



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

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Schematic/Electrical Parts

30015 T5J, V7J

30022 H8J, T5J, V6J, VRJ

E-P Plus ® Controller



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COMPONENT PARTS LIST

<u>COMPONENT NUMBER</u>	<u>FUNCTION OF THIS COMPONENT NUMBER</u>	<u>WHERE TO FIND THIS COMPONENT</u>	<u>MILNOR P/N</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>
	>>>CONTROL BOX LAYOUTS				
01	DETAIL- CONTROL PANEL H8J	W7H7JTG1	B2TAG99015	30022 H8J CONTROLS	SEE FUNCTION
02	DETAIL- CONTROL PANEL V#J, T5J	W7H7JTG1	B2T2000023	30015, 30022 CONTROL PANEL	SEE FUNCTION
AC	>>ACCELEROMETER				
ACBA	BOARD-ACCELEROMETER	W7H7JEC	EACCLRM7	ASSY ACCMTR RIGID EXT EXT+TEST	REAR OF MACH
BA	>>PRINTED CIRCUIT BOARDS				
BAFR	BOARD FUSE/RELAY	W7H7JS+C	08BHFRCT	BD-TN/X START CIRCUIT->TEST	CONTROL PANEL
BAFR	BOARD FUSE/RELAY	W7H7JS+D	08BHFRCT	BD-TN/X START CIRCUIT->TEST	CONTROL PANEL
BAFR	BOARD FUSE/RELAY	W7H7JS+D	08BHFRDT	BD-TN/X START CIRCUIT->TEST	CONTROL PANEL
BAUP	BOARD=PROCESSOR+I/O	W7H7JBW	08BH18EP1T	BD:188PROC EP+ W/TERMINALS->TEST	CONTROL PANEL
BAUP	BOARD=PROCESSOR+I/O VRJ MODEL	W7H7JBW	08BH188AT	BD:188 PROCESSOR SMD TESTED	CONTROL PANEL
BAVD	BOARD-DISPLAY	W7H7JBW	08BHEPSPAT	EP+ SWPNL BD W/LCD>TEST	SWITCH PANEL
BAVDA	BOARD-DISPLAY VRJ MODEL	W7H7JBW	08BHEPSPCT	EP+ SWPNL VER2 W/LCD>TEST	SWITCH PANEL
BBAD-1	BOARD- A TO D CONVERTER	W7H7JEC	08BSBADCTE	SR BALANCE A-D BD EXTACTR-TEST	CONTROL BOX
CR	>>RELAY-PILOT OR CONTROL				
CRATL	RELAY-OUT OF BALANCE TOOL	W7H7JEC	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRD	RELAY-OK TO OPEN DOOR	W7H7JS+	09C024D71	RELAY 4PDT DIFGLD 14PN 240V	CONTROL PANEL
CRD	RELAY-OK TO OPEN DOOR	W7H7JS+A	09C024D71	RELAY 4PDT DIFGLD 14PN 240V	CONTROL PANEL
CRD	RELAY-OK TO OPEN DOOR	W7H7JS+B	09C024D71	RELAY 4PDT DIFGLD 14PN 240V	CONTROL PANEL
CRD	RELAY-OK TO OPEN DOOR	W7H7JS+C	09C024D71	RELAY 4PDT DIFGLD 14PN 240V	ON BAFR
CRD	RELAY-OK TO OPEN DOOR	W7H7JS+D	09C024D71	RELAY 4PDT DIFGLD 14PN 240V	ON BAFR
CRDL	RELAY-DOOR CLOSED AND LOCKED	W7H7JS+	09C024D71	RELAY 4PDT DIFGLD 14PN 240V	CONTROL PANEL
CRDL	RELAY-DOOR CLOSED AND LOCKED	W7H7JS+A	09C024D71	RELAY 4PDT DIFGLD 14PN 240V	CONTROL PANEL
CRDL	RELAY-DOOR CLOSED AND LOCKED	W7H7JS+B	09C024D71	RELAY 4PDT DIFGLD 14PN 240V	CONTROL PANEL
CRDL	RELAY-DOOR CLOSED AND LOCKED	W7H7JS+C	09C024D71	RELAY 4PDT DIFGLD 14PN 240V	ON BAFR
CRDL	RELAY-DOOR CLOSED AND LOCKED	W7H7JS+D	09C024D71	RELAY 4PDT DIFGLD 14PN 240V	ON BAFR
CRE	RELAY-OK TO LOCK DOOR	W7H7JS+	09C024D71	RELAY 4PDT DIFGLD 14PN 240V	CONTROL PANEL
CRE	RELAY-OK TO LOCK DOOR	W7H7JS+B	09C024D71	RELAY 4PDT DIFGLD 14PN 240V	CONTROL PANEL
CRE	RELAY-OK TO LOCK DOOR	W7H7JS+B	09C024D71	RELAY 4PDT DIFGLD 14PN 240V	ON BAFR
CS	>>CONTACTOR-MOTOR STARTER				
CSEH	CONTACTOR-ELECTRIC HEAT	W7H7JEV	09MC08L371	60A 3P MCS CONT NR 240V5/6	CONTROL PANEL
CSVP	CONTACTOR-ENABLE INVERTER	W7H7JS+	09MC08C371	16A 3P MCS CONT NR 240V5/6	CONTROL PANEL
CSVP	CONTACTOR-ENABLE INVERTER	W7H7JS+A	09MC08C371	16A 3P MCS CONT NR 240V5/6	CONTROL PANEL

COMPONENT PARTS LIST

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CSVP	CONTACTOR-ENABLE INVERTER	W7H7JS+B	09MC08C371	16A 3P MCS CONT NR 240V5/6	CONTROL PANEL
CSVP	CONTACTOR-ENABLE INVERTER	W7H7JS+C	09MC08C371	16A 3P MCS CONT NR 240V5/6	CONTROL PANEL
CSVP	CONTACTOR-ENABLE INVERTER	W7H7JS+D	09MC08C371	16A 3P MCS CONT NR 240V5/6	CONTROL PANEL
EF	>>FUSE OR FUSE HOLDER				
EF1-LV	FUSE-TRANSFORMER PRIMARY	W7H7JLV	09FF005AWN	FUSE #KTK 5A600V=HPS HOLDER	CONTROL PANEL
EF2-LV	FUSE-TRANSFORMER PRIMARY	W7H7JLV	09FF005AWN	FUSE #KTK 5A600V=HPS HOLDER	CONTROL PANEL
EF1-HV	FUSE-TRANSFORMER PRIMARY	W7H7JLV	09FF002AWN	FUSE BUSS #KTK 2 1/2 AMP 600V	CONTROL PANEL
EF2-HV	FUSE-TRANSFORMER PRIMARY	W7H7JLV	09FF002AWN	FUSE BUSS #KTK 2 1/2 AMP 600V	CONTROL PANEL
EF71A	FUSE-CONTROL CIRCUIT X-BUS	W7H7JS+	09FF002AMG	FUSE BK/MDX 2 AMP 250V BUSS	CONTROL PANEL
EF71A	FUSE-CONTROL CIRCUIT X-BUS	W7H7JS+A	09FF002AMG	FUSE BK/MDX 2 AMP 250V BUSS	CONTROL PANEL
EF71A	FUSE-CONTROL CIRCUIT X-BUS	W7H7JS+B	09FF002AMG	FUSE BK/MDX 2 AMP 250V BUSS	CONTROL PANEL
EF71B	FUSE-CONTROL CIRCUIT Y-BUS	W7H7JS+	09FF002AMG	FUSE BK/MDX 2 AMP 250V BUSS	CONTROL PANEL
EF71B	FUSE-CONTROL CIRCUIT Y-BUS	W7H7JS+A	09FF002AMG	FUSE BK/MDX 2 AMP 250V BUSS	CONTROL PANEL
EF71B	FUSE-CONTROL CIRCUIT Y-BUS	W7H7JS+B	09FF002AMG	FUSE BK/MDX 2 AMP 250V BUSS	CONTROL PANEL
EM	>>ELECTROMAGNET AND SOLENOID				
EMDL	SOLENOID-DOOR UNLOCK	W7H7JS+	09K063C24	DOOR LOCK SOLENOID 24V	DOOR LATCH
EMDL	SOLENOID-DOOR UNLOCK	W7H7JS+A	09K062B71	SOLENOID 240/60--220/50 = ILOC	DOOR LATCH
EMDL	SOLENOID-DOOR UNLOCK	W7H7JS+B	09K063C24	DOOR LOCK SOLENOID 24V	DOOR LATCH
EMDL	SOLENOID-DOOR UNLOCK	W7H7JS+C	09K062B71	SOLENOID 240/60--220/50 = ILOC	DOOR LATCH
EMDL	SOLENOID-DOOR UNLOCK	W7H7JS+D	09K063C24	DOOR LOCK SOLENOID 24V	DOOR LATCH
EMDR	SOLENOID-DRAIN VALVE	W7H7JEV	96D350SA71	DRAINVAL 3" 240V50/60 SUDSPOR	BELOW SHELL
ES	>>POWER SUPPLY-ELECTRONIC				
ESPS	POWER SUPPLY-MICROPROCESSOR	W7H7JBW	08PSS3401T	40 WATT POWER SUPPLY TESTED	CONTROL PANEL
ET	OVERLOAD-DYNAMIC BRAKE				
ETDB	OVERLOAD-DYNAMIC BRAKE	W7H7JVP	09F024A	OL RELAY 1P SZ1 SQD #9065-C01	CONTROL PANEL
ETDB	OVERLOAD-DYNAMIC BRK BEFORE 3-11-04	W7H7JVP	09F024A	OL RELAY 1P SZ1 SQD #9065-C01	CONTROL PANEL
ETDB	OVERLOAD-DYNAMIC BRK BEFORE 3-11-04	W7H7JVP	09F024A	OL RELAY 1P SZ1 SQD #9065-C01	CONTROL PANEL
EX	>>TRANSFORMERS				
EXHV-1	TRANSFORMER-208VAC TO 240VAC	W7H7JLV	09U250AT71	AUTOXFMR 208V-230V 250VA	CONTROL PANEL
EXHV-2	TRANSFORMER-380/480 V TO 240	W7H7JLV	09U200AAB	XFMR 380-480V/240-120V-250VA	CONTROL PANEL
MT	>>MOTORS				
MTWE	MOTOR-WASHER	W7H7JVP	39G813BCT	5HP 4P OLSW 380/480/5+6 TOP	BELOW SHELL
MTWE	MOTOR-WASHER	W7H7JVP	MESSAGE SO	SEE SPECIFIC COMPONENT+NAMEPLATE	BELOW SHELL

