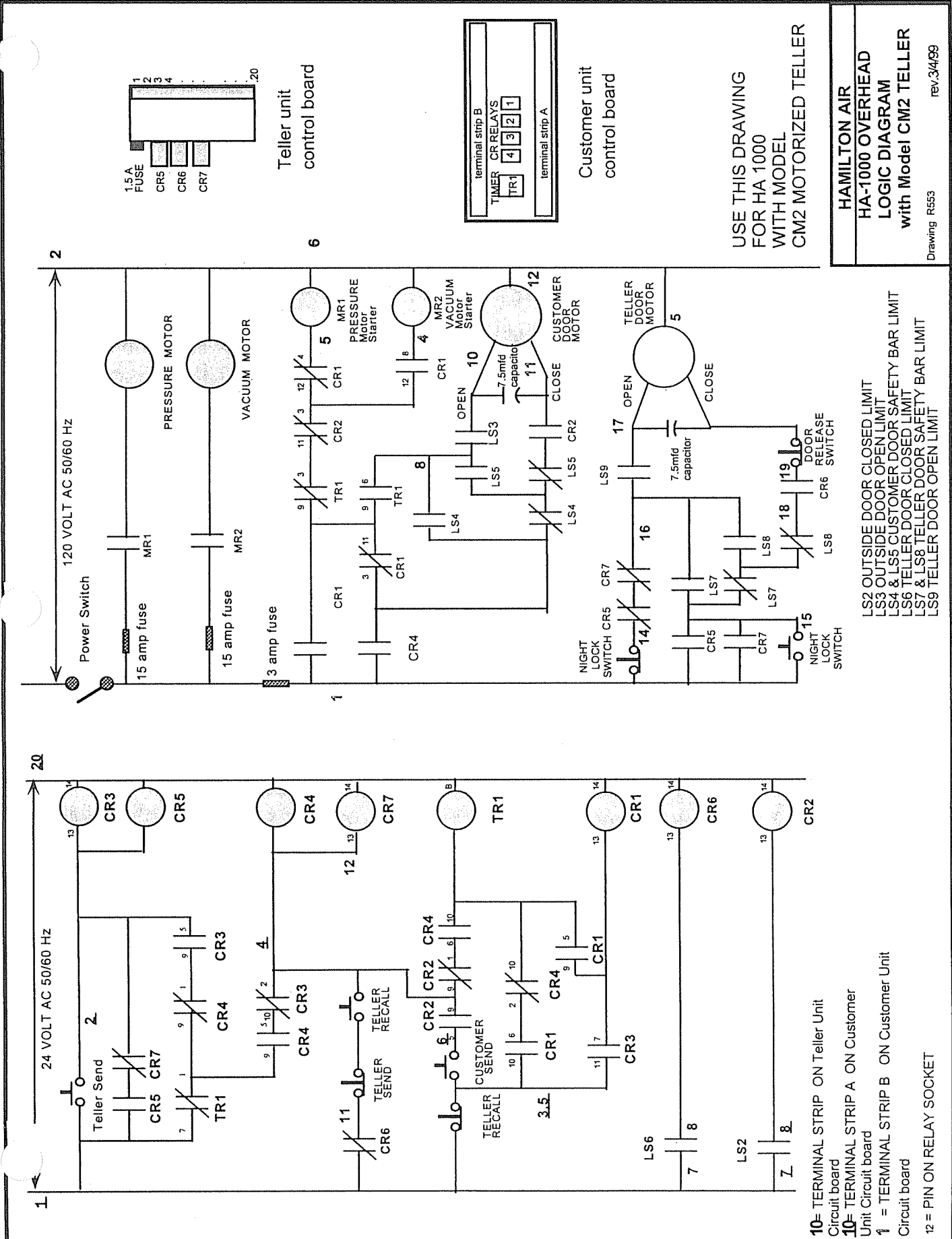
LS2 OUTSIDE DOOR CLOSED LIMIT  
 LS3 OUTSIDE DOOR OPEN LIMIT  
 LS4 & LS5 CUSTOMER DOOR SAFETY BAR LIMIT  
 LS6 TELLER DOOR CLOSED LIMIT  
 LS7 & LS8 TELLER DOOR SAFETY BAR  
 LS9 TELLER DOOR OPEN LIMIT

