

CRITTENDEN CONVERSION CORPORATION
MOSES LAKE, WASHINGTON

VACUUM BRIDGE GUIDE 102



BASIC INSTALLATION INSTRUCTIONS FOR CRITTENDEN VACUUM BRIDGE GUIDES

The installation of the Crittenden vacuum bridge guide is essentially a matter of removing the old guide unit and replacing it with the new one, employing common sense and normal good engineering practices.

The Guide should be centered on the CORRUGATOR bridge and level, square and parallel with the preheater rolls. On corrugators with triple preheaters, the top chamber has two outlet rolls, which is to insure proper tracking of the single face web. The outlet rolls are provided with adjustment at each bearing for fine-tuning the tracking. If the webs are creeping over to one side or the other, they can be re-aligned by the roll adjustment. Once properly adjusted, the web should track with very little help from side guides.

The vacuum chambers have a fixed, perforated area approximately 16"x46" wide which is located on center. Vacuum breaking is applied only to center 46" of the liner side of the web regardless of the paper width. This arrangement has proven very effective in all normal applications.

The side guides are opened and closed by a motorized gearhead unit driving a right and left hand lead screw. The guides are designed to run on center. There is no operator-controlled mechanism to allow moving the web to an off-center position. We have found, that this is an un-necessary feature when the equipment has been installed and set up properly.

Web misalignment is correctable to an extent depending on the volume of material on the bridge and the distance between the guides and the single facer. About one to two inches in fifteen feet can be expected.

BRIDGE GUIDE CONTROL PANEL INSTALLATION NOTES

- 1) *RUN THE CONDUIT INTO THE BOTTOM OF THE CONTROL PANEL, AS MOISTURE IS THE BIGGEST PROBLEM. IF YOU MUST RUN THE CONDUIT OTHER THAN TO THE BOTTOM SEAL THE INSIDE AND OUTSIDE OF IT WITH SILICON.*
- 2) *PULL NEW WIRES, AS USING OLD WIRING CAN CAUSE PROBLEMS LEFT BEHIND IN OTHER INSTALLATIONS.*
- 3) *MAKE SURE THE CONTROL PANEL IS MOUNTED SQUARELY, AS BOWING CAN CAUSE MOISTURE PROBLEMS AND MAY KEEP THE DOOR CONTACTOR FROM OPERATING PROPERLY.*
- 4) *WHEN DRILLING HOLES IN THE CONTROL PANEL MAKE SURE TO COVER OR REMOVE THE INSIDE COMPONENTS, MANY CUSTOMERS HAVE DESTROYED THEIR PANEL BECAUSE THEY HAD METAL CHIPS ALL OVER THE INSIDE OF THE PANEL.*
- 5) *THE CONTROL PANEL SUPPLIES POWER FOR IT'S OWN NEEDS, IF YOU NEED ANY TYPE OF SUPPLY VOLTAGE YOU MUST FURNISH THAT ON YOUR OWN.*

MOTOR PHASING

- When vacuum Blower motor rotates correctly, all 3 phase motors will be correct.
- 1"x 3" round spacers and fasteners are for mounting control panel.

BG2 Electrical Current Requirements

	230 VAC	460 VAC
5 HP Blower	12.4 A	6.2 A
Upper Guide	2.8A	1.4A
Lower Guide	2.8 A	1.4 A
Total:	18.0 A	9.0 A

START-UP AND OPERATING INSTRUCTIONS

With the blower OFF and the guides at a setting a few inches greater than the paper width, the singleface material is threaded under the 1-1/2 “ diameter bar, between the guides, over the entry roll, under the perforated vacuum chamber and over the exit roll on to the double backer. On some models there will be two exit rolls at the top station, on which, the paper goes over the first roll and under the second roll and then on to the double backer. After the corrugator has been set up, the guides should be closed up just to kiss the paper. Now turn ON the blower. The vacuum braking action is now adjusted to suit the conditions. A setting between 5 and 10 inches is fairly standard. When preparing to run a new order with a different paper width, the guides can be changed by the operator either manually or automatically. With the Manual/Automatic button pushed IN, the guides will move IN or OUT only as long as the wing lever switch is held to the left or right position. With the Manual/Automatic button pulled out the red indicator will light UP, indicating that the automatic mode is engaged. In this position the guides will move IN or OUT to the preset value when the wing lever switch is moved either to the left or right. When the wing lever switch is closed, the counter will decide which starter coil to activate.