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MTWE	MOTOR-WASHER	W7H7JVPB	MESSAGE SO	SEE SPECIFIC COMPONENT+NAMEPLATE	BELOW SHELL
MTWE	MOTOR-WASHER	W7H7JVPC	MESSAGE SO	SEE SPECIFIC COMPONENT+NAMEPLATE	BELOW SHELL
MTWE	MOTOR-WASHER	W7H7JVPE	MESSAGE SO	SEE SPECIFIC COMPONENT+NAMEPLATE	BELOW SHELL
MTWE	MOTOR-WASHER	W7H7JVPF	MESSAGE SO	SEE SPECIFIC COMPONENT+NAMEPLATE	BELOW SHELL
MTWE	MOTOR-WASHER	W7H7JVPG	MESSAGE SO	SEE SPECIFIC COMPONENT+NAMEPLATE	BELOW SHELL
MV	>>>MOTOR POWER INVERTERS				
MVDBR	RESISTOR-DYNAMIC BRAKE	W7H7JVP	09MV100RES	RESIST 100 OHM 225WATT ADJ	CONTROL PANEL
MVDBR	RESISTOR-DYNAMIC BRAKE	W7H7JVPA	09MV100RES	RESIST 100 OHM 225WATT ADJ	CONTROL PANEL
MVDBR	RESISTOR-DYNAMIC BRAKE	W7H7JVP	09MV100RES	RESIST 100 OHM 225WATT ADJ	CONTROL PANEL
MVDBR	RESISTOR-DYNAMIC BRAKE	W7H7JVPF	09MV100RES	RESIST 100 OHM 225WATT ADJ	CONTROL PANEL
MVDBR	RESISTOR-DYNAMIC BRAKE	W7H7JVPG	09MV100RES	RESIST 100 OHM 225WATT ADJ	CONTROL PANEL
MVINV	INVERTER-VARI SPEED LOW VOLTAGE	W7H7JVPB	09MV030G74	VARSPED 3HP 11A 230V GPD305	CONTROL PANEL
MVINV	INVERTER-VARI SPEED LOW VOLTAGE	W7H7JVPC	09MV050F74	VARSPED STANDARD 5HP 230V	CONTROL PANEL
MVINV-H	INVERTER-VARI SPEED HIGH VOLTAGE	W7H7JVP	09MV050F96	VARSPED STANDARD 5HP 460V	CONTROL PANEL
MVINV-H	INVERTER-VARI SPEED HIGH VOLTAGE	W7H7JVPA	09MV050F96	VARSPED STANDARD 5HP 460V	CONTROL PANEL
MVINV-H	INVERTER-VARI SPEED HIGH VOLTAGE	W7H7JVP	09MV050F96	VARSPED STANDARD 5HP 460V	CONTROL PANEL
MVINV-H	INVERTER-VARI SPEED HIGH VOLTAGE	W7H7JVPF	09MV050F96	VARSPED STANDARD 5HP 460V	CONTROL PANEL
MVINV-H	INVERTER-VARI SPEED HIGH VOLTAGE	W7H7JVP	09MWB00996	V1000 INVERTER 9.2AMP 460V	CONTROL PANEL
MVINV-H	INVERTER-VARI SPEED HIGH VOLTAGE	W7H7JVPF	09MWB00996	GA500 INVERTER 9.2 AMP 460V	CONTROL PANEL
MVINV-H	INVERTER-VARI SPEED HIGH VOLTAGE	W7H7JVP	09MWB00996	V1000 INVERTER 9.2AMP 460V	CONTROL PANEL
MVINV-L	INVERTER-VARI SPEED LOW VOLTAGE	W7H7JVP	09MV050F74	VARSPED STANDARD 5HP 230V	CONTROL PANEL
MVINV-L	INVERTER-VARI SPEED LOW VOLTAGE	W7H7JVPA	09MV050F74	VARSPED STANDARD 5HP 230V	CONTROL PANEL
MVINV-L	INVERTER-VARI SPEED LOW VOLTAGE	W7H7JVP	09MV050F74	VARSPED STANDARD 5HP 230V	CONTROL PANEL
MVINV-L	INVERTER-VARI SPEED LOW VOLTAGE	W7H7JVPF	09MWB01774	V1000 INVERTER 17.5AMP 230V	CONTROL PANEL
MVINV-L	INVERTER-VARI SPEED LOW VOLTAGE	W7H7JVP	09MWB01774	GA500 INVERTER 17 AMP 230V	CONTROL PANEL
P	>>>HEATING ELEMENTS				
P1-P6	ELEMENT-ELECTRIC HEAT	W7H7JVPF	27F3000H62	HEAT ELEMENT 3000W 220V	BOTTOM OF CYL
P1-P6	ELEMENT-ELECTRIC HEAT	W7H7JVP	27F3000H62	HEAT ELEMENT 3000W 220V	BOTTOM OF CYL
SP	>>SWITCH-PRESSURE				
SPEH	PRESSURE SW:ELECTRIC HEAT LEVEL	W7H7JEV	09N089	PRESS SW ASSY TRIP 4.7	CONTROL PANEL
SH	>>SWITCH-HAND OPERATED				
SH01	SWITCH-208/240VAC (H8J ONLY)	W7H7JLV	09N050	TOGSW SPDT NO OFF 10A250V	CONTROL PANEL
SHDD	SWITCH-UNLATCH DOOR	W7H7JS+A	09N400CTBL	CONT.BLOCK 1-NO (MTL/BUTTON)	DOOR LATCH

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SHDD	SWITCH-UNLATCH DOOR	W7H7JS+C	09N400CTBL	CONT.BLOCK 1-NO (MTL/BUTTON)	DOOR LATCH
SHDD	SWITCH-UNLATCH DOOR	W7H7JS+D	09N400CTBL	CONT.BLOCK 1-NO (MTL/BUTTON)	DOOR LATCH
SHDO	SWITCH-DOOR OPEN	W7H7JIA	09N405BK10	SWASS PBBK 1NO	SWITCH PANEL
SHDO	SWITCH-DOOR OPEN	W7H7JIB	09N405BK10	SWASS PBBK 1NO	SWITCH PANEL
SHDO	SWITCH-DOOR OPEN	W7H7JS+B	09N400CBNO	CONT.BLOCK 1-NO SQD#ZB2BE101	SWITCH PANEL
SHES	SWITCH-EMERGENCY STOP	W7H7JS+	09N505	SW ASSY EMER STOP	SWITCH PANEL
SHMF	SWITCH: MANUAL FLUSH	W7H7JCF	09N405PB10	SWASS PBBK 1NO	FRNT -H8J ONLY
SHSMA	SWITCH-MASTER	W7H7JS+	09N405M210	SWASS M2W 1NO	SWITCH PANEL
SHSOE	SWITCH-EMERGENCY STOP	W7H7JLV	09N508A	SW ASSY EMER STOP VERSION 3-2POLE	SIDE OF SWPNL
SHMA	SWITCH-MASTER	W7H7JS+D	09N405M220	SWASS M2W 2NO	SWITCH PANEL
SK	>>SWITCH-KEYLOCK				
SKPR	SWITCH-RUN/PROGRAM	W7H7JIA	09N127C	KEYSW SPST 7A120VAC SCREW TERM	SWITCH PANEL
SKPR	SWITCH-RUN/PROGRAM	W7H7JIB	09N127C	KEYSW SPST 7A120VAC SCREW TERM	SWITCH PANEL
SM	>>SWITCH-MECHANICAL OPERATED				
SMD	SWITCH-DOOR CLOSED	W7H7JS+	09R010D	DOOR LOCK SWITCH	DOOR LATCH
SMD	SWITCH-DOOR CLOSED	W7H7JS+A	09R010D	DOOR LOCK SWITCH	DOOR LATCH
SMD	SWITCH-DOOR CLOSED	W7H7JS+B	09R010D	DOOR LOCK SWITCH	DOOR LATCH
SMD	SWITCH-DOOR CLOSED	W7H7JS+C	09R010D	DOOR LOCK SWITCH	DOOR LATCH
SMD	SWITCH-DOOR CLOSED	W7H7JS+D	09R010D	DOOR LOCK SWITCH	DOOR LATCH
SME	SWITCH-DOOR IS LOCKED	W7H7JS+	02-04177	MICROSWITCH, 1 IN LEVER	DOOR LATCH
SME	SWITCH-DOOR IS LOCKED	W7H7JS+B	02-04177	MICROSWITCH, 1 IN LEVER	DOOR LATCH
SME	SWITCH-DOOR IS LOCKED	W7H7JS+D	02-04177	MICROSWITCH, 1 IN LEVER	DOOR LATCH
SMWVB	SWITCH-VIBRATION	W7H7JIA	09R020	SWITCH NC VIBR#WZ-2RW84429-P52	CONTROL PANEL
SMWVB	SWITCH-VIBRATION	W7H7JIB	09R020	SWITCH NC VIBR#WZ-2RW84429-P52	CONTROL PANEL
ST	>>SWITCH-TEMPERATURE OPERATED				
STDB	THERMOSTAT-DYNAMIC BRAKE	W7H7JS+B	30RA175T	THERMOSTAT OPENS AT 175F	CONTROL PANEL
STDB	THERMOSTAT-DYNAMIC BRAKE	W7H7JS+C	30RA175T	THERMOSTAT OPENS AT 175F	CONTROL PANEL
STDB	THERMOSTAT-DYNAMIC BRAKE	W7H7JS+D	30RA175T	THERMOSTAT OPENS AT 175F	CONTROL PANEL
VE	>>VALVE-ELECTRIC OPERATED				
VEC1	VALVE-FLUSH DETERGENT	W7H7JCF	MESSAGE MS	CHEMICAL FLUSHING VALVE BY OTHERS	SUPPLY INJECT
VEC2	VALVE-FLUSH BLEACH	W7H7JCF	MESSAGE MS	CHEMICAL FLUSHING VALVE BY OTHERS	SUPPLY INJECT
VEC3	VALVE-FLUSH SOUR	W7H7JCF	MESSAGE MS	CHEMICAL FLUSHING VALVE BY OTHERS	SUPPLY INJECT
VEC4	VALVE-FLUSH SOFTNER	W7H7JCF	MESSAGE MS	CHEMICAL FLUSHING VALVE BY OTHERS	SUPPLY INJECT

