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Schematic/Electrical Parts

CA3608PSA Loading, Extending, Elevating Conveyor with Weight Controller

Read the separate safety manual before installing, operating, or servicing

PELLERIN MILNOR CORPORATION POST OFFICE BOX 400, KENNER, LOUISIANA 70063-0400, U.S.A.

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COMPONENT PARTS LIST

WCG1CTPL/2014374N

COMPONENT NUMBER	FUNCTION OF THIS COMPONENT	WHERE TO FIND THIS COMPONENT	MILNOR P/N	DESCRIPTION	LOCATION
B	**>>PRINTED CIRCUIT BOARDS**				
B024-1	BOARD-24 OUTPUT	W6WTCSAI	08BSO24AT	BD:SERIAL 24 OUTPUT->TEST	WT CNTRL BX
BAD-1	BOARD-D TO A #1	W6WTCSBW2	08BSADCLT	BD:SER A-D+LOAD CELL->TESTED	WT CNTRL BX
BAD-2	BOARD-D TO A #2	W6WTCSBW2	08BSADCLT	BD:SER A-D+LOAD CELL->TESTED	WT CNTRL BX
BAD-3	BOARD-D TO A #3	W6WTCSBW2	08BSADCLT	BD:SER A-D+LOAD CELL->TESTED	WT CNTRL BX
BAD-4	BOARD-D TO A #4	W6WTCSBW2	08BSADCLT	BD:SER A-D+LOAD CELL->TESTED	WT CNTRL BX
BBB-1	BOARD-BATTERY BACKUP	W6WTCSBW1	08BSBB1T	BOARD: SER BATT BACKUP-TEST	WT CNTRL BX
BDVFD	DISPLAY-VACUUM FLOURESCENT	W6WTCSBW1	08BSEVFD5V	BD:SER VFD 2LINE-19200B-TEST	WT CNTRL BX
BMTH-0	BOARD-8 BOARD MOTHER	W6WTCSBW2	08BS8MTHAT	BD:SERIAL 8 CARD MOTHER-TEST	WT CNTRL BX
BPB	BOARD-PROCESSOR	W6WTCSBW1	08BSPG1T	BD:ARM7 SERIAL PROCESSOR->TEST	WT CNTRL BX
CD	**>>RELAY-TIME DELAY**				
CDD1	DELAY-PHOTOEYE CLEAR	WCG1CLSC1	09CF016024	TDR F16S 2PDT 11PIN 24V50/60C	LOW VOLT BOX
CDD2	DELAY-DISC END PHOTOEYE BLOCKED	WCG1CLSB1	09CF002024	TDR F2S 2PDT 11PIN 24V50/60C	LOW VOLT BOX
CL	**>>RELAY-LATCH**				
CLB	LATCH-COELD LOADING	WCG1CLSC1	09CL2C-C24	RELAY-LATCH DPDT 24V 2-COIL	LOW VOLT BOX
CLC	LATCH-COELD LOADED	WCG1CLSB1	09CL2C-C24	RELAY-LATCH DPDT 24V 2-COIL	LOW VOLT BOX
CLC	LATCH-COELD LOADED	WCG1CLSC1	09CL2C-C24	RELAY-LATCH DPDT 24V 2-COIL	LOW VOLT BOX
CP	**>>PHOTOEYE**				
CPLD	PHOTOEYE-LOAD END	WCG1CLSB1	09RE004	SENSOR DARK OPERATE AC N/O-OUT	END OF BELT
CPRD	PHOTOEYE-DISCHARGE END	WCG1CLSB1	09RE004	SENSOR DARK OPERATE AC N/O-OUT	END OF BELT
CR	**>>RELAY-CONTROL**				
CRAM	RELAY-MANUAL DESIRED	WCG1CLSC1	09C024D24	RELAY 4PDT DIFGLD 14PIN 24V	LOW VOLT BOX
CRAMA	RELAY=MANUAL DESIRED	WCG1CLSC1	09C024D24	RELAY 4PDT DIFGLD 14PIN 24V	LOW VOLT BOX
CRB	RELAY-COELD LOADING	WCG1CLSB1	09C024D24	RELAY 4PDT DIFGLD 14PIN 24V	LOW VOLT BOX
CRBF	RELAY-RUN BELT FORWARD	WCG1CLSB1	09C024D24	RELAY 4PDT DIFGLD 14PIN 24V	LOW VOLT BOX
CRBL	RELAY COELD LOADING	WCG1CLSB1	09C024D24	RELAY-LATCH DPDT 24V 2-COIL	LOW VOLT BOX
CRBR	RELAY-RUN BELT REVERSE	WCG1CLSB1	09C024D24	RELAY 4PDT DIFGLD 14PIN 24V	LOW VOLT BOX
CRCTAR	RELAY-TARE	W6WTCSLC	09C024D37	4PDT MINITURE RELAY PT W/LED	WT CNTRL BX
CRCWH	RELAY WEIGHT IS HIGH	W6WTCSLC	09C024D37	4PDT MINITURE RELAY PT W/LED	WT CNTRL BX
CRCWL	RELAY-WEIGHT IS LOW	W6WTCSLC	09C024D37	4PDT MINITURE RELAY PT W/LED	WT CNTRL BX
CRCWO	RELAY-WEIGHT IS O.K.	W6WTCSLC	09C024D37	4PDT MINITURE RELAY PT W/LED	WT CNTRL BX
CRD	RELAY-DISCHARGE END	WCG1CLSB1	09C024D24	RELAY 4PDT DIFGLD 14PIN 24V	LOW VOLT BOX
CRDA	RELAY-DISCHARGE END	WCG1CLSB1	09C024D24	RELAY 4PDT DIFGLD 14PIN 24V	LOW VOLT BOX

COMPONENT PARTS LIST

COMPONENT NUMBER	FUNCTION OF THIS COMPONENT	WHERE TO FIND THIS COMPONENT	MILNOR P/N	DESCRIPTION	LOCATION
CRDH	RELAY-COELD AT DISCHARGE HEIGHT	WCG1CLSC1	09C024D24	RELAY 4PDT DIFGLD 14PIN 24V	LOW VOLT BOX
CRDN	RELAY-COELD DOWN	WCG1CLSC1	09C024D24	RELAY 4PDT DIFGLD 14PIN 24V	LOW VOLT BOX
CRDNS	RELAY-COELD DOWN	WCG1CLSB1	09C024D24	RELAY 4PDT DIFGLD 14PIN 24V	LOW VOLT BOX
CRFE	RELAY-COELD FULLY EXTENDED	WCG1CLSC1	09C024D24	RELAY 4PDT DIFGLD 14PIN 24V	LOW VOLT BOX
CRFR	RELAY-COELD FULLY RETRACTED	WCG1CLSC1	09C024D24	RELAY 4PDT DIFGLD 14PIN 24V	LOW VOLT BOX
CRLDX	RELAY-DRYER LOAD DOOR EOEN	WCG1CLSC1	09C024D24	RELAY 4PDT DIFGLD 14PIN 24V	LOW VOLT BOX
CRLH	RELAY-COELD AT LOAD HEIGHT	WCG1CLSB1	09C024D24	RELAY 4PDT DIFGLD 14PIN 24V	LOW VOLT BOX
CRLL	RELAY-LOAD END PHOTOEYE BLOCKED	WCG1CLSB1	09C024D24	RELAY 4PDT DIFGLD 14PIN 24V	LOW VOLT BOX
CRS+	RELAY-3-WIRE	WCG1CLSB1	09C024D24	RELAY 4PDT DIFGLD 14PIN 24V	LOW VOLT BOX
CRUP	RELAY-COELD UP	WCG1CLSC1	09C024D24	RELAY 4PDT DIFGLD 14PIN 24V	LOW VOLT BOX
CS	**>>CONTACTORS**				
CSB	CONTACTOR-RUN BELT FORWARD+REV	WCG1CLSA1	09MR04B337	12A 3P REV+2N/C 120V5/6 IEC	HIGH VOLT BX
CSB	CONTACTOR-FORWARD/REVERSE BELT	WCG1CLSE	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	HIGH VOLT BX
CSX	CONTACTOR-UP/DOWN BELT	WCG1CLSA1	09MR04B337	12A 3P REV+2N/C 120V5/6 IEC	HIGH VOLT BX
CSX	CONTACTOR-UP/DOWN BELT	WCG1CLSE	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	HIGH VOLT BX
EB	**>>BUZZER-LIGHT**				
EBSG	BUZZER-OPERATOR SIGNAL	WCG1CLSA1	09H015	BUZZ.115V W/6-32 CTR+6"LEADS	HIGHT VOLT BX
EF	**>>FUSES**				
EF24	FUSE-24VOLT CONTROL CIRCUIT	WCG1CLSA1	09FF006AMA	XFMR 120-240,110-220/24V 150VA	HIGH VOLT BX
EF37	FUSE-120VOLT CONTROL CIRCUIT	WCG1CLSA	09FF004AHG	XFMR 200-240 PRI/120SEC 250VA	HIGH VOLT BX
EL	**>>LIGHT-PILOT**				
ELCTR	LIGHT-TARE	W6WTCSLC	09J080C12	LIGHTHEAD, LED, 4" ROUND CLEAR - PAR 36	LIGHT BOX
ELCWA	LIGHT-WEIGHT IS HIGH	W6WTCSLC	09J080R12	LIGHTHEAD, LED, 4" ROUND RED - PAR 36	LIGHT BOX
ELCWL	LIGHT-WEIGHT IS LOW	W6WTCSLC	09J080A12	LIGHTHEAD, LED, 4" ROUND AMBER - PAR 36	LIGHT BOX
ELCWO	LIGHT-WHEIGH IS O.K.	W6WTCSLC	09J080B12	LIGHTHEAD, LED, 4" ROUND BLUE - PAR 36	LIGHT BOX
ELD	LIGHT-BELT LOADED	WCG1CLSB	09J060A24	LAMP 1/2" AMB IDI #1090QC3-28V	SWITCH PANEL
ELS+	LIGHT-3-WIRE ON	WCG1CLSB	09J060G24	LAMP 1/2" GRN 28V IDI#1090QC5	SWITCH PANEL
ELSG	LIGHT-OPERATOR SIGNAL	WCG1CLSA	09J060WH37	LAMP 1/2" WHITE 120V TAB	SWITCH PANEL
EM	**>>EMERGENCY STOP SWITCH**				
EMSR1	SWITCH-EMERGENCY STOP LEFT	WCG1CLSA	09N505	SW ASSY EMER STOP	SIDE OF COELD
EMSR2	SWITCH-EMERGENCY STOP RIGHT	WCG1CLSA	09N505	SW ASSY EMER STOP	SIDE OF COELD
ESPS	POWER SUPPLY -120 TO +12,-12 AND 5V	W6WTCSBW1	08PSS3401T	40 WATT POWER SUPPLY TESTED	WT CNTRL BX
ET	**>>OVERLOAD**				

COMPONENT PARTS LIST

COMPONENT NUMBER	FUNCTION OF THIS COMPONENT	WHERE TO FIND THIS COMPONENT	MILNOR P/N	DESCRIPTION	LOCATION
ETB	OVERLOAD-FORWARD/REVERSE BELT	WCG1CLSE	09F025SA	0L RELAY 3P SZ1 SQD #9065-SEO5	HIGH VOLT BX
ETHT	OVERLOAD-UP/DOWN BELT	WCG1CLSE	09F025SA	0L RELAY 3P SZ1 SQD #9065-SEO5	HIGH VOLT BX
EX	**>>TRANSFORMER**				
EX24	TRANSFORMER-120V TO 24VAC	WCG1CLSF	09U027AB24	XFMR 120-240,110-220/24V 150VA	HIGH VOLT BX
EX37-1	TRANSFORMER-200-240V TO 120VAC	WCG1CLSF	09U249AA37	XFMR 200-240 PRI/120SEC 250VA	HIGH VOLT BX
EX37-1	TRANSFORMER-200-240V TO 120VAC	W6WTCSLV	09U249AA37	XFMR 200-240 PRI/120SEC 250VA	WT CNTRL BX
EX37-2	TRANSFORMER-380-480V TO 120VAC	WCG1CLSF	09U200AAB	XFMR 380-480V/240-120V 250VA	HIGH VOLT BX
EX37-2	TRANSFORMER-380-480V TO 120VAC	W6WTCSLV	09UA025AAB	XFMR 380-480PRI/120-240SEC250V	WT CNTRL BX
EX37-3	TRANSFORMER-380-480V TO 120VAC	WCG1CLSF	09U251AB37	XFMR 600VPRI/120VSC-250VA-3%RE	HIGH VOLT BX
EX37-3	TRANSFORMER-380-480V TO 120VAC	W6WTCSLV	09U251AB37	XFMR 600VPRI/120VSC-250VA-3%RE	WT CNTRL BX
PSCL	POWER SUPPLY 12VDC	W6WTCSLC	08PSS2125T	PWRSP 25W 5/12OUT 85-264VAC/IN	WT CNTRL BX
SH	**>>SWITCH-HAND OPERATED**				
SH1	SWITCH-AUTO/MANUAL	WCG1CLSB	09N405M240	SWASS N2W 4NO	SWITCH PANEL
SHAM	SWITCH-AUTO/MANUAL	WCG1CLSB	09N405M240	SWASS N2W 4NO	SWITCH PANEL
SHAM	SWITCH-AUTO/MANUAL	WCG1CLSC	09N405M240	SWASS N2W 4NO	SWITCH PANEL
SHBL	SWITCH-BELT IS LOADED	WCG1CLSB	09N405PB10	SWASS PBBK 1NO	SWITCH PANEL
SHER	SWITCH-EXTEND/RETRACT	WCG1CLSC	09N405M320	SWASS M3W 2NO	SWITCH PANEL
SHFR	SWITCH-FORWARD/REVERSE	WCG1CLSB	09N405M320	SWASS M3W 2NO	SWITCH PANEL
SHKP	KEYPAD-12 BUTTON	W6WTCSKP	08ND0206N	KEYPAD-DOME-2X6 MATRIX NUME	WT CNTRL BX
SHS+	SWITCH-START	WCG1CLSB	09N405PG10	SWASS PBGN 1NO	SWITCH PANEL
SHSG	SWITCH-SIGNAL CANCEL	W6WTCSBW1	09N405PY10	SWASS PB YELLOW INO	WT CNTRL BX
SHSMA	SWITCH-MASTER	WCG1CLSA	09N405M220	SWASS M2W 2NO	SWITCH PANEL
SHSMD	SWITCH-MASTER	W6WTCSBW1	09N405M210	SWASS M2W 1NO	WT CNTRL BX
SHSO	SWITCH-STOP	WCG1CLSB	09N405PR01	SWASS PBRD 1NC	SWITCH PANEL
SHTAR	SWITCH-MANUAL TARE	W6WTCSBW1	09N405PB11	SWASS PBBK 1NO/1NC	WT CNTRL BX
SHUD	SWITCH-UP/DOWN	WCG1CLSC	09N405M320	SWASS M3W 2NO	SWITCH PANEL
SKPR	KEY SWITCH-PROGRAMMING	W6WTCSBW1	09N127C	KEYSW SPST 7A120VAC SCREW TERM	WT CNTRL BX
SM	**>>SWITCH-MECHANICAL**				
SMB1	SWITCH-BUMP BELT FRWRD WHEN LOAD	WCG1CLSA	09R012STDG	82026# * 09R012 +MOUNTING HDWRE+INST	SIDE OF BELT
SMB2	SWITCH-BUMP BELT FRWRD WHEN LOAD	WCG1CLSA	09R012STDG	82026# * 09R012 +MOUNTING HDWRE+INST	SIDE OF BELT
SMDH	SWITCH-COELD AT DISCHARGE	WCG1CLSC	09RM01412S	CAPSW 12'ROTARY ACTUATE SILVER	SIDE OF BELT
SMDN	SWITCH-DOWN LIMIT	WCG1CLSC	09RM01412S	CAPSW 12'ROTARY ACTUATE SILVER	SIDE OF BELT
SMFE	SWITCH-FULLY EXTENDED	WCG1CLSC	09RM01412S	CAPSW 12'ROTARY ACTUATE SILVER	SIDE OF BELT

COMPONENT PARTS LIST

WCG1CTPL/2014374N

COMPONENT NUMBER	FUNCTION OF THIS COMPONENT	WHERE TO FIND THIS COMPONENT	MILNOR P/N	DESCRIPTION	LOCATION
SMFR	SWITCH-FULLY RETRACTED	WCG1CLSC	09RM01412S	CAPSW 12'ROTARY ACTUATE SILVER	SIDE OF BELT
SMLH	SWITCH-COELD AT LOAD HEIGHT	WCG1CLSB	09RM01412S	CAPSW 12'ROTARY ACTUATE SILVER	SIDE OF BELT
SMUP	SWITCH-UP LIMIT	WCG1CLSC	09RM01412S	CAPSW 12'ROTARY ACTUATE SILVER	SIDE OF BELT
VE	**>>VALVE**				
VEEX	VALVE-EXTEND BELT	WCG1CLSC	96R301A24	1/8" AIRPILOT 3W NC 24V50/60	VALVE BOX
VERT	VALVE-RETRACT BELT	WCG1CLSC	96R302A24	1/8" AIRPILOT 3W NC 24V50/60	VALVE BOX

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PELLERIN MILNOR CORPORATION
LIMITED STANDARD WARRANTY

We warrant to the original purchaser that MILNOR machines including electronic hardware/software (hereafter referred to as "equipment"), will be free from defects in material and workmanship for a period of one year from the date of shipment (unless the time period is specifically extended for certain parts pursuant to a specific MILNOR published extended warranty) from our factory with no operating hour limitation. This warranty is contingent upon the equipment being installed, operated and serviced as specified in the operating manual supplied with the equipment, and operated under normal conditions by competent operators.

Providing we receive written notification of a warranted defect within 30 days of its discovery, we will at our option repair or replace the defective part or parts, FOB our factory. We retain the right to require inspection of the parts claimed defective in our factory prior to repairing or replacing same. We will not be responsible, or in any way liable, for unauthorized repairs or service to our equipment, and this warranty shall be void if the equipment is tampered with, modified, or abused, used for purposes not intended in the design and construction of the machine, or is repaired or altered in any way without MILNOR's written consent.

Parts damaged by exposure to weather, to aggressive water, or to chemical attack are not covered by this warranty. For parts which require routine replacement due to normal wear such as gaskets, contact points, brake and clutch linings, belts, hoses, and similar parts the warranty time period is 90 days.

We reserve the right to make changes in the design and/or construction of our equipment (including purchased components) without obligation to change any equipment previously supplied.

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BIUUUD19 (Published) Book specs- Dates: 20081231 / 20081231 / 20081231 Lang: ENG01 Applic: UUU

How to Get the Necessary Repair Components

This document uses Simplified Technical English.
Learn more at http://www.asd-ste100.org.

You can get components to repair your machine from the approved supplier where you got this machine. Your supplier will usually have the necessary components in stock. You can also get components from the Milnor® factory.

Tell the supplier the machine model and serial number and this data for each necessary component:

- The component number from this manual
- The component name if known
- The necessary quantity
- The necessary transportation requirements
- If the component is an electrical component, give the schematic number if known.
- If the component is a motor or an electrical control, give the nameplate data from the used component.

To write to the Milnor factory:

Pellerin Milnor Corporation
Post Office Box 400
Kenner, LA 70063-0400
UNITED STATES

Telephone: 504-467-2787
Fax: 504-469-9777
Email: parts@milnor.com

— End of BIUUUD19 —

BIUUUK01 (Published) Book specs- Dates: 20130308 / 20130308 / 20130308 Lang: ENG01 Applic: PCR UUU

How to Use Milnor® Electrical Schematic Diagrams

Milnor® electrical schematic manuals contain a table of contents/component list and a set of schematic drawings. These documents are cross referenced and must be used together.

The table of contents/components list shows, for every component on every schematic in the manual, the component item number (explained in detail below), statement of function, parent schematic number, part number, description and electric box location. In older manuals, two component lists are provided: List 1 sorts the components by function, and List 2 by type of component. Newer schematic manuals include only the list sorted by component number.

The schematic drawings use symbols for each electromechanical component, and indicate the function of each. Integrated circuits are not shown, but the function of each microprocessor input and output is stated. Certain electrical components not pertinent to circuit logic, such as wire connectors, are not represented on the schematic.

Most machines require several schematics to describe the complete control system and all the options available on the included models. In most manuals there are some schematic pages that don't apply to your specific machine because certain options and configurations are mutually exclusive or are not necessary in all markets. You may find it helpful to mark or remove such pages. A schematic page that only applies to a subset of machines will normally state, in the title, which models and/or options it covers. Compare this with the nameplate on your machine and with your purchase records.

Each schematic is devoted to circuits with common functions (e.g., microprocessor inputs, motor contactors). Schematics appear in the manual in alphanumeric order.

1. Component Prefix Classifications and Descriptions

Component item numbers consist of up to six characters and appear as part of a component's symbol on the schematic. The first two characters indicate the general class of component, and the remaining characters are a mnemonic for the function. For example, “CD” is the code for all time delay relays, and “SR” stands for safety reset. Thus, CDSR is a time delay relay that serves as a safety reset.

The following are descriptions of electrical components used in Milnor® machines. Descriptions are in alphabetical order by the component class code (two character prefix).

> **Note 1:** Some component class codes do not have a corresponding symbol, but are represented by a box and an accompanying note describing the component. Examples of such codes are BA (printed circuit board), ED (electronic display), and ES (electronic power supply).

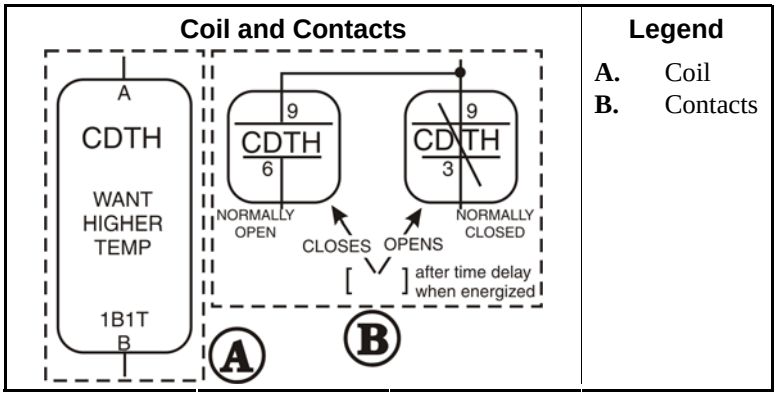
BA=Printed Circuit Board—Insulating substrate on which a thin pattern of copper conductors has been formed to connect discrete electronic components also mounted on the board.

CB=Circuit Breaker (Figure 1)—Automatic switch that opens an electric circuit in abnormal current conditions (e.g., an overload).

