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Schematic/Electrical Parts

30015, 30022V8Z, VZZ

Washer-Extractor

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

W7V8ZPL/2021274N

COMPONENT NUMBER	FUNCTION OF THIS COMPONENT NUMBER	WHERE TO FIND THIS COMPONENT	MILNOR P/N	DESCRIPTION	LOCATION
	>>>CONTROL BOX LAYOUTS				
01	DETAIL- CONTROL PANEL V8Z	W7V8ZTG1	B2T2011005	30" MILTOUCH CONTROL PANEL	SEE FUNCTION
02	DETAIL- PWR/CHEM CONNECTS V8Z	W7V8ZTG1	B2T2011006	30" MILTOUCH PWR/CHEM CONN.	SEE FUNCTION
BA	**>>PRINTED CIRCUIT BOARDS**				
BAFR <7/7/18	BOARD-START-RELAY	W7V8ZLV & S+	08BHFRCT	BD-T/V/X START CIRCUIT->TEST	REAR CNT PANEL
BAFR >7/7/18	BOARD-START-RELAY	W7V8ZLV & S+	08BHFRDT	START CIRCUIT BD-24VDC> TESTED	REAR CNT PANEL
BAUP < 2/5/16	BOARD=ARM9 PROCESSOR+TOUCH SCREEN	W7V8ZBW	08BHA9D3T	ASSY:ARM9 PROC+OPTREX DSP-TESTED	CNT BX ON SHELL
BAUP > 2/5/16	BOARD=ARM9 PROCESSOR+TOUCH SCREEN	W7V8ZBW	08BHA9E3GT	ASSY:ARM9 PROC+OPTREX DSP>REVG-TEST	CNT BX ON SHELL
BIO	BOARD=ARM9 INPUT/OUTPUT	W7V8ZBW	08BHF120AT	BD:ARM9 REMOTE PERIPHEAL-TESTED	REAR CNT PANEL
CR	**>>RELAY-PILOT OR CONTROL**				
CRC1	RELAY-FLUSH CHEMICAL #1	W7V8ZCM	09C024D71	RELAY 4PDT DIFGLD 14PN 240V	12 CHEM BOX
CRC2	RELAY-FLUSH CHEMICAL #2	W7V8ZCM	09C024D71	RELAY 4PDT DIFGLD 14PN 240V	12 CHEM BOX
CRC3	RELAY-FLUSH CHEMICAL #3	W7V8ZCM	09C024D71	RELAY 4PDT DIFGLD 14PN 240V	12 CHEM BOX
CRC4	RELAY-FLUSH CHEMICAL #4	W7V8ZCM	09C024D71	RELAY 4PDT DIFGLD 14PN 240V	12 CHEM BOX
CRC5	RELAY-FLUSH CHEMICAL #5	W7V8ZCM	09C024D71	RELAY 4PDT DIFGLD 14PN 240V	12 CHEM BOX
CRC6	RELAY-FLUSH CHEMICAL #6	W7V8ZCM	09C024D71	RELAY 4PDT DIFGLD 14PN 240V	12 CHEM BOX
CRD	RELAY-OK TO OPEN DOOR	W7V8ZS+	09C024D71	RELAY 4PDT DIFGLD 14PN 240V	START/RELAY BD
CRDL	RELAY-DOOR CLOSED AND LOCKED	W7V8ZS+	09C024D71	RELAY 4PDT DIFGLD 14PN 240V	START/RELAY BD
CRE	RELAY-OK TO LOCK DOOR	W7V8ZS+	09C024D71	RELAY 4PDT DIFGLD 14PN 240V	START/RELAY BD
CS	**>>CONTACTOR-MOTOR STARTER**				
CSVP	CONTACTOR-ENABLE INVERTER	W7V8ZS+	09MC08C371	16A 3P MCS CONT NR 240V5/6	REAR CNT PANEL
CSVP-AUX	AUX CONTACTS FOR INVERTER CONTACTOR	W7V8ZS+	09MC08010A	AUX.SW. 1-NO/1-NC FRONT MT	ON CONTACTOR
EB	**>>AUDIBLE SIGNAL**				
EBSG	BUZZER-AUDIBLE SIGNAL	W7V8ZBS	09H020A71	ALARM SONALERT 240V	E-STOP BOX
EF	**>>FUSE OR FUSE HOLDER**				
EF71A	FUSE-CONTROL CIRCUIT X-BUS	W7V8ZS+	09FF002AMG	FUSE BK/MDX 2 AMP 250V BUSS	START/RELAY BD
EF71B	FUSE-CONTROL CIRCUIT Y-BUS	W7V8ZS+	09FF002AMG	FUSE BK/MDX 2 AMP 250V BUSS	START/RELAY BD
EFP1	FUSE-TRANSFORMER PRIMARY LOW VOLT	W7V8ZLV	09FF005AWN	FUSE #KTK 5A600V=HPS HOLDER	REAR CNT PANEL
EFP1	FUSE-TRANSFORMER PRIMARY HIGH VOLT	W7V8ZLV	09FF002AWN	FUSE BUSS #KTK 2 1/2 AMP 600V	REAR CNT PANEL
EFP2	FUSE-TRANSFORMER PRIMARY LOW VOLT	W7V8ZLV	09FF005AWN	FUSE #KTK 5A600V=HPS HOLDER	REAR CNT PANEL
EFP2	FUSE-TRANSFORMER PRIMARY HIGH VOLT	W7V8ZLV	09FF002AWN	FUSE BUSS #KTK 2 1/2 AMP 600V	REAR CNT PANEL
EL	**>>LIGHTS**				
ELSG	LIGHT-ROTATING BEACON SIGNAL	W7V8ZBW	09H025V71	BEACON ROTARY 8.5"DIA AMBER	TOP OF REAR

COMPONENT PARTS LIST

W7V8ZPL/2021274N

COMPONENT NUMBER	FUNCTION OF THIS COMPONENT NUMBER	WHERE TO FIND THIS COMPONENT	MILNOR P/N	DESCRIPTION	LOCATION
EM	**>>ELECTROMAGNET AND SOLENOID**				
EMDL	SOLENOID-DOOR	W7V8ZS+	09K063C24	DOOR LOCK SOLENOID 24V	DOOR LOCK ASSY
EMDR	SOLENOID-DRAIN VALVE	W7V8ZEV	96D350A71	DRINVAL 3"N/O MTRDR240V 50/60C DEPENDO	BELOW SHELL
ES	**>>POWER SUPPLY-ELECTRONIC**				
ESPS	POWER SUPPLY-MICROPROCESSOR	W7V8ZBW	08PSS3401T	40 WATT POWER SUPPLY TESTED	REAR CNT PANEL
EX	**>>TRANSFORMERS**				
EXHV	TRANSFORMER-208VAC TO 240VAC	W7V8ZLV	09UB25AT71	AUTOXFMR 208V-230V 250VA	REAR CNT PANEL
EXHV	TRANSFORMER-380/480V TO 240V	W7V8ZLV	09UA025AAB	XFMR 380-480PRI/120-240SEC250V	REAR CNT PANEL
MOV	VARISTOR-TRANSIENT VOLTAGE PROTECTOR	W7V8ZBW	08M0V0240	VARISTER-METAL OXIDE 240VAC	REAR CNT PANEL
MT	**>>MOTORS**				
MTWE	MOTOR-WASHER-V8Z	W7V8ZVPF	39G813BCT	5HP 4P 220/380/480/5+6 TOP	DRIVE BASE
MTWE	MOTOR-WASHER-VZZ	W7V8ZVPF	39G816AAT	6HP 4P 240/380/480 50/6	DRIVE BASE
MV	**>>>MOTOR POWER INVERTERS**				
MVDVR	RESISTOR-DYNAMIC BRAKE	W7V8XVPF	09MV100RES	RESIST 100 OHM 225WATT ADJ	REAR CNT PANEL
MVINR	REACTOR - INVERTER LOW VOLTAGE	W7V8ZVPF	09MX075A74	INVERT RECTR 5HP 200-240V 25A	REAR CNT PANEL
MVINR	REACTOR - INVERTER HIGH VOLTAGE	W7V8ZVPF	09MX075A96	REACTOR 7.5HP 460V 12A	REAR CNT PANEL
MVINV	INVERTER-LOW VOLTAGE 3PH	W7V8ZVPF	09MWB01774	V1000 INVERTER 17.5AMP 230V	REAR CNT PANEL
MVINV	INVERTER-LOW VOLTAGE 3PH	W7V8ZVPF	09MWD01774	GA500 INVERTER 17 AMP 230V	REAR CNT PANEL
MVINV	INVERTER-LOW VOLT 1PH	W7V8ZVPF	09MWB02574	V1000 INVERTER 25AMP 230V	REAR CNT PANEL
MVINV	INVERTER-LOW VOLT 1PH	W7V8ZVPF	09MWD02574	GA500 INVERTER 25 AMP 230V	REAR CNT PANEL
MVINV	INVERTER-HIGH VOLTAGE 3PH	W7V8ZVPF	09MWB00996	V1000 INVERTER 9.2AMP 460V	REAR CNT PANEL
MVINV	INVERTER-HIGH VOLTAGE 3PH	W7V8ZVPF	09MWD00996	GA500 INVERTER 9.2 AMP 460V	REAR CNT PANEL
RS	**>>RESISTOR**				
RS01	RESISTOR-POWER SUPPLY LOADING	W7V8ZBW	09AR16R25	RESISTOR 16 OHMS 25 WATTS	REAR CNT PANEL
SH	**>>SWITCH-HAND OPERATED**				
SH01	SWITCH-208/240VAC	W7V8ZLV	MESSAGE EW	SEE BAFR-START RELEAY BD	START/RELAY BD
SHDO	SWITCH-DOOR OPEN	W7V8ZIA	09N405PB10	SWASS PBBK 1NO	CNT BX ON SHELL
SHMA	SWITCH-MASTER	W7V8ZLV	09N405M220	SWASS M2W 2NO	CNT BX ON SHELL
SHSOE	SWITCH-EMERGENCY STOP	W7V8ZLV	09N508	SW ASSY EMER STOP VERSION 3	CNT BX ON SHELL
SHWD	SWITCH-WASH DIRECTION	W7V8ZI	09N405M210	SWASS M2W 1NO	SIDE OF SW PNL
SK	**>>SWITCH-KEYLOCK**				
SM	**>>SWITCH-MECHANICAL OPERATED**				
SMD	SWITCH-DOOR INTERLOCK	W7V8ZS+	09R010D	DOOR LOCK SWITCH	DOOR LOCK ASSY

2

COMPONENT PARTS LIST

W7V8ZPL/2021274N

COMPONENT NUMBER	FUNCTION OF THIS COMPONENT NUMBER	WHERE TO FIND THIS COMPONENT	MILNOR P/N	DESCRIPTION	LOCATION
SME	SWITCH-IS LOCKED	W7V8ZS+	02 04177	MICROSWITCH=W/MAN CUT LEVER	DOOR LOCK ASSY
SMWVB	SWITCH-VIBRATION	W7V8ZIA	09R020	SWITCH NC VIBR#WZ-2RW84429-P52	REAR CNT PANEL
SP	**>>>SWITCH-PRESSURE**				
STDB	THERMOSTAT-DYNAMIC BRAKE RESISTOR	W7V8ZS+	30RA175T	THERMOSTAT OPENS AT 175F	REAR CNT PANEL
TP	**>>TEMPERATURE PROBE**				
TP1	PROBE-TEMPERATURE	W7V8ZBW	30R0043P	TEMP PROBE:THERMISTOR 30K OHMS	BOTTOM OF SHELL
VE	**>>VALVE-ELECTRIC OPERATED**				
VEC1	VALVE-FLUSH CHEM POCKET 1	W7V8ZCF	CONNECTION	CHEMICAL FLUSHING VALVE BY OTHERS	PWR CONN BX
VEC2	VALVE-FLUSH CHEM POCKET 2	W7V8ZCF	CONNECTION	CHEMICAL FLUSHING VALVE BY OTHERS	PWR CONN BX
VEC3	VALVE-FLUSH CHEM POCKET 3	W7V8ZCF	CONNECTION	CHEMICAL FLUSHING VALVE BY OTHERS	PWR CONN BX
VEC4	VALVE-FLUSH CHEM POCKET 4	W7V8ZCF	CONNECTION	CHEMICAL FLUSHING VALVE BY OTHERS	PWR CONN BX
VEC5	VALVE-FLUSH CHEM POCKET 5	W7V8ZCF	CONNECTION	CHEMICAL FLUSHING VALVE BY OTHERS	PWR CONN BX
VEC6	VALVE-FLUSH CHEM POCKET 6	W7V8ZCF	CONNECTION	CHEMICAL FLUSHING VALVE BY OTHERS	PWR CONN BX
VEC7	VALVE-FLUSH CHEM POCKET 7	W7V8ZCF	CONNECTION	CHEMICAL FLUSHING VALVE BY OTHERS	PWR CONN BX
VEC8	VALVE-FLUSH CHEM POCKET 8	W7V8ZCF	CONNECTION	CHEMICAL FLUSHING VALVE BY OTHERS	PWR CONN BX
VEFL	VALVE-FLUSH	W7V8ZEV	96P058A71	1/4"NPT X 1/8"ORIFICE 240V 5/6	REAR OF MACH
VESTM	VALVE-OPTIONAL STEAM VALVE	W7V8ZEV	96P039A71	1/2"STEAMVAL240V50/60C 150PSI	REAR OF MACH
VEWC	VALVE-COLD WATER	W7V8ZEV	96P056B71	3/4"NC 230V50/60 BURKERT #5281	REAR OF MACH
VEWH	VALVE-HOT WATER	W7V8ZEV	96P056B71	3/4"NC 230V50/60 BURKERT #5281	REAR OF MACH

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, EX Factory (labor and freight specifically NOT included). 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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BMP720097/19036

How to order repair parts

Repair parts may be ordered either from the authorized dealer who sold you this machine, or directly from the MILNOR factory. In most cases, your dealer will have these parts in stock.