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VEC5	VALVE-FLUSH STARCH	W7H7JCF	MESSAGE MS	CHEMICAL FLUSHING VALVE BY OTHERS	SUPPLY INJECT
VECW	VALVE-COLD WATER (H8J ONLY)	W7H7JEV	96P053C71	3/4" 60HZ 220V 50HZ NORYL VALVE	REAR OF MACH
VECW	VALVE-COLD WATER (V#J & T#J ONLY)	W7H7JEV	96P016A71	1/2DUOVAL 240VHAYS4-3108-240	REAR OF MACH
VEDRR	VALVE-DRAIN TO REUSE	W7H7JEV	MESSAGE MS	VALVE SUPPLIED BY OTHERS	DRAIN LINE
VEFL	VALVE-FLUSH (H8J ONLY)	W7H7JEV	96P053C71	3/4" 60HZ 220V 50HZ NORYL VALVE	REAR OF MACH
VEFL	VALVE-FLUSH (V#J & T#J ONLY)	W7H7JEV	96TDC2AA71	1/2" N/C 2WAY 240V50/60C VALVE	REAR OF MACH
VEHW	VALVE-HOT WATER (H8J ONLY)	W7H7JEV	96P053C71	3/4" 60HZ 220V 50HZ NORYL VALVE	REAR OF MACH
VEHW	VALVE-HOT WATER (V#J & T#J ONLY)	W7H7JEV	96P016A71	1/2DUOVAL 240VHAYS4-3108-240	REAR OF MACH
VEMF	VALVE: MANUAL FLUSH	W7H7JCF	96P053C71	3/4" 60HZ 220V 50HZ NORYL VALVE	REAR H8J ONLY
VESTM	VALVE-FLUSH STEAM (H8J ONLY)	W7H7JEV	MESSAGE MS	VALVE SUPPLIED BY OTHERS	STEAM LINE
VESTM	VALVE-FLUSH STEAM (V#J & T#J ONLY)	W7H7JEV	96P039A71	1/2"STEAMVAL 240V50/60C 150PSI	STEAM LINE
VETCD	VALVE-COOLDOWN (H8J ONLY)	W7H7JEV	MESSAGE MS	VALVE SUPPLIED BY OTHERS	WATER LINE
VETCD	VALVE-COOLDOWN (V#J & T#J ONLY)	W7H7JEV	96TDC2AA71	1/2" N/C 2WAY 240V50/60C VALVE	REAR OF MACH
VEVWX	VALVE-EXTRA WATER (H8J ONLY)	W7H7JEV	MESSAGE MS	VALVE SUPPLIED BY OTHERS	WATER LINE
VEVWX	VALVE-EXTRA WATER (V#J & T#J ONLY)	W7H7JEV	96P016A71	1/2DUOVAL 240VHAYS4-3108-240	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.

ANY SALE OR FURNISHING OF ANY EQUIPMENT BY MILNOR IS MADE ONLY UPON THE EXPRESS UNDERSTANDING THAT MILNOR MAKES NO EXPRESSED OR IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR USE OR PURPOSE OR ANY OTHER WARRANTY IMPLIED BY LAW INCLUDING BUT NOT LIMITED TO REDHIBITION. MILNOR WILL NOT BE RESPONSIBLE FOR ANY COSTS OR DAMAGES ACTUALLY INCURRED OR REQUIRED AS A RESULT OF: THE FAILURE OF ANY OTHER PERSON OR ENTITY TO PERFORM ITS RESPONSIBILITIES, FIRE OR OTHER HAZARD, ACCIDENT, IMPROPER STORAGE, MIS-USE, NEGLIGENCE, POWER OR ENVIRONMENTAL CONTROL MALFUNCTIONS, DAMAGE FROM LIQUIDS, OR ANY OTHER CAUSE BEYOND THE NORMAL RANGE OF USE. REGARDLESS OF HOW CAUSED, IN NO EVENT SHALL MILNOR BE LIABLE FOR SPECIAL, INDIRECT, PUNITIVE, LIQUIDATED, OR CONSEQUENTIAL COSTS OR DAMAGES, OR ANY COSTS OR DAMAGES WHATSOEVER WHICH EXCEED THE PRICE PAID TO MILNOR FOR THE EQUIPMENT IT SELLS OR FURNISHES.

THE PROVISIONS ON THIS PAGE REPRESENT THE ONLY WARRANTY FROM MILNOR AND NO OTHER WARRANTY OR CONDITIONS, STATUTORY OR OTHERWISE, SHALL BE IMPLIED.

WE NEITHER ASSUME, NOR AUTHORIZE ANY EMPLOYEE OR OTHER PERSON TO ASSUME FOR US, ANY OTHER RESPONSIBILITY AND/OR LIABILITY IN CONNECTION WITH THE SALE OR FURNISHING OF OUR EQUIPMENT TO ANY BUYER.

BMP720097/19036

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.

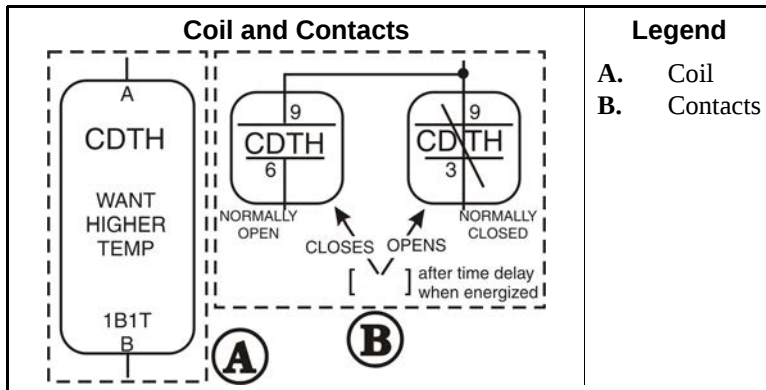
CB=Circuit Breaker (Figure 1)—Automatic switch that opens an electric circuit in abnormal current conditions (e.g., an overload).

Figure 1: Circuit Breaker (CB)



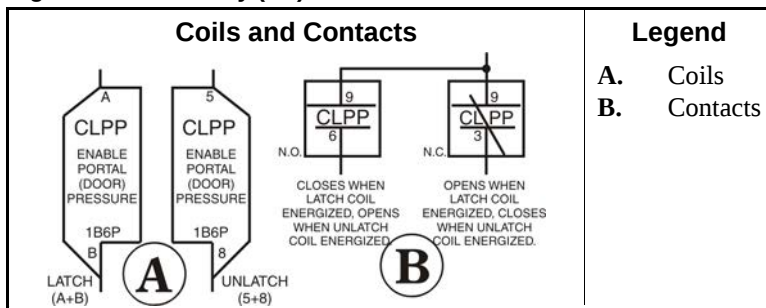
CD=Control, Time Delay Relay (Figure 2)—A relay whose contacts switch only after a fixed or adjustable delay, once voltage has been applied to its coil. The contacts switch back to normal (de-energized state) immediately when the voltage is removed.

Figure 2: Time Delay Relay (CD)



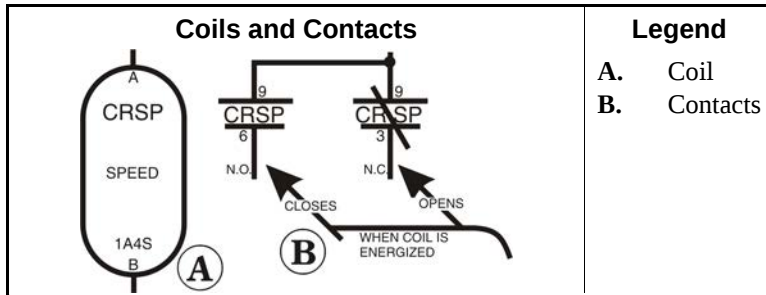
CL=Control, Latch Relay (Figure 3)—A relay which latches in an energized or set position when operated by one coil (the latch/set coil). The relay stays latched even though coil voltage is removed. The relay releases or unlatches when voltage is applied to a second coil (the unlatch/reset coil).