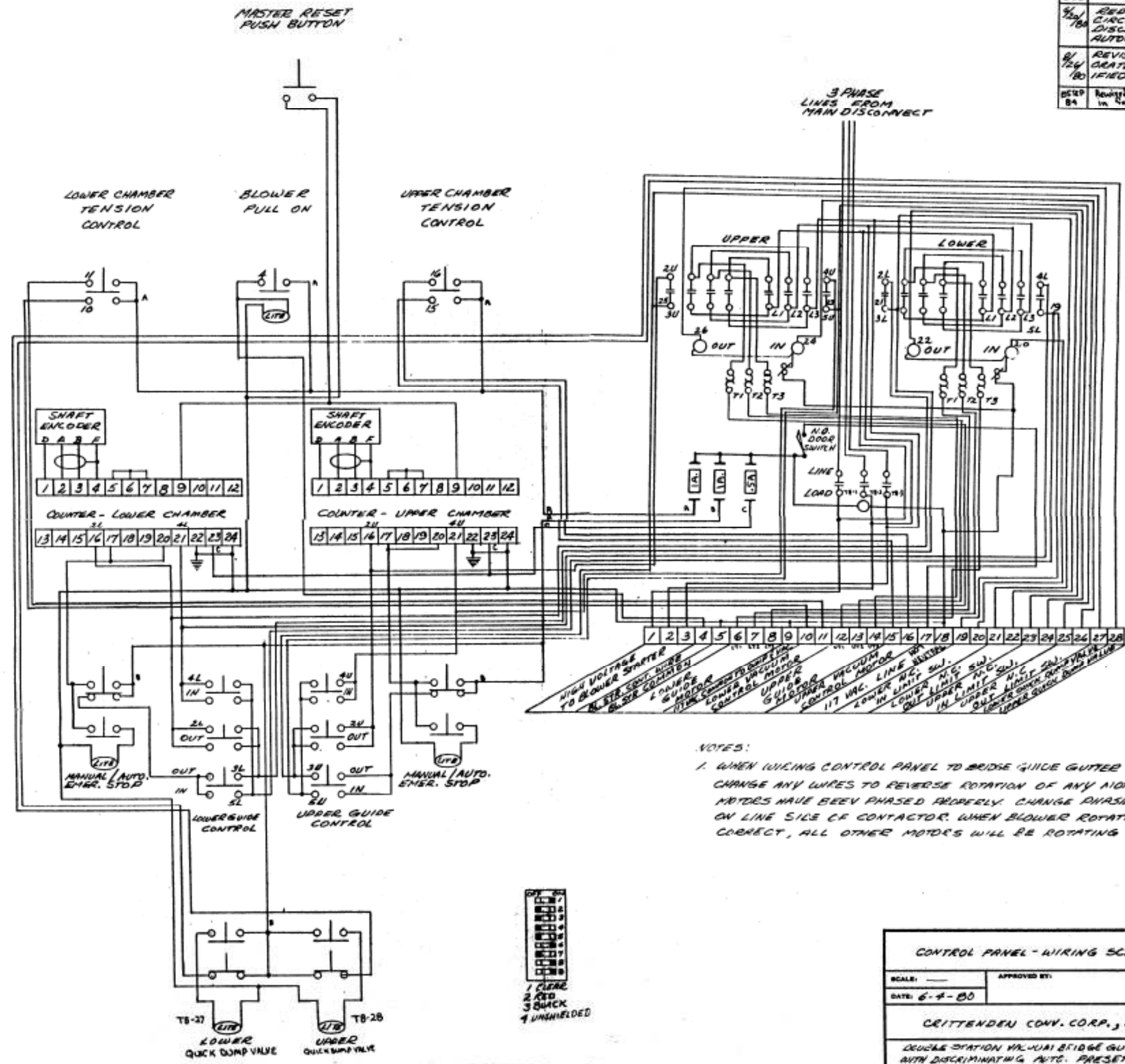
CONTROL PANEL FUNCTIONS

From the control panel, the operator can control the position of the guides and the amount of vacuum (brake) applied to the liner side of the single face material.

The system utilizes a common blower for all stations. Separate control for guides position and vacuum are provided for each station. The vacuum more-less switch activates a 110 VAC actuator which operates a butterfly valve through 90 degrees of rotation. Vacuum brake can be varied from 0 to a negative pressure of approx. 18 inches of water, which is reflected on a panel mounted 0-20 inches magnahelic pressure gage. Guide position for each station can be changed either manually or through automatic preset operation as desired. Actual position of guides is constantly displayed on the solid-state digital counter. Limit switches are provided to prevent over-travel in either the open or close directions.

The brake on-off push/pull buttons operate a quick dump butterfly for each vacuum chamber. With the button out, the braking action will be as set by the vacuum more/less switches and shown on the magnahelic pressure gages. When the buttons are pushed in, any braking will immediately cease and gages will indicate zero vacuum.

DATE	CHANGE	BY
5/20/78	REDRAWN, ADDED CIRCUITRY FOR DISCRIMINATING AUTOMATIC PRESET	K.B.
9/12/78	REVISED TO INCORPORATE FACTORY MODIFIED COUNTERS	K.B.
05/29/84	Revised Hot and Neutral Line in Key Safety	CV



NOTES:
 1. WHEN WIRING CONTROL PANEL TO BRIDGE GUIDE GUTTER BOX, DO NOT CHANGE ANY WIRES TO REVERSE ROTATION OF ANY MOTORS. ALL MOTORS HAVE BEEN PHASED PROPERLY. CHANGE PHASING ONLY ON LINE SIDE OF CONTACTOR. WHEN BLOWER ROTATION IS CORRECT, ALL OTHER MOTORS WILL BE ROTATING CORRECTLY.

CONTROL PANEL - WIRING SCHEMATIC

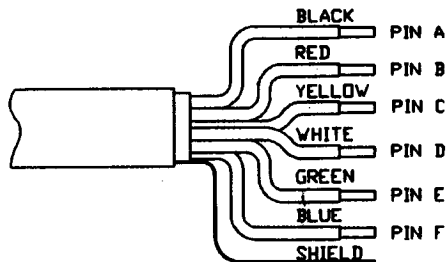
SCALE: —	APPROVED BY:	DRAWN BY: K.A.B.
DATE: 6-4-80		REVISED: 05SEP84
CRITTENDEN CONV. CORP., PRESTON, ILL.		
DOUBLE STATION VACUUM BRIDGE GUIDE WITH DISCRIMINATING AUTO. PRESET		DRAWING NUMBER: 103-0000-ROLDR-16

ACCU-CODER™

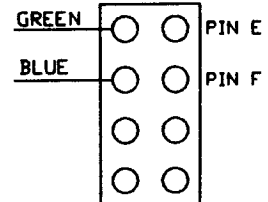
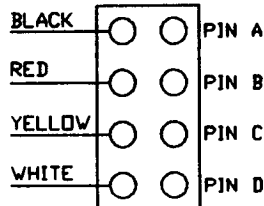
Encoder Products Company

Series 700 Data Sheet

Cable Termination



Explosion-Proof Housing Terminal Block



Pin Definitions For:

Standard and open collector outputs
All models except 715-1 and 715-2

A - Power supply and output common

B - +Volts D.C.

C - Reference Z (if applicable)

D - Output A

E - Output B (if applicable)

F - Power supply and output common

715-1 and 715-2 Series Standard and open collector outputs

A - Power supply and output common

B - +Volts D.C.

C - Reference Z (if applicable)

D - Clockwise pulses for 715-1
Output pulses for 715-2

E - Counterclockwise pulses for 715-1
Direction control for 715-2

F - Power supply and output common

Line driver output

A - Power supply and output common

~~B - +Volts D.C.~~

C - Output A

D - Output \bar{A}

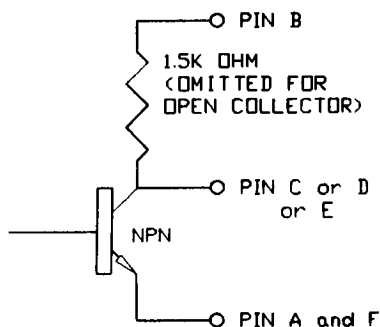
E - Output B (if applicable)

F - Output \bar{B} (if applicable)