When ordering parts, please be sure to give us the following information:

1. Model and serial number of the machine for which the parts are required
2. Part number
3. Name of the part
4. Quantity needed
5. Method of shipment desired
6. In correspondence regarding motors or electrical controls, please include all nameplate data, including wiring diagram number and the make or manufacturer of the motor or controls.

All parts will be shipped C.O.D. transportation charges collect only.

Please read this manual

It is strongly recommended that you read the installation and operating manual before attempting to install or operate your machine. We suggest that this manual be kept in your business office so that it will not become lost.

PELLERIN MILNOR CORPORATION
P.O. BOX 400, KENNER, LA., 70063-0400, U.S.A.
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BMP720097R
72332A

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).

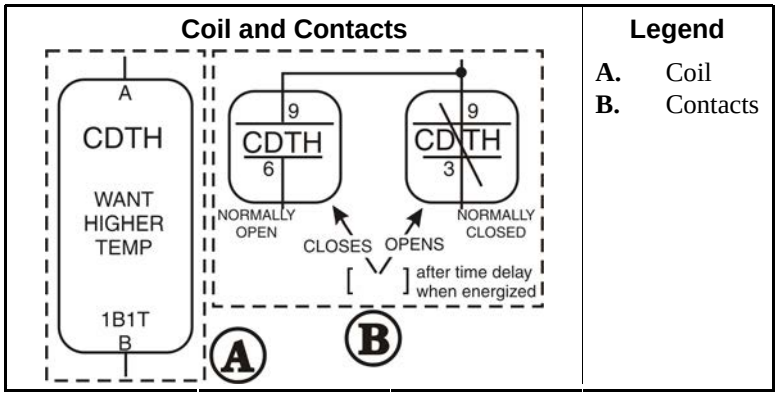
BA=Printed Circuit Board—Insulating substrate on which a thin pattern of copper conductors has been formed to connect discrete electronic components also mounted on the board.

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)

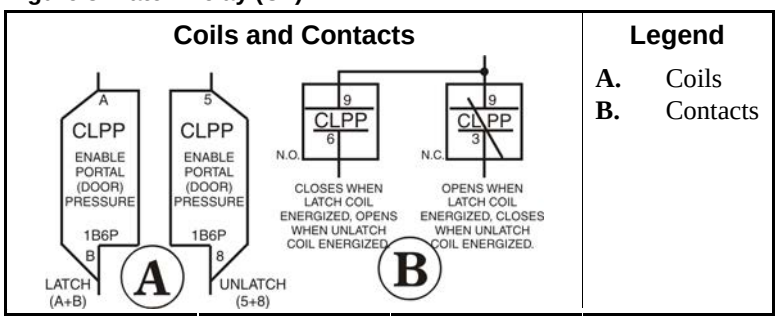
CD=Control, Time Delay Relay (Figure 2)—A relay whose contacts switch only after a fixed or adjustable delay, once voltage has been applied to its coil. The contacts switch back to normal (de-energized state) immediately when the voltage is removed.

Figure 2: Time Delay Relay (CD)



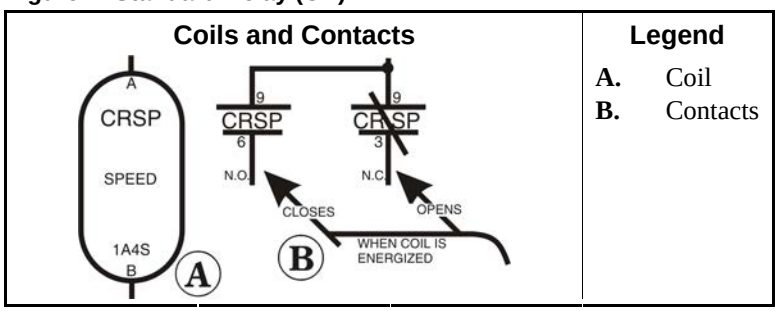
CL=Control, Latch Relay (Figure 3)—A relay which latches in an energized or set position when operated by one coil (the latch/set coil). The relay stays latched even though coil voltage is removed. The relay releases or unlatches when voltage is applied to a second coil (the unlatch/reset coil).

Figure 3: Latch Relay (CL)



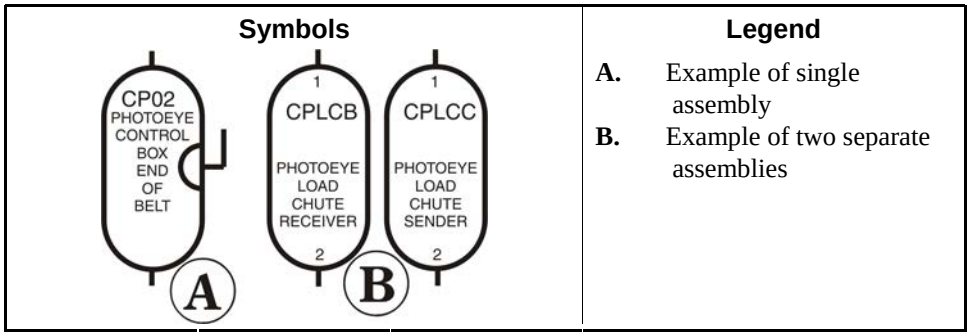
CR=Control, Relay (Figure 4)—A relay whose contacts switch immediately when voltage is applied to its coil and revert to normal when the voltage is removed.

Figure 4: Standard Relay (CR)



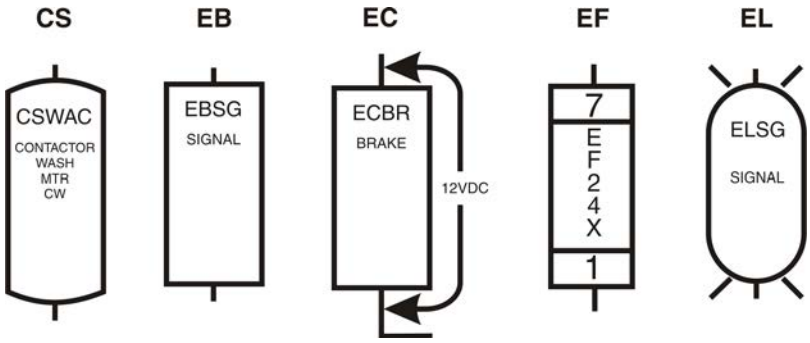
CP=Control, Photo-Eye (Figure 5)—Photo-eyes sense the presence of an object without direct physical contact. Photo-eyes consist of a transmitter, receiver, and output module. These components may be housed in one assembly with the transmitter bouncing light off of a reflector to the receiver, or these 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.

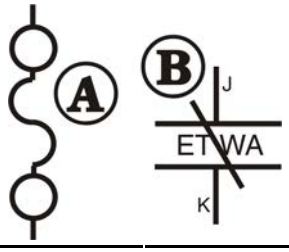
EL=Electric Light (Figure 6)—Indicator lights may be either incandescent or fluorescent.

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.

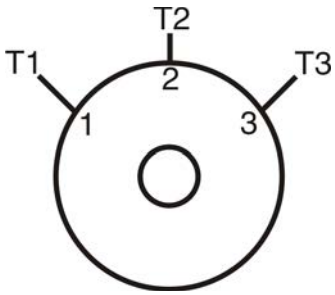
KB=Keyboard—Device similar to a typewriter for making entries to a computer.

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)

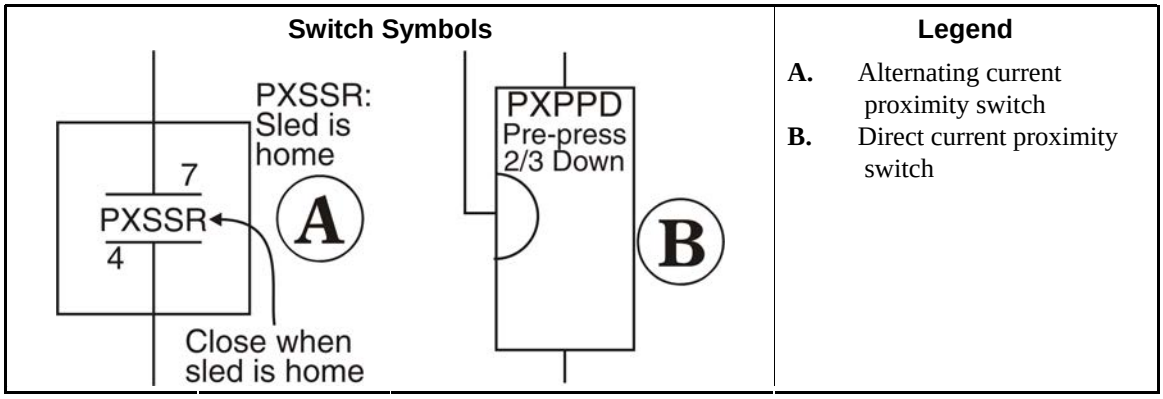


MV=Motor (Variable Speed) Inverter—To vary the speed of an AC motor, the volts to frequency ratio must be kept constant. The motor will overheat if this ratio is not maintained. The motor variable speed inverter converts three phase AC to DC. The inverter then uses this DC voltage to generate AC at the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

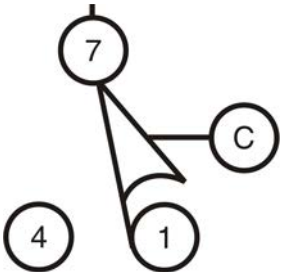
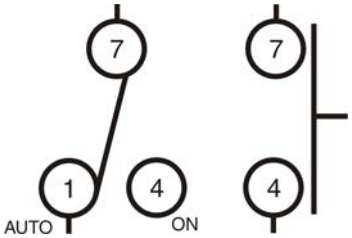


Figure 12: Hand Operated Switch (SH)



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)

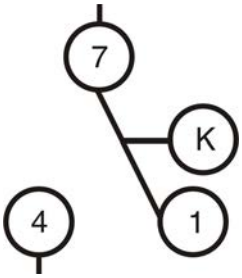
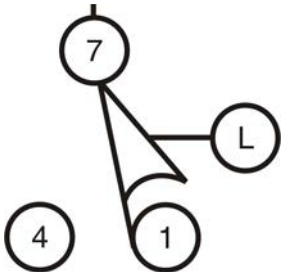


Figure 14: Level Switch (SL)



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)

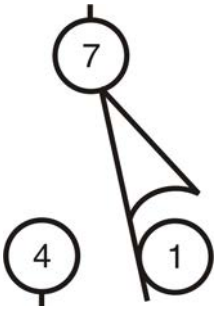
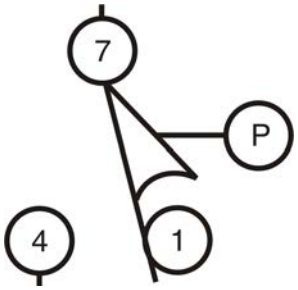


Figure 16: Pressure Switch (SP)



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)

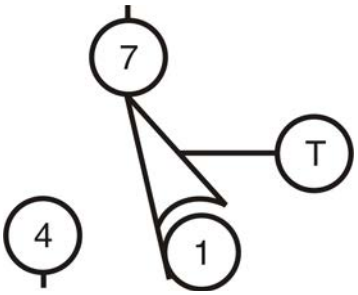
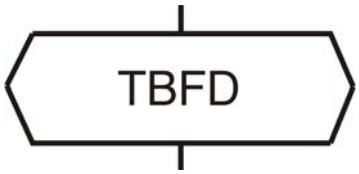


Figure 18: Terminal Board (TB)



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)

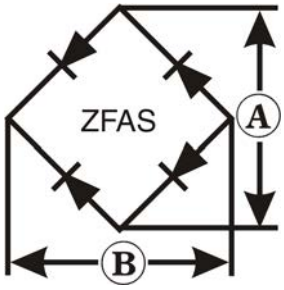
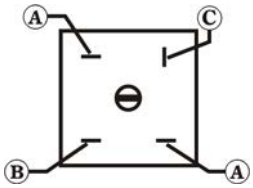
Component Symbol	Legend
	**A.** Alternating current input **B.** Direct current output

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.

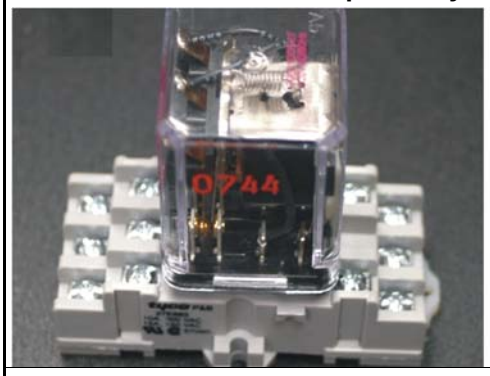
2. Component Terminal Numbering

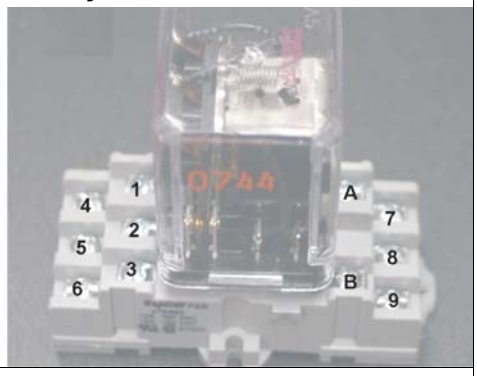
CAUTION 1: Risk of Mis-wiring—Due to electrical component manufacturing inconsistencies, the pin numbers imprinted on components such as connectors and relay bases used on Milnor machines often do not correspond to the pin numbers shown in the schematics.

- 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.