Figure 1: Circuit Breaker (CB)

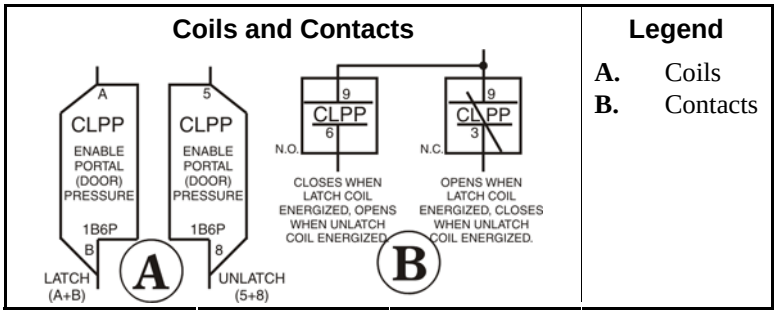
CD=Control, Time Delay Relay (Figure 2)—A relay whose contacts switch only after a fixed or adjustable delay, once voltage has been applied to its coil. The contacts switch back to normal (de-energized state) immediately when the voltage is removed.

Figure 2: Time Delay Relay (CD)



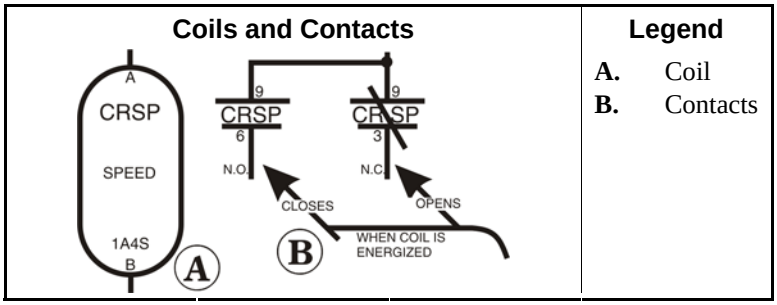
CL=Control, Latch Relay (Figure 3)—A relay which latches in an energized or set position when operated by one coil (the latch/set coil). The relay stays latched even though coil voltage is removed. The relay releases or unlatches when voltage is applied to a second coil (the unlatch/reset coil).

Figure 3: Latch Relay (CL)



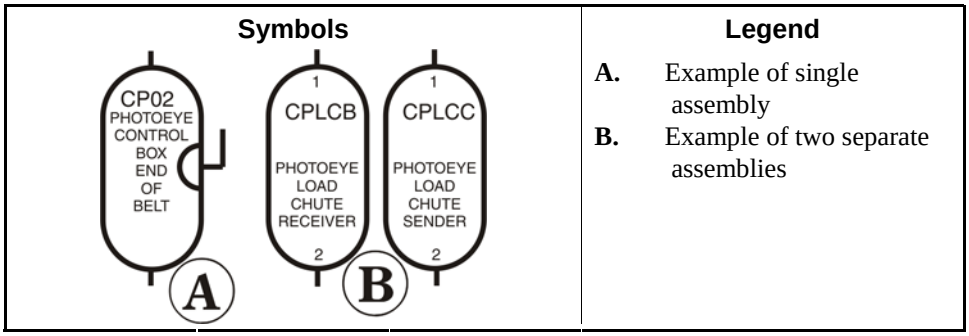
CR=Control, Relay (Figure 4)—A relay whose contacts switch immediately when voltage is applied to its coil and revert to normal when the voltage is removed.

Figure 4: Standard Relay (CR)



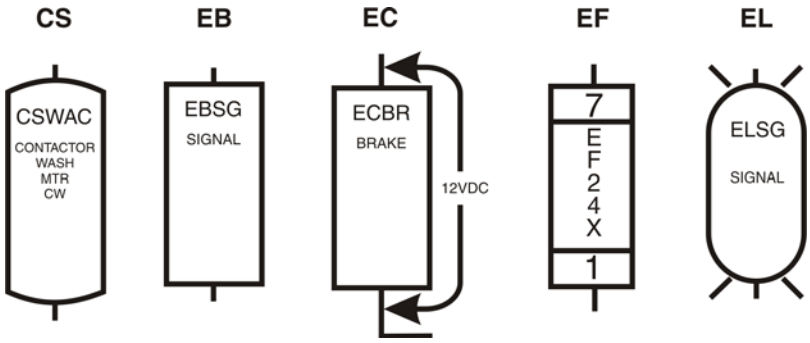
CP=Control, Photo-Eye (Figure 5)—Photo-eyes sense the presence of an object without direct physical contact. Photo-eyes consist of a transmitter, receiver, and output module. These components may be housed in one assembly with the transmitter bouncing light off of a reflector to the receiver, or these components can be housed in two separate assemblies with the transmitter pointed directly at the receiver. The photo-eye can be set to turn on its output either when the light beam becomes blocked (dark operate) or when it becomes un-blocked (light operate).

Figure 5: Photo-eye (CP)



CS=Control, Contactor/Motor Starter (Figure 6)—A relay capable of handling heavier electrical loads, usually a motor.

Figure 6: Other Control Symbols



EB=Electric Buzzer (Figure 6)—An audible signaling device.

EC=Electric Clutch (Figure 6)—A clutch consists of a coil and a rotor. The rotor has two separate rotating plates. These plates are free to rotate independent of each other until the coil is energized. Once energized the two plates turn as one.

ED=Electronic Display—A visual presentation of data, such as an LCD (liquid crystal display), LED (light emitting diode) display, or VFD (vacuum florescent display).

EF=Electric Fuse (Figure 6)—A fuse is an over-current safety device with a circuit opening fusible member which is heated and severed by the passage of over-current through it.

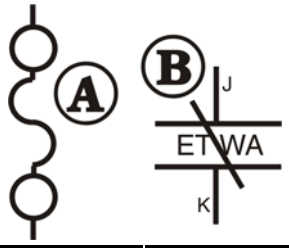
EL=Electric Light (Figure 6)—Indicator lights may be either incandescent or fluorescent.

EM=Electro Magnet Solenoid—A device consisting of a core surrounded by a wire coil through which an electric current is passed. While current is flowing, iron is attracted to the core (e.g., a pinch tube drain valve solenoid).

ES=Electronic Power Supply—A device that converts AC (alternating current) to filtered and regulated DC (direct current). The input voltage to the power supply is usually 120 or 240 VAC. The output is +5, +12, and -12 VDC.

ET=Thermal Overload (Figure 7)—A safety device designed to protect a motor. A thermal overload consists of an overload block, heaters, and an auxiliary contact. The auxiliary contact is normally installed in a safety (three-wire) circuit that stops power to the motor contactor coil when a motor overload occurs.

Figure 7: Thermal Overload (ET)

Schematic Symbol	Legend
	**A.** Heater (one per phase) **B.** Overload relay; contacts open if overload condition exists

EX=Electrical Transformer (Figure 8)—A device that transfers electrical energy from one isolated circuit to another, often raising or lowering the voltage in the process.

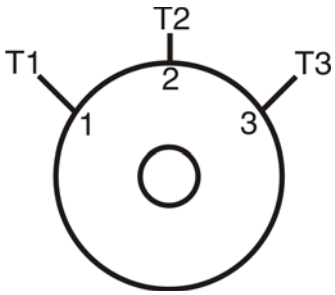
KB=Keyboard—Device similar to a typewriter for making entries to a computer.

MN=Electronic Monitor (CRT)—A cathode ray tube used for visual presentation of data.

MR=Motors (Figure 9)—Electromechanical device that converts electrical energy into mechanical energy.

Figure 8: Transformer (EX)

Figure 9: Electric Motor (MR)

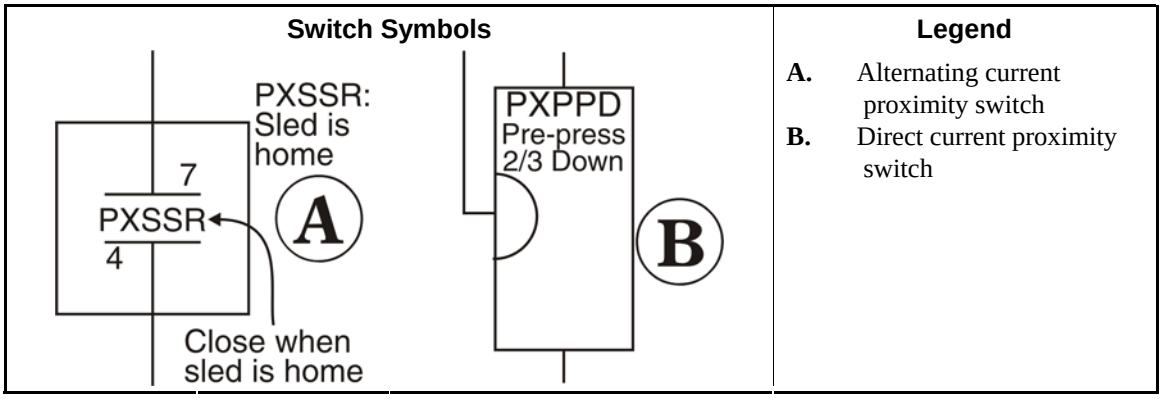


MV=Motor (Variable Speed) Inverter—To vary the speed of an AC motor, the volts to frequency ratio must be kept constant. The motor will overheat if this ratio is not maintained. The motor variable speed inverter converts three phase AC to DC. The inverter then uses this DC voltage to generate AC at the proper voltage and frequency for the commanded speed.

Note 2: Switch symbols used in the schematics and described below always depict the switch in its un-actuated state.

PX=Proximity Switch (Figure 10)—A device which reacts to the proximity of an target without physical contact or connection. The actuator or target causes a change in the inductance of the proximity switch which causes the switch to operate. Proximity switches can be two-wire (AC) or three-wire (DC) devices.

Figure 10: Proximity Switches (PX)



SC=Switch, Cam Operated (Figure 11)—A switch in which the electrical contacts are opened and/or closed by the mechanical action of a cam(s). Applications include 35-50 pound timer operated machines, Autospot, timer reversing motor assembly, and some balancing systems.

SH=Switch, Hand Operated (Figure 12)—A switch that is manually operated (e.g., *Start button*, *Master switch*, etc.).

Figure 11: Cam Switch (SC)

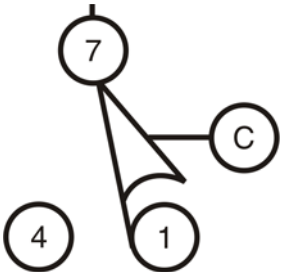
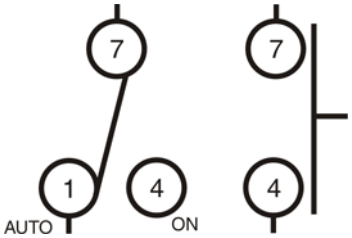


Figure 12: Hand Operated Switch (SH)



SK=Switch, Key Lock (Figure 13)—A switch that requires a key to operate. This prevents unauthorized personnel from gaining access to certain functions (e.g., the *Program menu*).

SL=Switch, Level Operated (Figure 14)—A switch connected to a float that causes the switch to open and close as the level changes.

Figure 13: Key Switch (SK)

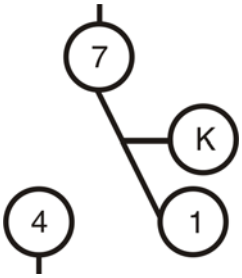
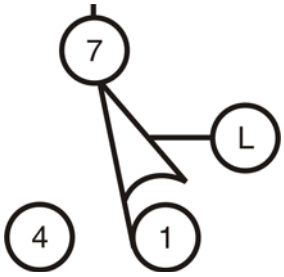


Figure 14: Level Switch (SL)



SM=Switch, Mechanically Operated (Figure 15)—A switch that is mechanically operated by a part of or the motion of the machine (e.g., door closed switch, tilt limit switches, etc.)

SP=Switch, Pressure Operated (Figure 16)—A switch in which a diaphragm presses against a switch actuator.

Figure 15: Mechanical Switch (SM)

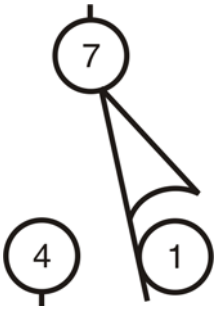
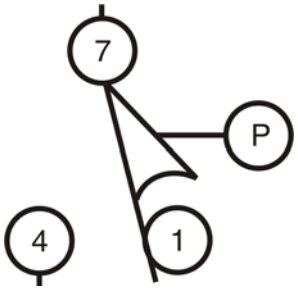


Figure 16: Pressure Switch (SP)



ST=Switch, Temperature Operated (Figure 17)—A switch that is actuated at a preset temperature (e.g., dryer safety probes) or has adjustable set points (e.g., Motometers or Combistats).

TB=Terminal Board (Figure 18)—A strip or block for attaching or terminating wires.

Figure 17: Temperature Switch (ST)

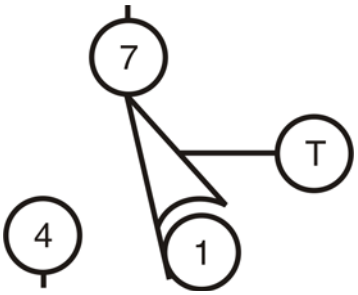
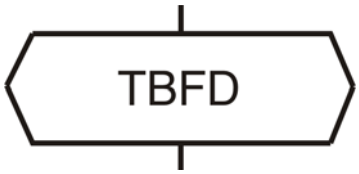


Figure 18: Terminal Board (TB)



VE=Valve, Electric Operated (Figure 19)—A valve operated by an electric coil to control the flow of fluid. The fluid can be air, water or hydraulic.

Figure 19: Electrically Operated Valve (VE)

ZF=Rectifier (Figure 20)—A solid state device that converts alternating current to direct current.

Figure 20: Bridge Rectifier (ZF)

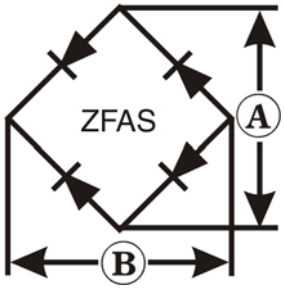
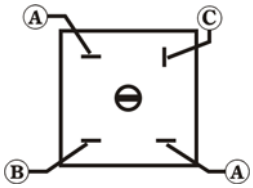
Component Symbol	Legend
	**A.** Alternating current input **B.** Direct current output

Figure 21: Bridge Rectifier

Component	Legend
	**A.** Alternating current in **B.** Negative direct current out **C.** Positive direct current out

WC=Wiring Connector—A coupling device for joining two cables or connecting a cable to an electronic circuit or piece of equipment. Connectors are male or female, according to whether they plug into or receive the mating connector.

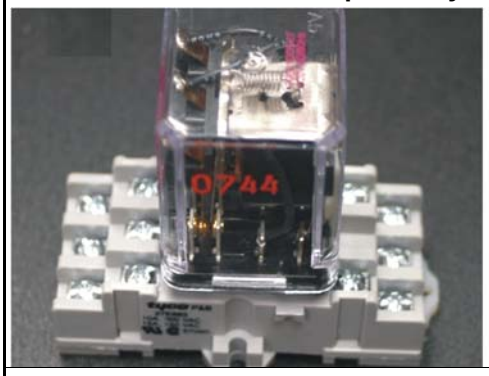
2. Component Terminal Numbering

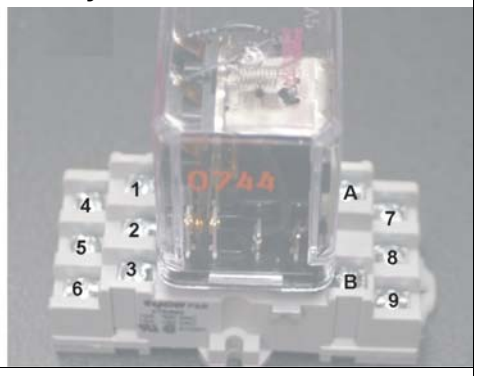
CAUTION 1: Risk of Mis-wiring—Due to electrical component manufacturing inconsistencies, the pin numbers imprinted on components such as connectors and relay bases used on Milnor machines often do not correspond to the pin numbers shown in the schematics.

- Ignore pin numbers imprinted on in-line connectors (e.g., Molex connectors) and relay bases.
- Use the pin identification illustrations herein to identify pins on these components.

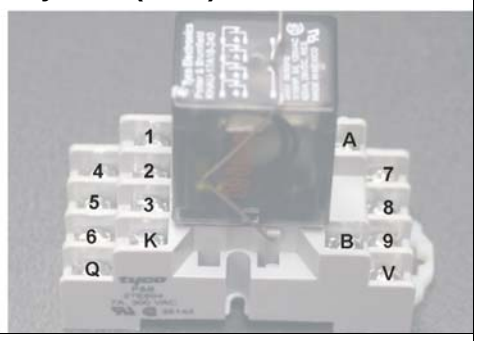
Figure 22: Plug-in Relays

11-pin Relay with Grey Base

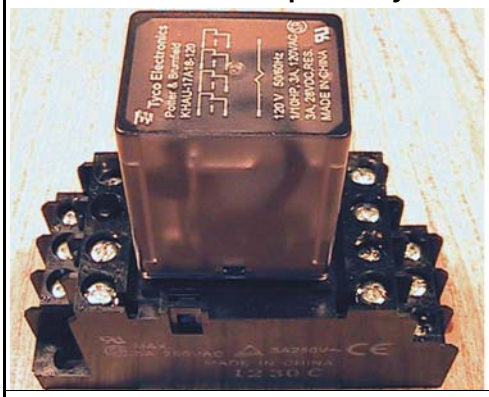


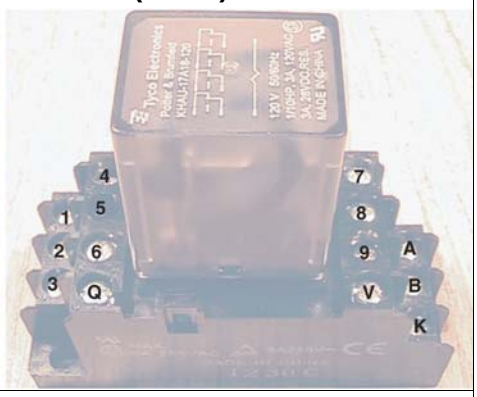


14-pin Relay with Grey Base (older)

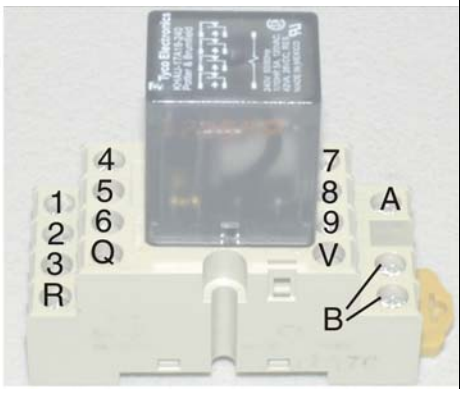


14-pin Relay with Black Base (newer)





14-pin Relay with Beige Base (rare)



Legend

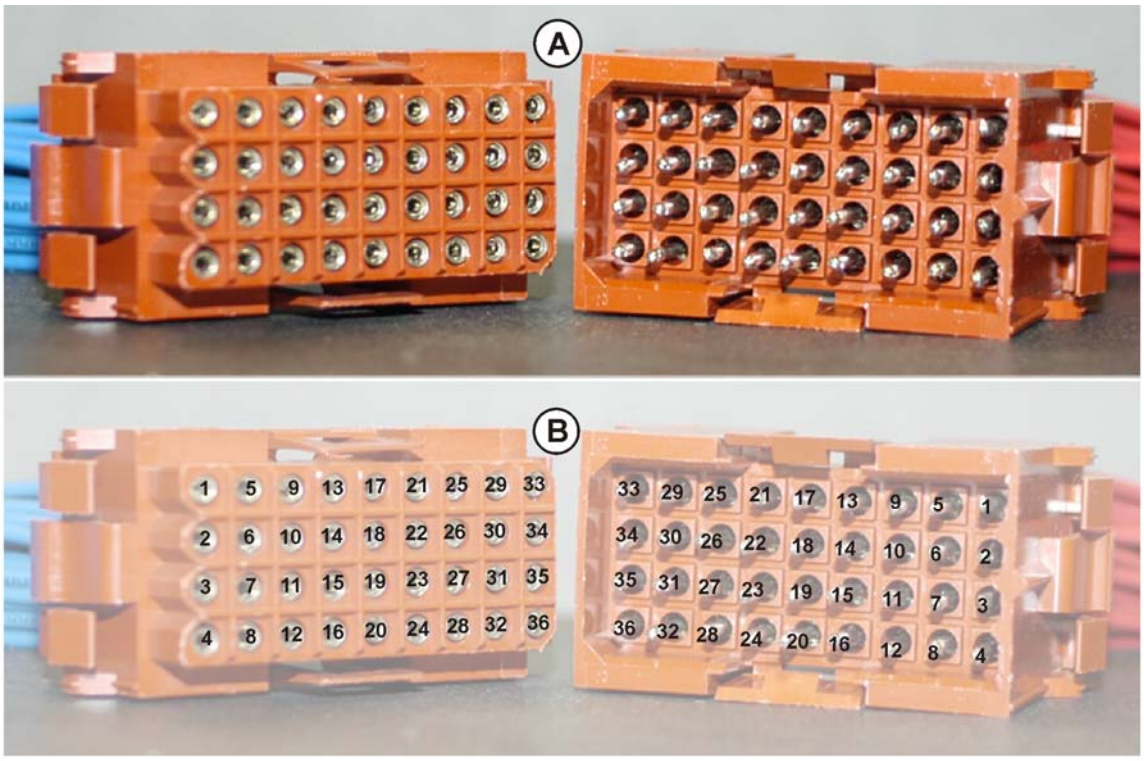
Left. View of relay and base

Right. Same view, showing pin numbers

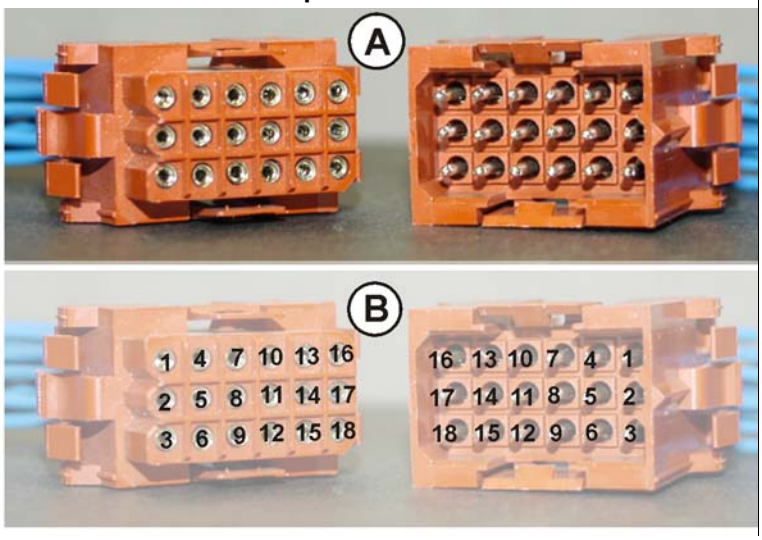
Note 3: Relay functional names ending with the letter "M" (e.g., CRxxM) are not discrete components but are a component of a printed circuit board. They are usually not individually replaceable.