Customer unit control board

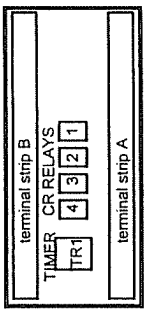
Teller unit control board







Teller unit control board



Customer unit control board

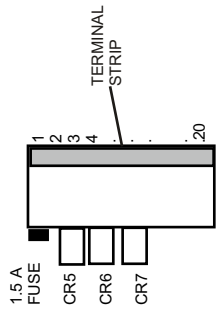
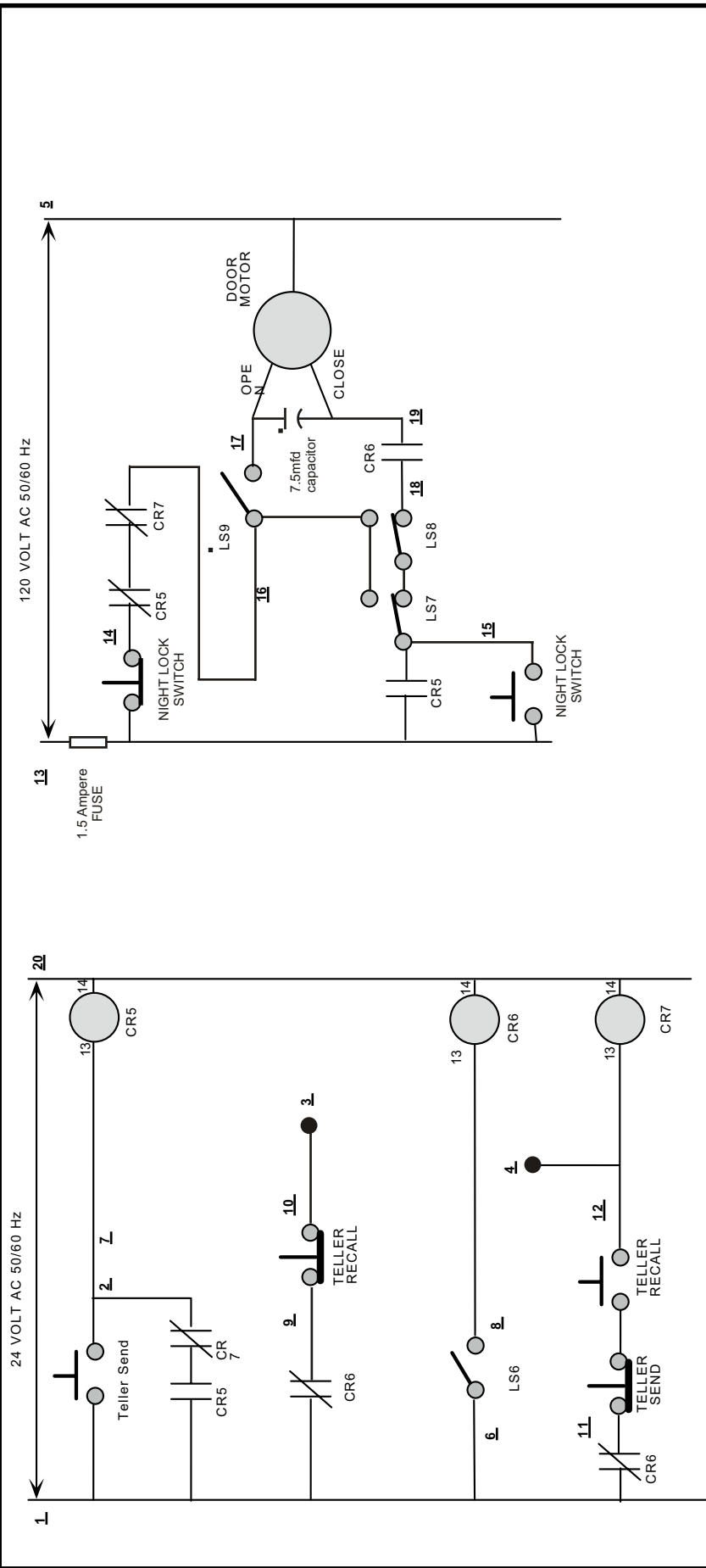
USE THIS DRAWING FOR HA 1000 WITH MODEL CM2 MOTORIZED TELLER