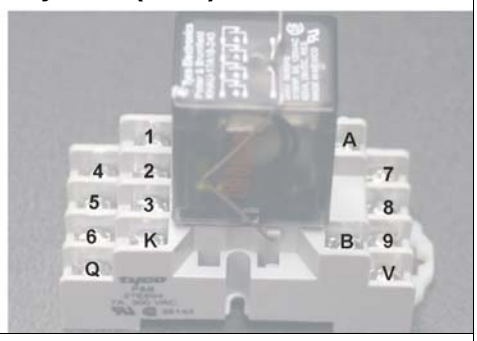
Figure 22: Plug-in Relays

11-pin Relay with Grey Base

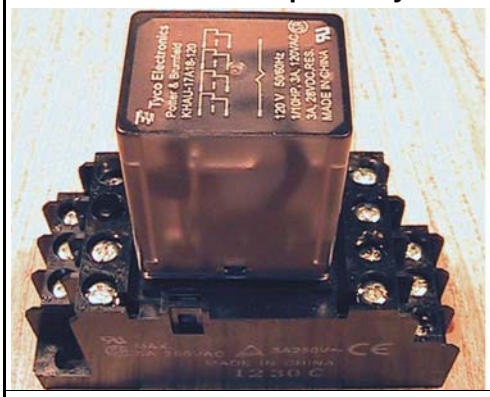


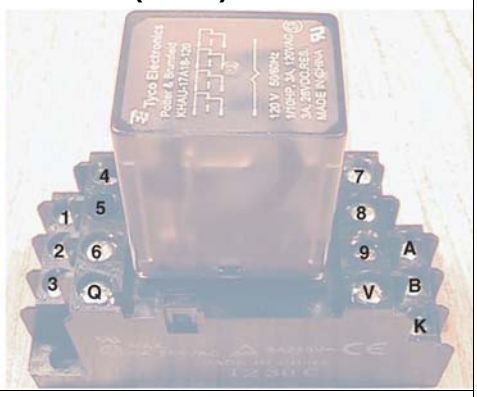


14-pin Relay with Grey Base (older)

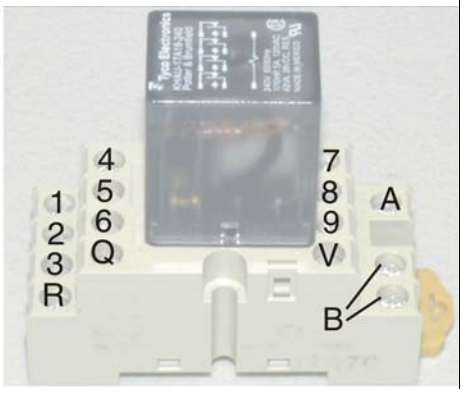


14-pin Relay with Black Base (newer)





14-pin Relay with Beige Base (rare)



Legend

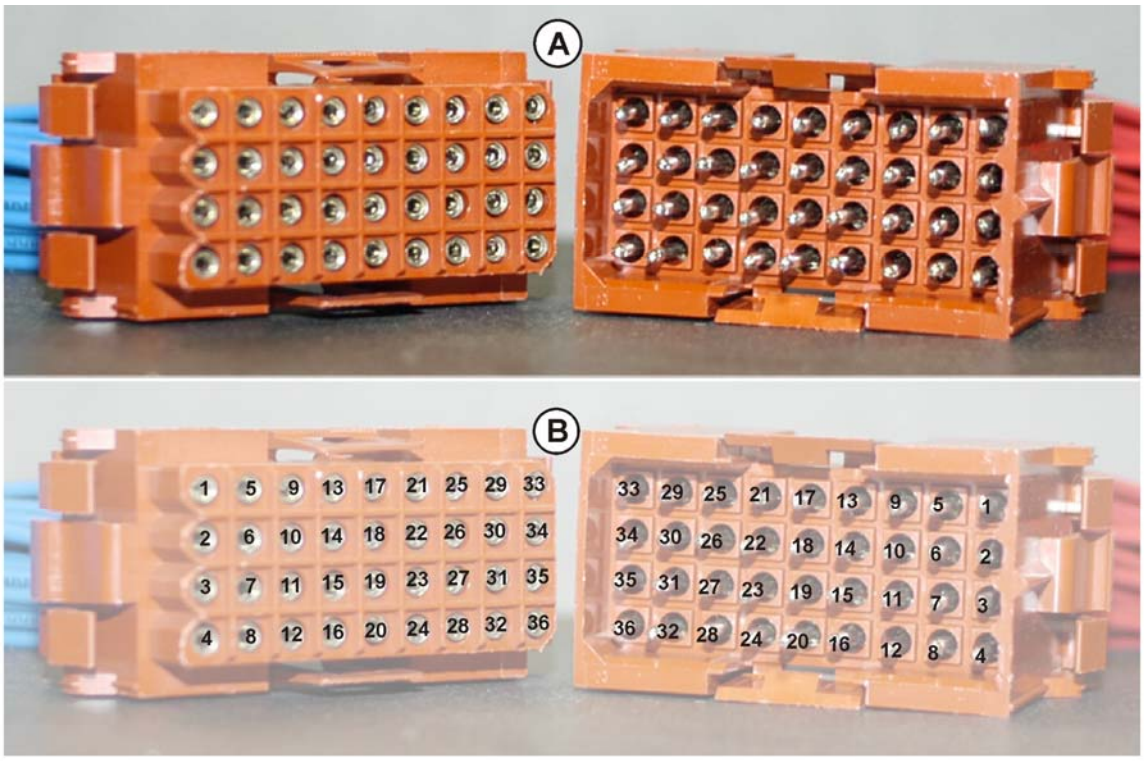
Left. View of relay and base

Right. Same view, showing pin numbers

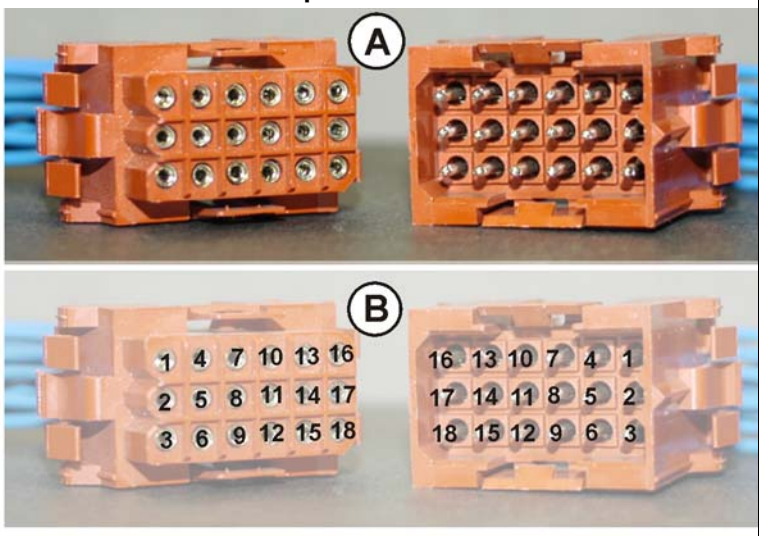
Note 3: Relay functional names ending with the letter "M" (e.g., CRxxM) are not discrete components but are a component of a printed circuit board. They are usually not individually replaceable.

Figure 23: AMP Connector Pin Locations

36-pin Connector



18-pin Connector

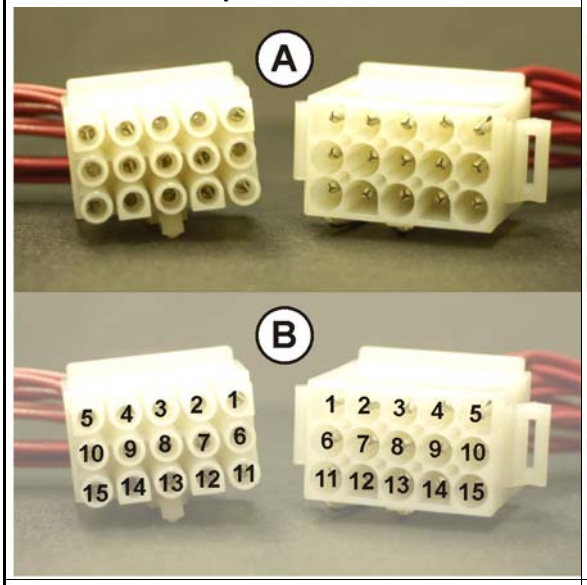


Legend

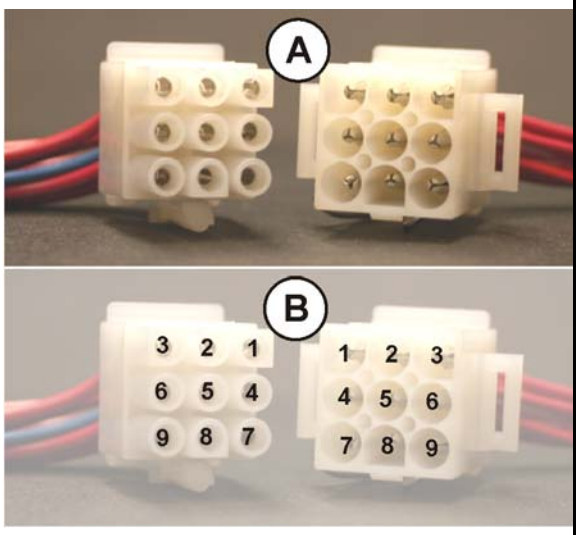
A. View of mating halves of connector
B. Same view, showing assigned pin numbers

Figure 24: Molex Connector Pin Locations

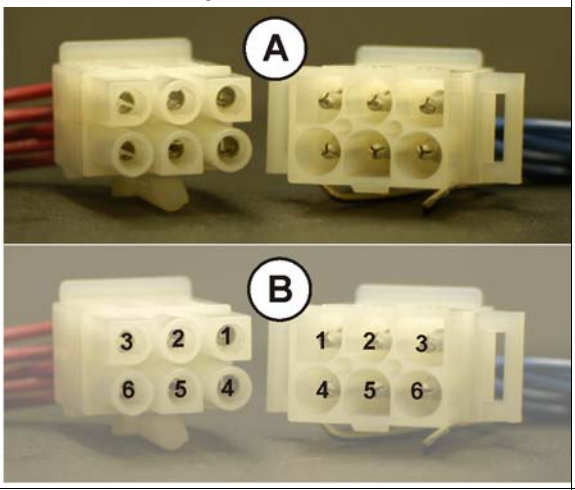
15-pin Connector



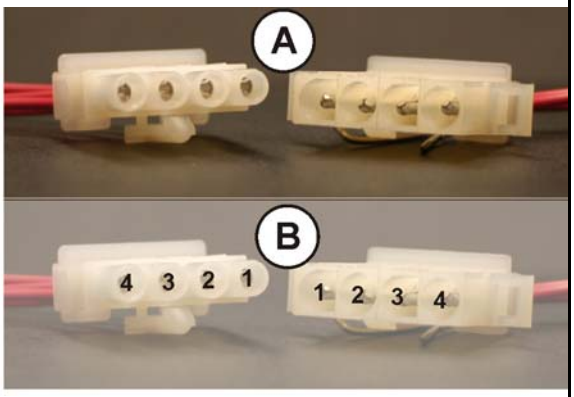
9-pin Connector



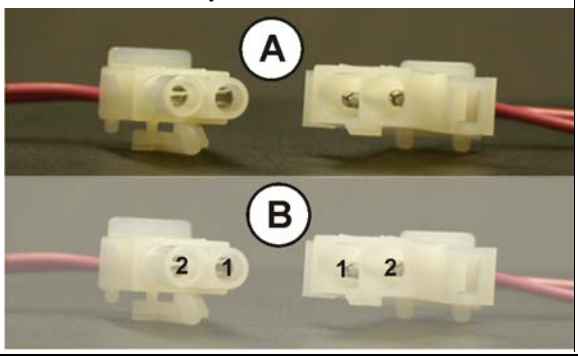
6-pin Connector



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

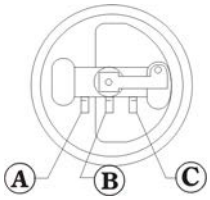
Component	Legend
	**A.** Contact 1—Normally open **B.** Contact 2—Normally closed **C.** Contact 3—Common

Figure 26: Toggle Switch

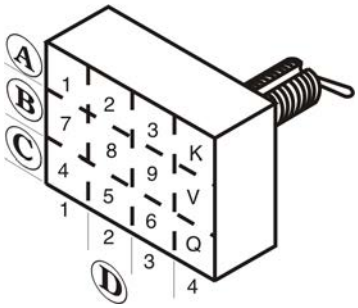
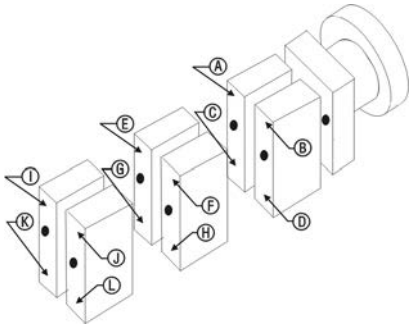
Component	Legend
	**A.** Normally closed contacts **B.** Common contacts **C.** Normally open contacts **D.** Pole