Figure 23: AMP Connector Pin Locations

36-pin Connector



18-pin Connector

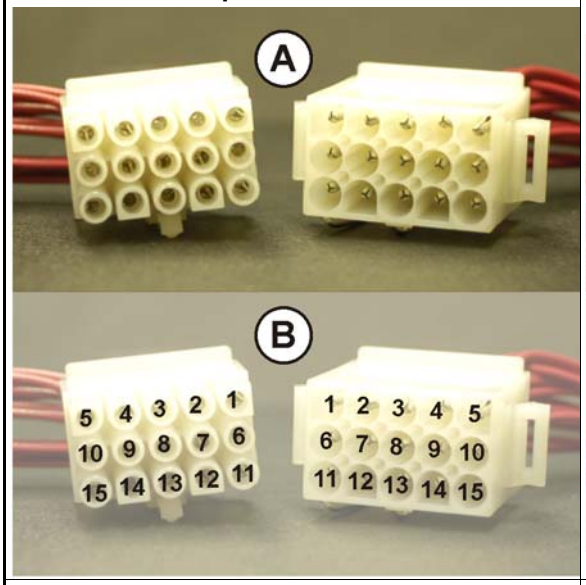


Legend

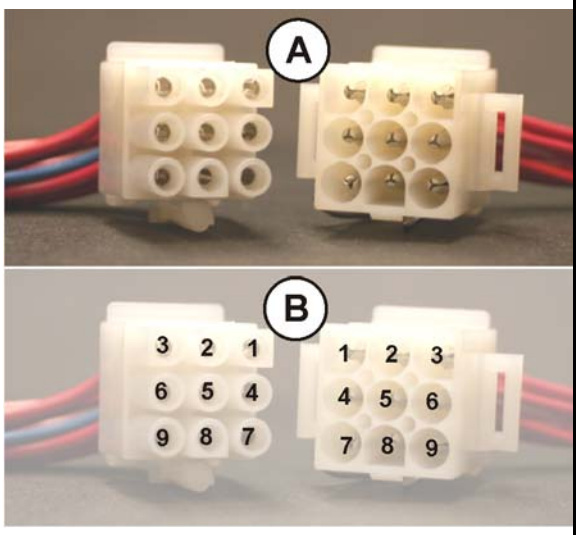
A. View of mating halves of connector
B. Same view, showing assigned pin numbers

Figure 24: Molex Connector Pin Locations

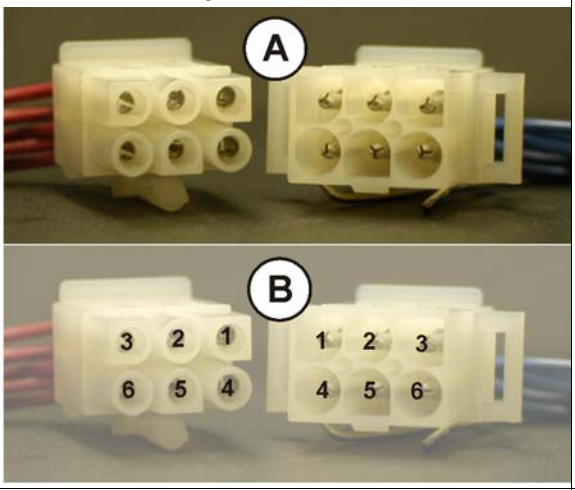
15-pin Connector



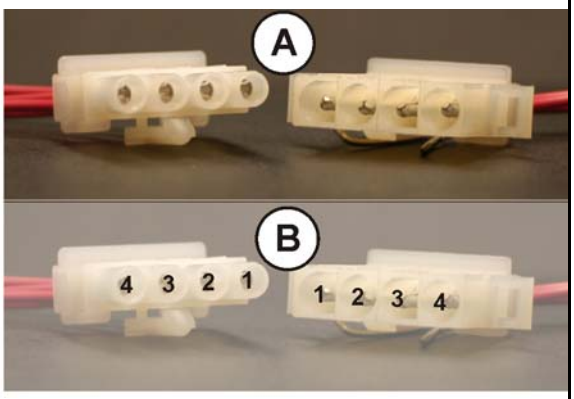
9-pin Connector



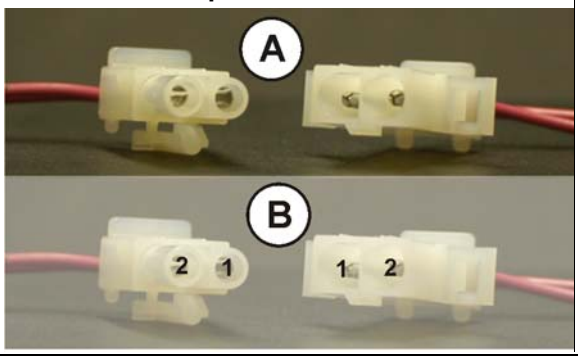
6-pin Connector



4-Pin Connector



2-pin Connector



Legend

A. View of mating halves of connector
B. Same view, showing assigned pin numbers

Figure 25: Pressure Switch

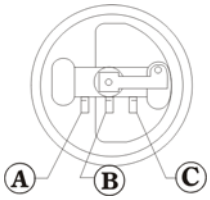
Component	Legend
	**A.** Contact 1—Normally open **B.** Contact 2—Normally closed **C.** Contact 3—Common

Figure 26: Toggle Switch

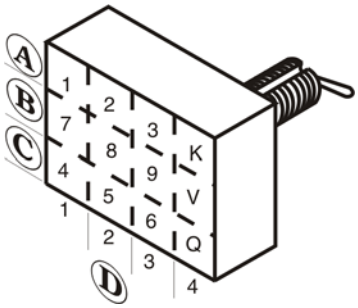
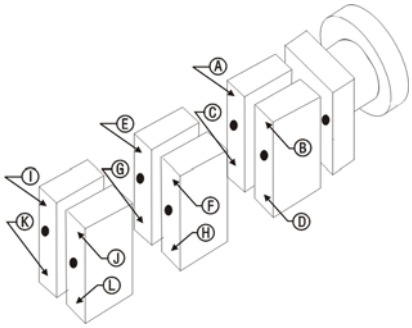
Component	Legend
	**A.** Normally closed contacts **B.** Common contacts **C.** Normally open contacts **D.** Pole

Figure 27: Switch with Replaceable Contact Blocks

Rotary or Push-button Switch Component	Legend
	**A.** Terminal 7 **B.** Terminal 8 **C.** Terminal 4 if normally open; terminal 1 if normally closed **D.** Terminal 5 if normally open; terminal 2 if normally closed **E.** Terminal V **F.** Terminal 9 **G.** Terminal Q if normally open; terminal K if normally closed **H.** Terminal 6 if normally open; terminal 3 if normally closed **I.** Terminal W **J.** Terminal X **K.** Terminal R if normally open; terminal L if normally closed **L.** Terminal S if normally open; terminal M if normally closed

3. Features of Milnor® Electrical Schematic Diagrams

Document BMP010012 (following this section) is a sample schematic, based on a schematic diagram for the Milnor® gas dryer. For the purposes of this exercise, the schematic is shown gray and explanations of the items on the schematic are shown black.

The item numbers below correspond to the circled item numbers shown on the drawing.

1. The first six characters of the drawing number (W6DRYG) indicate that this is a wiring diagram (W), identify the generation of controls (6), and identify the type of machine (DRYG=Gas Dryer). These characters appear in the drawing number of every schematic in the set.

   The characters following the first six are unique to each drawing. The two characters identified as the page number are an abbreviation for the function performed by the depicted

circuitry (S+=three-wire circuit) and establish the order in which the schematic occurs in the manual (schematics are arranged in alpha-numeric order in the manual).

Whenever circuitry changes are significant enough to warrant publishing a new schematic drawing, the new drawing number will be the same as the old except for the major revision letter (A in the example).

2. Included in the drawing title are the class of control system, the title of this circuit, and the circuit voltage.
3. Line numbers are provided along the bottom edge of the drawing. These permit service personnel in the field and at the Milnor® factory to quickly relate circuit locations when discussing troubleshooting over the phone. Page and line numbers are referenced on the drawing as explained in items five and six below.
4. Relay contacts show the page and line number on which the relay coil may be found. This is the type of cross referencing most frequently used in troubleshooting.
5. Relay coils show the page and line number on which its associated contacts are located.
6. Relay contacts and relay coils show the physical location of the relay.
7. The designation MTA applies to electronic circuit board connections. Typically, a control system will contain several different types of circuit boards and one or more boards of each type. A numerical suffix identifies the board type and a numerical prefix identifies which one of several boards of a given type is being depicted. For example, the designation 1MTA5 identifies this as the first I/O board (8 output, 16 input board) in the control system. As shown on the drawing, a pin number follows the board number, separated by a dash. Thus, 1MTA5-9 is pin 9 on this board. The numerical designations for board types vary from one control system to another. Some of the board types commonly encountered on the Mark V and Mark VI washer-extractor control and their designations are as follows:
   - MTM1-MTM8 = Mother board
   - MTA1-MTA5 = 8 output, 16 input (8/16) boards
   - MTA11-MTA14 = 24 output boards
   - MTA30-MTA40 = processor boards
   - MTA41-MTA43 = digital to analog (D/A) boards
   - MTA51-MTA55 = analog to digital (A/D) boards
   - MTA81-MTA85 = balance A-D board

   The complete listing of the boards utilized in a given control system can be found in the component list for that system.
8. Wire numbers, as described earlier in this section, are shown at appropriate locations on the schematic drawing.
9. Where diamond symbols appear at the end of a conductor, these are match points for continuing the schematic on another drawing. The page and line number that continues the circuit is printed adjacent to the diamond symbol. Where more than one match point appears on the referenced page, match diamonds containing corresponding letters.

— End of BIUUUK01 —

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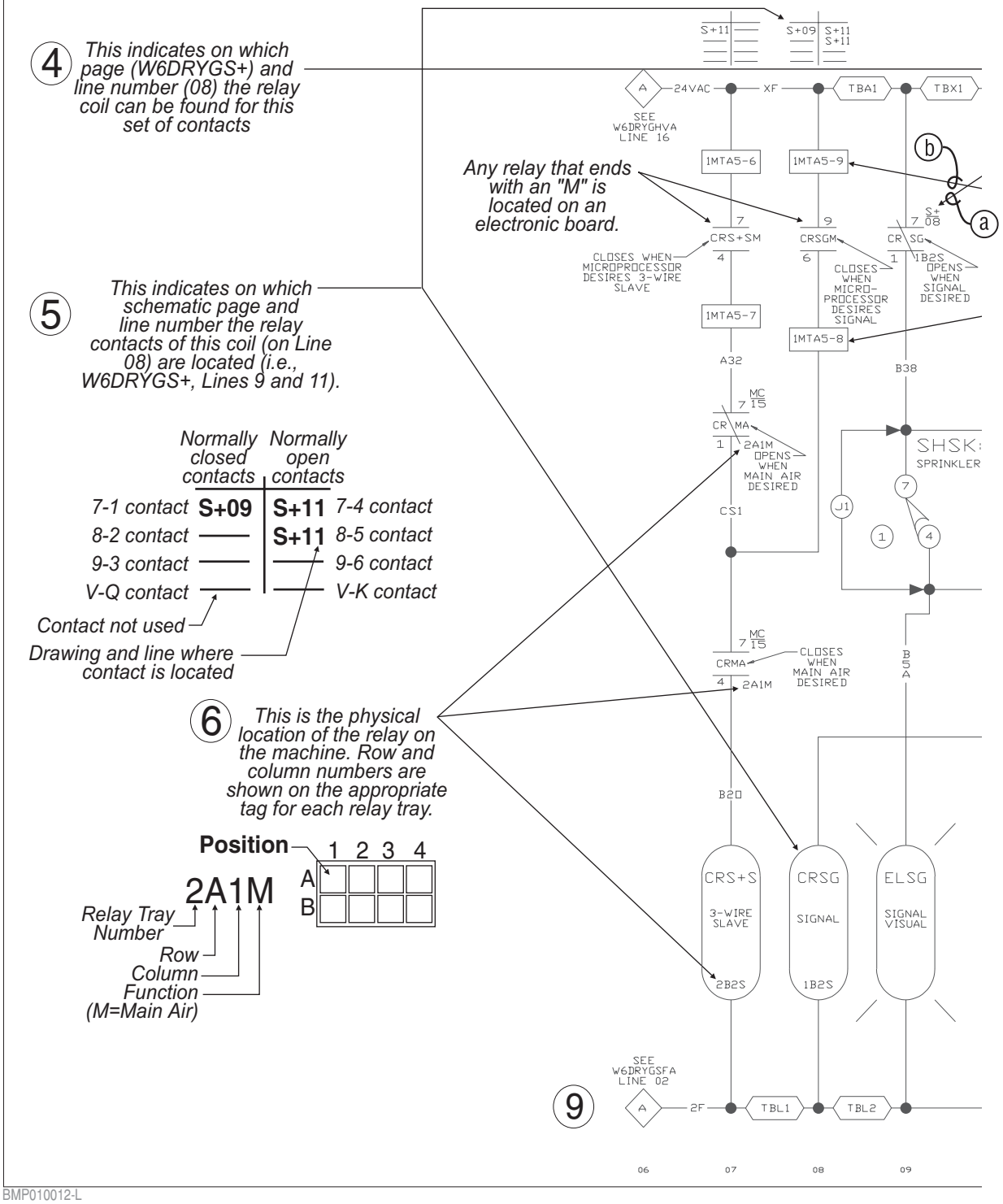
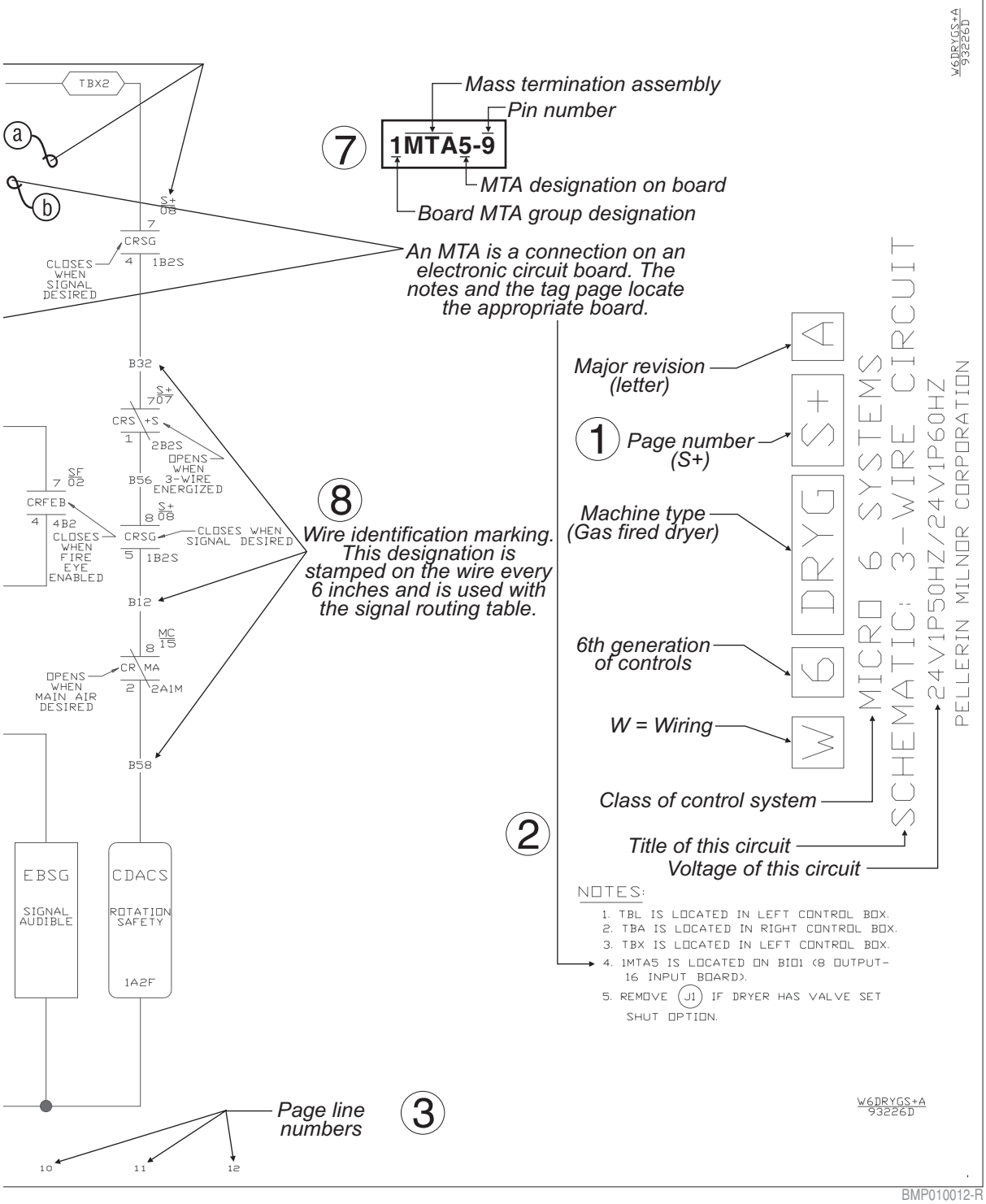
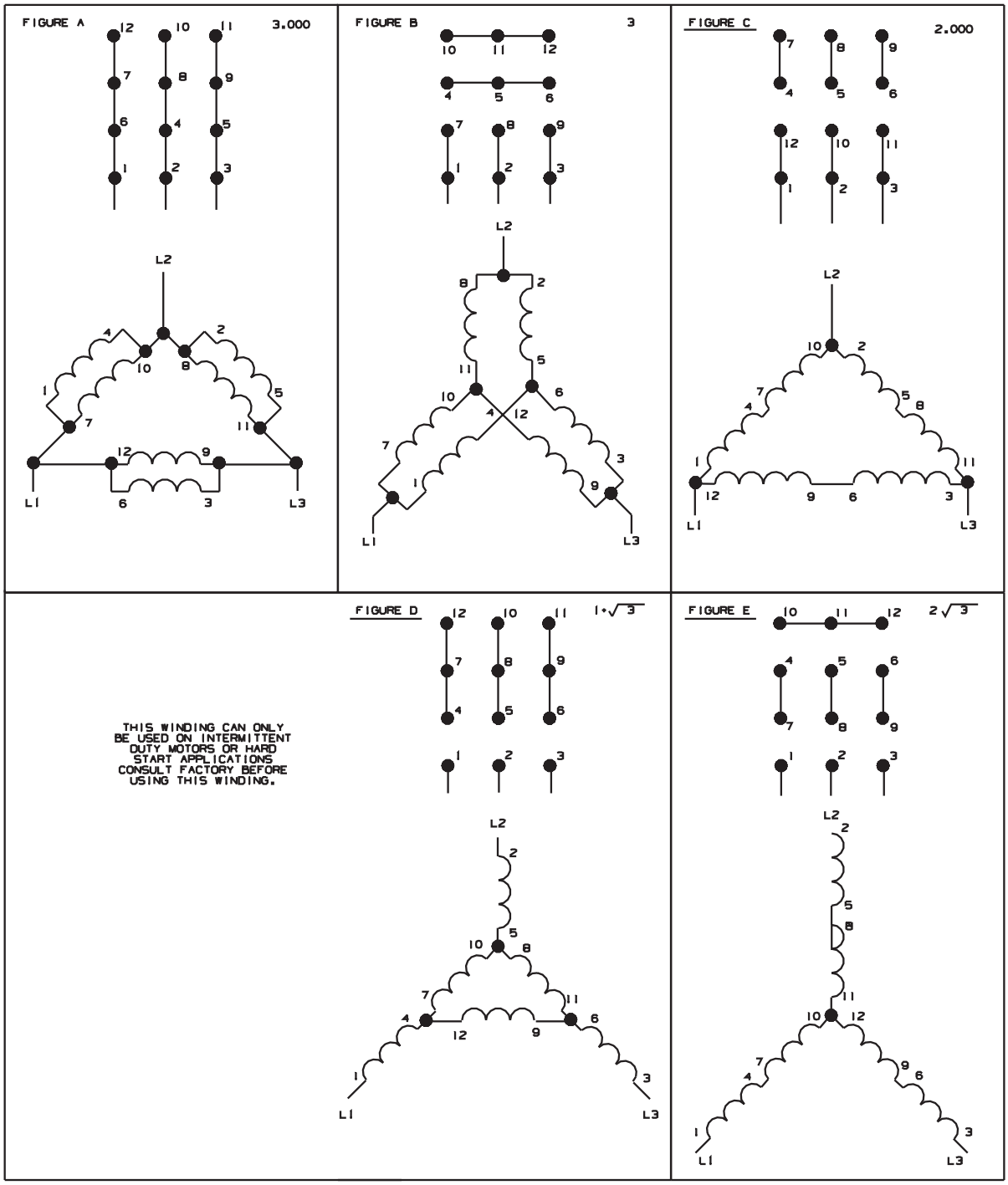

4
This indicates on which page (W6DRYGS+) and line number (08) the relay coil can be found for this set of contacts
5
This indicates on which schematic page and line number the relay contacts of this coil (on Line 08) are located (i.e., W6DRYGS+, Lines 9 and 11).
Normally closed contacts
Normally open contacts
7-1 contact S+09 S+11 7-4 contact
8-2 contact S+11 8-5 contact
9-3 contact 9-6 contact
V-Q contact V-K contact
Contact not used
Drawing and line where contact is located
6
This is the physical location of the relay on the machine. Row and column numbers are shown on the appropriate tag for each relay tray.
Position 1 2 3 4
A
B
2A1M
Relay Tray Number
Row
Column
Function (M=Main Air)
Any relay that ends with an "M" is located on an electronic board.
S+11
S+09 S+11 S+11
A
24VAC
XF
TBA1
TBX1
SEE W6DRYGHVA LINE 16
1MTA5-6
1MTA5-9
b
a
S+08
CRS+SM
CRSGM
CR SG
CLOSES WHEN MICROPROCESSOR DESIRES 3-WIRE SLAVE
CLOSES WHEN MICRO-PROCESSOR DESIRES SIGNAL
1B2S OPENS WHEN SIGNAL DESIRED
1MTA5-7
1MTA5-8
A32
B38
MC 15
CR MA
2A1M OPENS WHEN MAIN AIR DESIRED
SHSK
SPRINKLER
CS1
J1
CRMA
CLOSES WHEN MAIN AIR DESIRED
B5A
B20
CRS+S
3-WIRE SLAVE
2B2S
CRSG
SIGNAL
1B2S
ELSG
SIGNAL VISUAL
SEE W6DRYGSFA LINE 02
9
2F
TBL1
TBL2
06
07
08
09