Figure 3: Latch Relay (CL)



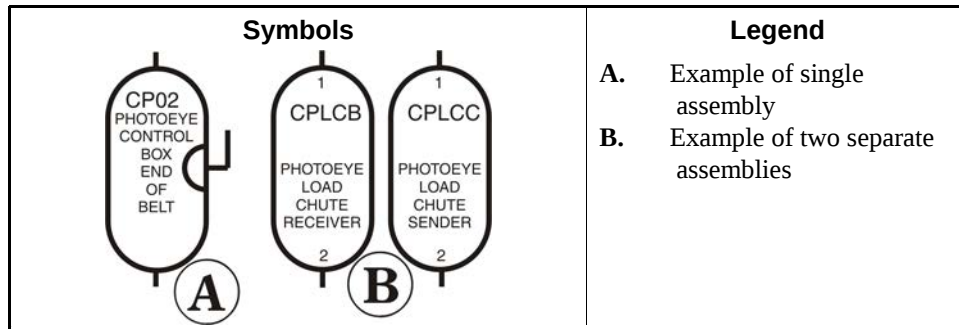
CR=Control, Relay (Figure 4)—A relay whose contacts switch immediately when voltage is applied to its coil and revert to normal when the voltage is removed.

Figure 4: Standard Relay (CR)



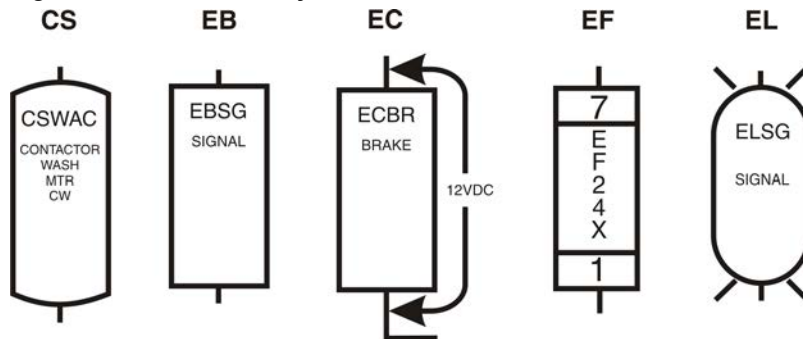
CP=Control, Photo-Eye (Figure 5)—Photo-eyes sense the presence of an object without direct physical contact. Photo-eyes consist of a transmitter, receiver, and output module. These components may be housed in one assembly with the transmitter bouncing light off of a reflector to the receiver, or these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

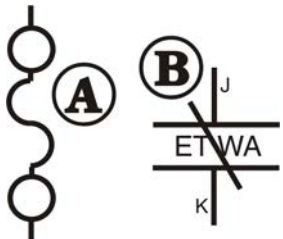
EL=Electric Light (Figure 6)—Indicator lights may be either incandescent or fluorescent.

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.

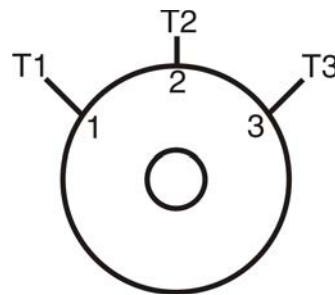
MN=Electronic Monitor (CRT)—A cathode ray tube used for visual presentation of data.

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

Figure 8: Transformer (EX)



Figure 9: Electric Motor (MR)

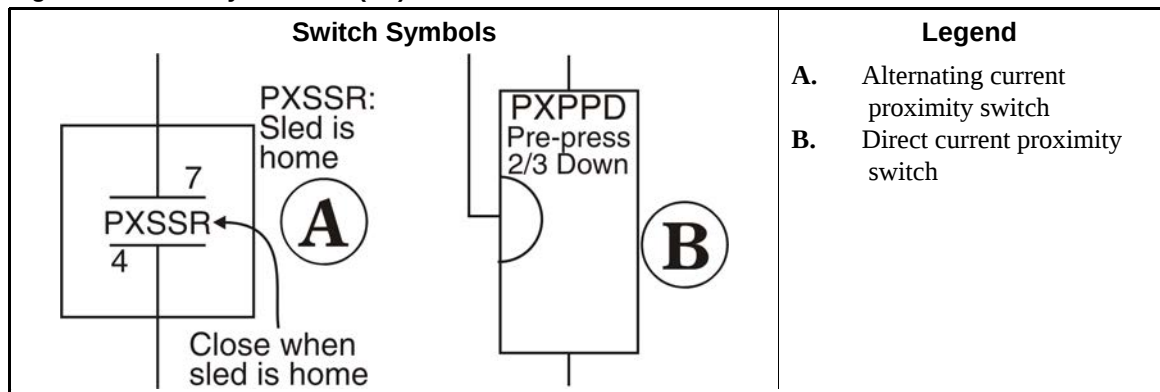


MV=Motor (Variable Speed) Inverter—To vary the speed of an AC motor, the volts to frequency ratio must be kept constant. The motor will overheat if this ratio is not maintained. The motor variable speed inverter converts three phase AC to DC. The inverter then uses this DC voltage to generate AC at the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

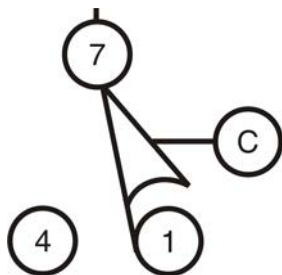
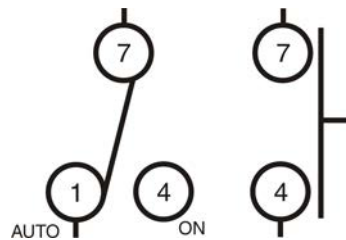


Figure 12: Hand Operated Switch (SH)



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)

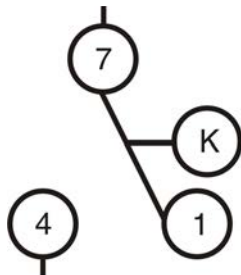
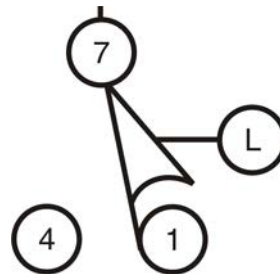


Figure 14: Level Switch (SL)



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)

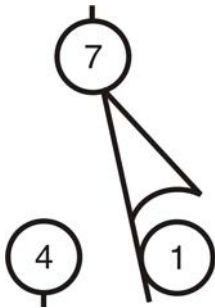
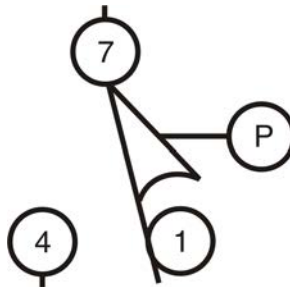


Figure 16: Pressure Switch (SP)



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)

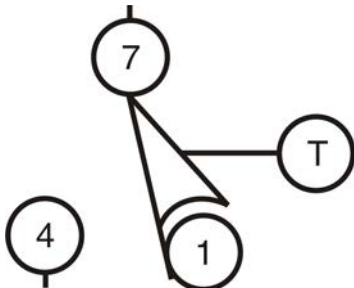


Figure 18: Terminal Board (TB)



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)

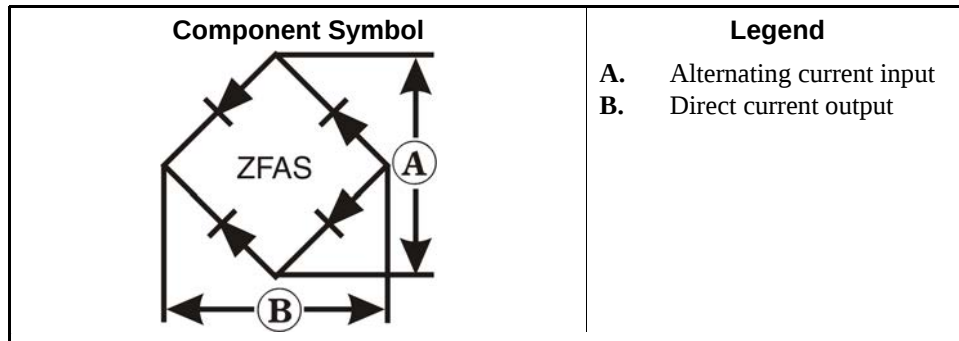
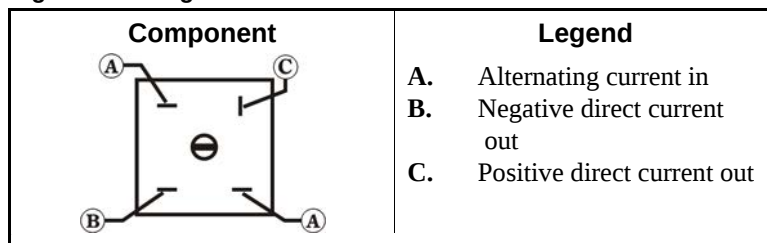


Figure 21: Bridge Rectifier



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.