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

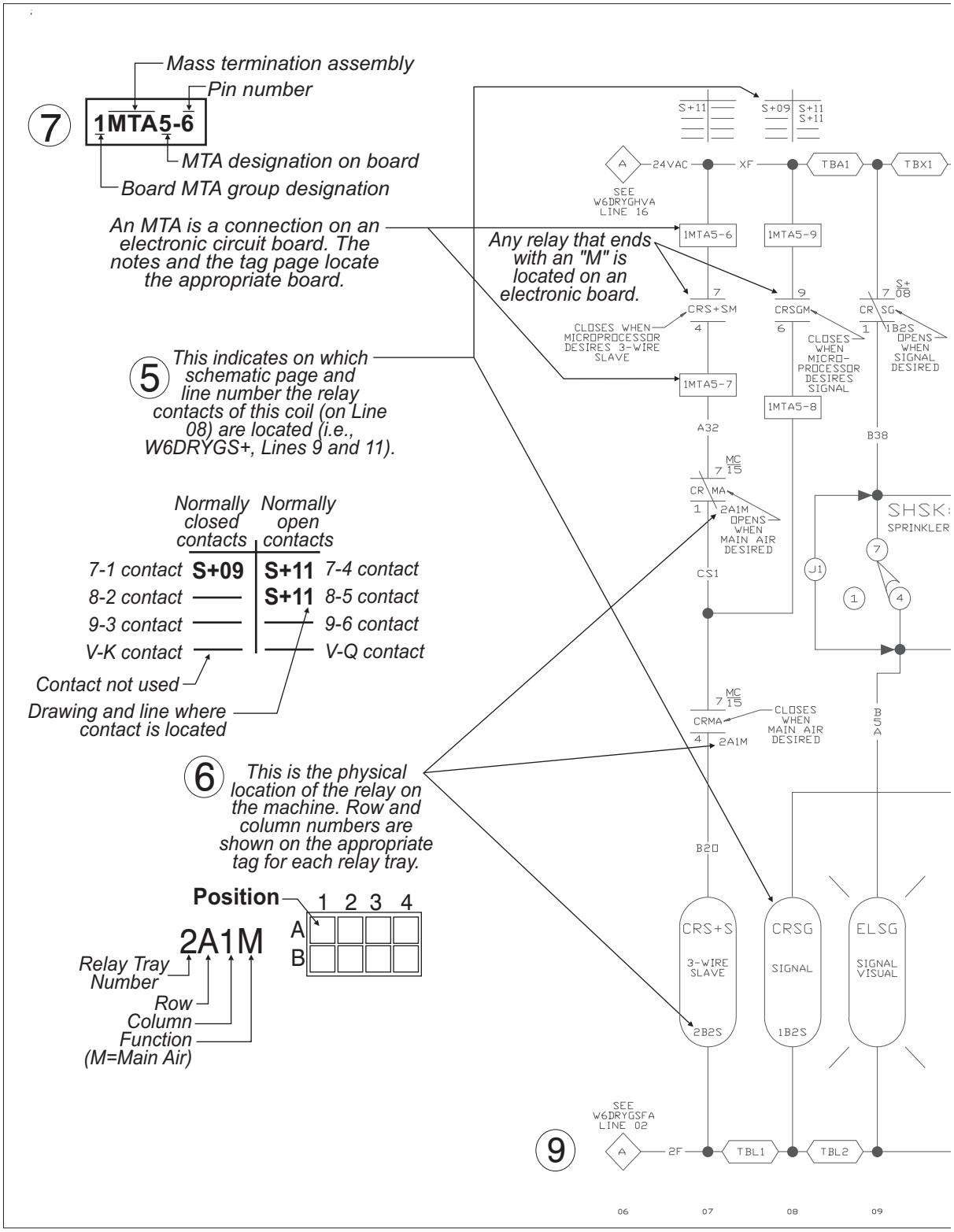
circuitry (S+=three-wire circuit) and establish the order in which the schematic occurs in the manual (schematics are arranged in alpha-numeric order in the manual).

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).

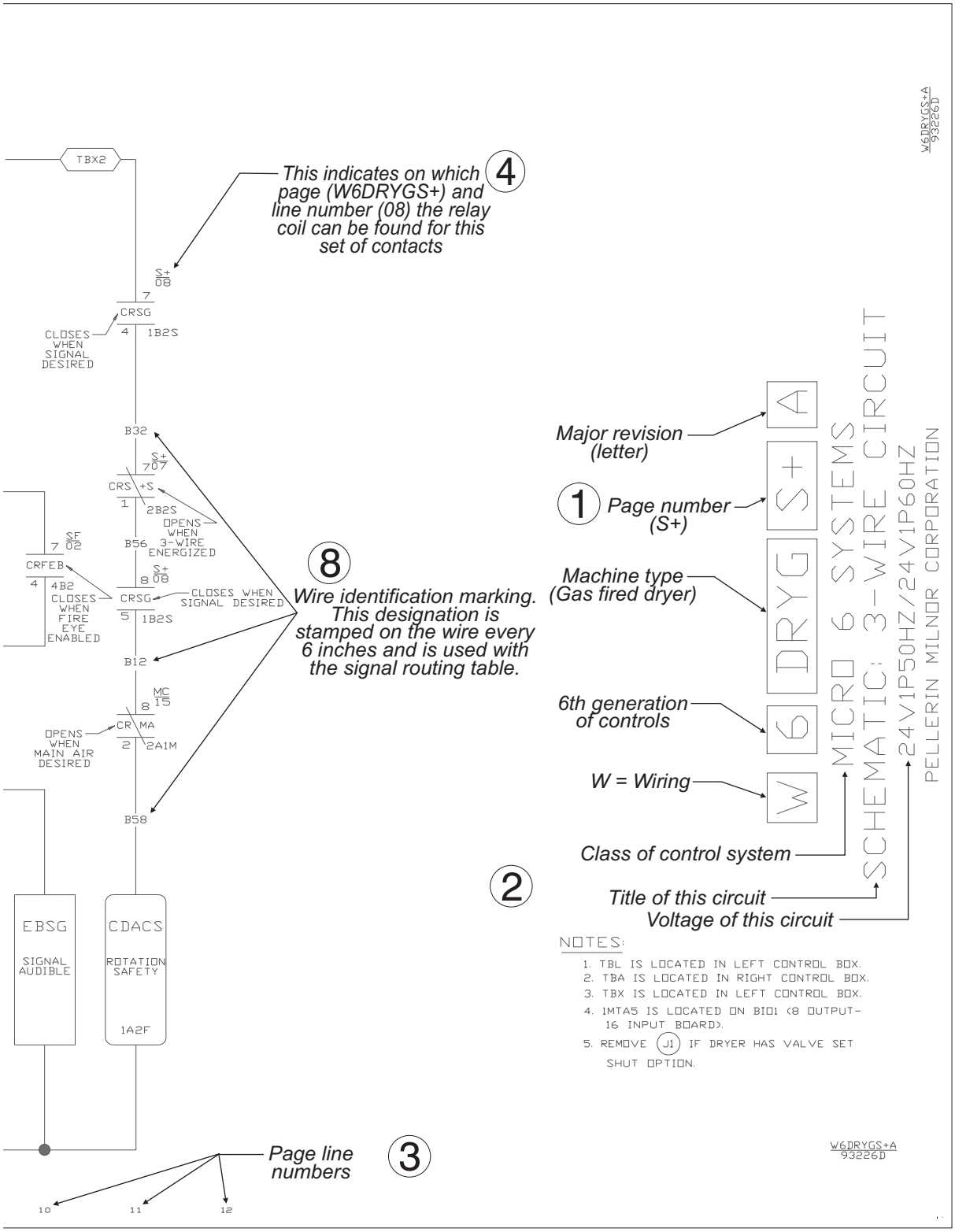
2. Included in the drawing title are the class of control system, the title of this circuit, and the circuit voltage.
3. Line numbers are provided along the bottom edge of the drawing. These permit service personnel in the field and at the Milnor® factory to quickly relate circuit locations when discussing 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 —

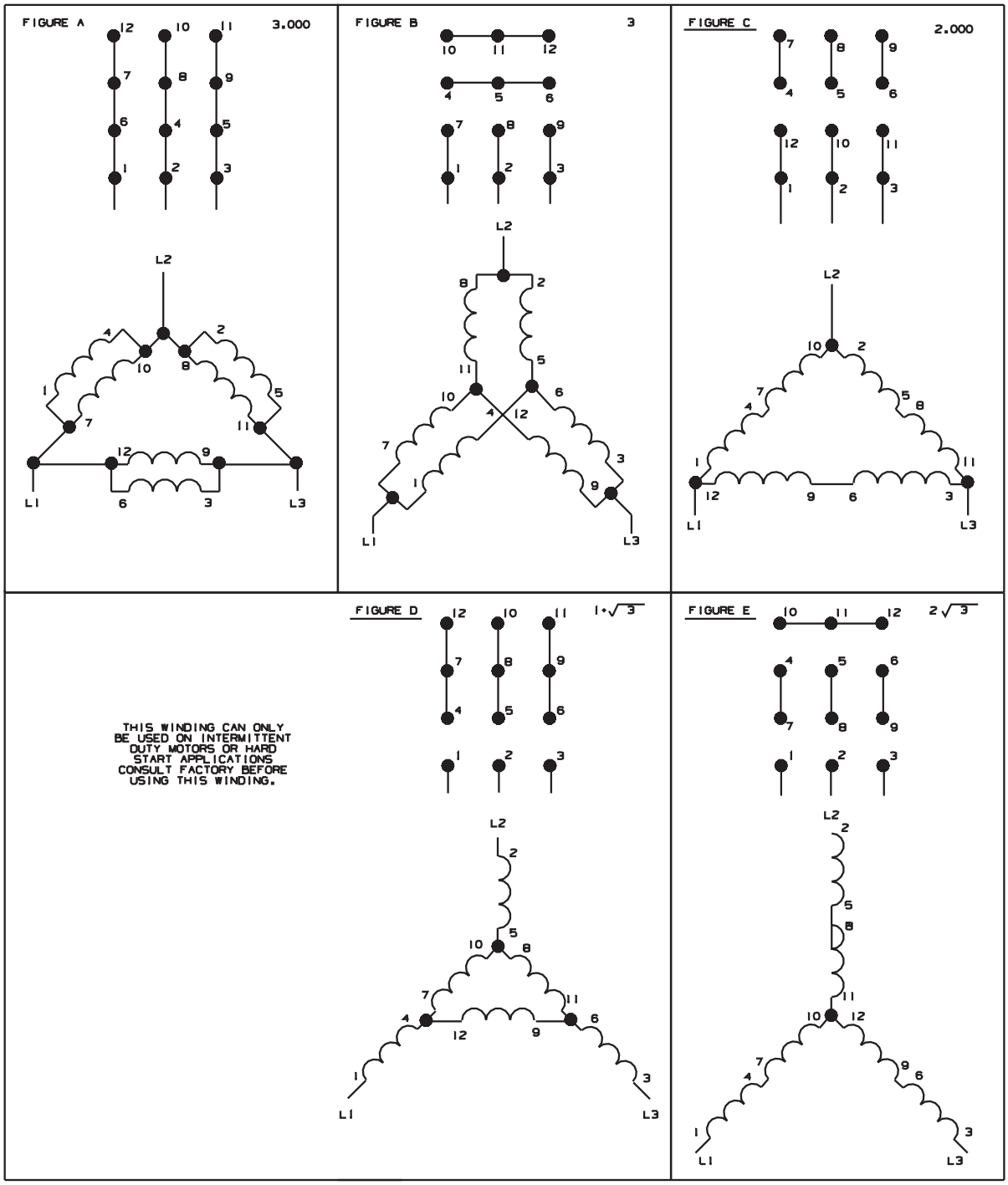


BMP010012 (left) / 2018343



BMP010012 (right) / 2018343

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

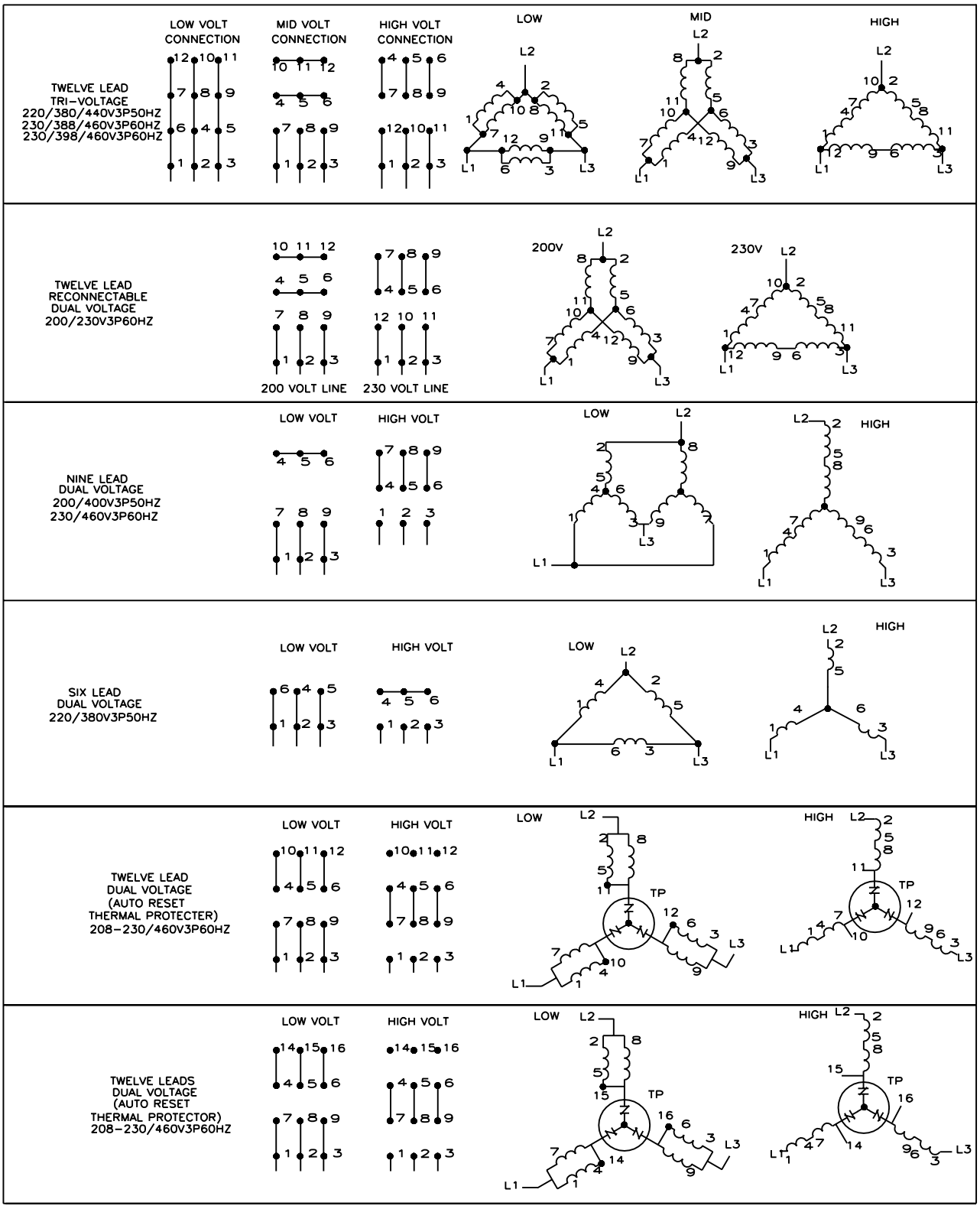
MOTOR CONNECTION DIAGRAMS

THREE PHASE SINGLE SPEED MOTORS WITH MULTIPLE VOLTAGE RATINGS

(ONLY FOR MOTOR SUFFIXES LISTED)