Output Circuits

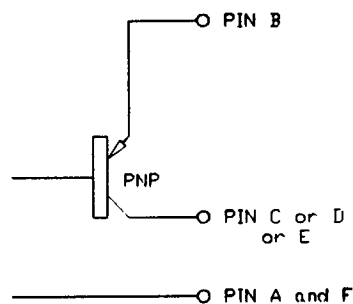
NPN

Standard and open collector outputs

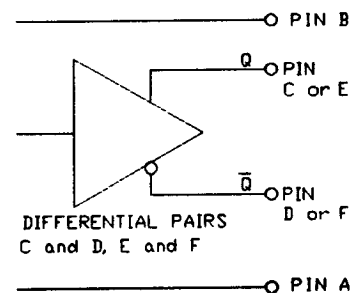


PNP

Open collector output



Differential line driver output



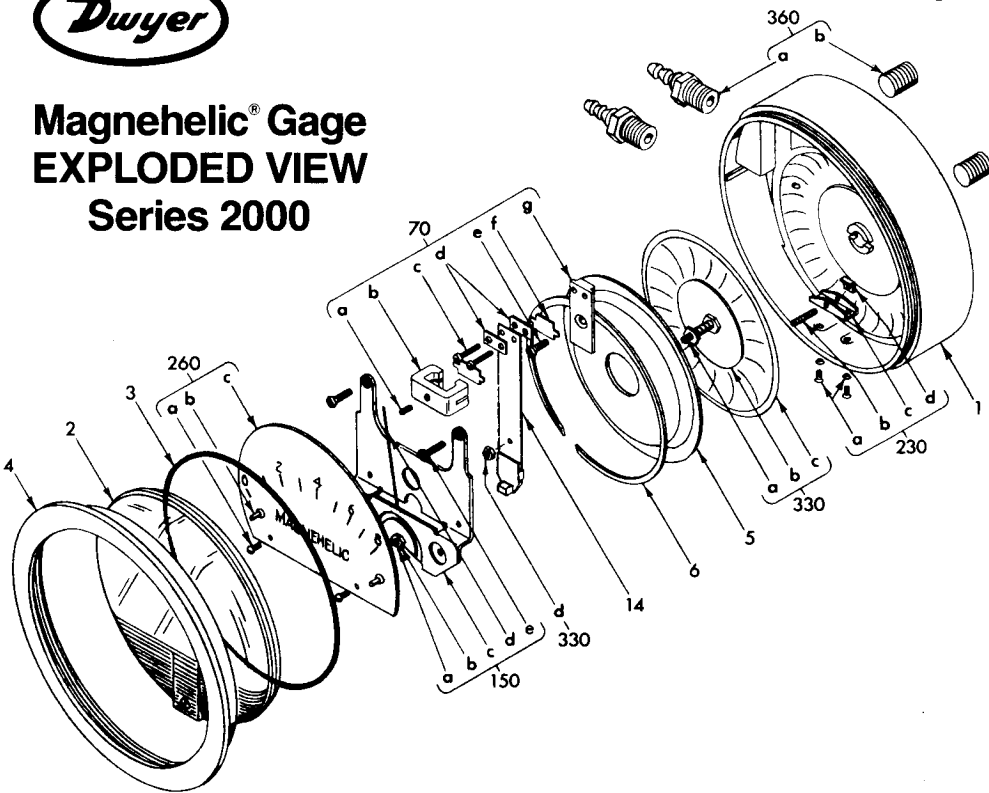
1601B Dover Rd. Hwy 2 P.O. Box 1548 Sandpoint, Idaho U.S.A. 83864

1-208-263-8541 FAX 1-208-263-0541

Downsview, Ontario Phone 1-416-665-1515 FAX 1-416-665-1521



Magnehelic® Gage EXPLODED VIEW Series 2000



1. Case
2. Cover with zero adjust assy.
3. "O" ring seal
4. Bezel
5. Diaphragm sealing plate
6. Retaining ring
70. Range Spring assembly
 - a. Clamp set screw
 - b. Clamp
 - c. Mounting screws (2 req'd)
 - d. Clamping shoe (2 req'd)
 - e. Clamp plate screw
 - f. Spacer (2 req'd)
 - g. Clamp plate
- *14. Range Spring with magnet
150. Wishbone Assembly - consists of:
 - a. Front jewel
 - b. Locking nut
 - c. Wishbone
 - d. Pointer
 - e. Mounting screws (2 req'd)
 - f. Helix assembly (not shown)
 - g. Pivots (2 req'd) (not shown)
 - h. Rear jewel (not shown)
230. Zero adjust assembly - consists of:
 - a. Foot screws with washers (2 req'd)
 - b. Adjust screw
 - c. Foot
 - d. Finger
- *260. Scale Assembly - consists of:
 - a. Mounting screws (2 req'd)
 - b. Bumper pointer stop (2 req'd)
 - c. Scale
- *330. Diaphragm Assembly - consists of:

(Arbor press needed to install)

 - a. Linkage assy., complete
 - b. Front plate
 - c. Diaphragm
 - d. Rear plate (not shown)
 - e. Plate washer (not shown)
360. Mounting Hardware Kit
 - a. Adapter - pipe plug 1/8" NPT to rubber tubing - (2 req'd)
 - b. Pipe plug 1/8" NPT - (2 req'd)
 - c. Mounting lug (3 req'd)
 - d. Long screw (3 req'd)
 - e. Short screw (3 req'd)
 - f. Stud (solid)
 - g. Stud washer
 - h. Stud nut
 - i. Stud (hollow)

Ordering Instructions:

When corresponding with the factory regarding Magnehelic® gage problems, refer to the call-out numbers in this view. Be sure to include model number, pressure range, and any special options. Field repair is not recommended; contact the factory for repair service information.

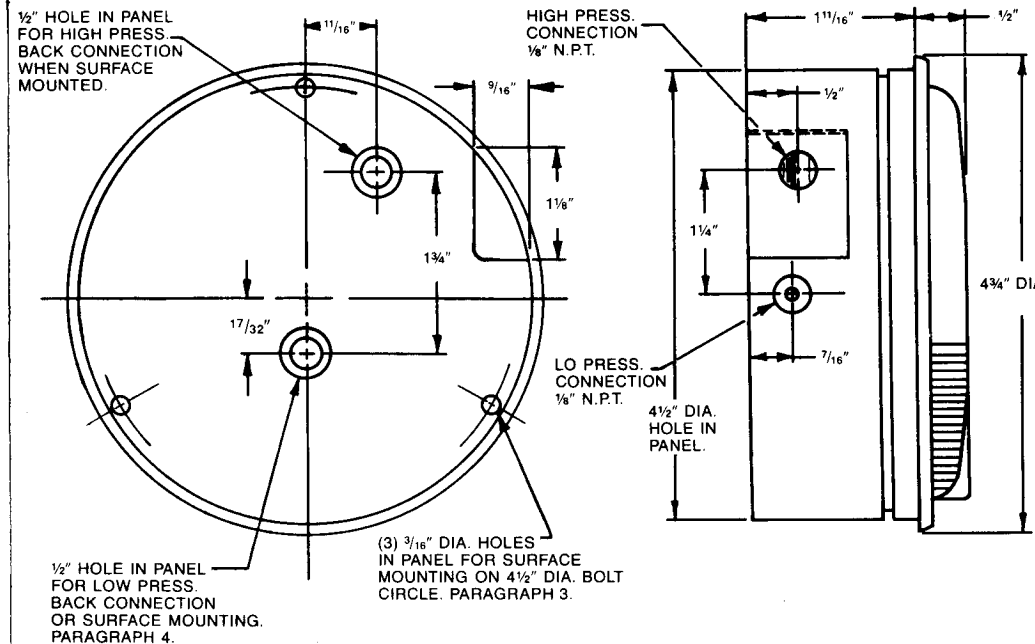


OPERATING INSTRUCTIONS and PARTS LIST Magnehelic® Differential Pressure Gage

SPECIFICATIONS

- Dimensions: 4-3/4" dia. X 2-3/16" deep.
- Weight: 1 lb. 2 oz.
- Finish: Baked dark gray enamel.
- Connections: 1/8 N.P.T. high and low pressure taps, duplicated, one pair side and one pair back.
- Accuracy: Plus or minus 2% of full scale, at 70°F. (Model 2000-0, 3%; 2000-00, 4%).
- Pressure Rating: 15 PSI.
- Ambient Temperature Range: 20° to 140°F.
- Standard gage accessories include two 1/8" N.P.T. plugs for duplicate pressure taps, two 1/8" pipe thread to rubber tubing adapters, back mounting stud with two washers and jam nut and three flush mounting adapters with screws.

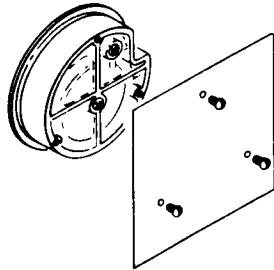
Caution: For use with air or compatible gases only.
For repeated over-ranging or high cycle rates, contact factory.