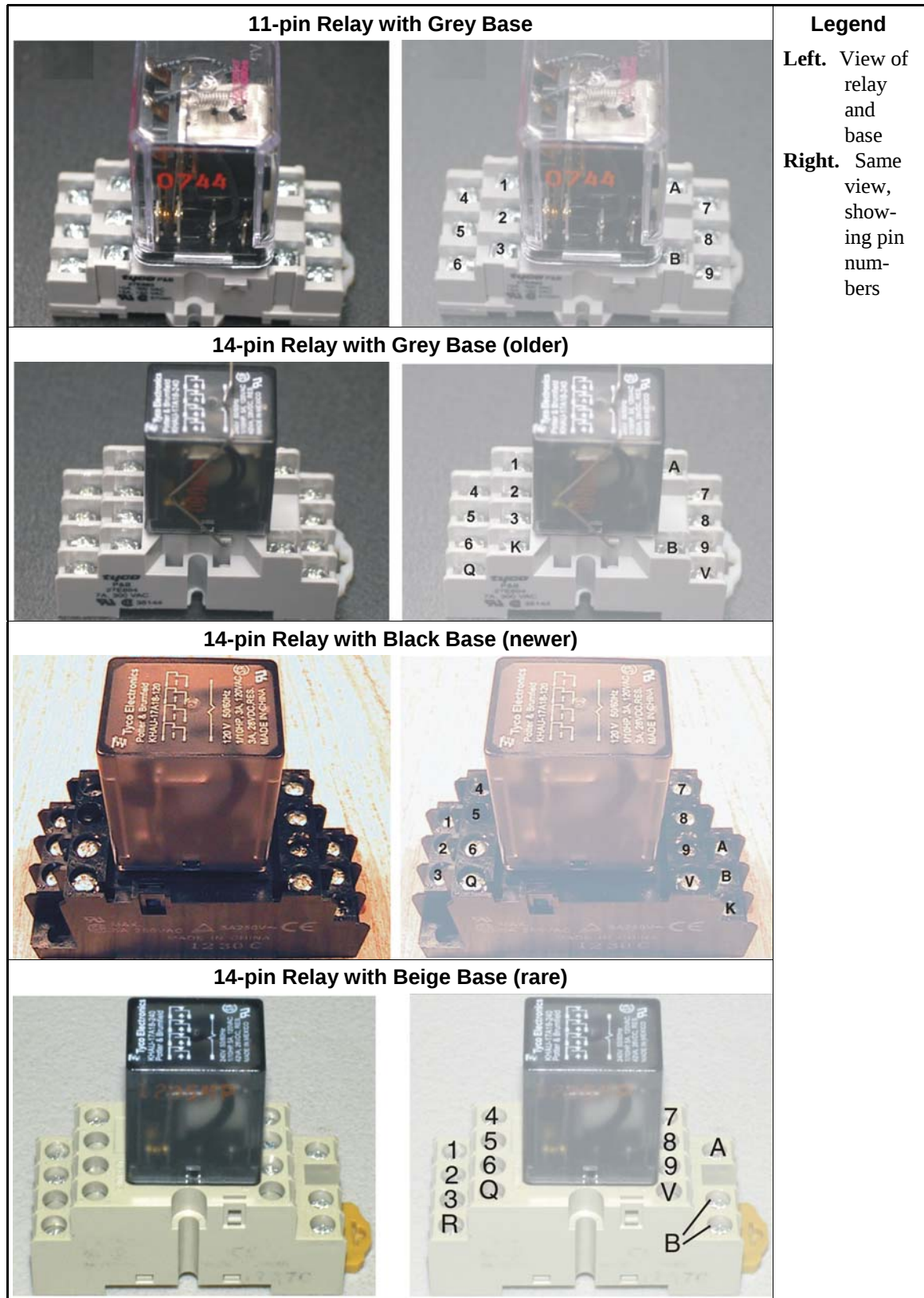
2. Component Terminal Numbering



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



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

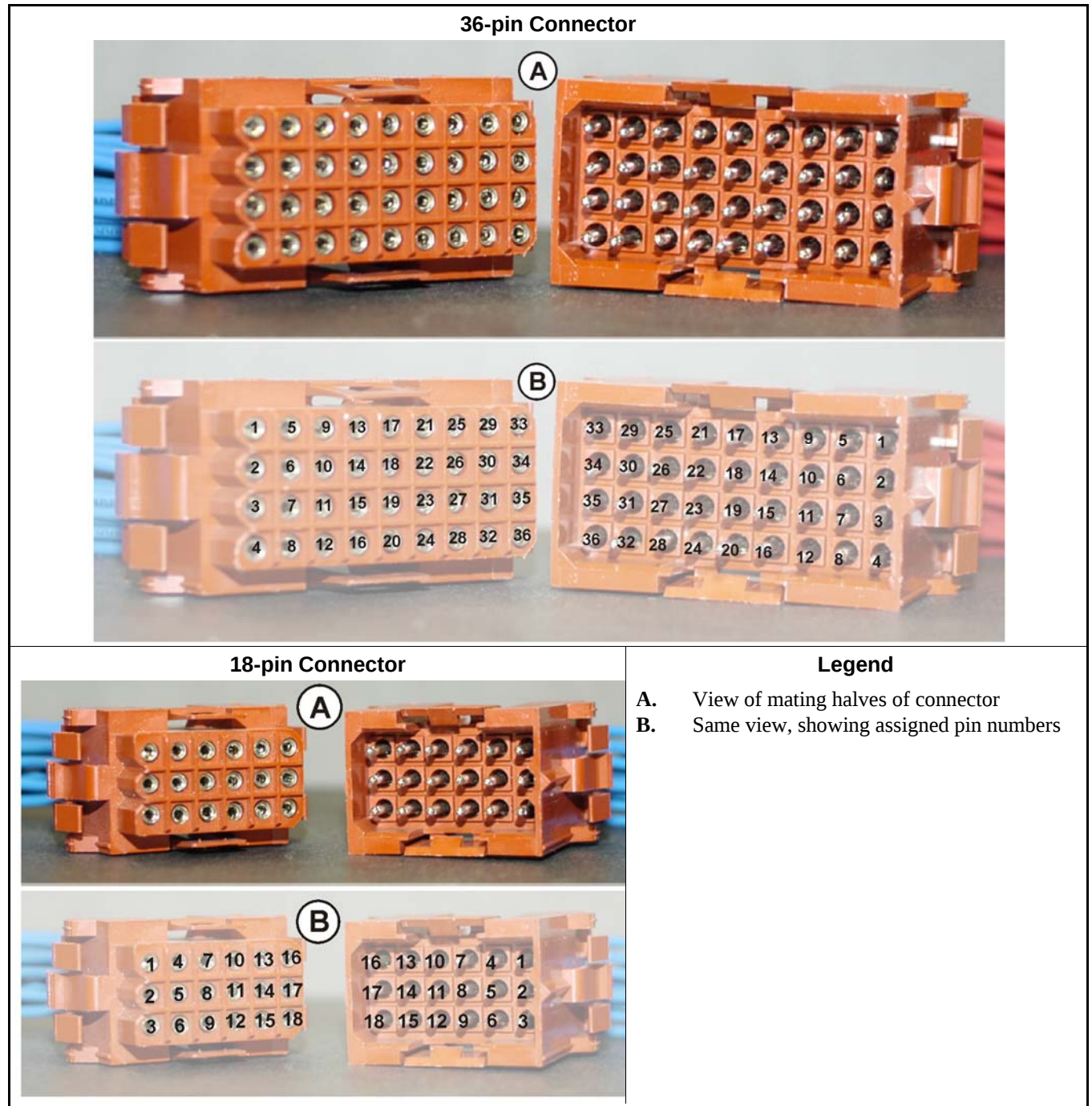


Figure 24: Molex Connector Pin Locations

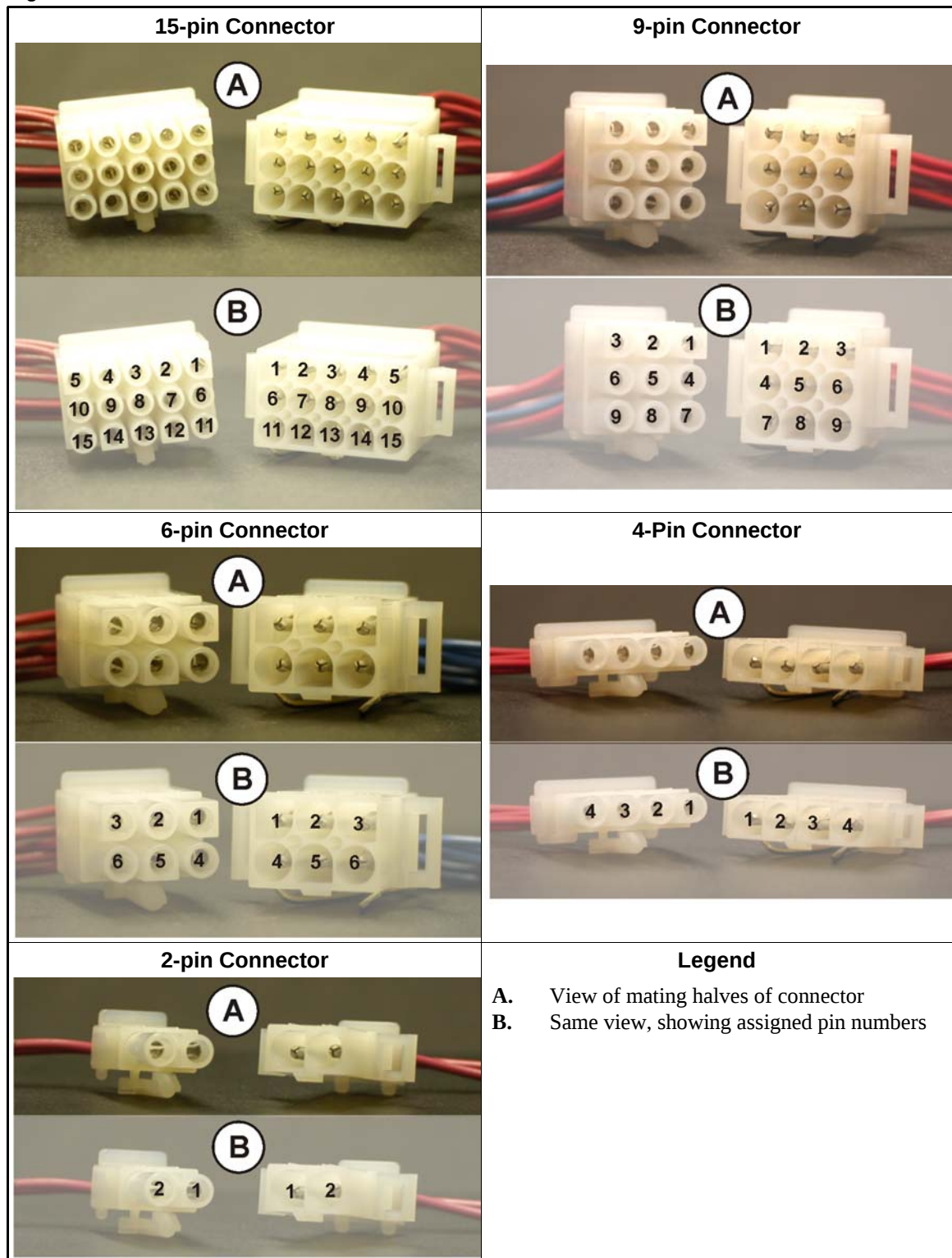


Figure 25: Pressure Switch

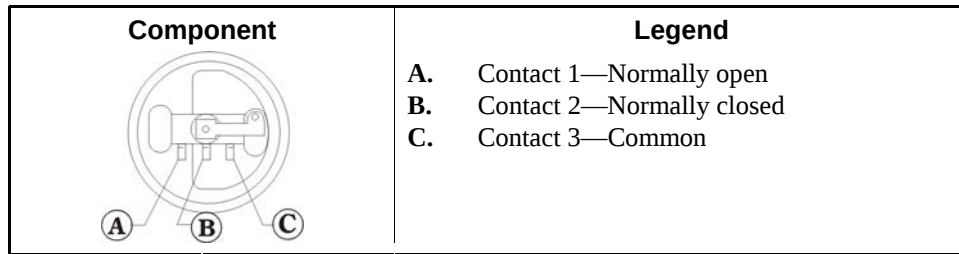


Figure 26: Toggle Switch