PELLERIN MILNOR CORPORATION

BMP850029
993628

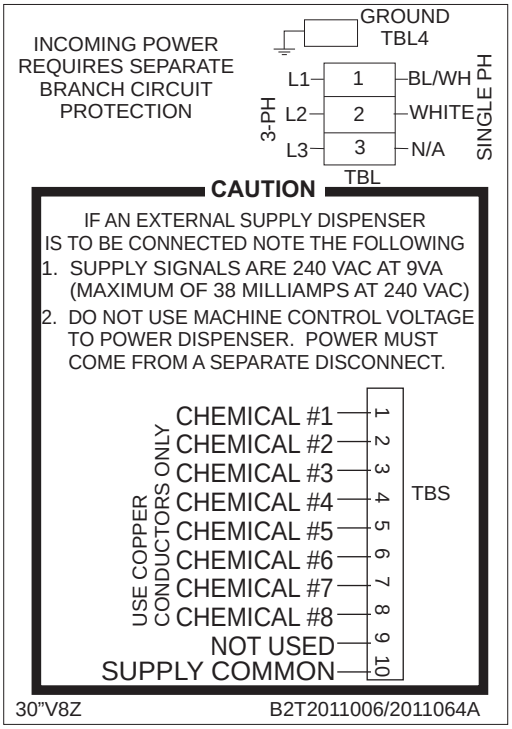


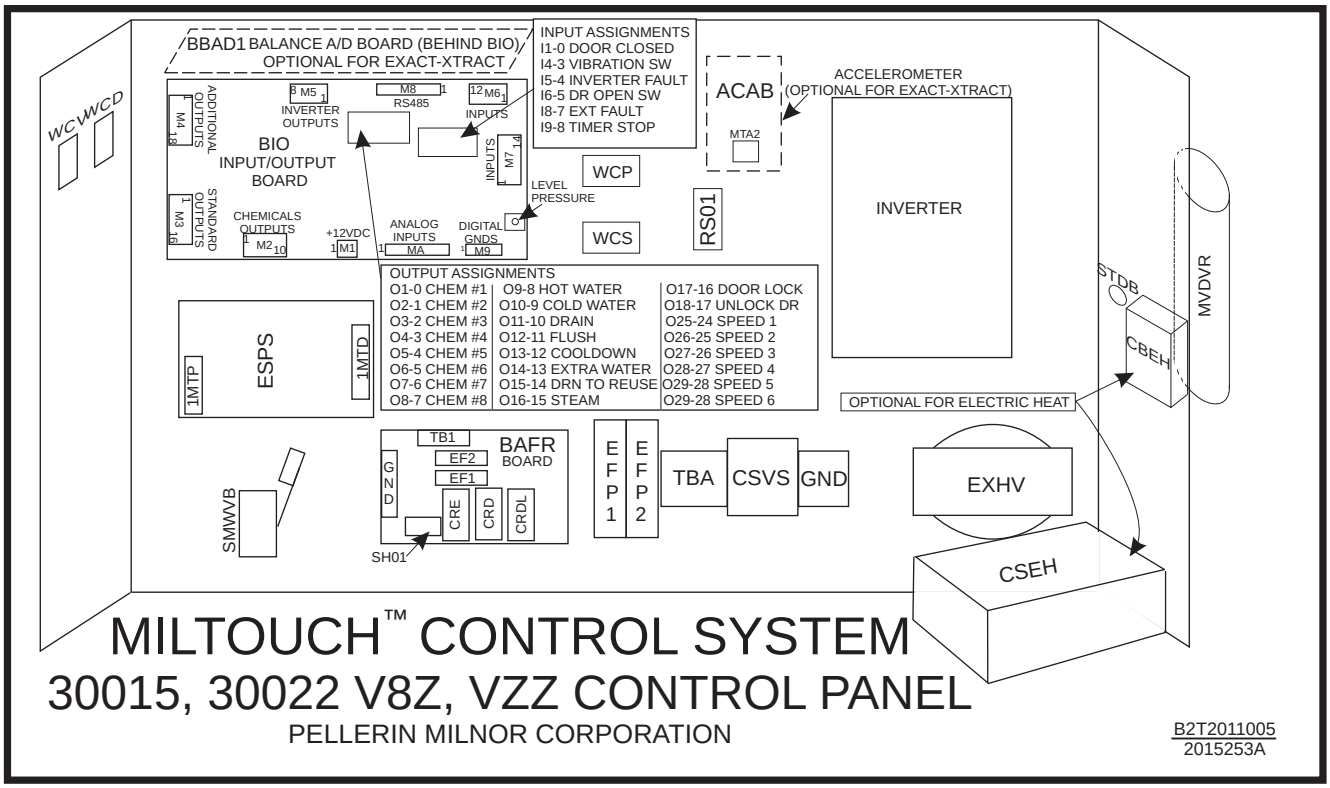
W80008

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

PELLERIN MILNOR CORPORATION

W80008
2001253A


INCOMING POWER
REQUIRES SEPARATE
BRANCH CIRCUIT
PROTECTION
GROUND
TBL4
3-PH
L1
L2
L3
1
2
3
BL/WH
WHITE
N/A
SINGLE PH
TBL
CAUTION
IF AN EXTERNAL SUPPLY DISPENSER
IS TO BE CONNECTED NOTE THE FOLLOWING
1. SUPPLY SIGNALS ARE 240 VAC AT 9VA
(MAXIMUM OF 38 MILLIAMPS AT 240 VAC)
2. DO NOT USE MACHINE CONTROL VOLTAGE
TO POWER DISPENSER. POWER MUST
COME FROM A SEPARATE DISCONNECT.
USE COPPER CONDUCTORS ONLY
CHEMICAL #1
CHEMICAL #2
CHEMICAL #3
CHEMICAL #4
CHEMICAL #5
CHEMICAL #6
CHEMICAL #7
CHEMICAL #8
NOT USED
SUPPLY COMMON
1 2 3 4 5 6 7 8 9 10
TBS
30”V8Z
B2T2011006/2011064A