1. Select a location free from excessive vibration and where the ambient temperature will not exceed 140°F. Also, avoid direct sunlight which accelerates discoloration of the clear plastic cover. Sensing lines may be run any necessary distance. Long tubing lengths will not affect accuracy but will increase response time slightly. Do not restrict lines. If pulsating pressures or vibration cause excessive pointer oscillation, consult the factory for ways to provide additional damping.

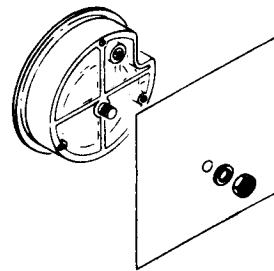
2. Most gages may be installed in any position, scale vertical or horizontal, without affecting its accuracy as long as it is properly re-zeroed in the position in which it is being used. The exceptions are models 2000-00 (0-.25" w.c.) which can be used only in a vertical position and 2000-0 (0-.50" w.c.) which must be specially calibrated for positions other than vertical. The same applies to metric equivalents to these two ranges. All standard gages are originally calibrated with diaphragm vertical.

3. Surface Mounting



Locate mounting holes, 120° apart on a 4-1/8" dia. circle. Use No. 6-32 machine screws of appropriate length.

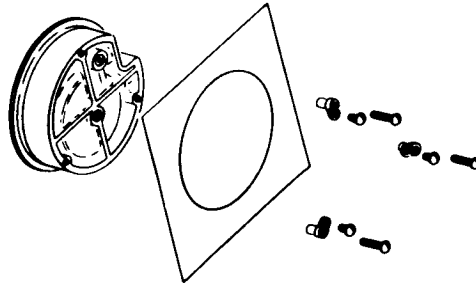
4. Single Stud Surface Mounting



Locate mounting hole. Use double ended 1/8" thread stud. Part No. 360-f, securely inserted in center low pressure opening. Mount through a bulkhead with washer and jam nuts as in sketch. As an alternate, mount the gage

with the stud using a 1/8" pipe thread flange or other 1/8" pipe thread opening.

5. Flush Mounting



Provide a 4 1/2" dia. opening in panel. Insert gage and secure in place with No. 6-32 machine screws of appropriate length, with adaptors, Part No. 360c, firmly secured in place. To mount gage on 1 1/4"-2" pipe, order optional A-610 pipe mounting kit.

6. To zero the gage after installation

Set the indicating pointer exactly on the zero mark, using the external zero adjust screw on the cover at the bottom. Note that the zero check or adjustment can only be made with the high and low pressure taps both open to atmosphere.

Operation

Positive Pressure: Connect tubing from source of pressure to either of the two high pressure ports. Plug the port not used. Vent one or both low pressure ports to atmosphere.

Negative Pressure: Connect tubing from source of vacuum or negative pressure to either of the two low pressure ports. Plug the port not used. Vent one or both high pressure ports to atmosphere.

Differential Pressure: Connect tubing from the greater of two pressure sources to either high pressure port and the lower to either low pressure port. Plug both unused ports.

When one side of gage is vented in a dirty, dusty atmosphere, we suggest an A-331 Filter Vent Plug be installed in the open port to keep inside of gage clean.

a. For portable use or temporary installation, use 1/8" pipe thread to rubber tubing adapter and connect to source of pressure with rubber or Tygon tubing.

b. For permanent installation, 1/4" O.D., or larger, copper or aluminum tubing is recommended. See accessory bulletin S-101 for fittings.

Maintenance: No lubrication or periodic servicing is required. Keep case exterior and cover clean. Occasionally disconnect pressure lines to vent both sides of gage to atmosphere and re-zero. Optional vent valves, (bulletin S-101), should be used in permanent installations.

Calibration Check: Select a second gage or manometer of known accuracy and in an appropriate range. Using short lengths of rubber or vinyl tubing, connect the high pressure side of the Magnehelic gage and the test gage to two legs of a tee. Very slowly apply pressure through the third leg. Allow a few seconds for pressure to equalize, fluid to drain, etc., and compare readings. If accuracy unacceptable, gage may be returned to factory for recalibration. To calibrate in the field, use the following procedure.

Calibration:

1. With gage case, P/N 1, held firmly, loosen bezel, P/N 4 by turning counter-clockwise. To avoid damage, a canvas strap wrench or similar tool should be used.
2. Lift out plastic cover and "O" ring.
3. Remove scale screws and scale assembly. Be careful not to damage pointer.
4. The calibration is changed by moving the helix if gage is reading high, and away if reading low. Tighten clamp screw and install scale assembly.
5. Place cover and O-ring in position. Make sure the hex shaft on inside of cover is properly engaged in zero adjusting screw, P/N 230-b.
6. Secure cover in place by screwing bezel down snug. Note that the area under the cover is pressurized in operation and therefore gage will leak if not properly tightened.

7. Zero gage and compare to test instrument. Make further adjustments as necessary.

Caution: If bezel binds when installing, lubricate threads sparingly with light oil or molybdenum sulphate compound.

Trouble Shooting Tips:

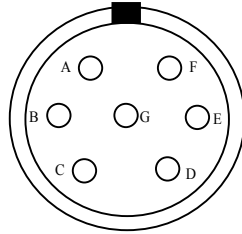
- *Gage won't indicate or is sluggish.*
 1. Duplicate pressure port not plugged.
 2. Diaphragm ruptured due to overpressure.
 3. Fittings or sensing lines blocked, pinched, or leaking.
 4. Cover loose or "O" ring damaged, missing.
 5. Pressure sensors, (static tips, Pitot tube, etc.) improperly located.
 6. Ambient temperature too low. For operation below 20°F, order gage with low temperature, (LT) option.
- *Pointer stuck-gage can't be zeroed.*
 1. Scale touching pointer.
 2. Spring/magnet assembly shifted and touching helix.
 3. Metallic particles clinging to magnet and interfering with helix movement.
 4. Cover zero adjust shaft broken or not properly engaged in P/N 230-b adjusting screw.

We generally recommend that gages needing repair be returned to the factory. Parts used in various sub-assemblies vary from one range of gage to another, and use of incorrect components may cause improper operation or failure. Gages repaired at the factory are carefully calibrated and tested to assure "like-new" operation. After receipt and inspection, we will be happy to quote repair costs before proceeding.

Consult factory for assistance on unusual applications or conditions.

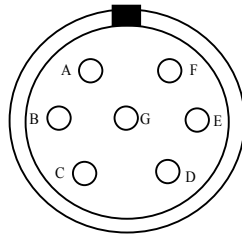
Use with air or compatible gases only.