BMP010012-L


W6DRYGS+A
93226D
TBX2
a
b
Mass termination assembly
Pin number
7
1MTA5-9
MTA designation on board
Board MTA group designation
An MTA is a connection on an electronic circuit board. The notes and the tag page locate the appropriate board.
S+ 08
7
CRSG
4
1B2S
CLOSES WHEN SIGNAL DESIRED
B32
S+ 707
CRS
1
+S
2B2S
OPENS WHEN 3-WIRE ENERGIZED
B56
SF 7 02
CRFEB
4
4B2
CLOSES WHEN FIRE EYE ENABLED
S+ 8 08
CRSG
5
1B2S
CLOSES WHEN SIGNAL DESIRED
8
Wire identification marking. This designation is stamped on the wire every 6 inches and is used with the signal routing table.
B12
MC 8 15
CR
2
MA
2A1M
OPENS WHEN MAIN AIR DESIRED
B58
EBSG
SIGNAL AUDIBLE
CDACS
ROTATION SAFETY
1A2F
Page line numbers
3
10
11
12
Major revision (letter)
1
Page number (S+)
Machine type (Gas fired dryer)
6th generation of controls
W = Wiring
Class of control system
2
Title of this circuit
Voltage of this circuit
W 6 DRYG S+ A
MICRO 6 SYSTEMS
SCHEMATIC: 3-WIRE CIRCUIT
24V1P50HZ/24V1P60HZ
PELLERIN MILNOR CORPORATION
NOTES:
1. TBL IS LOCATED IN LEFT CONTROL BOX.
2. TBA IS LOCATED IN RIGHT CONTROL BOX.
3. TBX IS LOCATED IN LEFT CONTROL BOX.
4. 1MTA5 IS LOCATED ON BIO1 (8 OUTPUT-16 INPUT BOARD).
5. REMOVE J1 IF DRYER HAS VALVE SET SHUT OPTION.
W6DRYGS+A
93226D

BMP010012-R

FIGURE	ELECTRICAL VALUES	SUFFIXES									
		B		H		M		T		U	
		50HZ	60HZ	50HZ	60HZ	50HZ	60HZ	50HZ	60HZ	50HZ	60HZ
A	1.000	208	230			200	220	220	240	200-220	208-240
B	$\sqrt{3}$				208	346	380	380		346-380	380
C	2.000	416	460	220	240	400	440	440	480	400-440	440-480
D	$1+\sqrt{3}$						600				600
E	$2\sqrt{3}$			380							



06 07 08 09 10 11 12 13 14 15 16 17

BMP850029

MOTOR CONNECTION DIAGRAMS

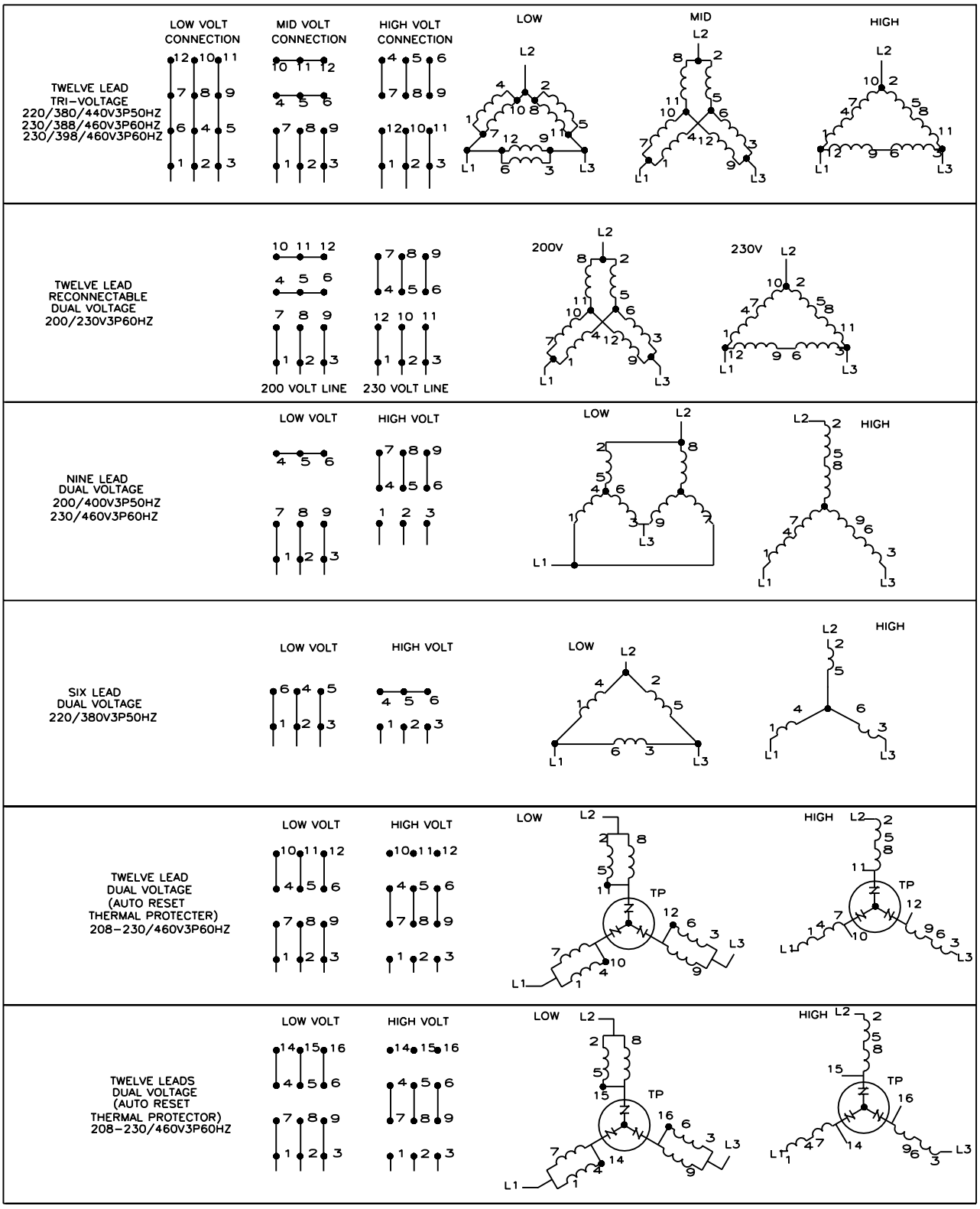
THREE PHASE SINGLE SPEED MOTORS WITH MULTIPLE VOLTAGE RATINGS

(ONLY FOR MOTOR SUFFIXES LISTED)

PELLERIN MILNOR CORPORATION

BMP850029
993628

BMP850029
993628

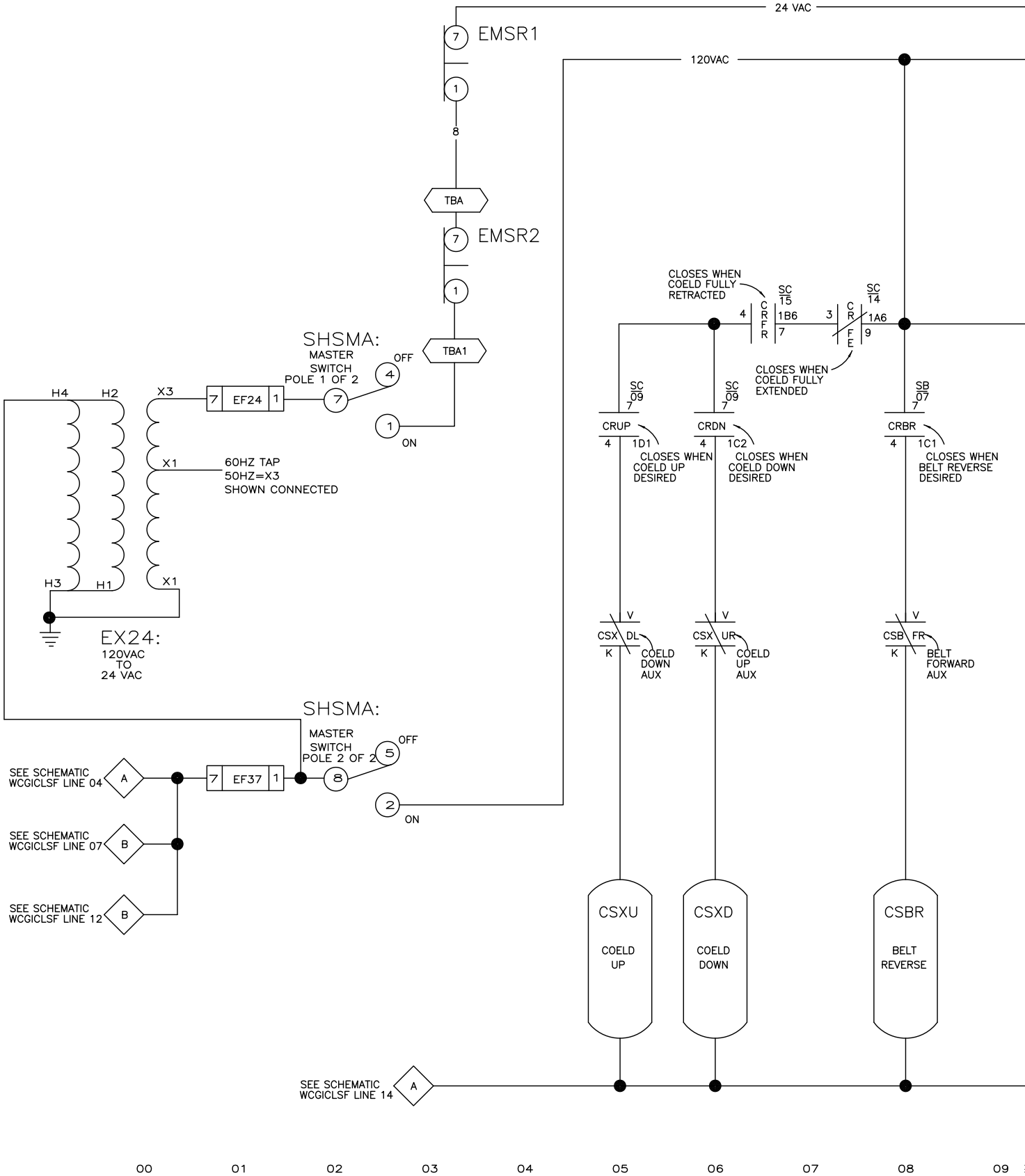


W80008

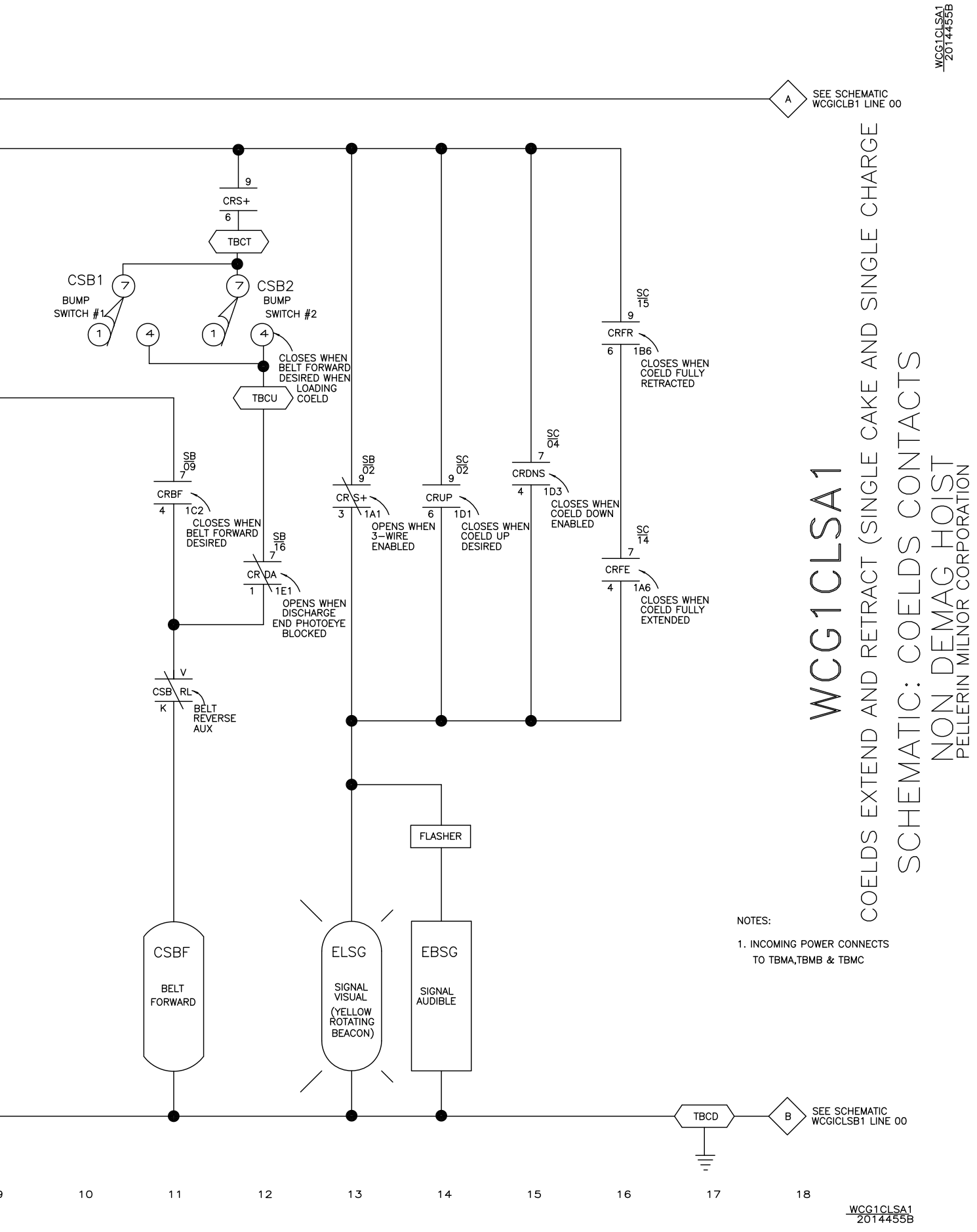
THREE PHASE
MOTOR CONNECTION DIAGRAMS
SINGLE SPEED MOTORS WITH MULTIPLE VOLTAGE RATINGS

PELLERIN MILNOR CORPORATION

W80008
2001253A



WCG1CLSA1
2014455B



WCG1CLSA1

COELDS EXTEND AND RETRACT (SINGLE CAKE AND SINGLE CHARGE

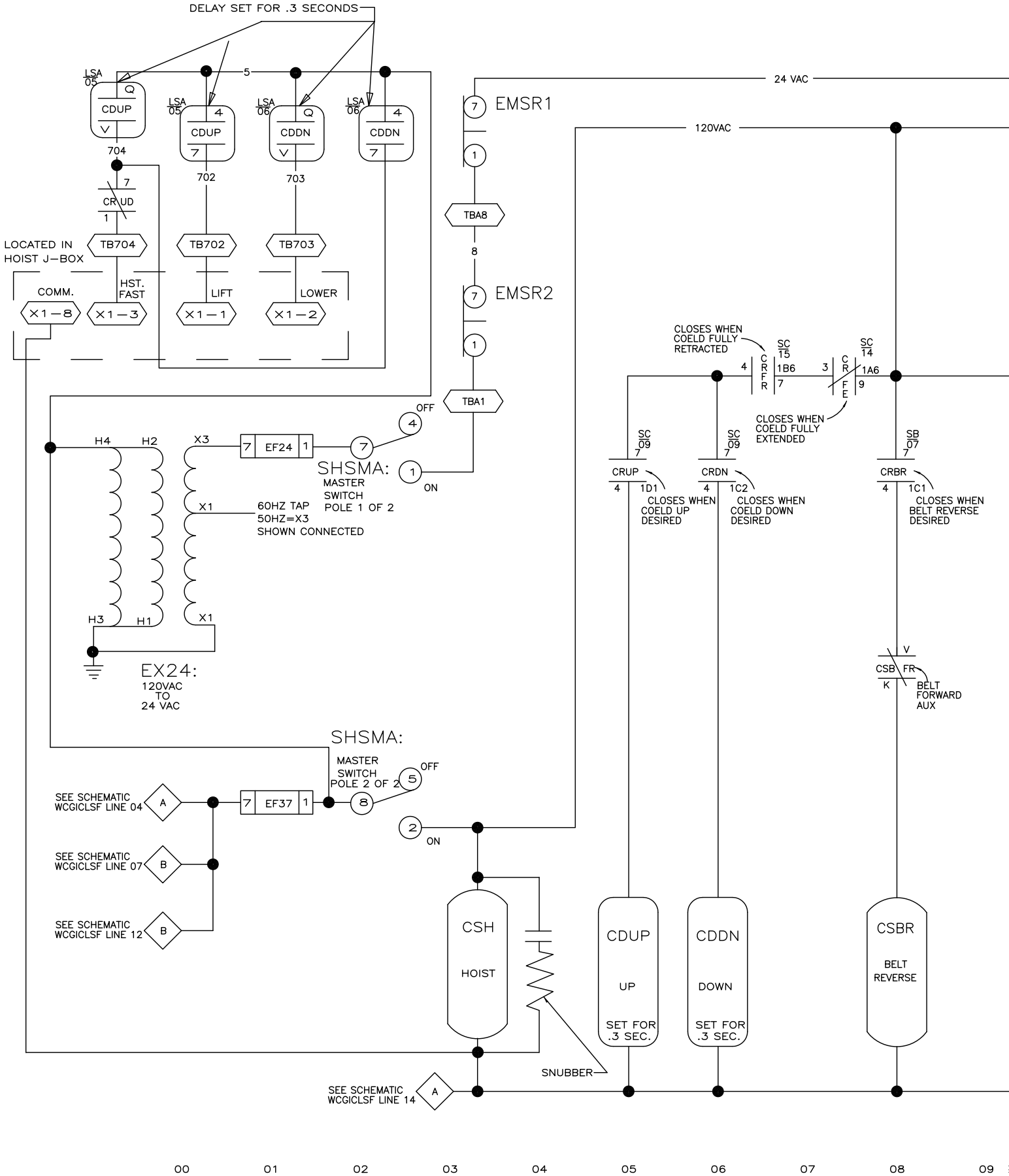
SCHEMATIC: COELDS CONTACTS

NON DEMAG HOIST

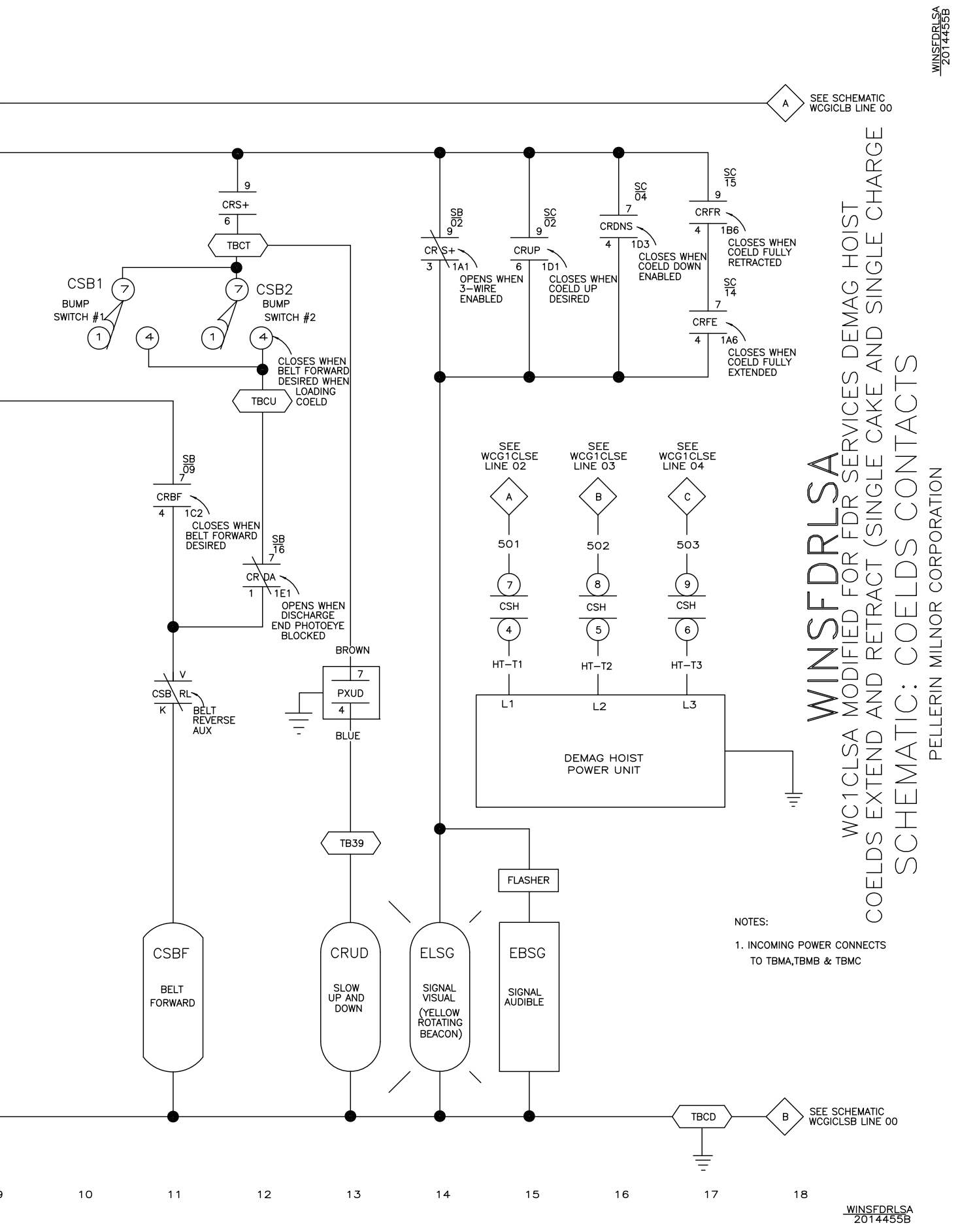
PELLERIN MILNOR CORPORATION

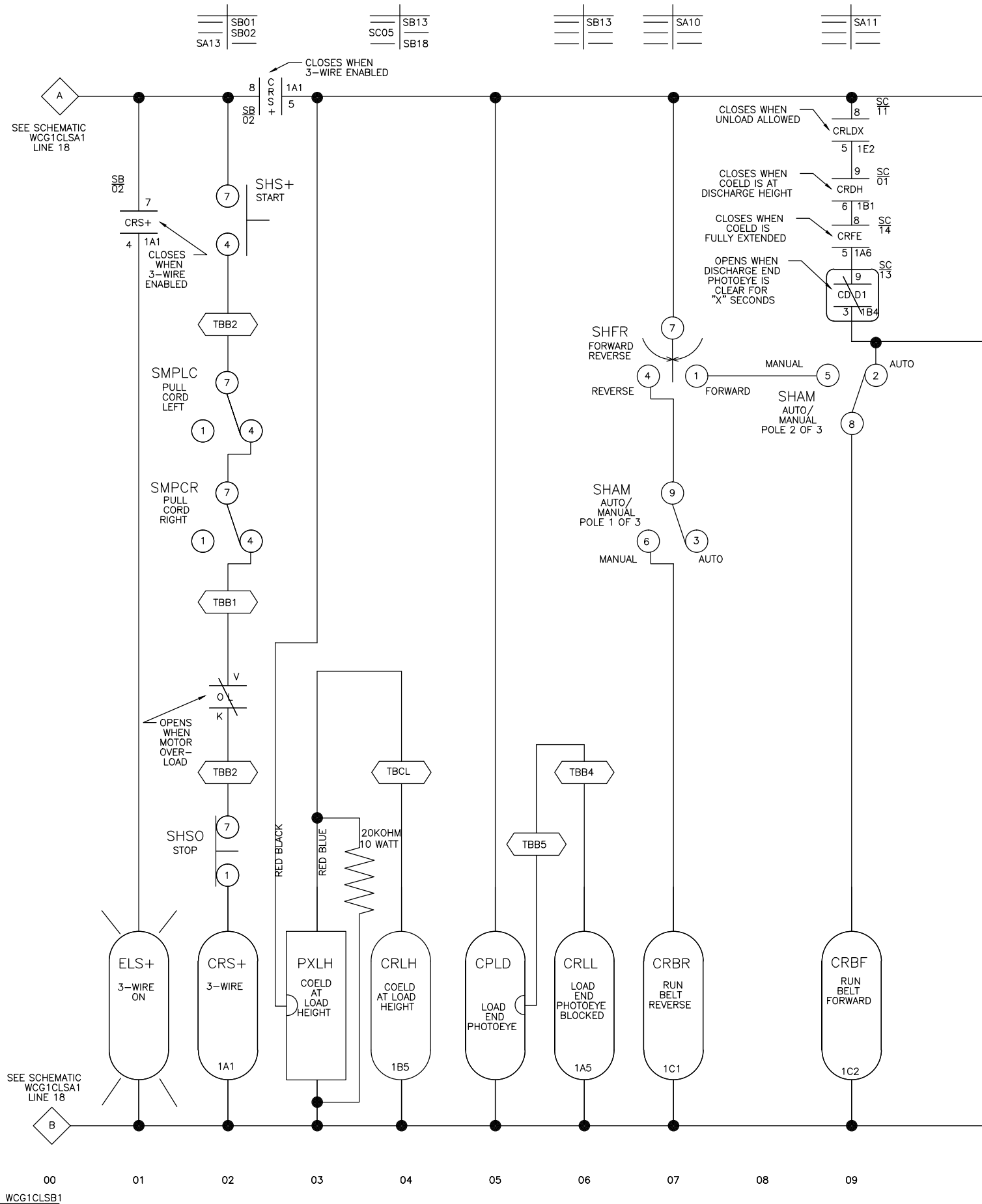
NOTES:

1. INCOMING POWER CONNECTS TO TBMA,TBMB & TBMC

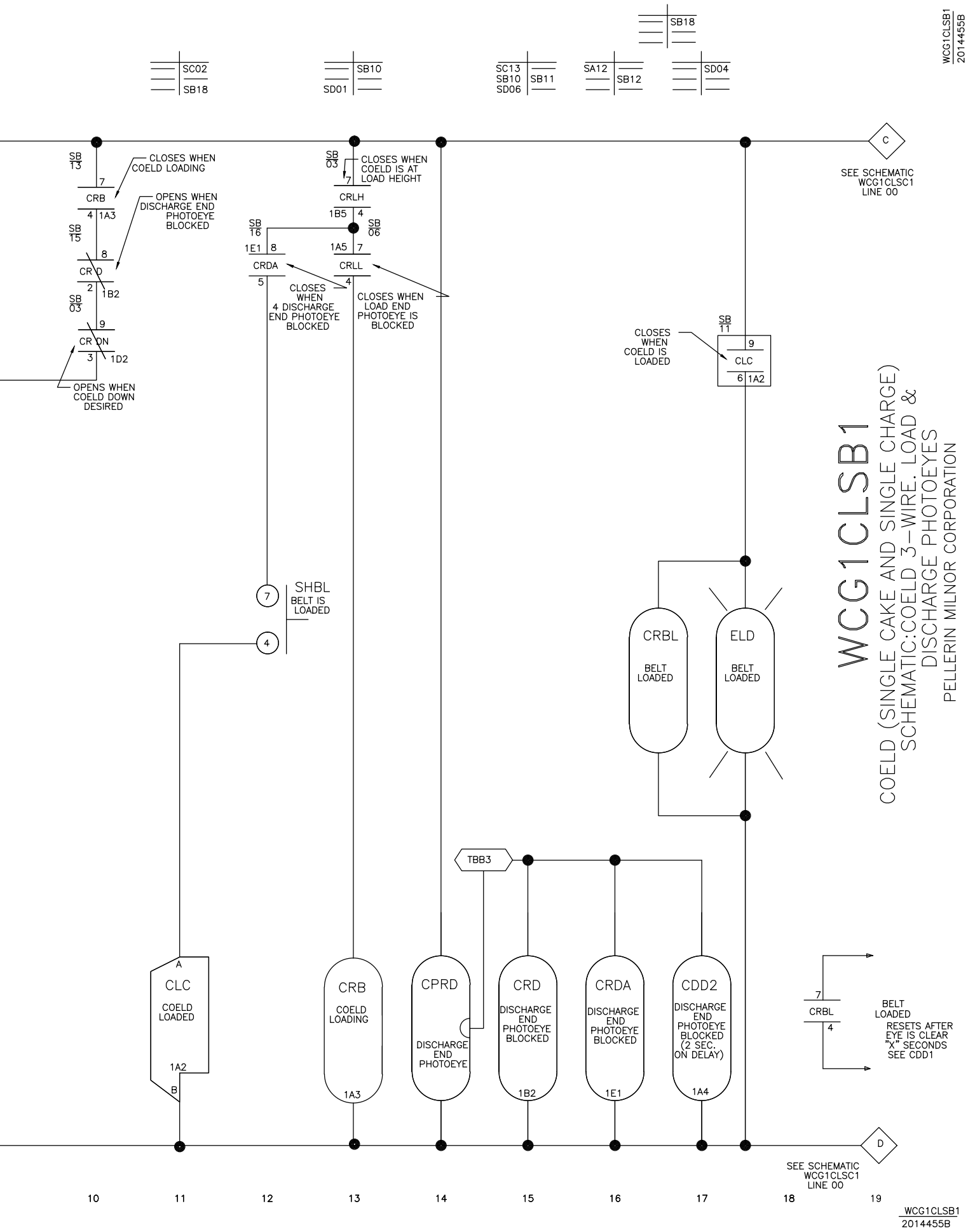


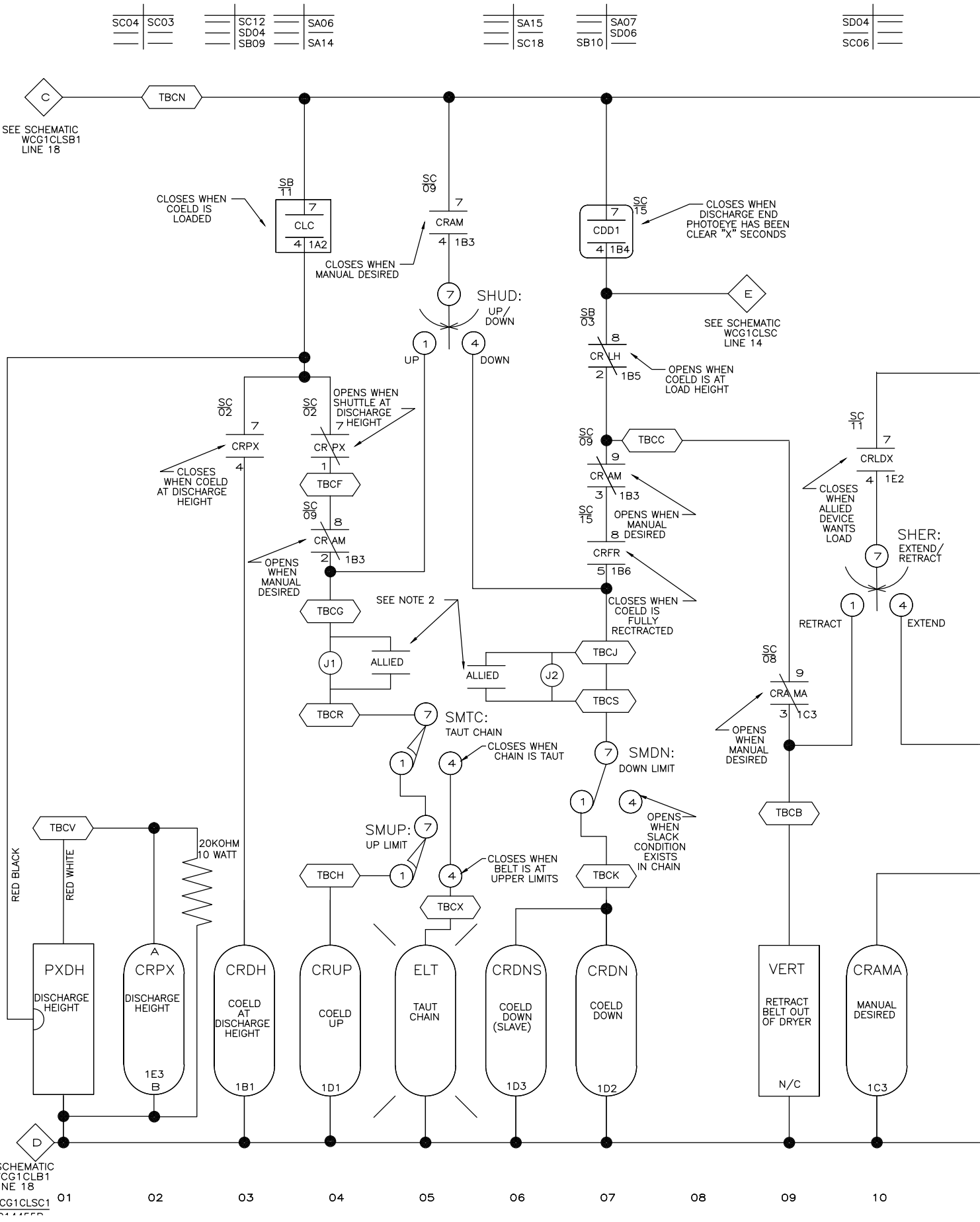
WINSFDRLSA
2014455B

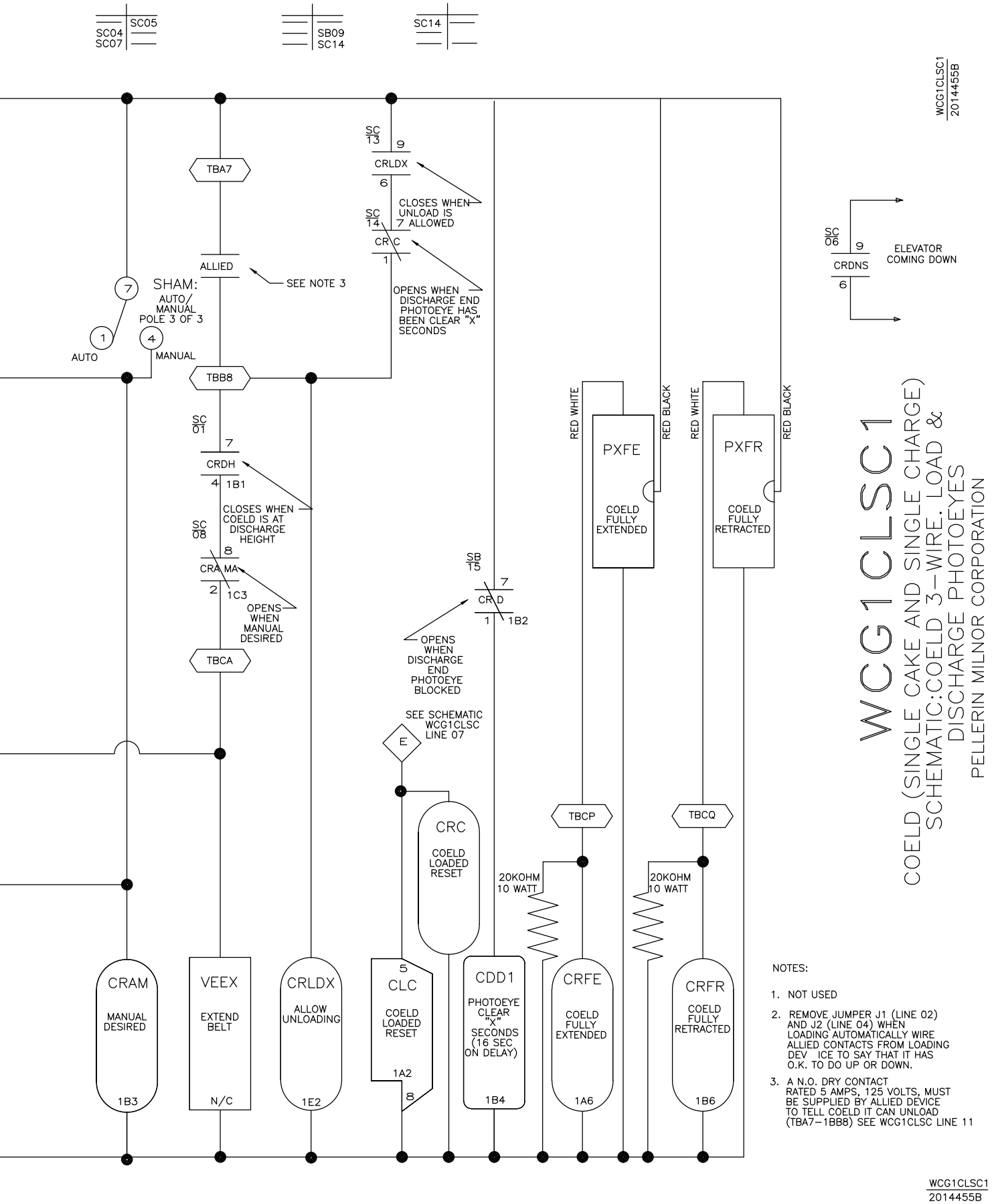

WINSFDRLSA
2014455B
A
SEE SCHEMATIC
WCGICLB LINE 00
9
CRS+
6
TBCT
CSB1
7
BUMP
SWITCH #1
1
4
CSB2
7
BUMP
SWITCH #2
1
4
CLOSES WHEN
BELT FORWARD
DESIRED WHEN
LOADING
COELD
TBCU
SB
09
7
CRBF
4
1C2
CLOSES WHEN
BELT FORWARD
DESIRED
SB
16
7
CR DA
1
1E1
OPENS WHEN
DISCHARGE
END PHOTOEYE
BLOCKED
V
CSB RL
K
BELT
REVERSE
AUX
BROWN
7
PXUD
4
BLUE
TB39
SB
02
9
CR S+
3
1A1
OPENS WHEN
3-WIRE
ENABLED
SC
02
9
CRUP
6
1D1
CLOSES WHEN
COELD UP
DESIRED
SC
04
7
CRDNS
4
1D3
CLOSES WHEN
COELD DOWN
ENABLED
SC
15
9
CRFR
4
1B6
CLOSES WHEN
COELD FULLY
RETRACTED
SC
14
7
CRFE
4
1A6
CLOSES WHEN
COELD FULLY
EXTENDED
SEE
WCG1CLSE
LINE 02
SEE
WCG1CLSE
LINE 03
SEE
WCG1CLSE
LINE 04
A
B
C
501
502
503
7
8
9
CSH
CSH
CSH
4
5
6
HT-T1
HT-T2
HT-T3
L1
L2
L3
DEMAG HOIST
POWER UNIT
FLASHER
CSBF
BELT
FORWARD
CRUD
SLOW
UP AND
DOWN
ELSG
SIGNAL
VISUAL
(YELLOW
ROTATING
BEACON)
EBSG
SIGNAL
AUDIBLE
TBCD
B
SEE SCHEMATIC
WCGICLSB LINE 00
NOTES:
1. INCOMING POWER CONNECTS
TO TBMA,TBMB & TBMC
WINSFDRLSA
WC1CLSA MODIFIED FOR FDR SERVICES DEMAG HOIST
COELDS EXTEND AND RETRACT (SINGLE CAKE AND SINGLE CHARGE
SCHEMATIC: COELDS CONTACTS
PELLERIN MILNOR CORPORATION
9
10
11
12
13
14
15
16
17
18
WINSFDRLSA
2014455B



WCG1CLSB1
2014455B


WCG1CLSB1
2014455B
SC02
SB18
SB10
SD01
SC13
SB10
SD06
SB11
SA12
SB12
SB18
SD04
C
SEE SCHEMATIC
WCG1CLSC1
LINE 00
SB
13
7
CRB
4
1A3
CLOSES WHEN
COELD LOADING
OPENS WHEN
DISCHARGE END
PHOTOEYE
BLOCKED
SB
15
8
CR D
2
1B2
SB
03
9
CR ON
3
1D2
OPENS WHEN
COELD DOWN
DESIRED
SB
03
7
CRLH
1B5
4
SB
16
1E1
8
CRDA
5
SB
06
1A5
7
CRLL
4
CLOSES
WHEN
4 DISCHARGE
END PHOTOEYE
BLOCKED
CLOSES WHEN
LOAD END
PHOTOEYE IS
BLOCKED
CLOSES
WHEN
COELD IS
LOADED
SB
11
9
CLC
6
1A2
7
SHBL
BELT IS
LOADED
4
CRBL
BELT
LOADED
ELD
BELT
LOADED
TBB3
A
CLC
COELD
LOADED
1A2
B
CRB
COELD
LOADING
1A3
CPRD
DISCHARGE
END
PHOTOEYE
CRD
DISCHARGE
END
PHOTOEYE
BLOCKED
1B2
CRDA
DISCHARGE
END
PHOTOEYE
BLOCKED
1E1
CDD2
DISCHARGE
END
PHOTOEYE
BLOCKED
(2 SEC.
ON DELAY)
1A4
7
CRBL
4
BELT
LOADED
RESETS AFTER
EYE IS CLEAR
"X" SECONDS
SEE CDD1
D
SEE SCHEMATIC
WCG1CLSC1
LINE 00
10
11
12
13
14
15
16
17
18
19
WCG1CLSB1
2014455B
WCG1CLSB1
COELD (SINGLE CAKE AND SINGLE CHARGE)
SCHEMATIC:COELD 3-WIRE. LOAD &
DISCHARGE PHOTOEYES
PELLERIN MILNOR CORPORATION

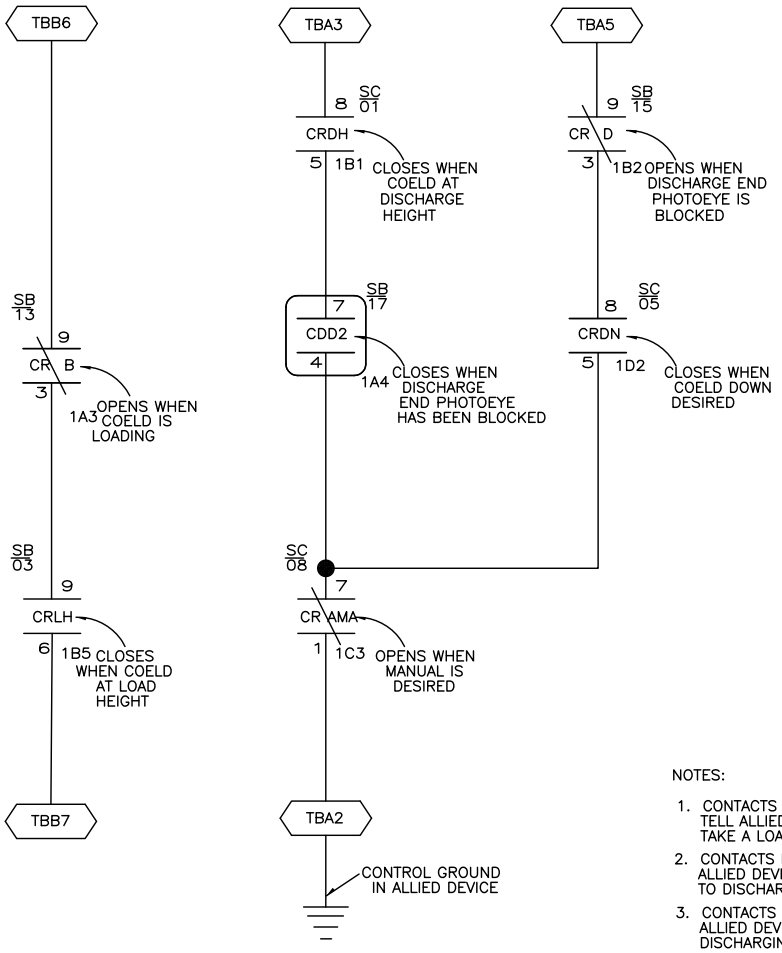

SC04 SC03
SC12 SD04 SB09 SA06 SA14
SA15 SC18
SA07 SD06 SB10
SD04 SC06
C
TBCN
SEE SCHEMATIC WCG1CLSB1 LINE 18
CLOSES WHEN COELD IS LOADED
SB 11
7
CLC
4 1A2
SC 09
7
CRAM
4 1B3
CLOSES WHEN MANUAL DESIRED
SC 15
7
CDD1
4 1B4
CLOSES WHEN DISCHARGE END PHOTOEYE HAS BEEN CLEAR "X" SECONDS
7 SHUD: UP/DOWN
1 UP
4 DOWN
E
SEE SCHEMATIC WCG1CLSC LINE 14
SB 03
8
CR LH
2 1B5
OPENS WHEN COELD IS AT LOAD HEIGHT
SC 02
7
CRPX
4
CLOSES WHEN COELD AT DISCHARGE HEIGHT
SC 02
OPENS WHEN SHUTTLE AT DISCHARGE HEIGHT
7
CR PX
1
TBCF
SC 09
8
CR AM
2 1B3
OPENS WHEN MANUAL DESIRED
SC 09
TBCC
9
CR AM
3 1B3
SC 15
OPENS WHEN MANUAL DESIRED
8
CRFR
5 1B6
CLOSES WHEN COELD IS FULLY RECTRACTED
SC 11
7
CRLDX
4 1E2
CLOSES WHEN ALLIED DEVICE WANTS LOAD
SHER: EXTEND/RETRACT
7
1 RETRACT
4 EXTEND
SEE NOTE 2
TBCG
J1
ALLIED
ALLIED
J2
TBCJ
TBCS
TBCR
7 SMTC: TAUT CHAIN
1
4 CLOSES WHEN CHAIN IS TAUT
7 SMDN: DOWN LIMIT
1
4 OPENS WHEN SLACK CONDITION EXISTS IN CHAIN
SC 08
9
CR MA
3 1C3
OPENS WHEN MANUAL DESIRED
TBCB
SMUP: 7 UP LIMIT
1
TBCH
4 CLOSES WHEN BELT IS AT UPPER LIMITS
TBCK
TBCX
TBCV
RED BLACK
RED WHITE
20KOHM 10 WATT
PXDH
DISCHARGE HEIGHT
A
CRPX
DISCHARGE HEIGHT
1E3
B
CRDH
COELD AT DISCHARGE HEIGHT
1B1
CRUP
COELD UP
1D1
ELT
TAUT CHAIN
CRDNS
COELD DOWN (SLAVE)
1D3
CRDN
COELD DOWN
1D2
VERT
RETRACT BELT OUT OF DRYER
N/C
CRAMA
MANUAL DESIRED
1C3
D
SEE SCHEMATIC WCG1CLB1 LINE 18
00 WCG1CLSC1 01 02 03 04 05 06 07 08 09 10



WCG1CLSC1

COELD (SINGLE CAKE AND SINGLE CHARGE)
SCHEMATIC:COELD 3–WIRE. LOAD &
DISCHARGE PHOTOEYES

PELLERIN MILNOR CORPORATION



NOTES:

1. CONTACTS BETWEEN TBC1 AND TBC2 TELL ALLIED DEVICE THAT COELDS CAN TAKE A LOAD.
2. CONTACTS FROM TBA3 TO TBA4 TELL ALLIED DEVICE COELDS IT IS READY TO DISCHARGE.
3. CONTACTS FROM TBA5 TO TBA6 TELL ALLIED DEVICE COELDS HAS FINISHED DISCHARGING.