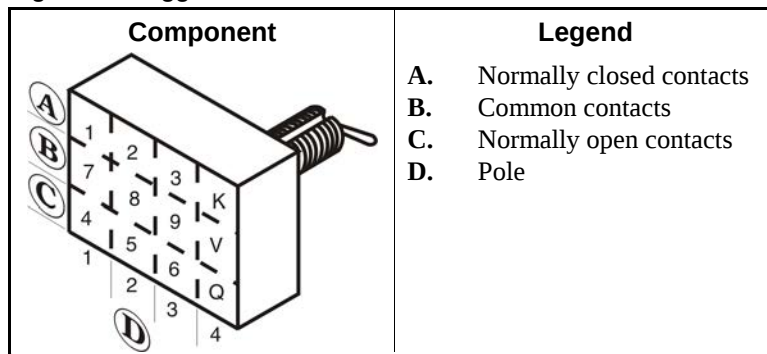
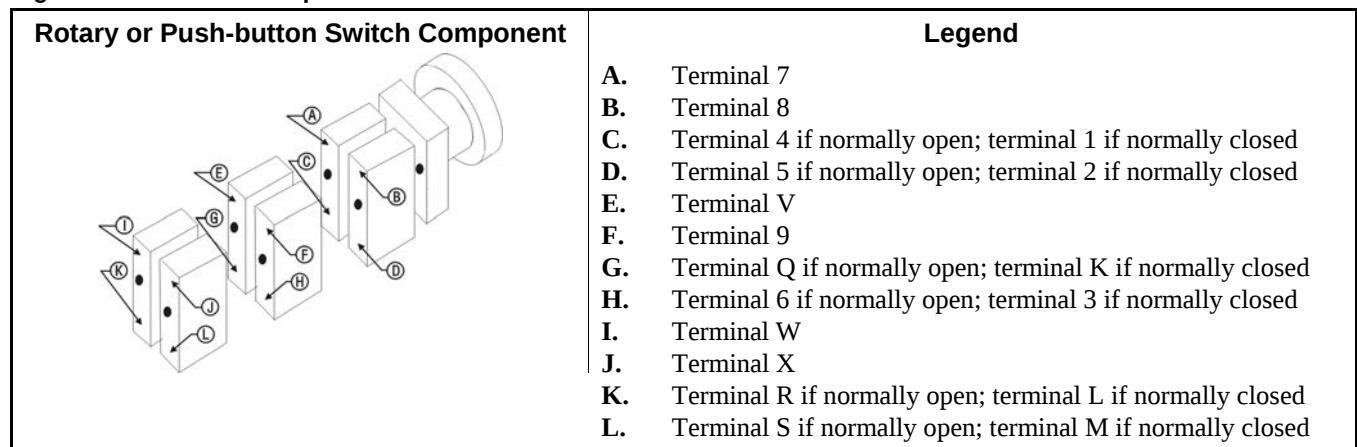


Figure 27: Switch with Replaceable Contact Blocks



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).

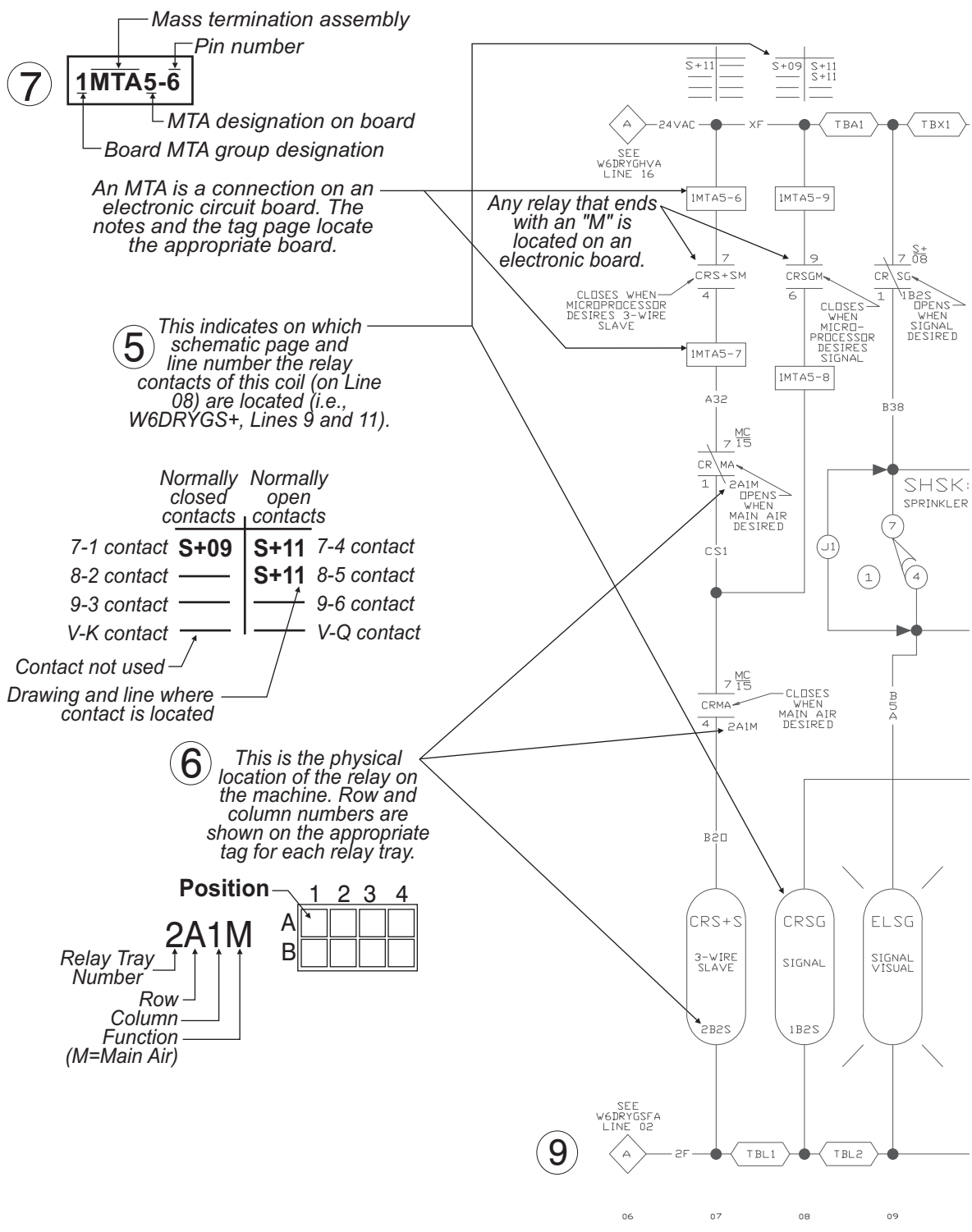
Whenever circuitry changes are significant enough to warrant publishing a new schematic drawing, the new drawing number will be the same as the old except for the major revision letter (A in the example).