SATANDARD 5 P/REV (INCH.) ENCODER CABLE



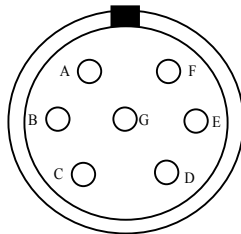
A - CH. #1	RED
B - CH. #2	BLACK
D - DC.	WHITE
F - COMM.	SHIELD

SATANDARD 127 P/REV (METRIC) ENCODER CABLE



C - CH. #1	RED
E - CH. #2	BLACK
D - DC.	WHITE
F - COMM.	SHIELD

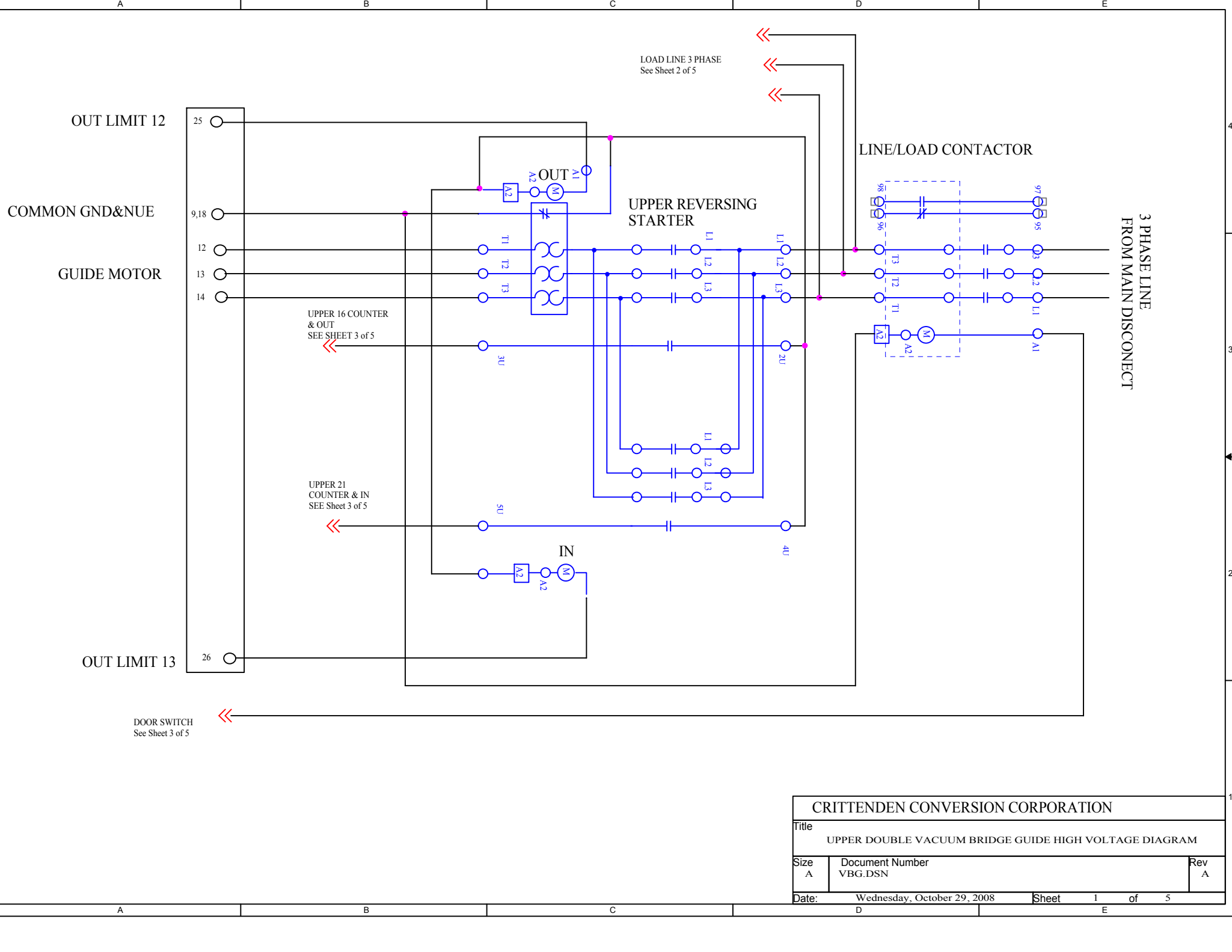
UNIVERSAL 5&127 P/REV (INCH/METRIC) ENCODER CABLE



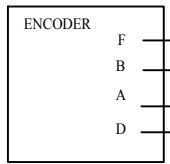
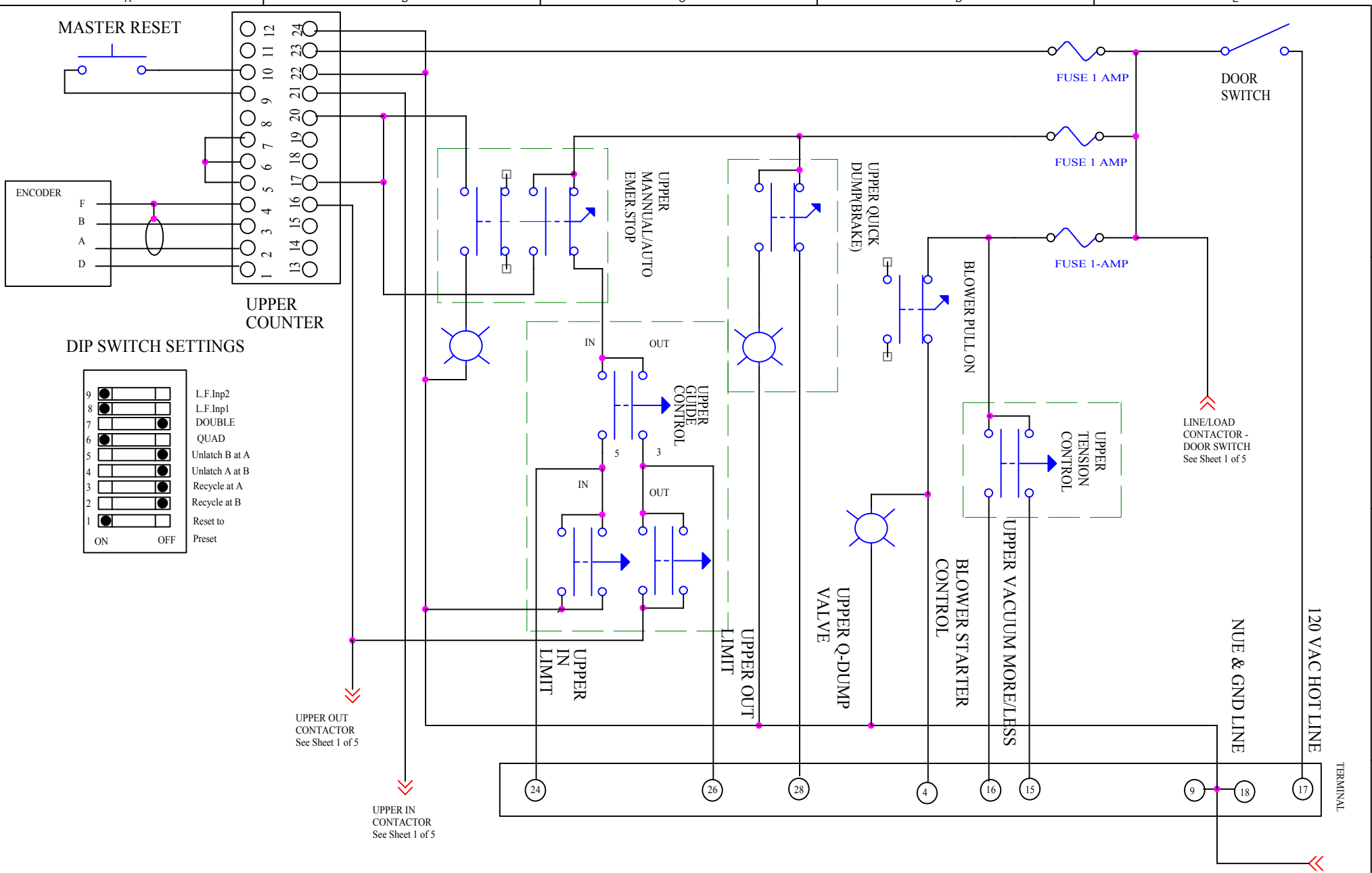
A - CH. #1	RED
B - CH. #2	BLACK
C - CH. #1	RED/BLACK
E - CH. #2	BLACK/RED
D - DC.	WHITE
F - COMM.	SHIELD