WCG1CLSD1
2014455B

00 01 02 03 04 05 06 07 08 09 10

SYSTEM OPERATION

COELDS SINGLE CAKE

1. COELDS CAN BE OPERATED TO LOAD EITHER MANUALLY OR AUTOMATICALLY
   A. MANUAL LOADING OPERATION.
      1. COELDS IS FULLY RETRACTED
      2. PLACE SWITCH SH1 TO "MANUAL LOADING" POSITION
      3. COELDS AT LOAD HEIGHT
      4. BUMP THE GOODS WITH BUMP SWITCHES SMB1 OR SMB2 UNTIL THE DICHARGE END PHOTOEYE IS BLOCKED.
      5. ENTER THE DATA.
      6. PUSH THE "BELT IS LOADED" SWITCH SHBL.
      7. COELDS WILL AUTOMATICALLY LIFT TO THE DISCHARGE HEIGHT.
      8. WHEN ALLIED DEVICE ALLOWS TO BE LOADED, COELDS WILL EXTEND AND AND RUN BELT CLEAR TIME.
      9. COELDS WILL RETRACT AND RETURN TO LOAD POSITION.

COELDS SINGLE CHARGE

1. COELDS CAN BE OPERATED TO LOAD EITHER MANUALLY OR AUTOMATICALLY
   A. MANUAL LOADING OPERATION.
      1. COELDS IS FULLY RETRACTED
      2. PLACE SWITCH SH1 TO "MANUAL LOADING" POSITION
      3. COELDS AT LOAD HEIGHT
      4. BELT WILL MOVE FORWARD ANYTIME LOAD END PHOTOEYE IS BLOCKED WILL STOP AS SOON AS LOAD END PHOTOEYE IS CLEAR.
      5. BELT WILL NOT RUN WHEN DISCHARGE END PHOTOEYE IS BLOCKED.
      6. ENTER THE DATA.
      7. GOODS MUST BLOCK DISCHARGE END PHOTOEYE BEFORE "BELT IS LOADED". SWITCH SHBL CAN BE ENABLED.
      8. COELDS WILL AUTOMATICALLY LIFT TO THE DISCHARGE HEIGHT.
      9. WHEN ALLIED DEVICE ALLOWS TO BE LOADED, COELDS WILL EXTEND AND BELT CLEAR TIME.
      10. COELDS WILL RETRACT AND RETURN TO LOAD POSITION.

EQUIPMENT DEFINITIONS
1. COELDS SINGLE CAKE LOADS ONE CAKE. CONFIGRATION 1–1–1
2. COELDS SINGLE CHARGE LOADS MULTIPLE CAKES OR CONTINUOUS GOODS CONFIGURATION 1–X–1

WCG1CLSD1
2014455B

WCG1CLSD1

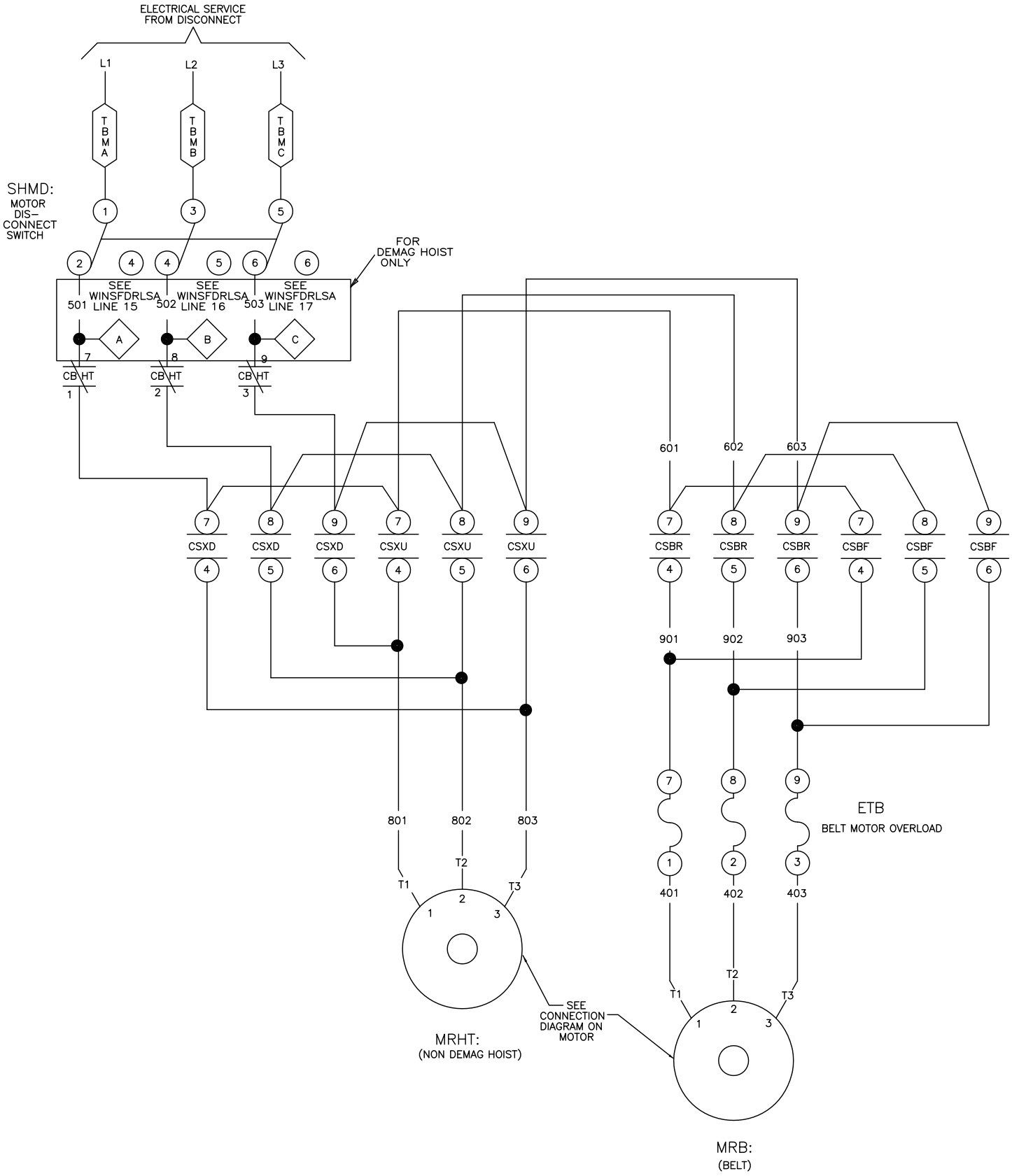
COELDS (SINGLE CAKE AND SINGLE CHARGE)

SCHEMATIC:ALLIED SIGNALS

PELLERIN MILNOR CORPORATION

WCG1CLSD1
2014455B

11 12 13 14 15 16 17 18 19



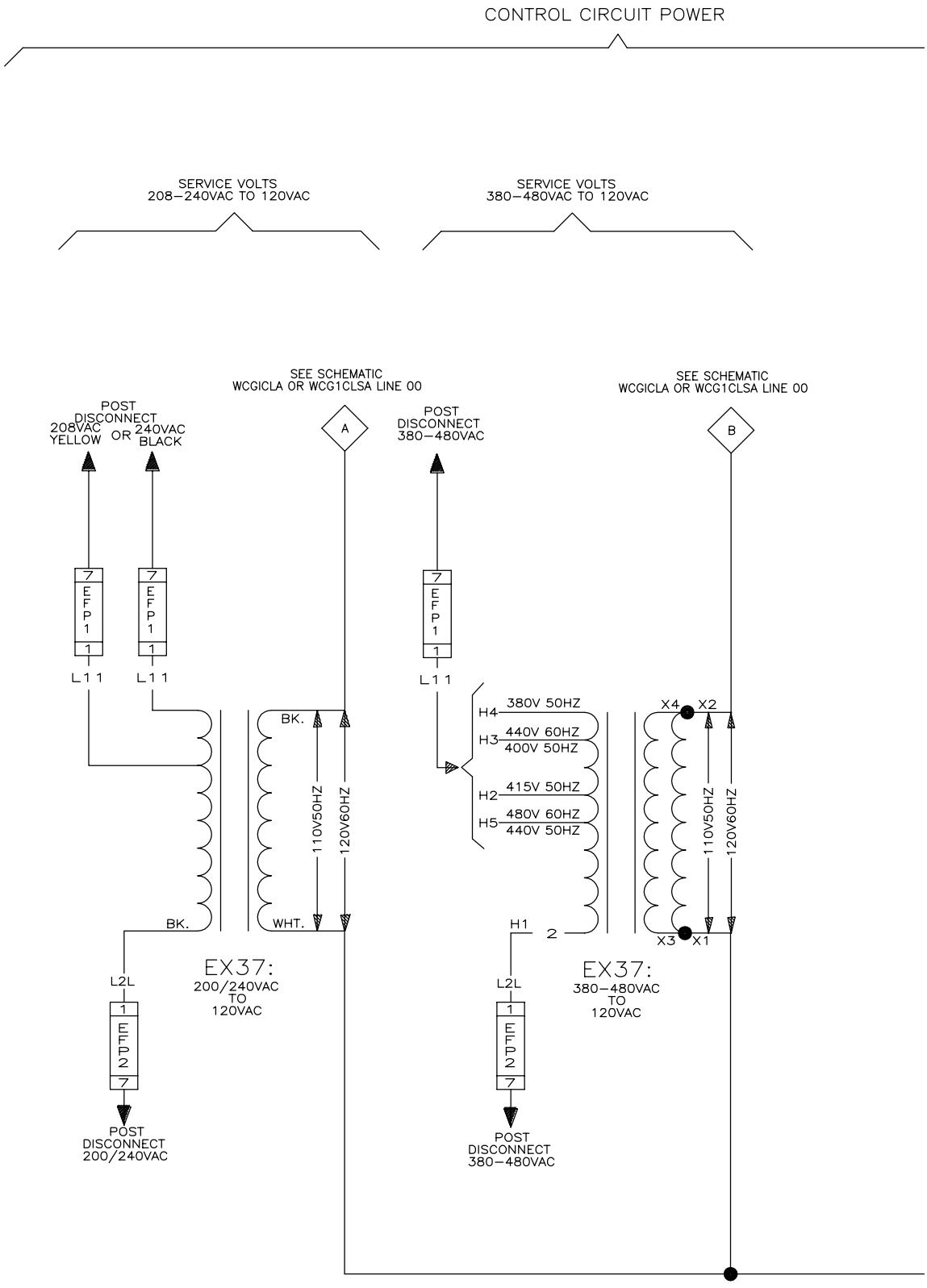
WCG1CLSE
2014392B

WCG1CLSE

COELD AND COELD S
SCHEMATIC: MOTORS + INCOMING VOLTAGE

PELLERIN MILNOR CORPORATION

WCG1CLSE
2014392B



WCG1CLSF
2011464B

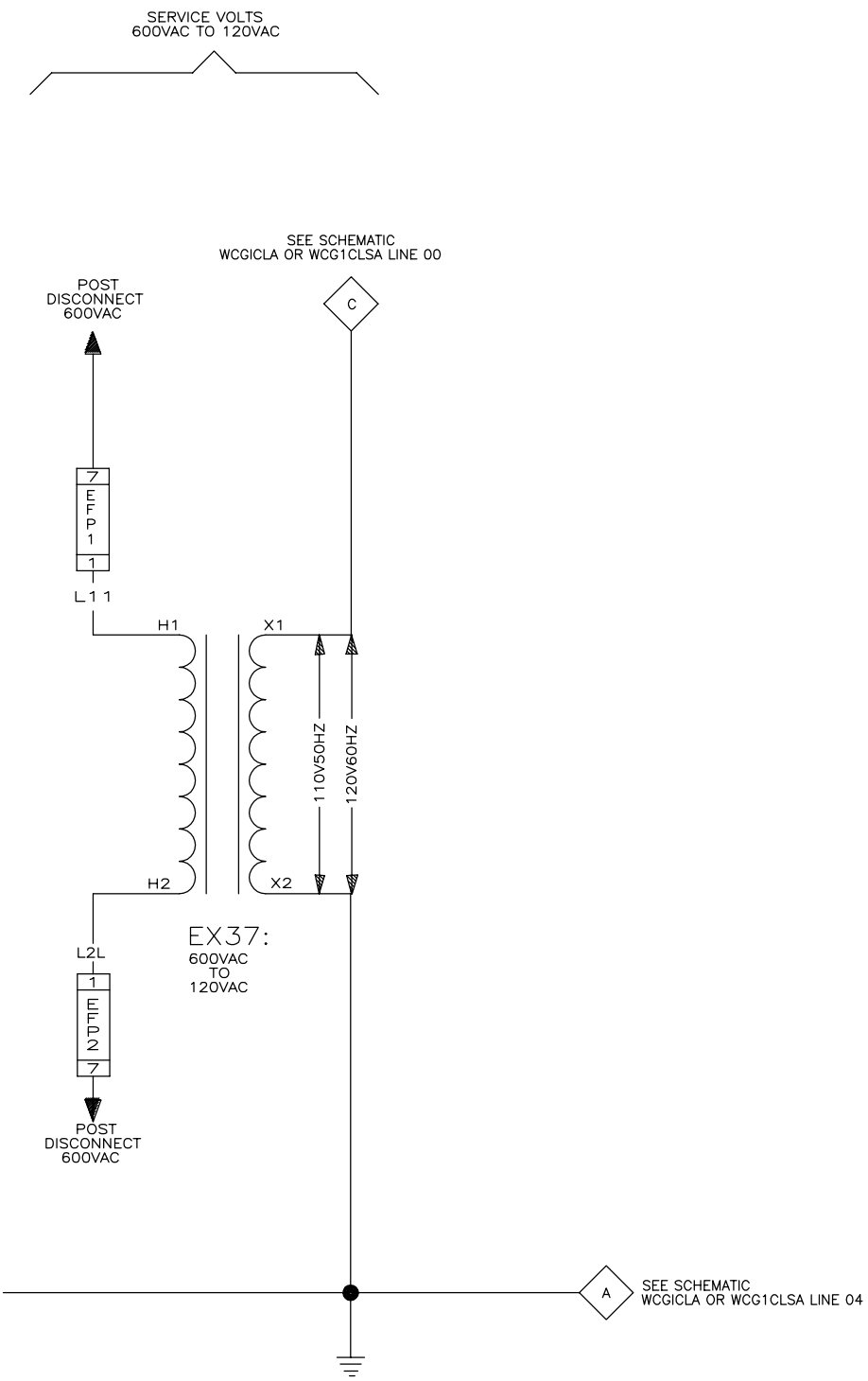
WCG1CLSF

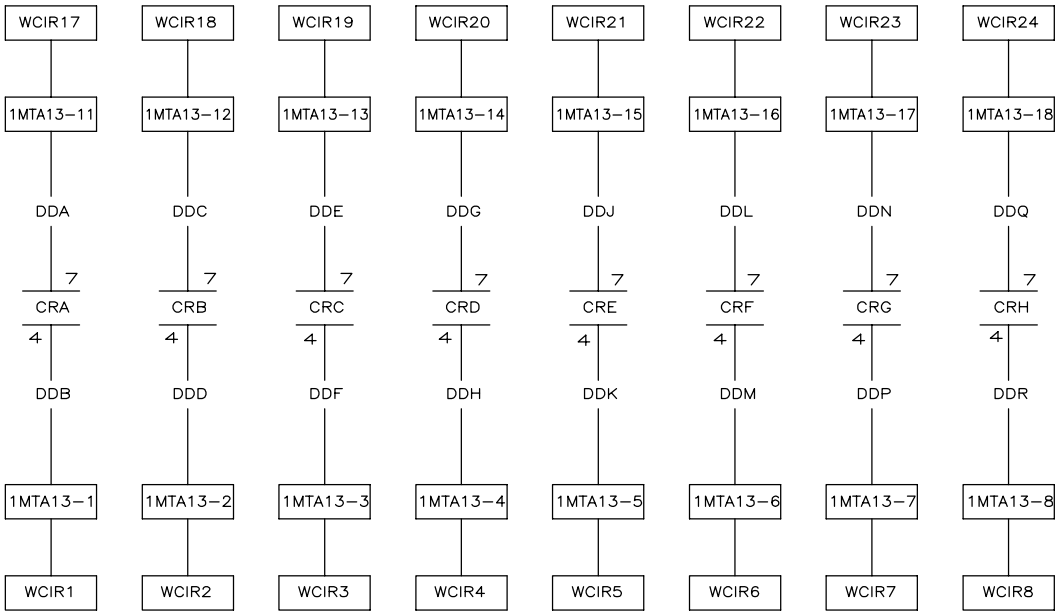
COELD + COELDS

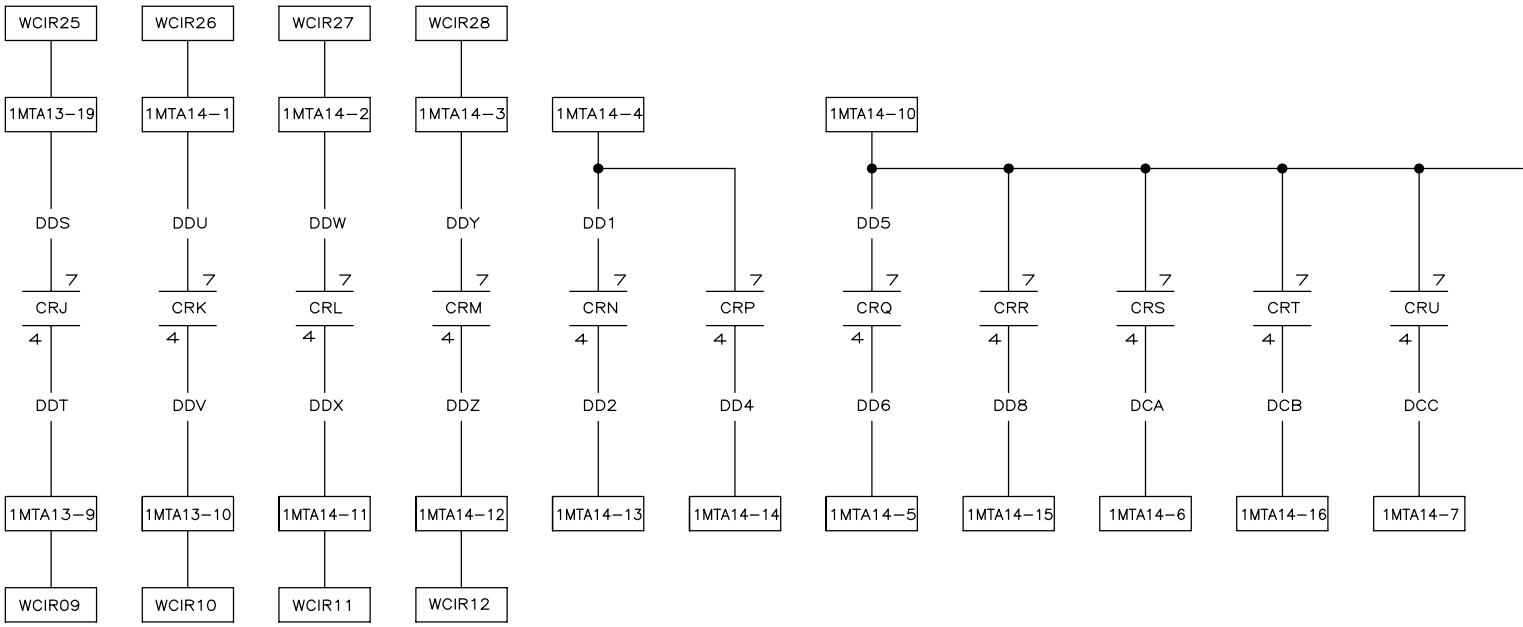
SCHEMATIC: SOURCE TO 110V50HZ/120V60HZ

CONTROL CIRCUIT POWER

PELLERIN MILNOR CORPORATION







00 01 02 03 04 05 06 07 08 09 10

W6WTCSAI
2012242B

ALLIED INTERFACE BOARD #1

ALLIED RELAY ASSIGNMENTS

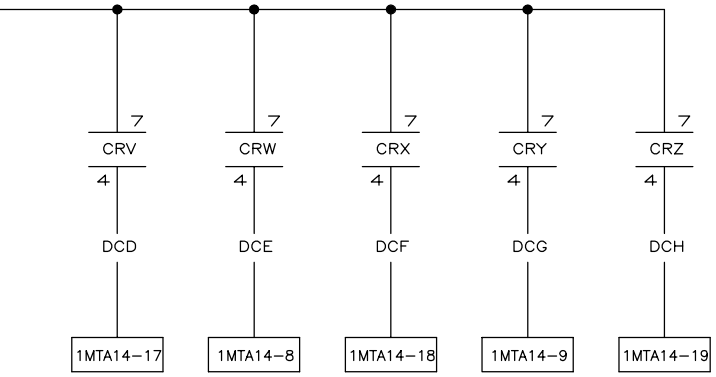
CRA = WEIGHT = .15
CRB = WEIGHT = .2
CRC = WEIGHT = .4
CRD = WEIGHT = .8
CRE = WEIGHT = 1.6
CRF = WEIGHT = 3.2
CRG = WEIGHT = 6.4
CRH = WEIGHT = 12.8
CRJ = WEIGHT = 25.8
CRK = WEIGHT = 51.2
CRL = WEIGHT = 102.4
CRM = WEIGHT = 204.8