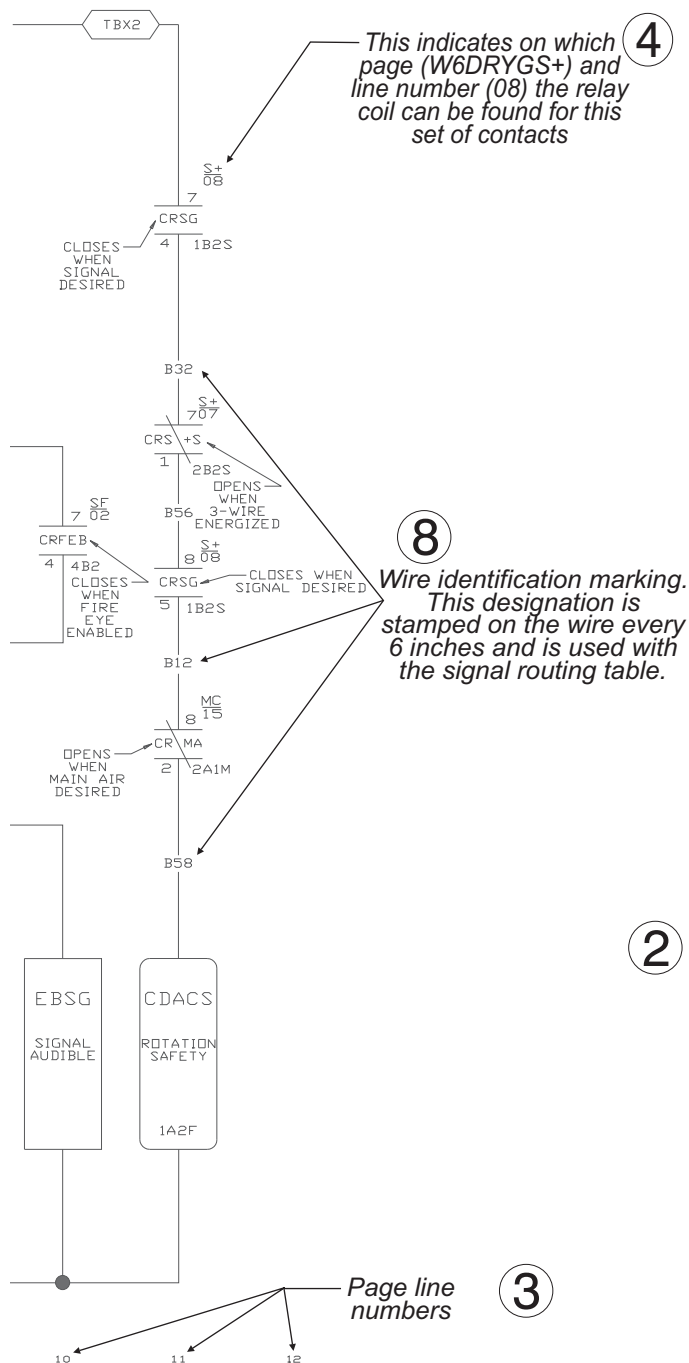
2. Included in the drawing title are the class of control system, the title of this circuit, and the circuit voltage.
3. Line numbers are provided along the bottom edge of the drawing. These permit service personnel in the field and at the Milnor® factory to quickly relate circuit locations when discussing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





Major revision (letter)

① Page number (S+)

Machine type (Gas fired dryer)

6th generation of controls

W = Wiring

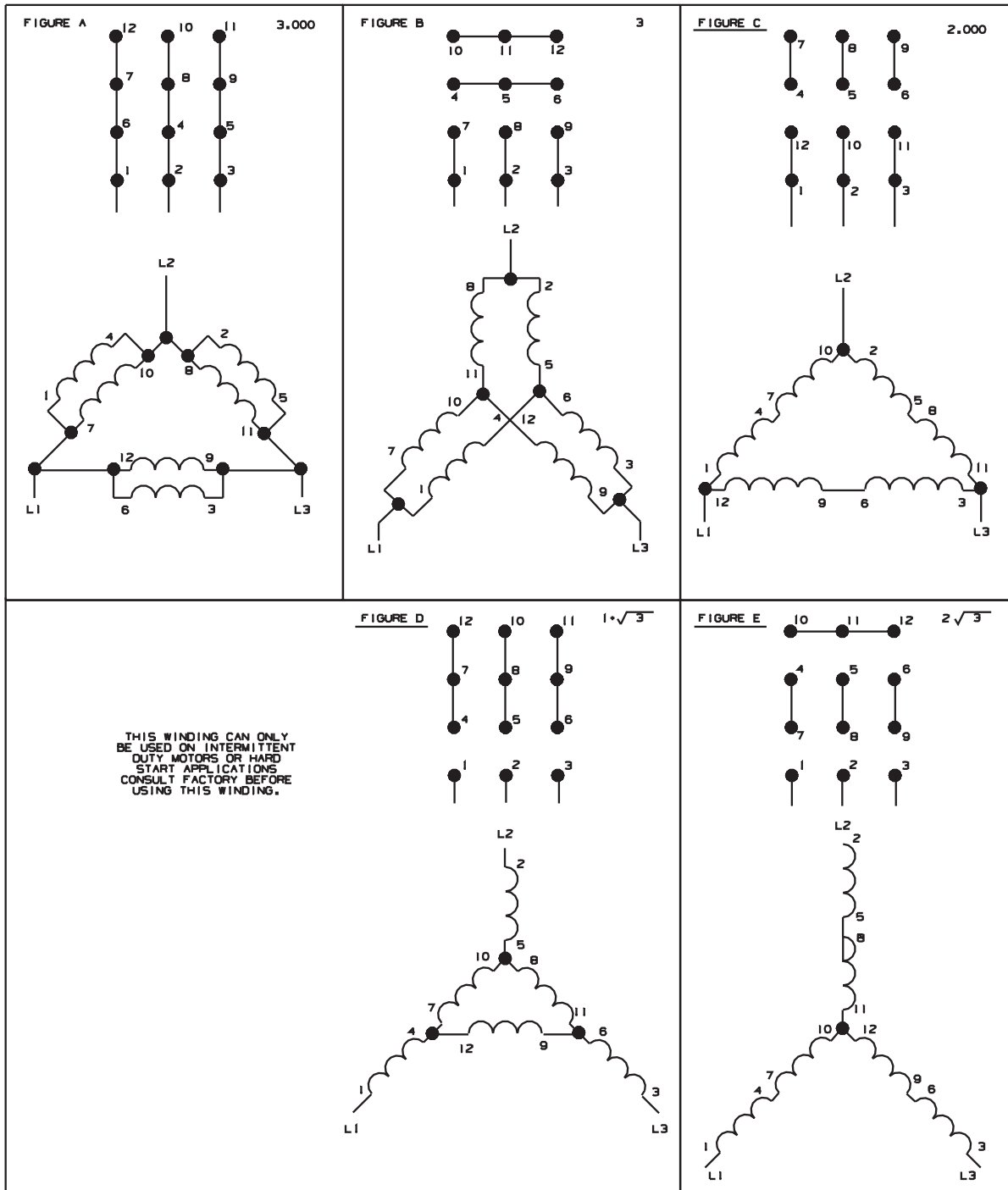
Class of control system

Title of this circuit
Voltage of this circuit

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 BID1 (8 OUTPUT-16 INPUT BOARD).
5. REMOVE (J1) IF DRYER HAS VALVE SET SHUT OPTION.

FIGURE	ELECTRICAL VALUES	SUFFIXES							
		B		H		M		T	
A	1,000	50HZ	60HZ	50HZ	60HZ	50HZ	60HZ	50HZ	60HZ
B	$\sqrt{3}$	208	230			200	220	220	240
C	2,000	416	460	220	240	400	440	440	480
D	$1 + \sqrt{3}$						600		
E	$2\sqrt{3}$			380					



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

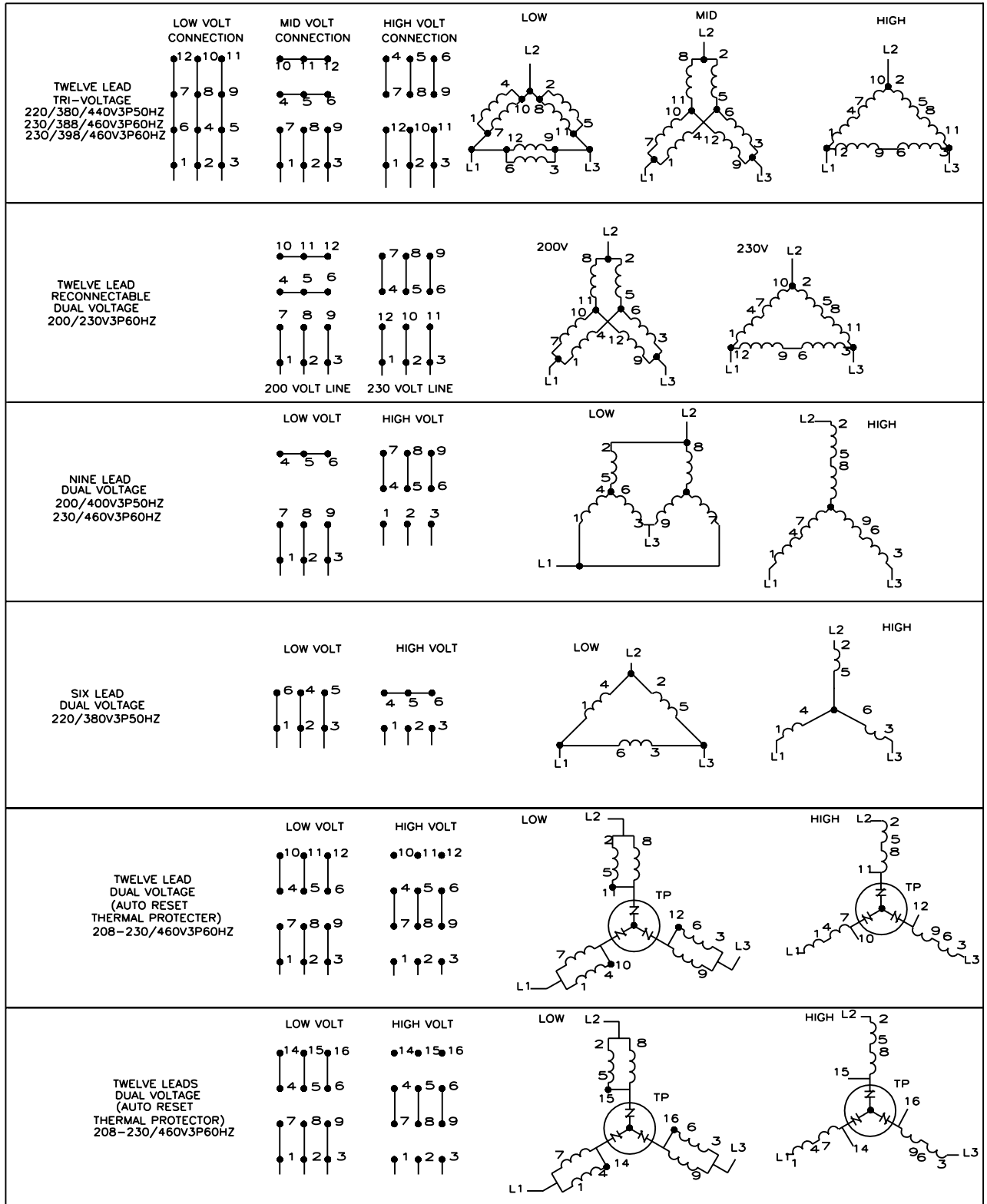
BMP850029

MOTOR CONNECTION DIAGRAMS

THREE PHASE SINGLE SPEED MOTORS WITH MULTIPLE VOLTAGE RATINGS

(ONLY FOR MOTOR SUFFIXES LISTED)