MILTOUCH™ CONTROL SYSTEM

30015, 30022 V8Z, VZZ CONTROL PANEL

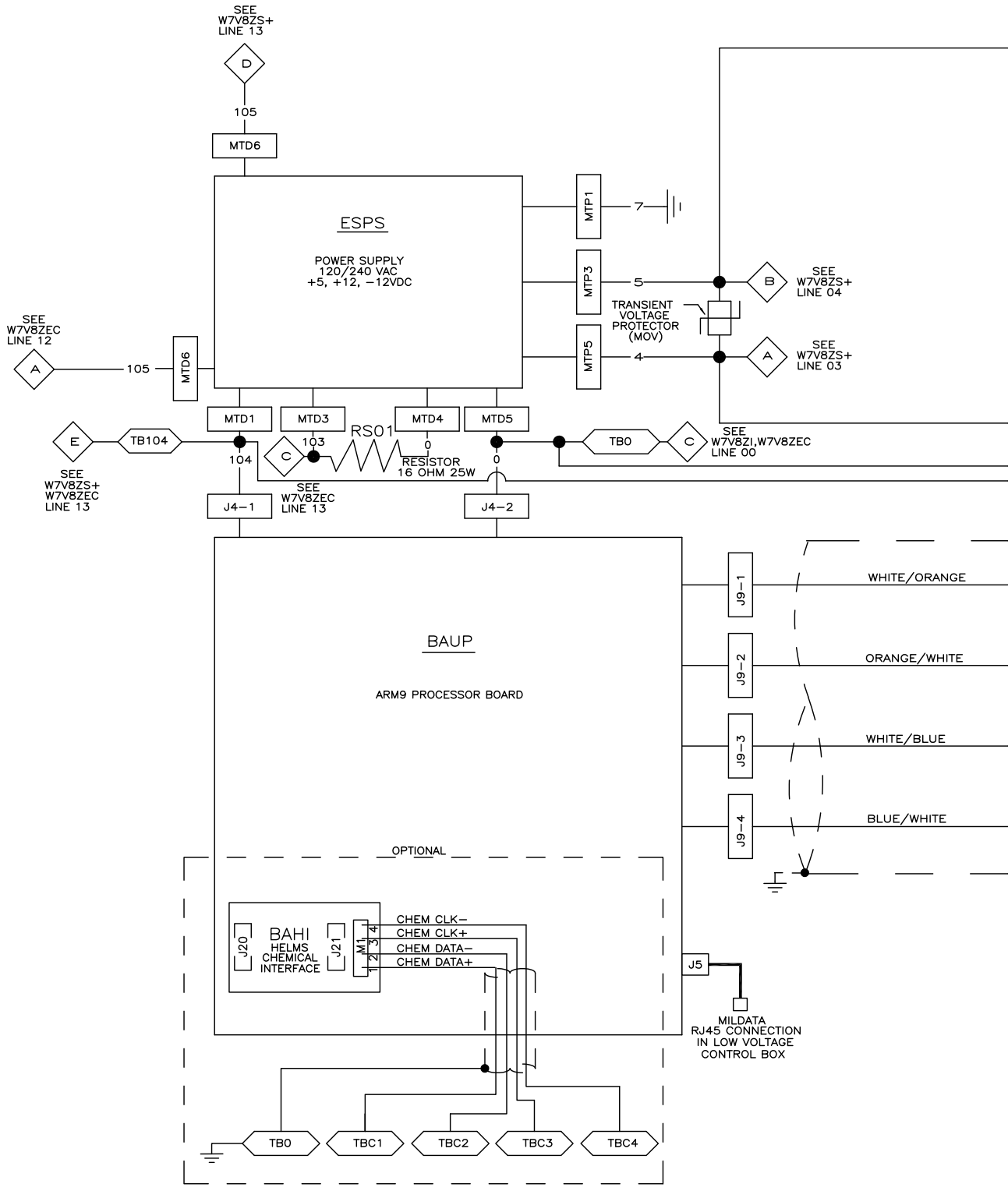
PELLERIN MILNOR CORPORATION

B2T2011005
2015253A

W7V8ZTG1

30” V8Z MACHINE TAGS

PELLERIN MILNOR CORPORATION



00 01 02 03 04 05 06 07 08 09

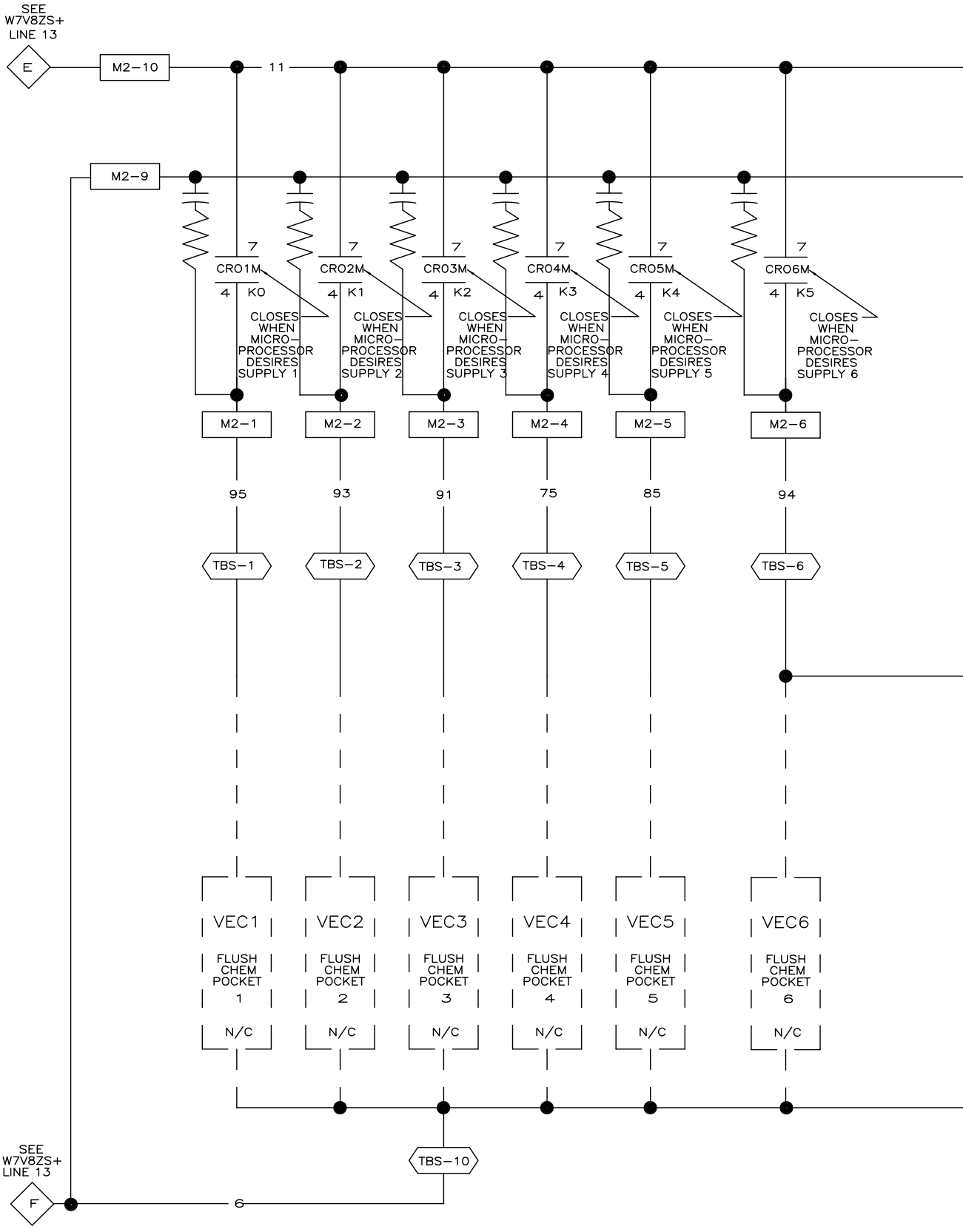
W7V8ZBW
2023434B

W7V8ZBW

SCHEMATIC: BOARD TO BOARD WIRING

PELLERIN MILNOR CORPORATION

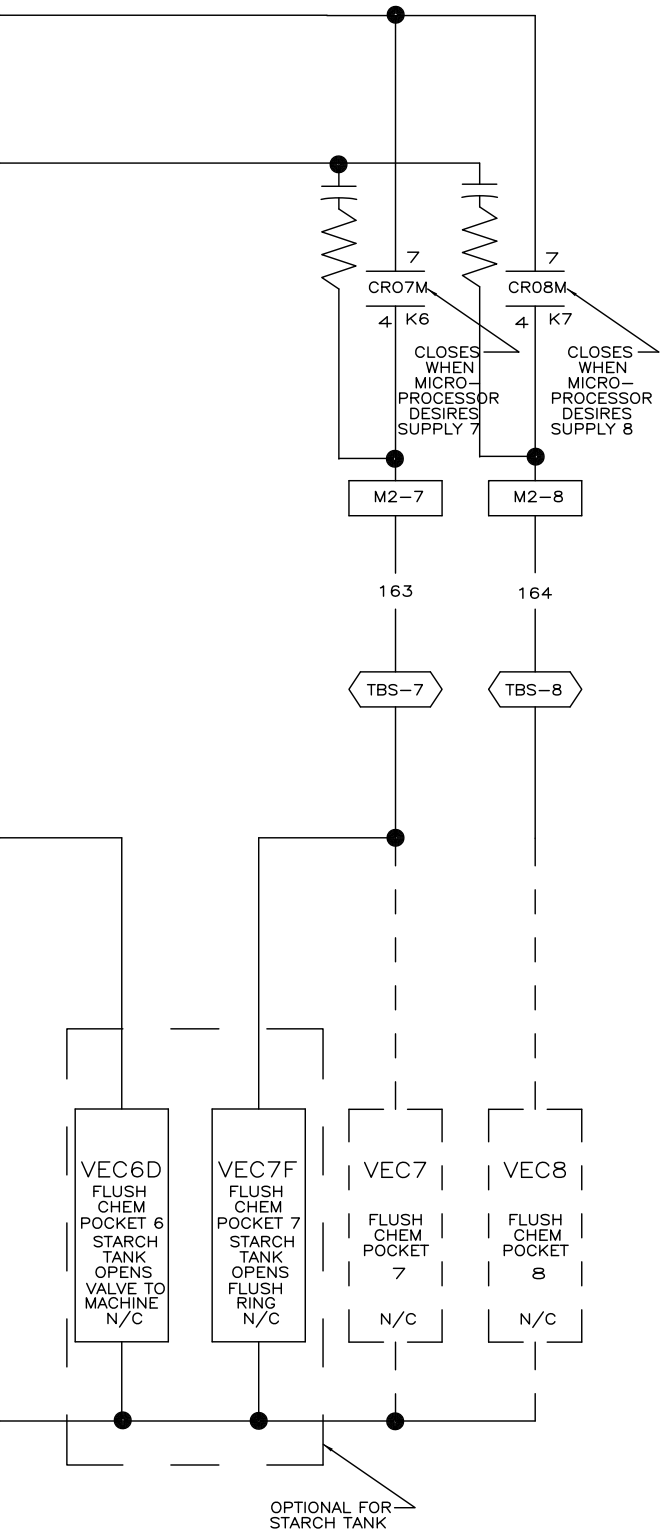
10 11 12 13 14 15 16 17 18 19



W7V8ZCF
2023434B

00 01 02 03 04 05 06 07 08

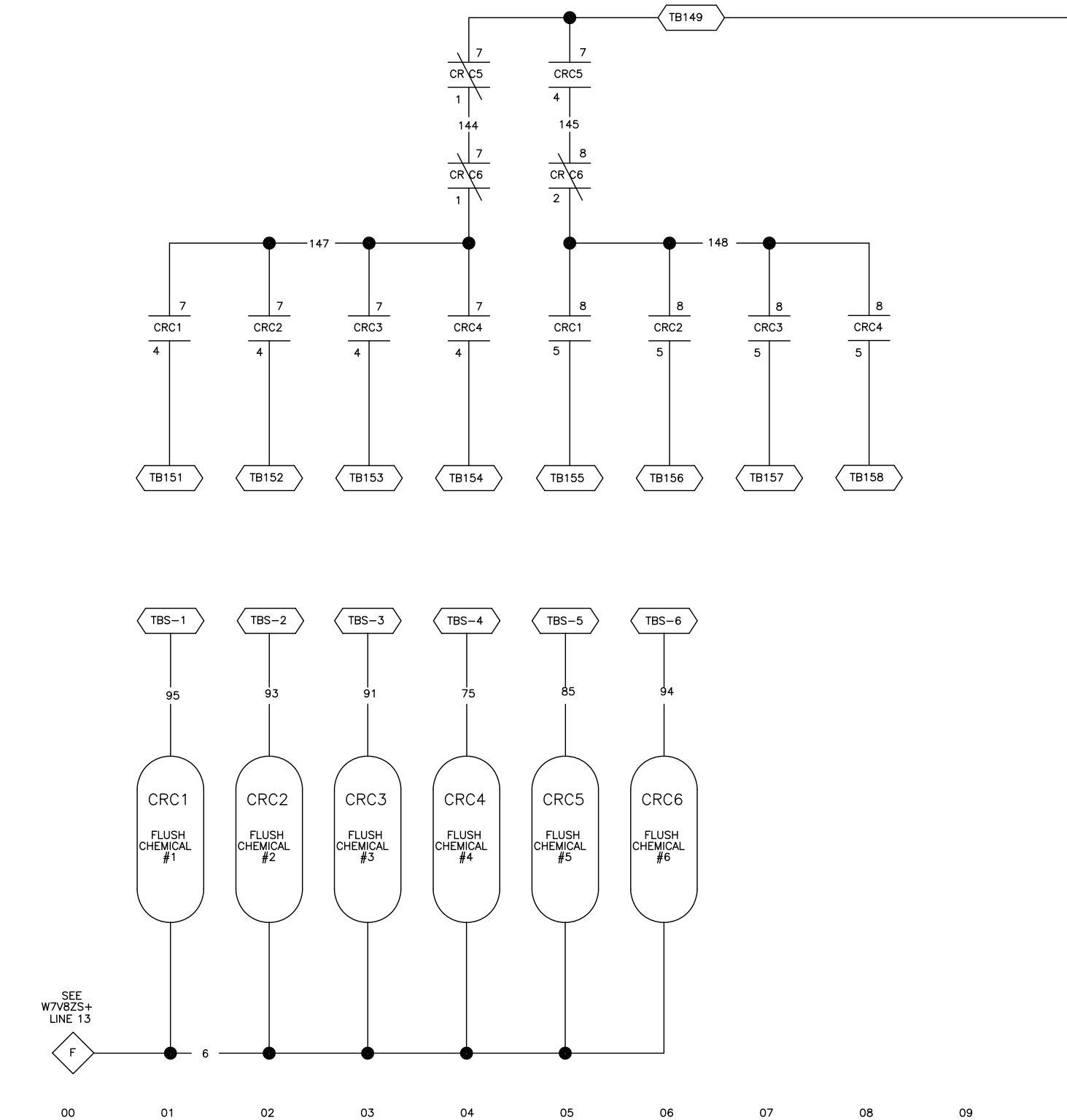
LITHO IN U.S.A.



W7V8ZCF
SCHEMATIC: FLUSHING SUPPLIES
220V1P50HZ/240V1P60HZ
PELLERIN MILNOR CORPORATION

NOTES:

1. M2 IS LOCATED ON BIO I/O BOARD.
2. TBS IS LOCATED NEAR THE REAR ACCESS PANEL NEXT TO THE INCOMING POWER CONNECTIONS.

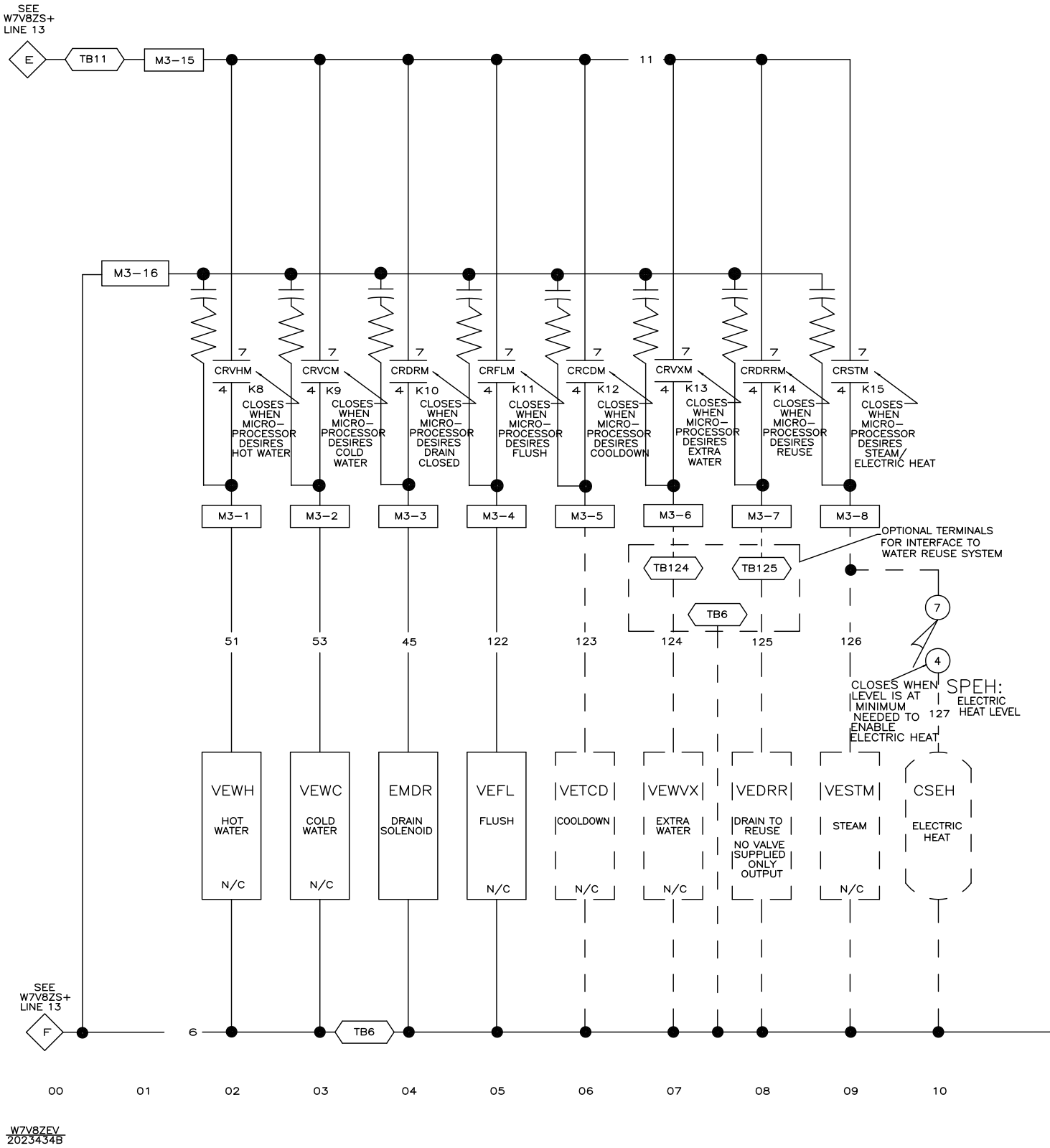


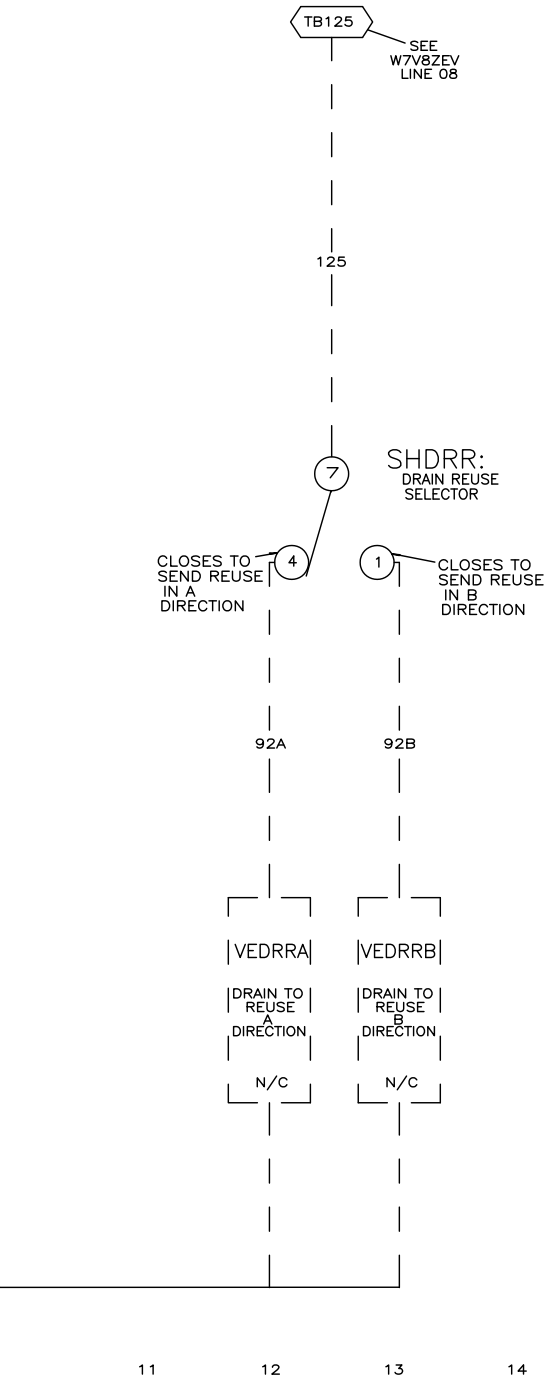
W7V8ZCM
2023434B

W7V8ZCM
MICRO 7 SYSTEMS MARK V
SCHEMATIC: OPTIONAL 12 CHEMICAL FLUSHING
220V1P50HZ/240V1P60HZ

PELLERIN MILNOR CORPORATION

10 11 12 13 14


SEE W7V8ZS+ LINE 13
E
TB11
M3-15
11
M3-16
CRVHM
CRVCM
CRDRM
CRFLM
CRCDM
CRVXM
CRDRRM
CRSTM
K8
K9
K10
K11
K12
K13
K14
K15
CLOSES WHEN MICRO-PROCESSOR DESIRES HOT WATER
CLOSES WHEN MICRO-PROCESSOR DESIRES COLD WATER
CLOSES WHEN MICRO-PROCESSOR DESIRES DRAIN CLOSED
CLOSES WHEN MICRO-PROCESSOR DESIRES FLUSH
CLOSES WHEN MICRO-PROCESSOR DESIRES COOLDOWN
CLOSES WHEN MICRO-PROCESSOR DESIRES EXTRA WATER
CLOSES WHEN MICRO-PROCESSOR DESIRES REUSE
CLOSES WHEN MICRO-PROCESSOR DESIRES STEAM/ ELECTRIC HEAT
M3-1
M3-2
M3-3
M3-4
M3-5
M3-6
M3-7
M3-8
OPTIONAL TERMINALS FOR INTERFACE TO WATER REUSE SYSTEM
TB124
TB125
TB6
51
53
45
122
123
124
125
126
7
4
CLOSES WHEN LEVEL IS AT MINIMUM NEEDED TO ENABLE ELECTRIC HEAT
SPEH: ELECTRIC HEAT LEVEL
127
VEWH
HOT WATER
N/C
VEWC
COLD WATER
N/C
EMDR
DRAIN SOLENOID
VEFL
FLUSH
N/C
VETCD
COOLDOWN
N/C
VEWVX
EXTRA WATER
N/C
VEDRR
DRAIN TO REUSE
NO VALVE SUPPLIED ONLY OUTPUT
VESTM
STEAM
N/C
CSEH
ELECTRIC HEAT
SEE W7V8ZS+ LINE 13
F
6
TB6
00
01
02
03
04
05
06
07
08
09
10
W7V8ZEV
2023434B



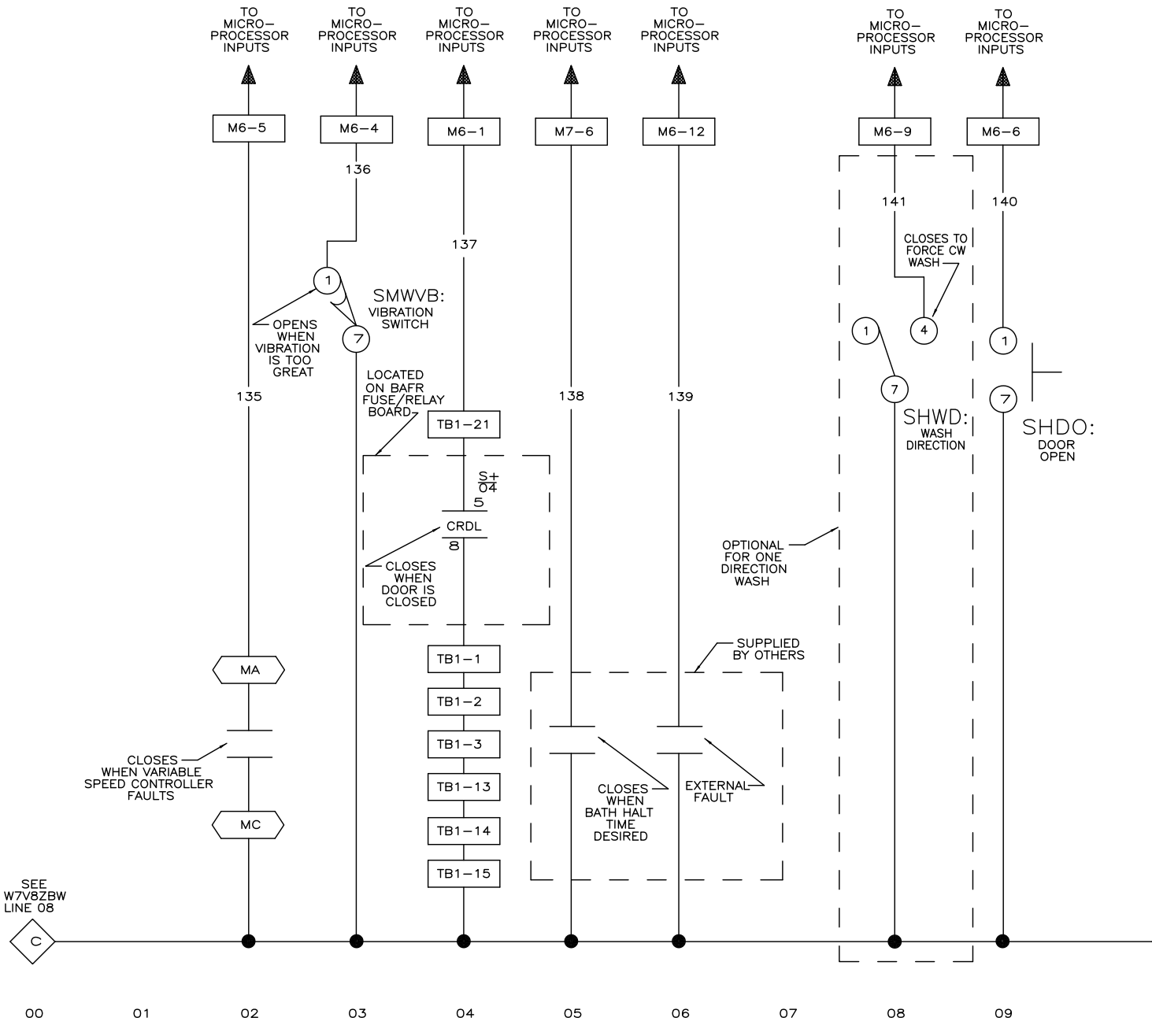
NOTES:

1. M3 IS LOCATED ON THE BIO I/O BOARD.
2. COMPONENTS IN DOTTED LINES ARE OPTIONAL.

W7V8ZEV

SCHEMATIC: ELECTRIC VALVES 220V1P50HZ/240V1P60HZ

PELLERIN MILNOR CORPORATION



W7V8ZI
2023434B

SCHEMATIC: MICROPROCESSOR INPUTS

W7V8ZI

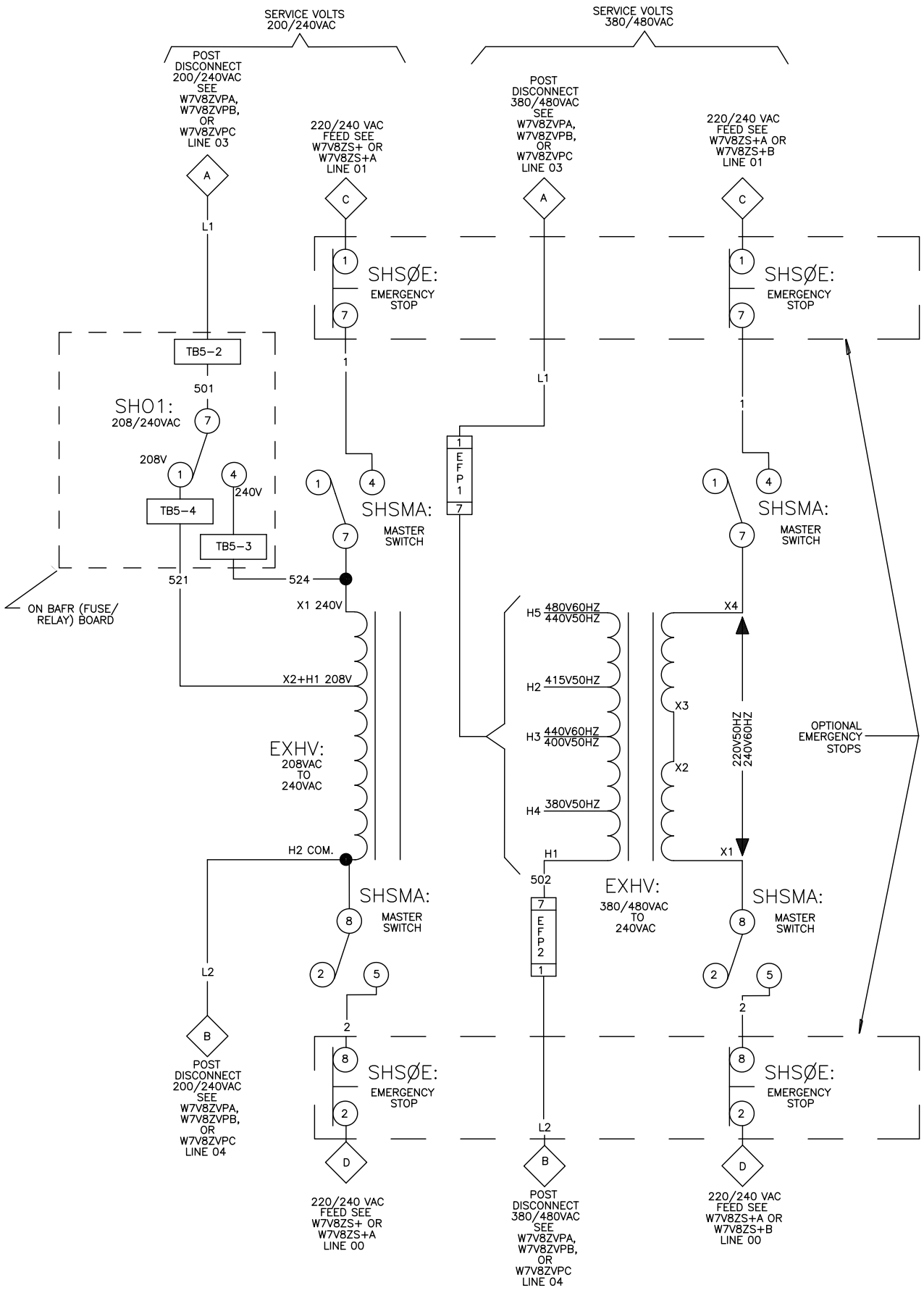
PELLERIN MILNOR CORPORATION

NOTES

1. M6 + 7 ARE LOCATED ON THE BIO-I/O BOARD

0 — TB0

10 11 12



W7V8ZLV
2021034B

09

10

11

12

13

35

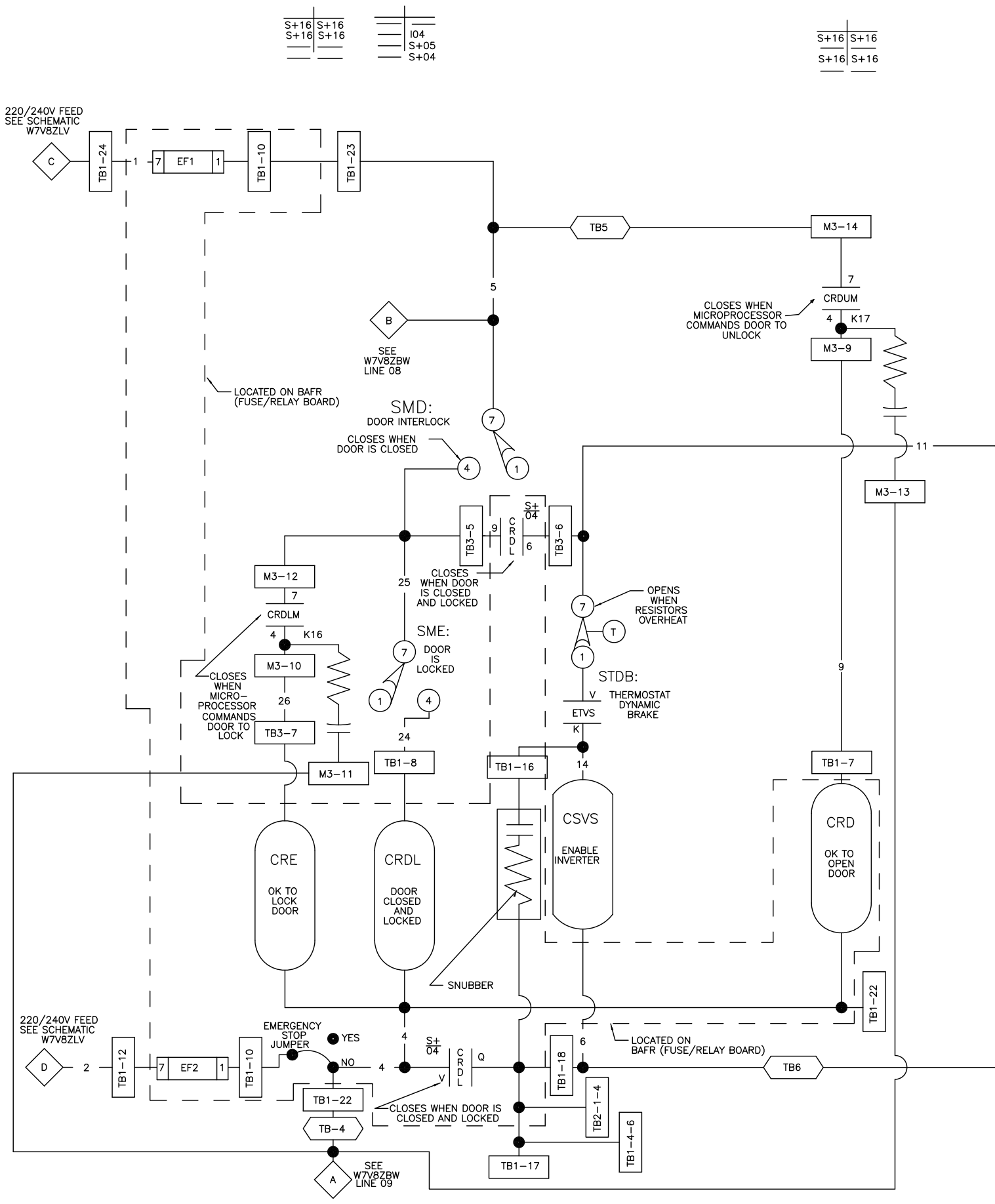
W7V8ZLV

SCHEMATIC: CONTROL CIRCUIT TRANSFORMER
220V1P50HZ/240V1P60HZ

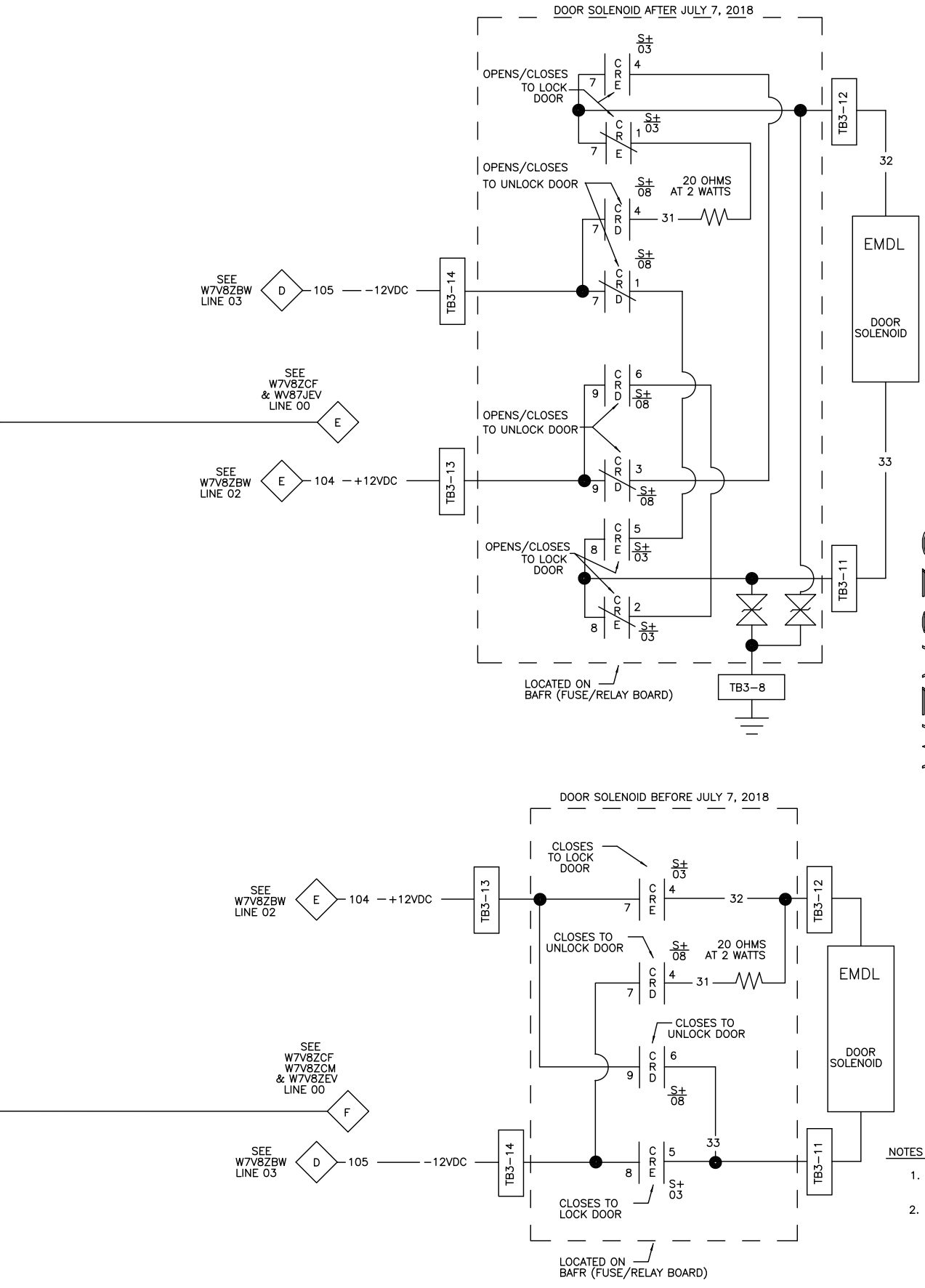
PELLERIN MILNOR CORPORATION

W7V8ZLV
2021034B

W7V8ZLV
2021034B

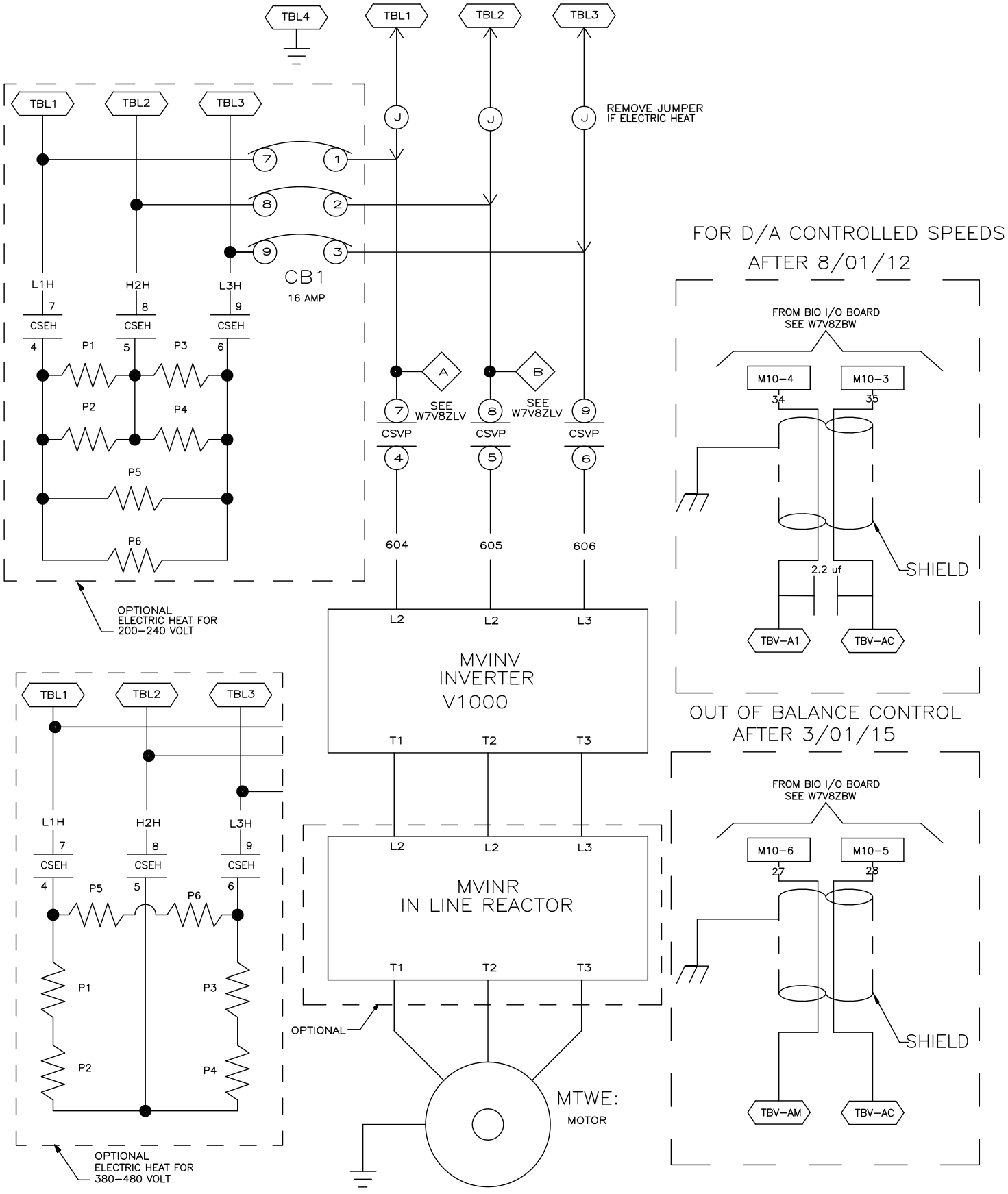

S+16 S+16
S+16 S+16
I04
S+05
S+04
S+16 S+16
S+16 S+16
220/240V FEED
SEE SCHEMATIC
W7V8ZLV
C
TB1–24
1
7
EF1
1
TB1–10
TB1–23
TB5
M3–14
7
CRDUM
4
K17
M3–9
CLOSES WHEN
MICROPROCESSOR
COMMANDS DOOR TO
UNLOCK
5
B
SEE
W7V8ZBW
LINE 08
LOCATED ON BAFR
(FUSE/RELAY BOARD)
SMD:
DOOR INTERLOCK
CLOSES WHEN
DOOR IS CLOSED
7
4
1
11
M3–13
TB3–5
9
CRDL
S+04
6
TB3–6
M3–12
7
CRDLM
4
K16
M3–10
26
TB3–7
25
CLOSES
WHEN DOOR
IS CLOSED
AND LOCKED
SME:
7
DOOR
IS
LOCKED
1
4
24
CLOSES
WHEN
MICRO–
PROCESSOR
COMMANDS
DOOR TO
LOCK
7
OPENS
WHEN
RESISTORS
OVERHEAT
T
1
STDB:
V
THERMOSTAT
DYNAMIC
BRAKE
ETVS
K
14
9
M3–11
TB1–8
TB1–16
TB1–7
CRE
OK TO
LOCK
DOOR
CRDL
DOOR
CLOSED
AND
LOCKED
CSVS
ENABLE
INVERTER
CRD
OK TO
OPEN
DOOR
SNUBBER
TB1–22
220/240V FEED
SEE SCHEMATIC
W7V8ZLV
D
2
TB1–12
7
EF2
1
TB1–10
EMERGENCY
STOP
JUMPER
YES
NO
4
S+04
CRDL
Q
V
6
TB1–18
LOCATED ON
BAFR (FUSE/RELAY BOARD)
TB6
TB1–22
TB–4
CLOSES WHEN DOOR IS
CLOSED AND LOCKED
TB2–1–4
TB1–4–6
TB1–17
A
SEE
W7V8ZBW
LINE 09
00
01
02
03
04
05
06
07
08
09
10
W7V8ZS+
2023434B

SCHEMATIC: START CIRCUIT & DOOR INTERLOCK
W7V8ZS+
FOR 30022 V8Z
220V,1P,50HZ/240V,1P,60HZ
PELLERIN MILNOR CORPORATION



NOTES

1. TB1, TB2, AND TB3 ARE LOCATED ON BARF – FUSE/RELAY BOARD
2. REMOVE (J2) FOR EMERGENCY STOP SWITCH.



LITHO IN U.S.A.

00 01 02 03 04 05 06 07 08 09

W7V8ZVPF
2021304B

SCHEMATIC: VARIABLE SPEED CONTROLLER FOR 30022V8Z V1000/GA500 3 PHASE AND SINGLE PHASE

PELLERIN MILNOR CORPORATION

W7V8ZVPF

ALL VOLTAGES 30022V8Z

MVDBR: 100Ω 100 OHM @ 225 W

B1

B2

SPEEDS	S1 K24	S2 K25	S3 K26	S4 K27	S5 K28	S6 K29
CW WASH NORMAL SPD.	×					
CW WASH LOW SPEED	×			×		
CCW WASH NORMAL SPD.		×				
CCW WASH LOW SPEED		×		×		
RINS SAVE	×			×		×
DRAIN	×					×
EXTRACT 1	×		×		×	
EXTRACT 2	×		×	×	×	
EXTRACT 3	×		×		×	×
ALT. ACCEL/DECEL			×		×	

ON MACHINES MANUFACTURED AFTER 8/01/2012 OUTPUTS S4, S5, AND S6 ARE NOT USED – SPEEDS ARE CONTROLLED BY D/A SEE LINE 08

NOTE: RELAYS K24 THROUGH K29 ARE LABELED K25 THROUGH K30 ON REV A I/O BOARDS

FOR ExactXtract™ OPTION SEE W7V8ZEC

S1 S2 S3 S4 S5 S6 S7

127 128 129 130 131 132 133

M5-1 M5-2 M5-3 M5-4 M5-5 M5-6 M4-4

4 4 4 4 4 4 4

S1 S2 S3 S4 S5 S6 CRATM

7 K24 7 K25 7 K26 7 K27 7 K28 7 K29 7 K19

CLOSES WHEN PROCESSOR DESIRES TO LIMIT EXTRACT SPEED

M4-5

GA500 A1000 GA800 SN

V1000 SC

M5-8

10 11 12 13 14 15 16 17 18 19