HAMILTON AIR  
 HA-1000 OVERHEAD  
 LOGIC DIAGRAM  
 with Model CM2 TELLER  
 Drawing R553 rev.3/4/99

LS2 OUTSIDE DOOR CLOSED LIMIT  
 LS3 OUTSIDE DOOR OPEN LIMIT  
 LS4 & LS5 CUSTOMER DOOR SAFETY BAR LIMIT  
 LS6 TELLER DOOR CLOSED LIMIT  
 LS7 & LS8 TELLER DOOR SAFETY BAR LIMIT  
 LS9 TELLER DOOR OPEN LIMIT

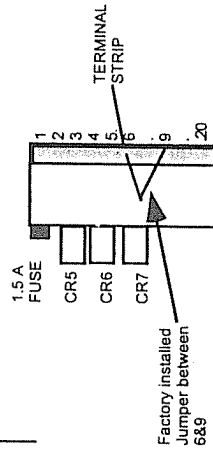
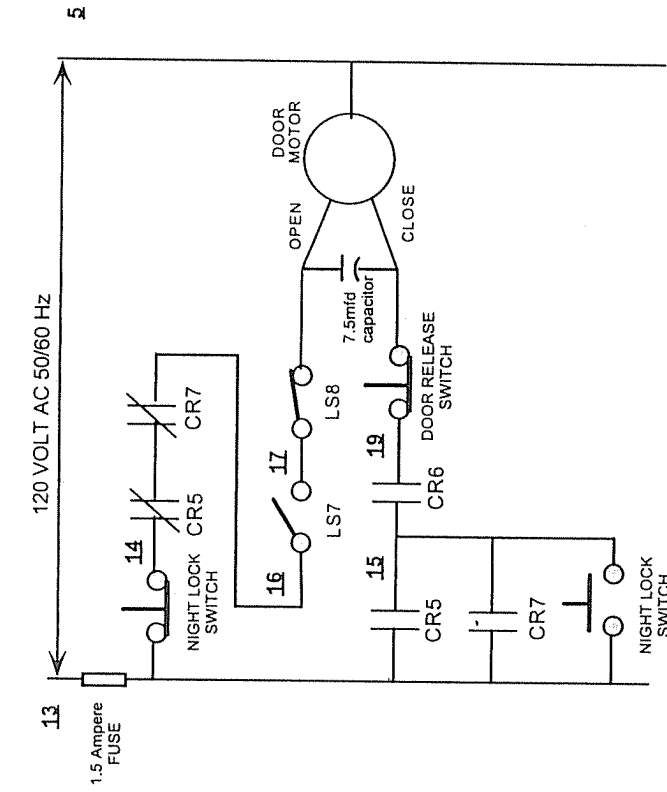
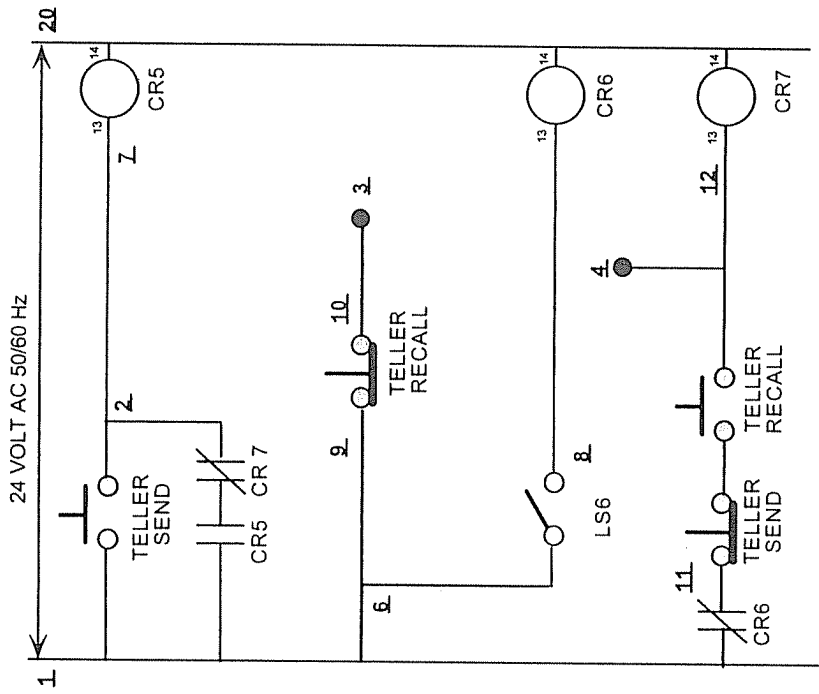
10= TERMINAL STRIP ON Teller Unit Circuit board  
 10= TERMINAL STRIP A ON Customer Unit Circuit board  
 1 = TERMINAL STRIP B ON Customer Unit Circuit board  
 12 = PIN ON RELAY SOCKET