CRITTENDEN CONVERSION CORPORATION

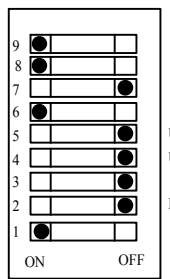
Title		
ENCODER CABLES OLD		
Size	Document Number	Rev
A	ENCODER CABLES OLD	A
Date:	Tuesday, January 15, 2002	Sheet 1 of 1



CRITTENDEN CONVERSION CORPORATION		
Title UPPER DOUBLE VACUUM BRIDGE GUIDE HIGH VOLTAGE DIAGRAM		
Size A	Document Number VBG.DSN	Rev A
Date: Wednesday, October 29, 2008	Sheet 1	of 5



DIP SWITCH SETTINGS



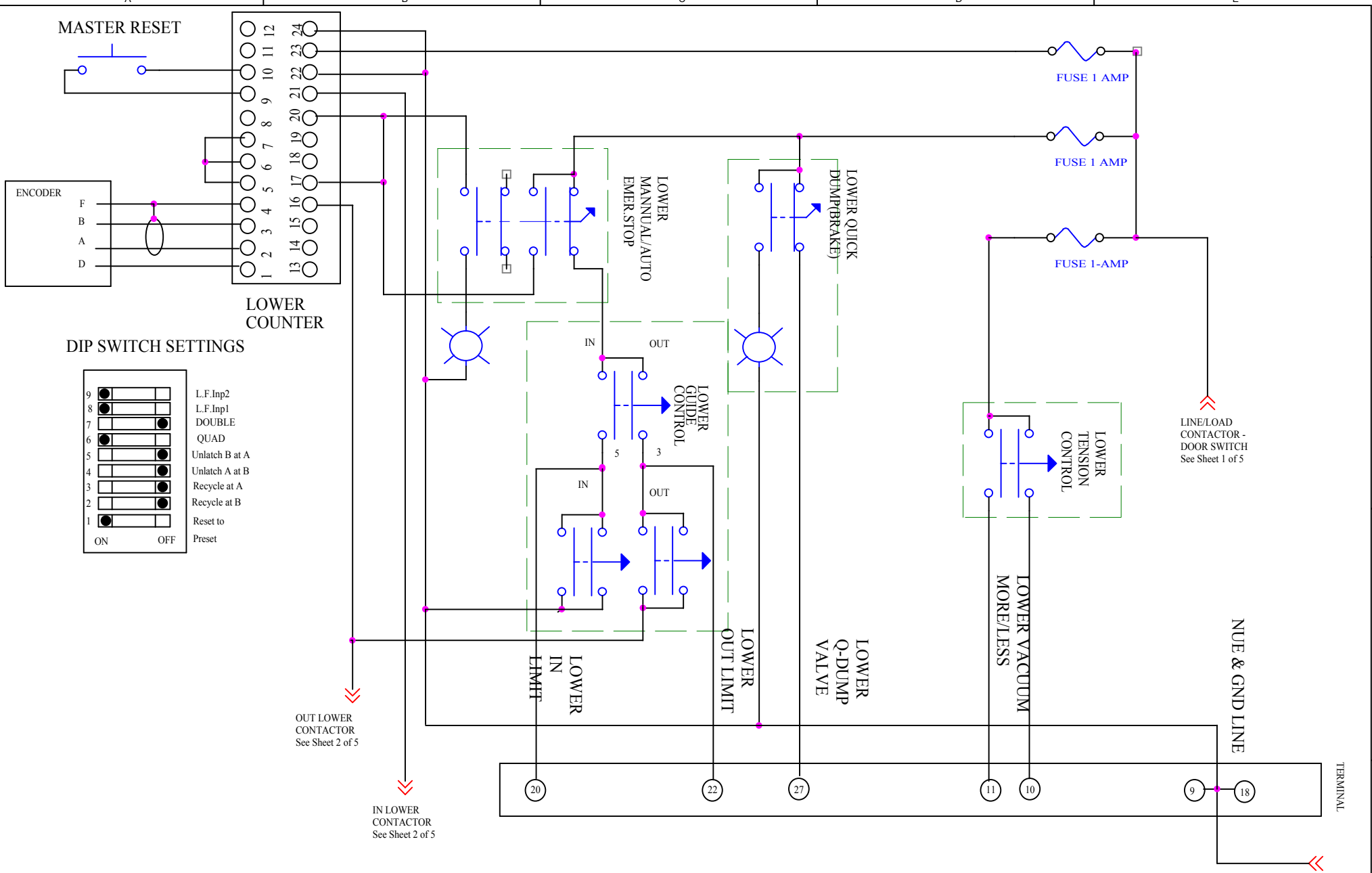
- L.F.Inp2
- L.F.Inp1
- DOUBLE
- QUAD
- Unlatch B at A
- Unlatch A at B
- Recycle at A
- Recycle at B
- Reset to
- Preset

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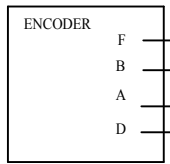
Title UPPER DOUBLE VACUUM BRIDE GUIDE COUNTER AND CONTROL DIAGRAM

Size A	Document Number VBG.DSN	Rev A
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Date: Wednesday, October 29, 2008 Sheet 3 of 5

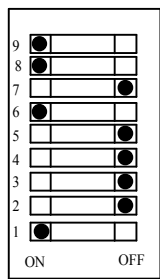


MASTER RESET



LOWER COUNTER

DIP SWITCH SETTINGS



- 9 L.F.Inp2
- 8 L.F.Inp1
- 7 DOUBLE
- 6 QUAD
- 5 Unlatch B at A
- 4 Unlatch A at B
- 3 Recycle at A
- 2 Recycle at B
- 1 Reset to Preset