CRQ = TARE
CRR = WEIGHT IS HIGH
CRS = WEIGHT IS OK
CRT = WEIGHT IS LOW

B024–1

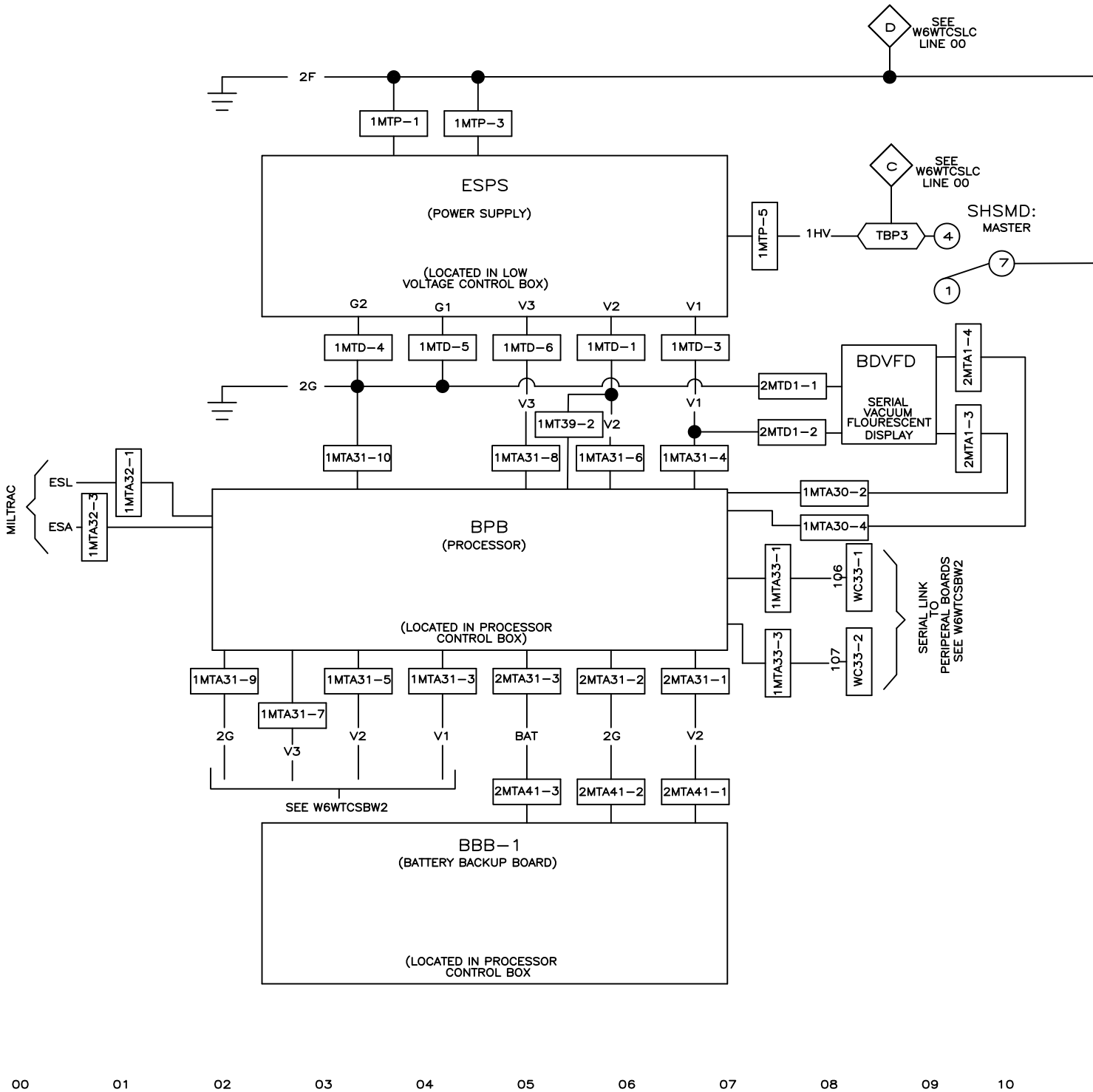
1 SW2
1 SW1

24 OUTPUT BOARD #1
LOCATED IN RIGHT (MODULE)
SECTION OF THE MAIN
CONTROL BOX

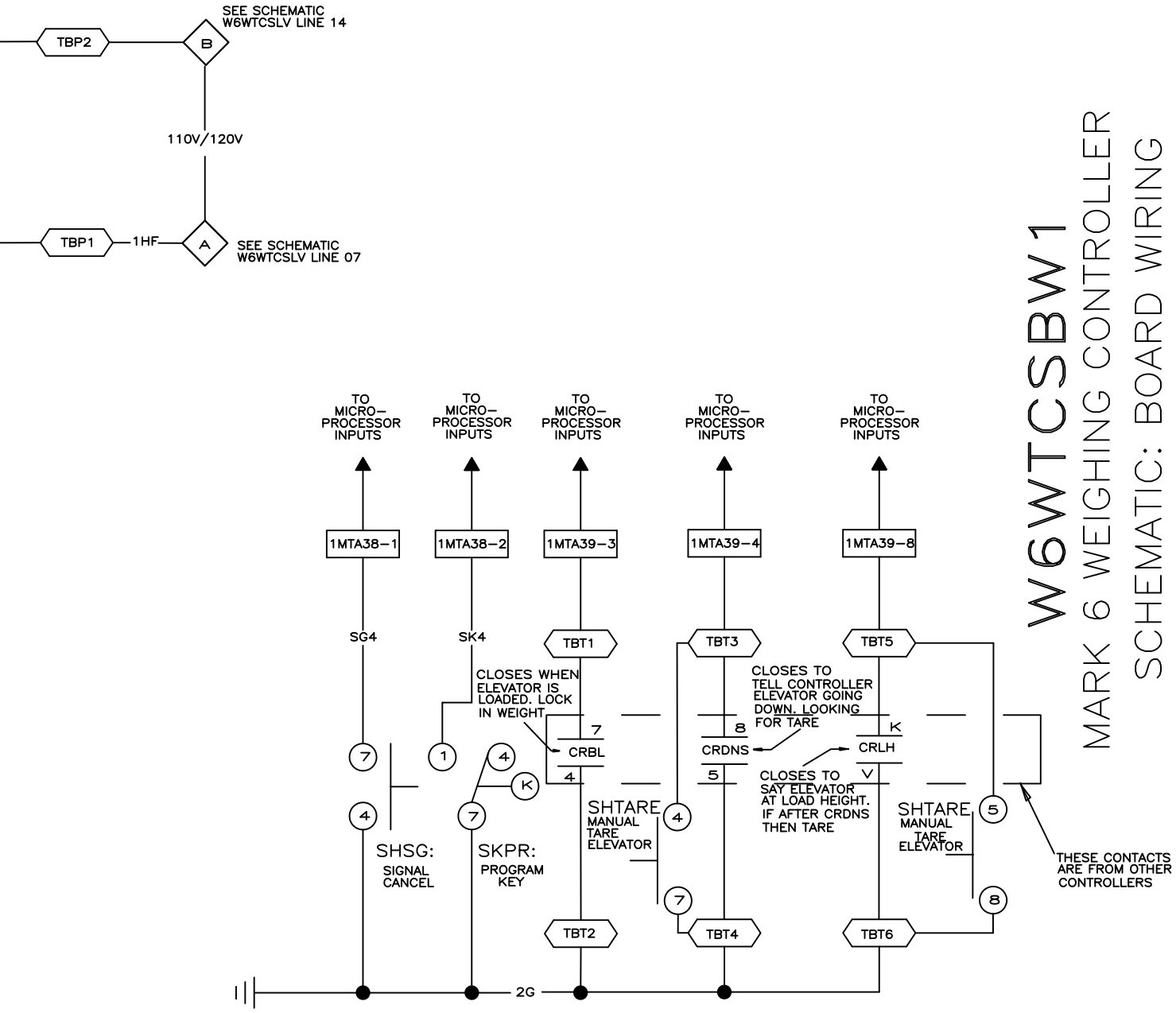


11 12 13 14 15 16 17 18 19

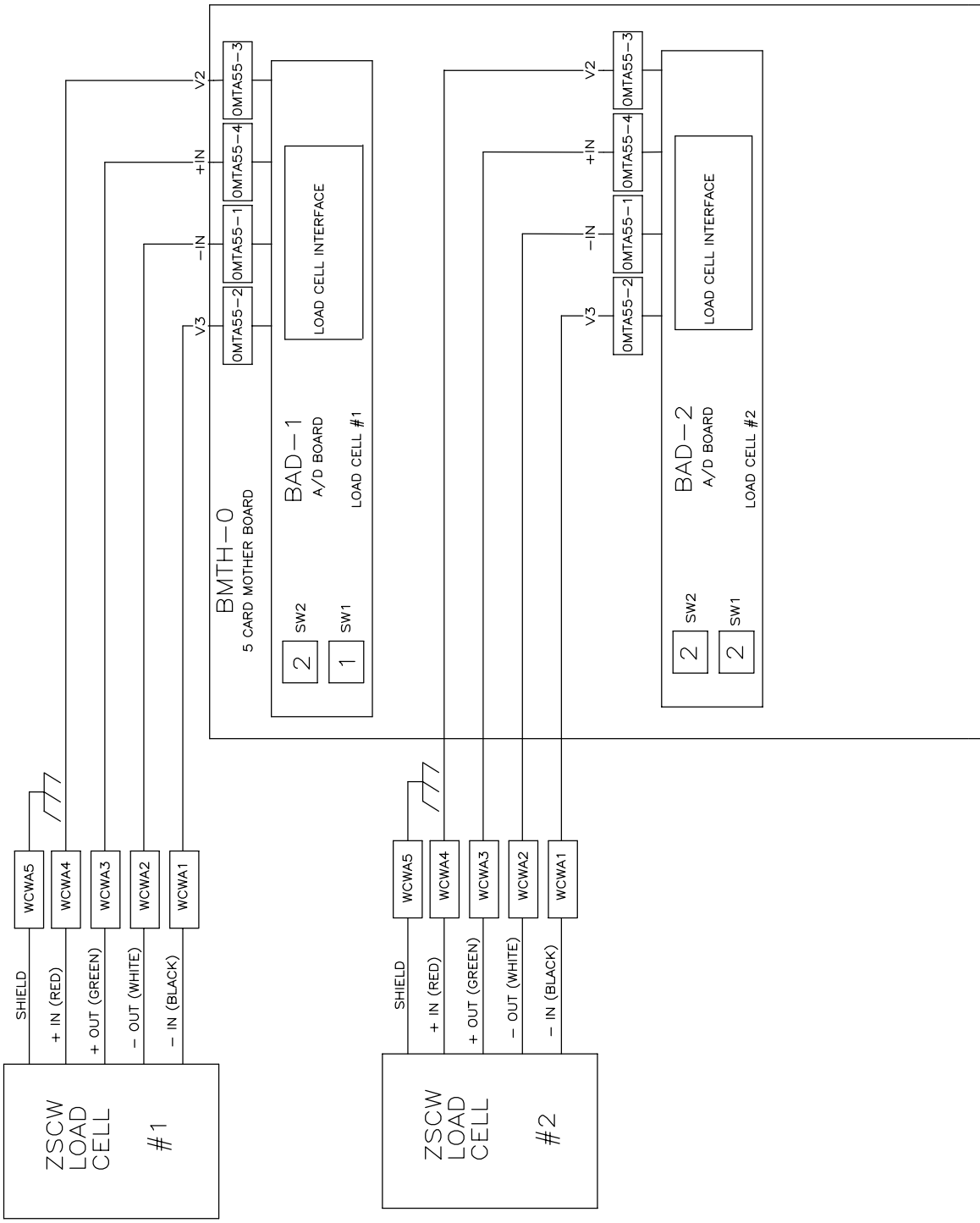
W6WTCSAI
G3 CBW SYSTEM MARK 9
SCHEMATIC: ALLIED INTERFACE
PELLERIN MILNOR CORPORATION

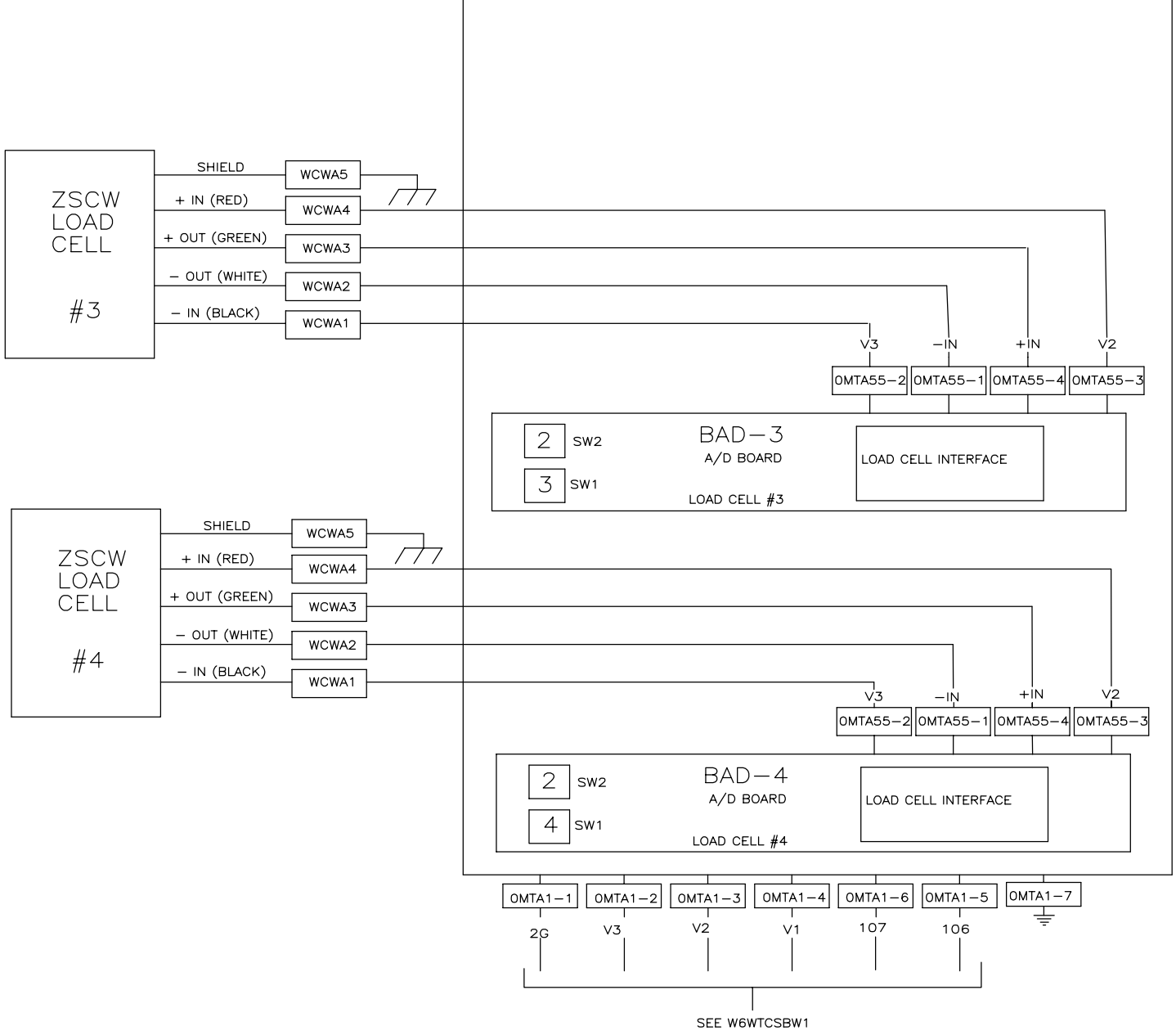


W6WTCSBW1
2014374B



W6WTCSBW1
MARK 6 WEIGHING CONTROLLER
SCHEMATIC: BOARD WIRING
PELLERIN MILNOR CORPORATION


ZSCW LOAD CELL #1
SHIELD
+ IN (RED)
+ OUT (GREEN)
– OUT (WHITE)
– IN (BLACK)
WCWA5
WCWA4
WCWA3
WCWA2
WCWA1
ZSCW LOAD CELL #2
SHIELD
+ IN (RED)
+ OUT (GREEN)
– OUT (WHITE)
– IN (BLACK)
WCWA5
WCWA4
WCWA3
WCWA2
WCWA1
BMTH–0
5 CARD MOTHER BOARD
V2
+IN
–IN
V3
0MTA55–3
0MTA55–4
0MTA55–1
0MTA55–2
BAD–1
A/D BOARD
LOAD CELL #1
LOAD CELL INTERFACE
SW2
SW1
2
1
BAD–2
A/D BOARD
LOAD CELL #2
LOAD CELL INTERFACE
SW2
SW1
2
2