**NOTE USE THIS DRAWING FOR THE  
 DOWN SEND TELLER UNIT ONLY.**



- 12 = PIN ON RELAY SOCKET
- 10 = TERMINAL STRIP
- LS6 TELLER DOOR CLOSED LIMIT SWITCH
- LS7 & LS8 TELLER DOOR SAFETY SWITCH
- LS9 TELLER DOOR OPEN LIMIT SWITCH





Teller unit control board

12 = PIN ON RELAY SOCKET  
10 = TERMINAL STRIP

LS6 TELLER DOOR CLOSED LIMIT SWITCH  
LS7 TELLER DOOR OPEN LIMIT SWITCH  
LS8 TELLER AIR PRESSURE SWITCH

NOTE USE THIS DRAWING FOR MODEL CM2  
MOTORIZED TELLER UNIT ONLY

HAMILTON AIR

HA-1000 MOTORIZED TELLER UNIT  
MODEL CM2  
LOGIC DIAGRAM

Drawing R903 rev 3/9/99

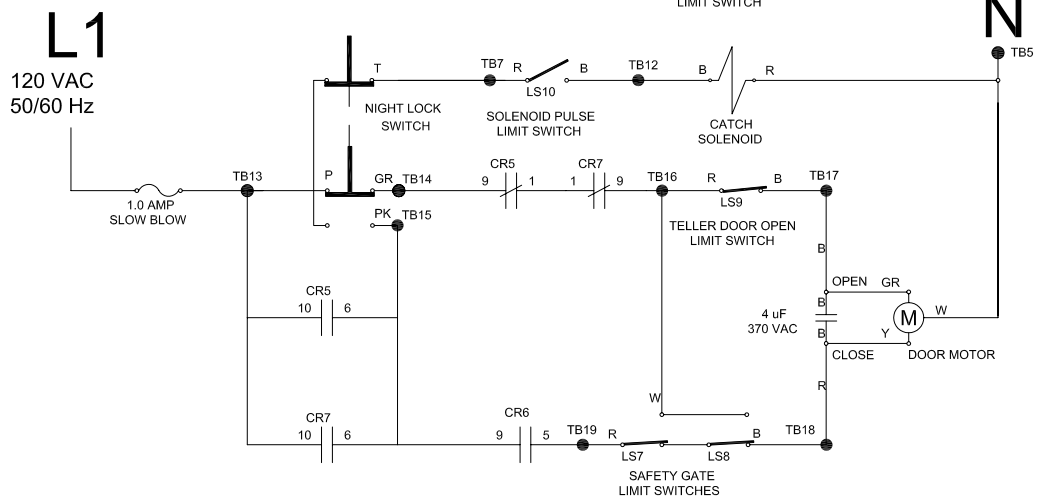
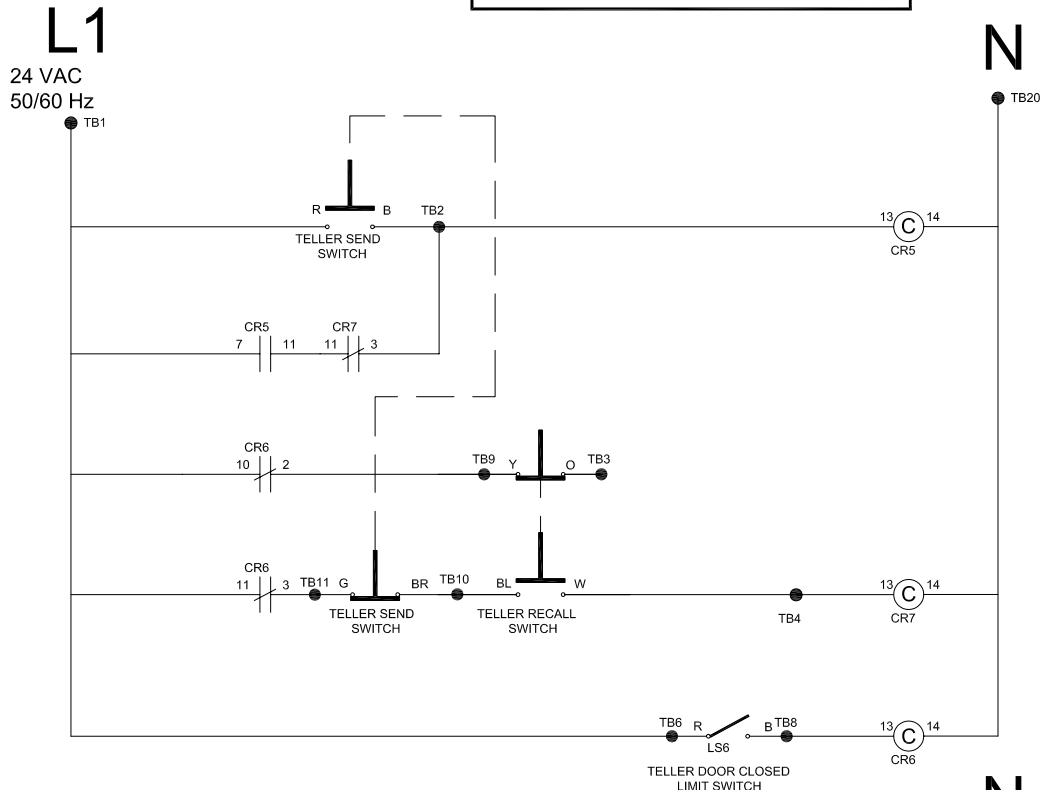
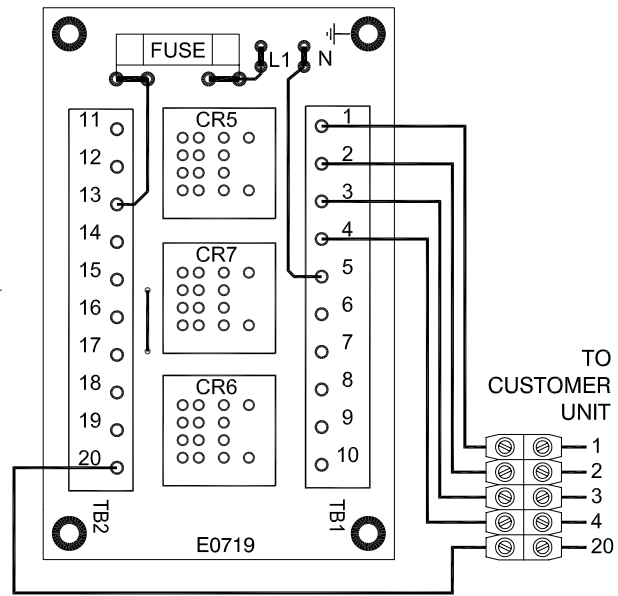
# HAMILTON AIR

## 99-847 COMPACT DOWNSEND TELLER UNIT #73

PROVIDE 12" SERVICE LOOP ON HOOKUP WIRE

5 CONDUCTOR HOOKUP WIRE FROM  
REMOTE TO D-TELLER

TERMINAL 1 - WHITE ----- 1  
TERMINAL 2 - RED ----- 2  
TERMINAL 3 - BLACK ----- 3  
TERMINAL 4 - GREEN ----- 4  
TERMINAL 20 - BROWN ----- 20



### COLOR CODES

B = BLACK      W = WHITE      P = PURPLE      PK = PINK  
R = RED      O = ORANGE      GR = GREY      G = GREEN  
BL = BLUE      Y = YELLOW      T = TAN      BR = BROWN