OUT LOWER CONTACTOR See Sheet 2 of 5

IN LOWER CONTACTOR See Sheet 2 of 5

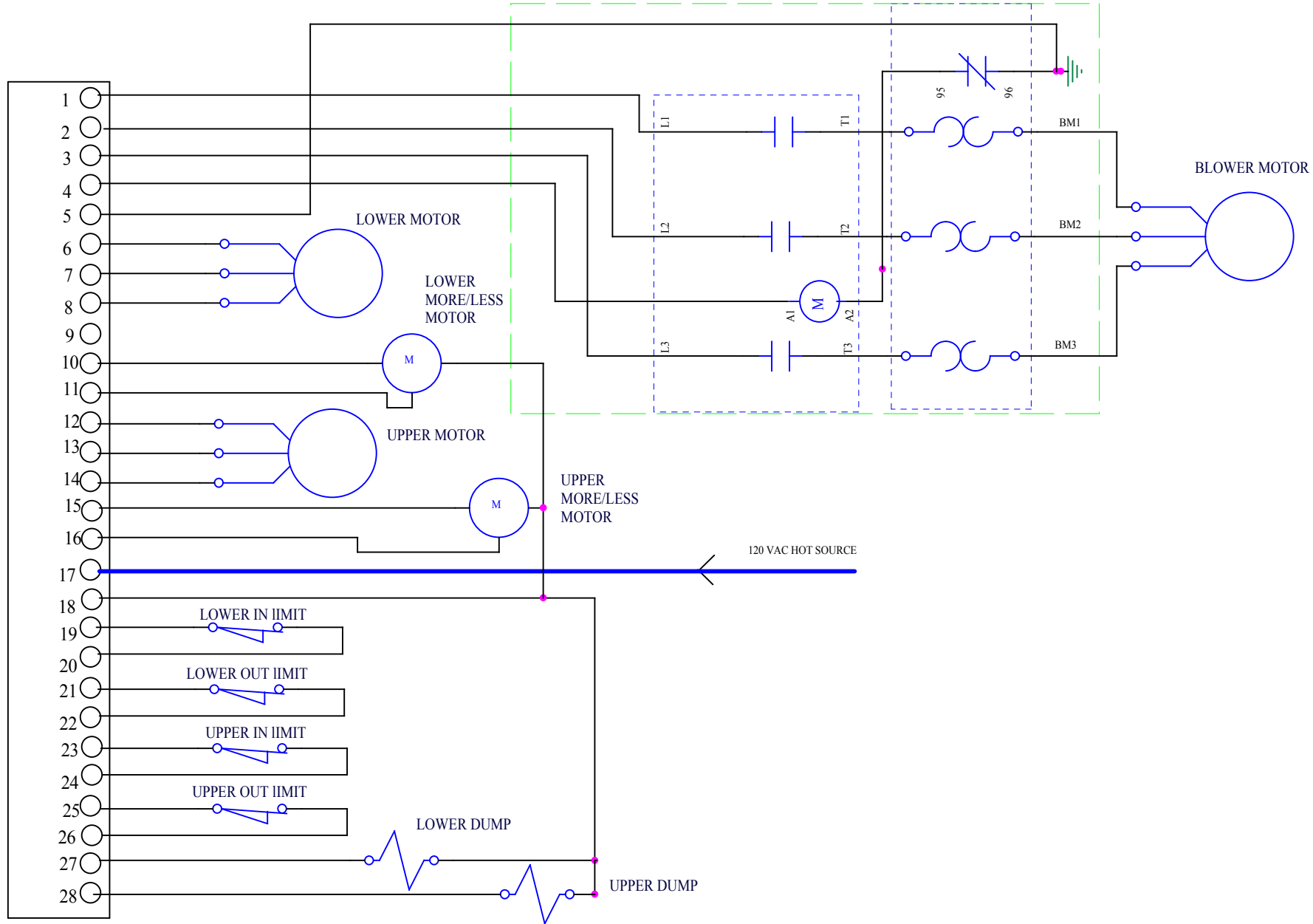
LINE/LOAD CONTACTOR - DOOR SWITCH See Sheet 1 of 5

CRITTENDEN CONVERSION CORPORATION

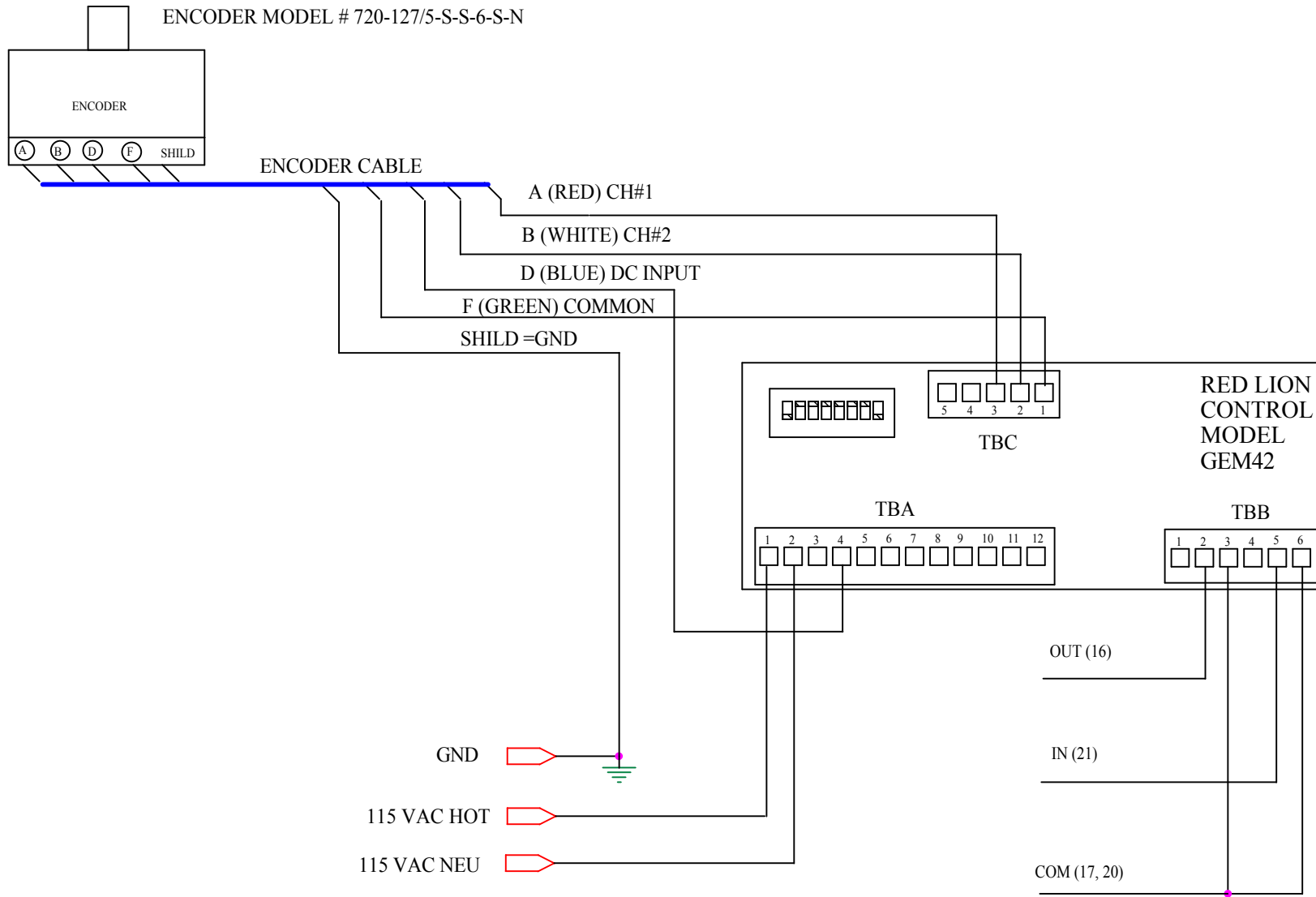
Title
LOWER DOUBLE VACUUM BRIDE GUIDE COUNTER AND CONTROL DIAGRAM