W6WTCSBW2

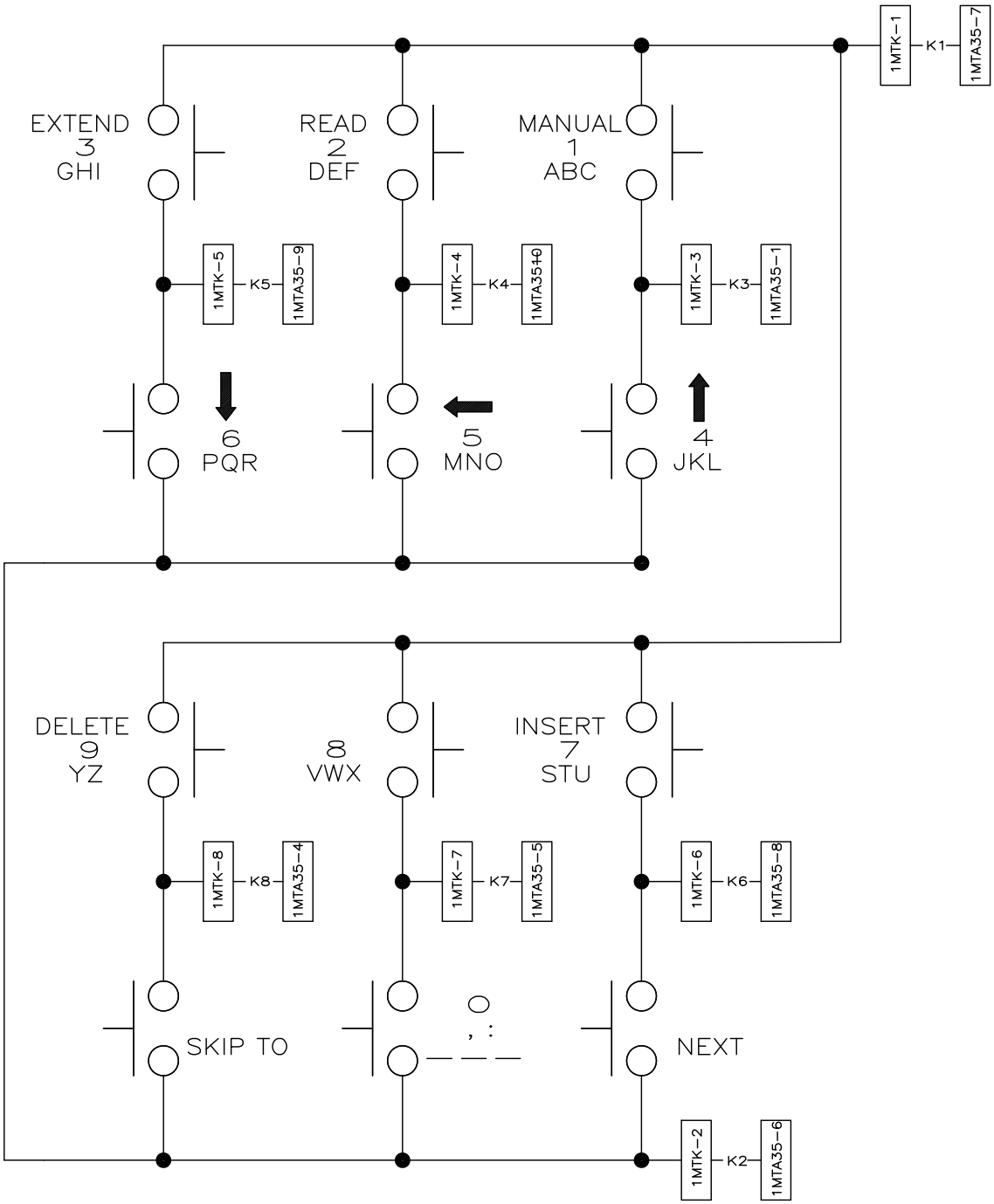
MARK 6 WEIGHTING CONTROLLER

SCHEMATIC: BOARD WIRING

PELLERIN MILNOR CORPORATION

W6WTCSBW2
2012242B

W6WTCSBW2
2012242B



W6WTCSKP
20122428

W6WTCSKP

MARK 6 WEIGHING CONTROLLER

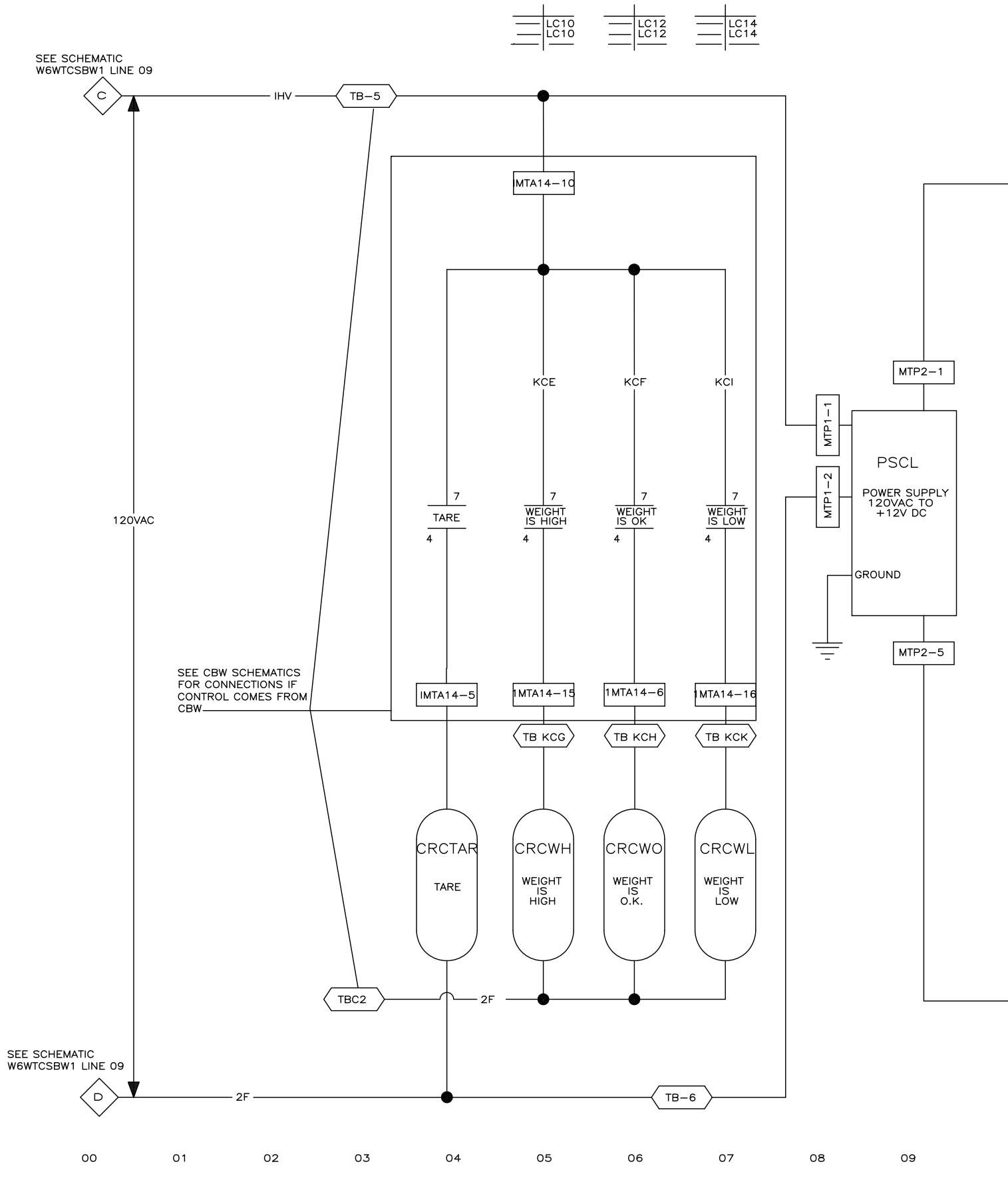
SCHEMATIC:KEYPAD

PELLERIN MILNOR CORPORATION

W6WTCSKP
2012242B

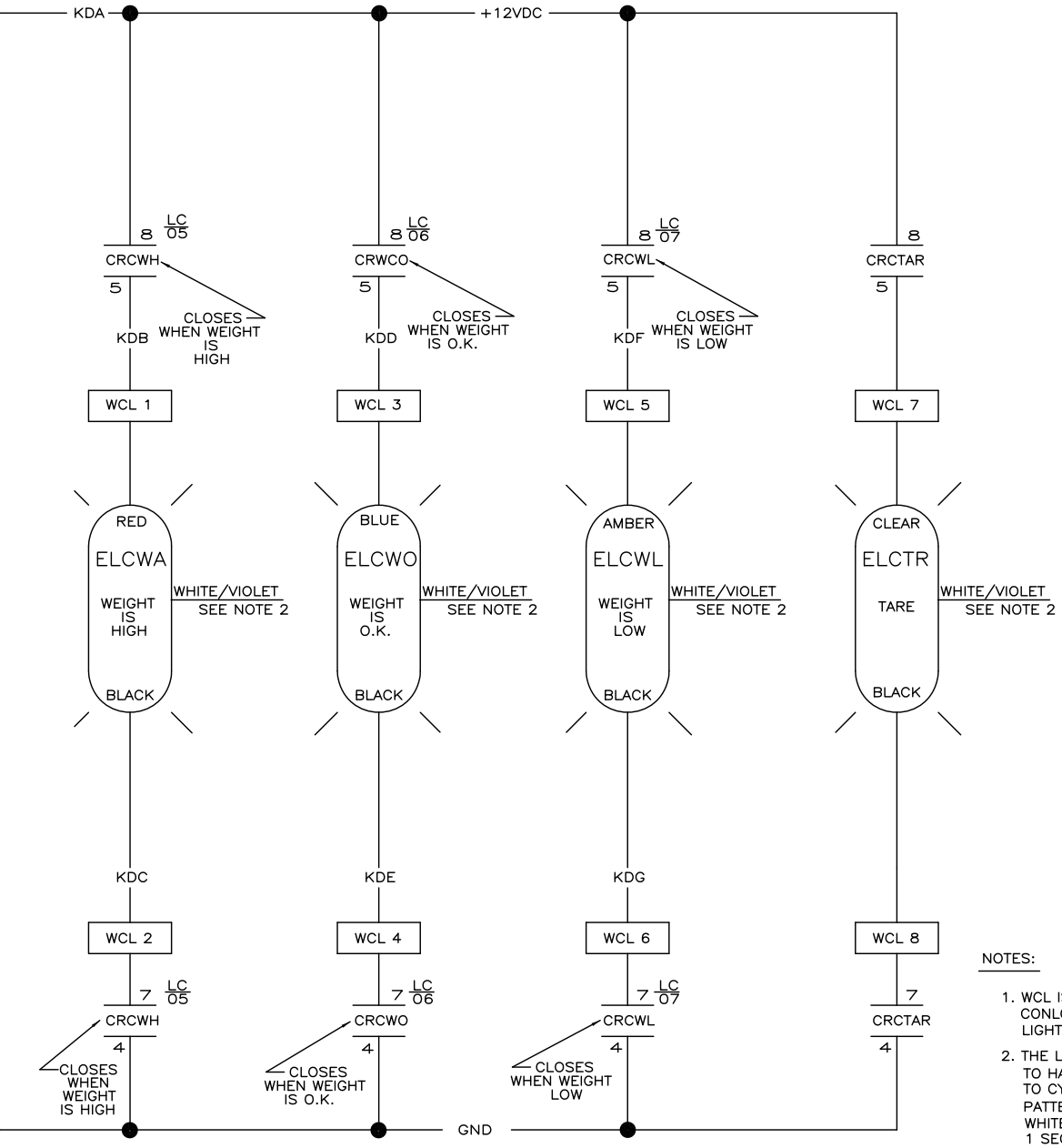
10 11 12 13 14 15 16 17 18 19

W6WTCSKP
2012242B



W6WTCSLC
2014455B

W6WTCSLC
MARK 6 WEIGHING CONVEYOR
SCHEMATIC: LOADING LED LIGHTS
PELLERIN MILNOR CORPORATION



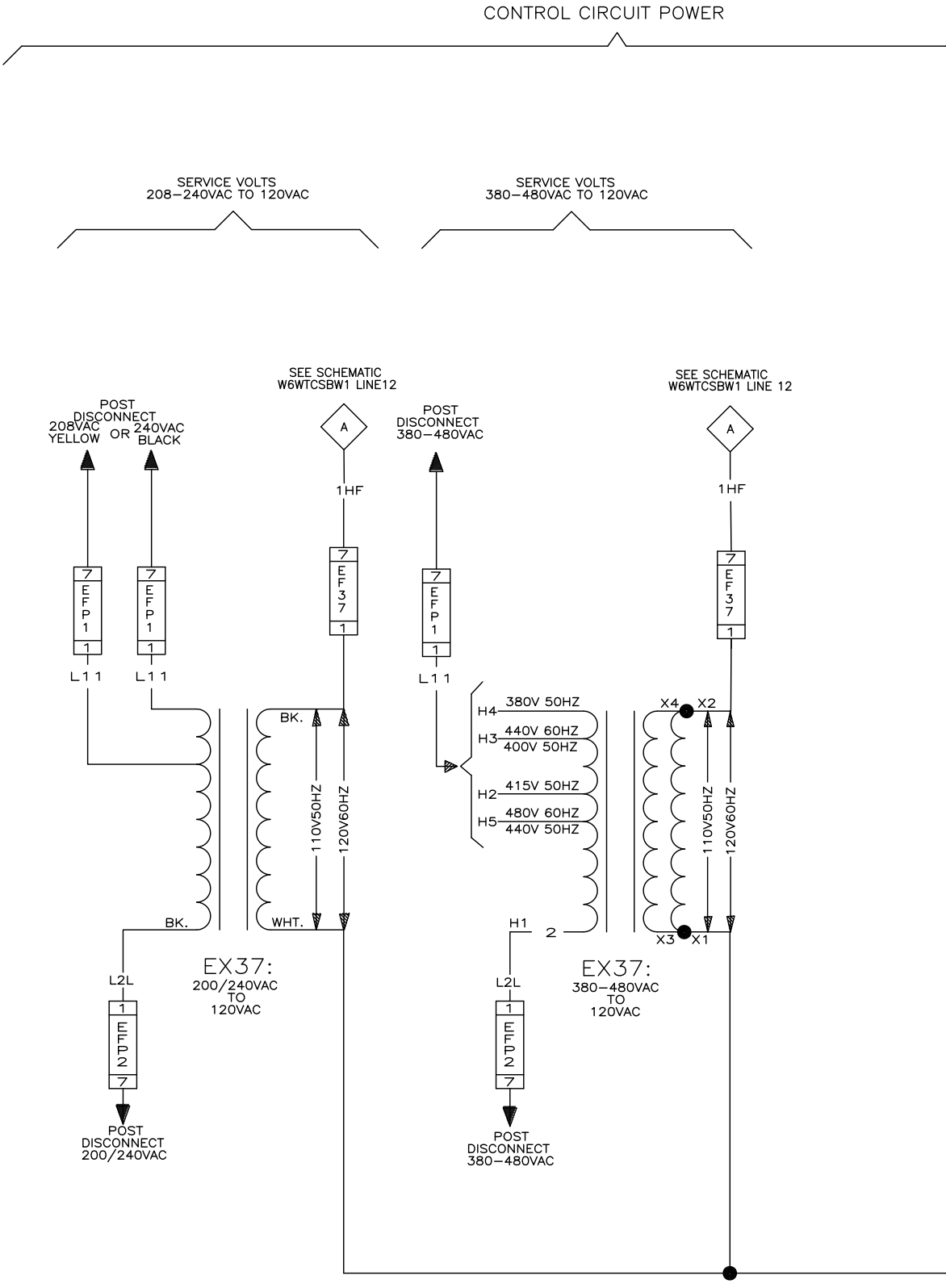
NOTES:

1. WCL IS LOCATED IN THE CONLO BOX AND THE LIGHT BOX.
2. THE LED CONTROLLER MUST BE SET TO HAVE THE LED CONTINUOUSLY ON. TO CYCLE THROUGH ALL THE LED PATTERNS. APPLY +12V TO THE WHITE/VIOLET WIRE FOR LESS THAN 1 SECOND AND RELEASE TO CYCLE FORWARD. APPLY AND RELEASE +12V FOR MORE THAN 1 SECOND TO CYCLE BACKWARDS.

   WHEN LIGHT IS CONTINUIOUSLY ON ALLOW IT TO RUN FOR MORE THAN 5 SECONDS TO SET PATTERN.

   TO RESET PATTERN TURN POWER OFF AND APPLY +12V TO THE WHITE/VIOLET WIRE WHILE TURNING POWER BACK ON TO LIGHT.

10 11 12 13 14 15 16 17 18 19



W6WTCSLV
2012242B

W6WTCSLV
MARK 6 WEIGHING CONTROLLER
SCHEMATIC: SOURCE TO 110V50HZ/120V60HZ
CONTROL CIRCUIT POWER
PELLERIN MILNOR CORPORATION

Pellerin Milnor Weighing Controller

Software Version WUAWS/20004
05NOV14

On power-up, the copyright/software version number is displayed, followed by the configure checksum. When the controller is turned on for the first time the user will be prompted to clear memory. To do this, turn the run/program key switch to the program position and press buttons “4”, “5” and “6” on the keypad simultaneously. Following the clear memory process, the controller automatically enters Configure Mode where the user will be prompted to set the configuration parameters for the weighing controller. Once the configure process is complete, the display shows “Program 0 Menu/Turn Key To Run”. Turn the run/program key switch to the run position and press the “NEXT” button on the keypad to return to Run Mode. If a valid configuration exists, the controller goes directly to Run Mode on power-up following the configure checksum display.

Once configured, the user must set the A/D offset and calibrate the scale. To set the A/D offset, press buttons “1” and “SKIP TO” on the keypad simultaneously to access the Manual Menu. From the Manual Menu, option “3 Set A/D Offset” is used to set the A/D offset. To return to Run Mode, select option “0 Exit Manual Menu” from the Manual Menu. In addition to setting the A/D offset, the Manual Menu can also be used to test the inputs and outputs on the machine, and to view the calibration values.

Once the A/D offset has been set, it is necessary to calibrate the scale. From the Run Mode, turn the run/program key switch to the program position to access the Program Menu. From the Program Menu, option “Program 3 Menu/Calibrate Loadcell” is used to calibrate the scale by calibrating each load cell individually. In addition to calibrating the scale, the Program Menu can also be used to clear memory and configure the weighing controller. To return to Run Mode, select option “Program 0 Menu/ OK Turn Key to Run”. Turn the run/program key switch to the run position and press the “NEXT” button on the keypad .

In Run Mode, the display shows the actual weight, as measured by the scale. The desired weight and tolerance are configured by formula in the Mentor controller. The measured weight is passed to the Mentor controller via the output relays in the Weighing Controller. When properly calibrated, the actual weight should read “000” when the scale is empty. The “Manual Tare” button on the control box may be used to manually zero the scale. As the operator loads the scale, the weight indicator lights, controlled by Mentor, signal the load weight status - yellow when the weight is low, red when the weight is high, and blue when the weight is within the configured tolerance. The operator completes the loading process by actuating the “Belt Is Loaded” pushbutton, which makes the “Lock In Weight” input on the Weighing Controller. The loaded weight is locked in, and the display changes to show the output weight as the elevator moves up to the discharge position. After the load has finished discharging, as the elevator moves down to the loading position, the “Lock In Weight” input is reset and the “Get Ready To Tare” input is made on the Weighing Controller, and the message “Get Ready To Tare” appears on the display. At the loading position, the “Get Ready To

Tare” input is reset and the “Start Tare” input is made on the Weighing Controller. Following the tare delay, as set in Configure, the controller automatically re-tares the scale. During the taring process, the message “Tare In Progress” is displayed and the white weight indicator light is illuminated. Once the tare process is complete, the scale is ready to be loaded again. The “Start Tare” input remains made while the elevator is at the loading position.

Alternate Displays

Press and hold button “7” on the keypad, while in Run mode, to view the status of the microprocessor inputs. The ID designations, “A” through “L”, corresponding to the inputs identified in Table 1, below, are presented across the top row, with the respective input status, identified by a “+” or “-“, shown across the bottom row. A “+” character indicates an active (grounded) input; a “-“ character indicates an inactive (open) input.

ID	Input Name
A	---
B	PROGRAM KEY
C	SIGNAL CANCEL
D	---
E	---
F	---
G	---
H	GET READY TO TARE
I	LOCK IN WEIGHT
J	START TARE
K	---
L	---

Table 1: View Microprocessor Inputs

Press and hold button “8” on the keypad, while in Run mode, to view the status of the microprocessor outputs on Page 0. Press and hold buttons “8” and “1” on the keypad together to view the status of the microprocessor outputs on Page 1. The ID designations, “a” through “l”, corresponding to the outputs identified in Table 2, below, are presented across the top row, with the respective output status, identified by a “+” or “-“, shown across the bottom row. A “+” character indicates an active (energized) output; a “-“ character indicates an inactive (de-energized) output.

ID	Output Name	
	Page 0	Page 1
a	WEIGHT A	---
b	WEIGHT B	---
c	WEIGHT C	SCALE IS TARING
d	WEIGHT D	WEIGHT HIGH
e	WEIGHT E	WEIGHT OK
f	WEIGHT F	WEIGHT LOW
g	WEIGHT G	---
h	WEIGHT H	---
i	WEIGHT J	---
j	WEIGHT K	---
k	WEIGHT L	---
l	WEIGHT M	---

Table 2: View Microprocessor Outputs

Press and hold button “9” on the keypad, while in Run mode, to view the individual weight measurement for each load cell.

Program Menu

To access the Program Menu, turn the run/program key switch to the program position. The Program Menu is used to clear program memory and to set the configuration parameters for the weighing controller. To return to Run Mode, select program menu option “0”, turn the run/program key switch to the run position, then press the “NEXT” button on the keypad.

0 Turn Key to Run	Press “0” to display this option. Turn the run/program key switch to the run position, then press “NEXT” to select this option and return to Run Mode.
1 Clear All Memory	Press “1” to display this option, then press “NEXT” to select this option and access the Clear All Memory feature. Use this option to clear program memory. When the message “Clear Memory Now/Press 4 + 5 + 6” appears on the display, turn the run/program key switch to the program position and press the buttons “4”, “5” and “6” on the keypad simultaneously. Following the clear memory process, the controller automatically enters Configure Mode where the user will be prompted to set the configuration parameters for the machine.
2 Configure	Press the “2” button on the keypad to display this option, then press the “NEXT” button to select this option and access the Configure feature. Use this option to set the following configuration parameters for the machine. Press “NEXT” to scroll forward. Press “SKIP TO” to scroll backwards. Once the configure process is complete, the display returns to the “Program 0 Menu/Turn Key To Run” option.
Unit Weight	Press “0” for LB or “1” for KG, then press “NEXT” to enter.
Tare Delay	Enter a two digit value from 00 to 99 for tare delay, then press “NEXT” to enter. After returning to its loading position, the controller waits for the tare delay to expire before beginning the tare process. This delay allows the scale to settle before sampling the load cell signals.

Sample Size	Enter a two digit value from 01 to 99 for sample size, then press “NEXT” to enter. This configuration parameter defines the number of samples from each load cell averaged together to calculate the actual weight value. A larger sample size gives a more stable weight, but a slower response time. A smaller sample size gives a quicker response time, but a less stable weight.
Number of Load Cells	Enter a value from 1 to 4 corresponding to the number of load cells, then press “NEXT” to enter. Each load cell requires its own A/D board for interfacing to the weighing controller.
3 Calibrate Loadcell	Press “3” to display this option, then press “NEXT” to select this option and access the Calibrate Loadcell feature. Use this option to calibrate each load cell. When prompted, enter a value from 1 to 4 corresponding to the load cell being calibrated, then press “NEXT” to proceed. Empty the scale, then press “NEXT” to zero the load cell, or “SKIP TO” to cancel the function. When prompted, enter a three digit value from 000 to 999 corresponding to the calibration weight which will be used to calibrate the load cell, then press “NEXT” to proceed. Position the calibration weight directly over the load cell, then press “NEXT” to calibrate, or “SKIP TO” to cancel the function. The display automatically returns to the Program Menu. Repeat the calibration procedure for each load cell.

Manual Menu

To access the Manual Menu, press buttons “SKIP TO” and “1” on the keypad simultaneously. The Manual Menu is used to test outputs, test inputs, and calibrate the scale. To return to Run Mode, select manual menu option “0”, then press the “NEXT” button on the keypad.

0 Exit Manual Menu	Press “0” to display this option, then press “NEXT” to select this option and return to Run Mode.
1 Test Outputs	Press “1” to display this option, then press “NEXT” to select this option and access the Test Outputs feature. Use this option to manually actuate each available relay output as identified in Table 3, below. Enter a two digit number from 01 to 24, corresponding to the desired output, to access that

output directly. Alternatively, press buttons “SKIP TO” and “4” simultaneously to scroll forward, or buttons “SKIP TO” and “6” simultaneously to scroll backwards. Press “NEXT” to turn the selected output on. Press “SKIP TO” to turn the output off. Enter 00 to display “ABORT OUTPUTS TEST”, then press “NEXT” to select this option and return to the Manual Menu.

Item	Connections		Output Name	Output Function
	Common	Normally Open		
00	n/a	n/a	ABORT OUTPUTS TEST	Return to Manual Menu
01	1MTA13-11	1MTA13-01	WEIGHT A	Signals binary Weight bit 0 (value = 0.1)
02	1MTA13-12	1MTA13-02	WEIGHT B	Signals binary Weight bit 1 (value = 0.2)
03	1MTA13-13	1MTA13-03	WEIGHT C	Signals binary Weight bit 2 (value = 0.4)
04	1MTA13-14	1MTA13-04	WEIGHT D	Signals binary Weight bit 3 (value = 0.8)
05	1MTA13-15	1MTA13-05	WEIGHT E	Signals binary Weight bit 4 (value = 1.6)
06	1MTA13-16	1MTA13-06	WEIGHT F	Signals binary Weight bit 5 (value = 3.2)
07	1MTA13-17	1MTA13-07	WEIGHT G	Signals binary Weight bit 6 (value = 6.4)
08	1MTA13-18	1MTA13-08	WEIGHT H	Signals binary Weight bit 7 (value = 12.8)
09	1MTA13-19	1MTA13-09	WEIGHT J	Signals binary Weight bit 8 (value = 25.6)
10	1MTA14-01	1MTA13-10	WEIGHT K	Signals binary Weight bit 9 (value = 51.2)
11	1MTA14-02	1MTA14-11	WEIGHT L	Signals binary Weight bit 10 (value = 102.4)
12	1MTA14-03	1MTA14-12	WEIGHT M	Signals binary Weight bit 11 (value = 204.8)
13	1MTA14-04	1MTA14-13	OUTPUT 26	Not used
14	1MTA14-04	1MTA14-14	OUTPUT 27	Not used
15	1MTA14-10	1MTA14-05	SCALE IS TARING	Illuminates White weight indicator light
16	1MTA14-10	1MTA14-15	WEIGHT HIGH	Illuminates Red weight indicator light
17	1MTA14-10	1MTA14-06	WEIGHT OK	Illuminates Blue weight indicator light
18	1MTA14-10	1MTA14-16	WEIGHT LOW	Illuminates Amber weight indicator light
19	1MTA14-10	1MTA14-07	OUTPUT 32	Not used
20	1MTA14-10	1MTA14-17	OUTPUT 33	Not used
21	1MTA14-10	1MTA14-08	OUTPUT 34	Not used
22	1MTA14-10	1MTA14-18	OUTPUT 35	Not used
23	1MTA14-10	1MTA14-09	OUTPUT 36	Not used
24	1MTA14-10	1MTA14-19	OUTPUT 37	Not used

Table 3: Test Microprocessor Outputs

2 Test Inputs

Press “2” to display this option, then press “NEXT” to select this option and access the Test Inputs feature. Use this option to view the status of the microprocessor inputs. The item designations, A through L, corresponding to the inputs identified in Table 4, below, are presented across the top

row, with the respective input status, identified by a “+” or “-“, shown across the bottom row. A “+” character indicates an active (grounded) input; a “-“ character indicates an inactive (open) input. Press “SKIP TO” to return to the Manual Menu.

Item	Connection	Input Name	Input Function
A	1MTA38-3	INPUT 00	Not used
B	1MTA38-2	PROGRAM KEY	Enable programming function
C	1MTA38-1	SIGNAL CANCEL	Reset a fault condition
D	1MTA38-4	INPUT 03	Not used
E	1MTA38-5	INPUT 04	Not used
F	1MTA38-6	INPUT 05	Not used
G	1MTA39-5	INPUT 06	Not used
H	1MTA39-4	GET READY TO TARE	Enable the tare function
I	1MTA39-3	LOCK IN WEIGHT	Read load weight for output
J	1MTA39-8	START TARE	Initiate the tare function
K	1MTA39-7	INPUT 10	Not used
L	1MTA39-6	INPUT 11	Not used

Table 4: Test Microprocessor Inputs

3 Set A/D Offset

Press “3” to display this option, then press “NEXT” to select this option and access the Set A/D Offset feature. Use this option to set the offset adjustment pot on the load cell interface board installed on each A/D board. The display shows the 12-bit A/D counts (0000-4095) for each A/D board. Locate the adjustment pot between connectors MTA54 and MTA55 on the A/D board and set the A/D offset to approximately 1000 counts. Turn the pot clockwise to decrease the counts and counter-clockwise to increase the counts. Repeat for each A/D board. Press “SKIP TO” to return to the Manual Menu.

4 View Calibration

Press “4” to display this option, then press “NEXT” to select this option and access the View Calibration feature. Use this option to view the scale values for each load cell as set in the calibration procedure. Press “SKIP TO” to return to the Manual Menu.