Size A	Document Number VBG.DSN	Rev A
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Date: Wednesday, October 29, 2008 Sheet 4 of 5



CRITTENDEN CONVERSION CORPORATION		
Title		
DOUBLE VACUUM BRIDGE GUIDE TERMINAL CONNECTION DIAGRAM		
Size	Document Number	Rev
A	VBG.DSN	A
Date:	Wednesday, October 29, 2008	Sheet 5 of 5
A	D	E



CRITTENDEN CONVERSION CORPORATION		
Title RED LION GEM42		
Size A	Document Number GEM42	Rev A
Date:	Wednesday, September 28, 2005	Sheet 1 of 1

Red Lion (GEMINI) Counters SETUP procedure.

- The AC power to the unit must be selected for either 115 VAC or 230VAC. The selector switch is located through an access slot on the side of the case.

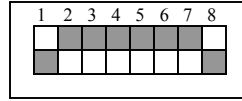
Caution: Damage to the unit may occur if the AC selector switch is set incorrectly!

Set input voltage switch to 115 VAC.

- Set input switch settings

a) 1 and 8 DOWN

b) 2 thru 6 UP



- Wire Red Lion according table below.

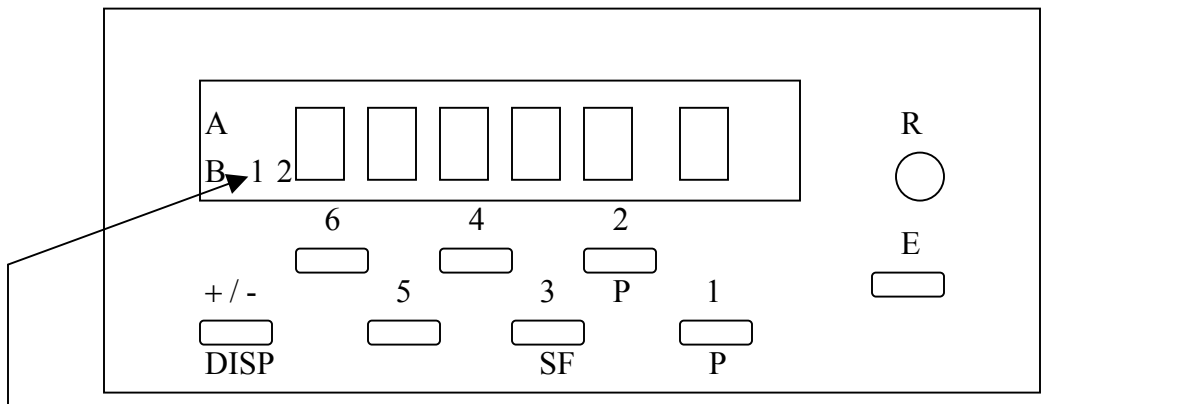
FUNCTION	Durant 51905-400 Terminals	Red Lion 42000/4200x Terminals
Encoder	1	TBA 4
Encoder	2	TBC 2
Encoder	3	TBC 3
Encoder	4	TBC 1
Old RESET	9	Remove Completely
Relays	16(OUT)	TBB 2
Relays	17(COM)	TBB 3
Relays	21(IN)	TBB 6
Relays	20(COM)	TBB 5
Old GND	22	Remove Completely
120/220 Vac	23 HOT	TBA 1
120/220 Vac	24 NEUT	TBA 2

- Initial settings (press code, choice & "E")

CODE	SETTING
41	2
42	3
43	5
44	1
45	1
46	2
* 51	2(-2)
52	-6
54	6
56	-1
61	1
64	4
65	-1
66	-5

(*) – Initial settings for programming - 51(2) for entered program - 51(-2).

5. Press (+/-) or “DISP” to indicate “B” on the left bottom corner on the screen. Release “(+/-) or “DISP”.
 6. Now enable tracking. Set 51(-2) & “E”
 7. Press and Hold “E” and press (+/-) or “DISP” & release “E”. Enter current (measured) width (60.0). Press “E”.
 8. Press “2” or “P2” set “New Width” (50.1). Press “E”.
 9. Check (one time only) “P1”. Press “1” or “P1” set “New Width”-0.1 count (50.1-0.1=50.0). Press “E”.
 10. Press “3” or “SF” (scale factor) set 1.0 Press ”E”.
 11. If Encoder connected, rotate encoder’s shift back and forward around the stop position (both relays off) and check the numbers on display (left bottom corner) “1” and “2”. They should appear one in a time not both at the same time. If they are not, check “P1” value. It should be equal “P2”-1 count. Press P1, change number press “E”. Repeat Step 8.
 12. Check code 56 must be (-1) if not set (-1).
 13. Install jumper on TBA pin 7 to pin 8.
- Program will be protected from not authorized changes.
Counter automatically saves the settings and data in its special no power memory (E²PROM).



Data Entry. (From GEMINI 4000 INSTRUCTION MANUAL Page 69)

In data entry, the front panel pushbuttons are identified by two different sets of references and will cause two different reactions in course of making a data entry. In the first phase of a data entry cycle, the buttons identified by their panel markings (i.e. Buttons “5”, “3”, or “1”). Once the data entry mode has been entered, the existing data appears on the display and the buttons below the display reference themselves to the digits directly above each button. The data can then be changed a digit at a time by depressing the button directly below the digits to be changed. After the new data value is obtained, the “E” button is depressed to enter the new value.

Red Lion (GEMINI) Counter Bridge Guide Operation.

1. To preset Measured Current width:
 - a) Hold "E", Press "+/-" or "DISP" & release "E"
 - b) Enter measured width (each column counts UP) (e.g. 75.0)
 - c) Press "E"
2. To preset value for "NEXT WIDTH"
 - a) Press "2" or "P2"
 - b) Key in value plus 0.1 count (e.g. 58.0+0.1=58.1)
 - c) Press "E"
3. Check * the value "P1"
 - a) Press "1" or "P1"
 - b) Check the value "P1"="P2-0.1 count? (e.g. 58.0=58.1-0.1). If it is not. Set it.

*** Note: One Time only!!! You do not have to check and set it every time New width - "P2" entered. One time done it will keep the difference 0.1 between "P2" and "P1". Does not matter which value P2 or Next Width you entered.**

"P1" – "Preset 1" is using for counter internal auxiliary purposes to keep its value equals ("P2" -(P2'-P1')) where P2' and P1' are initial set up values. In our case it is 58.0 and 58.1). If you change it by chance or advisedly (e.g. 68.1) it will keep the same new difference (e.g. "58.1" - 68.1 = -10.0) for the any new P2 entered. For the Bridge Guide operation it means forming "None Relay" or "Both relay" operation Zones depending from the sign - or + respectively. Which is totally wrong for the Bridge Guide proper operation!