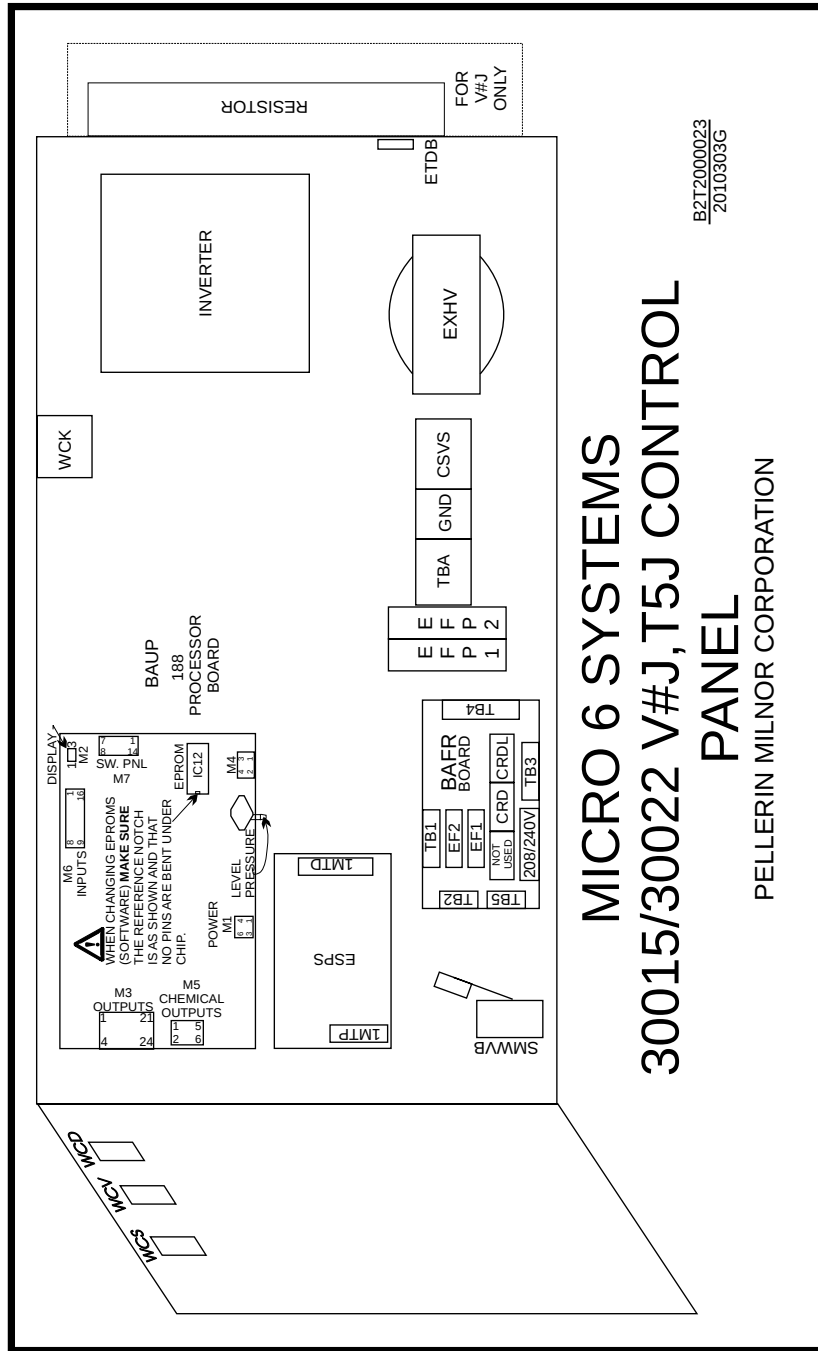
PELLERIN MILNOR CORPORATION

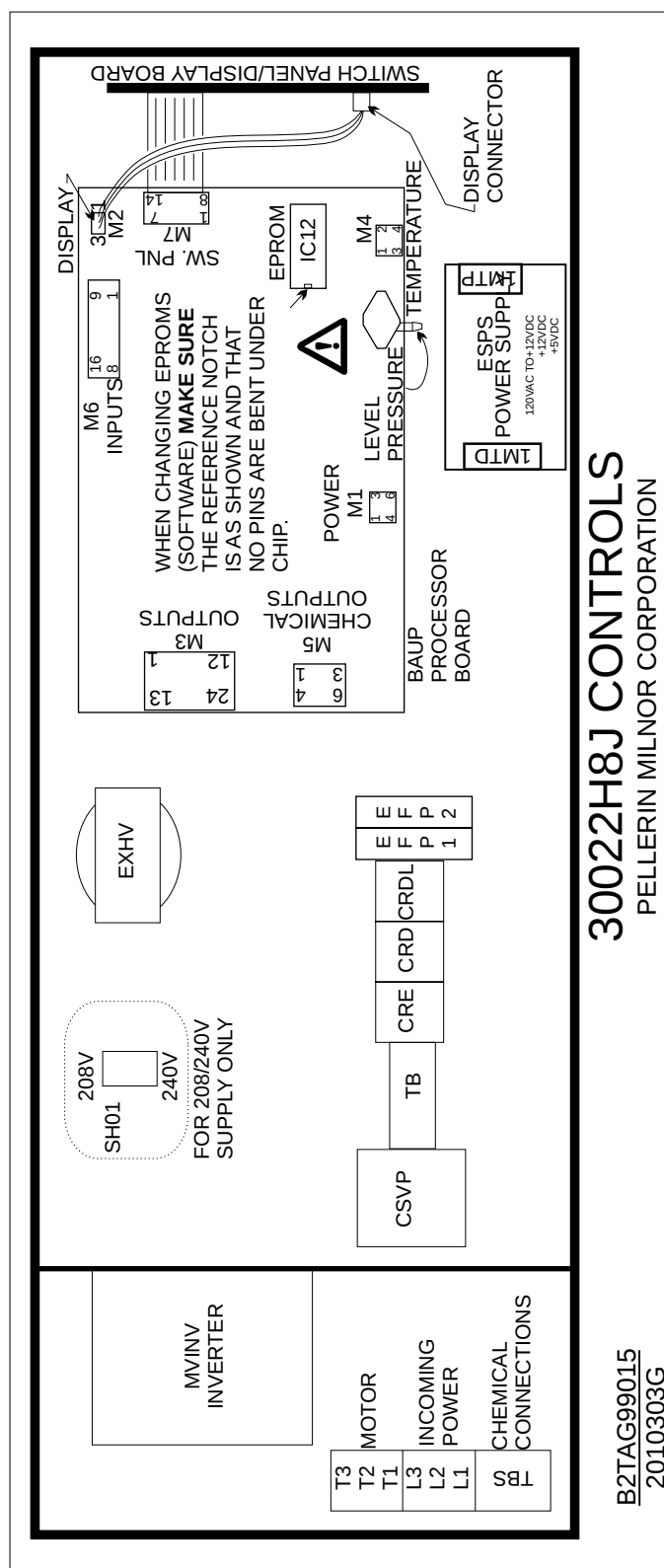


W80008

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

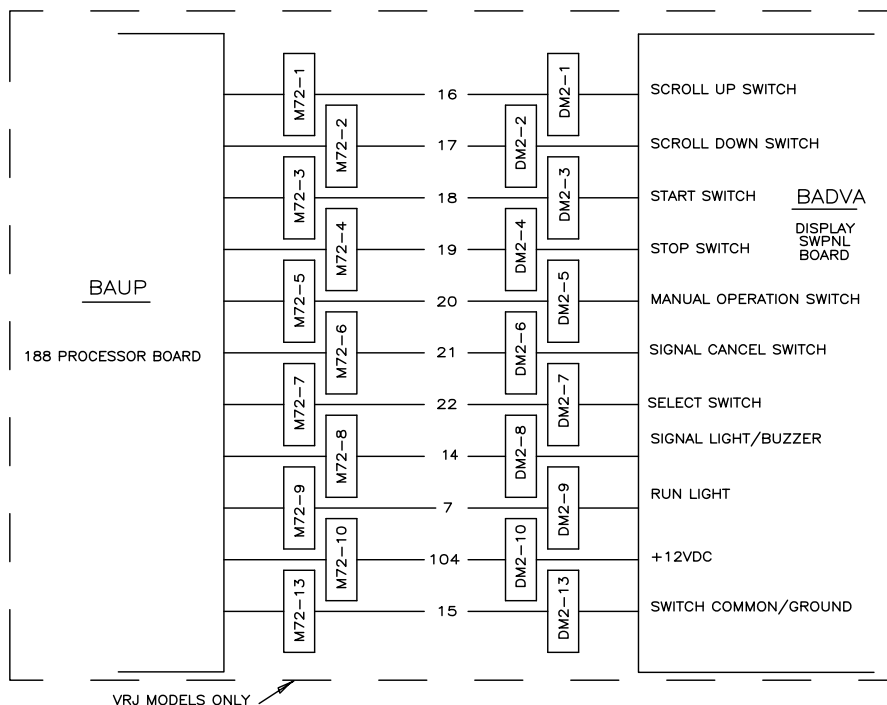
W80008
2001253A





W7H7JTG1
MICRO 6 SYSTEMS
CONTROL BOX LAYOUT
PELLERIN MILNOR CORPORATION

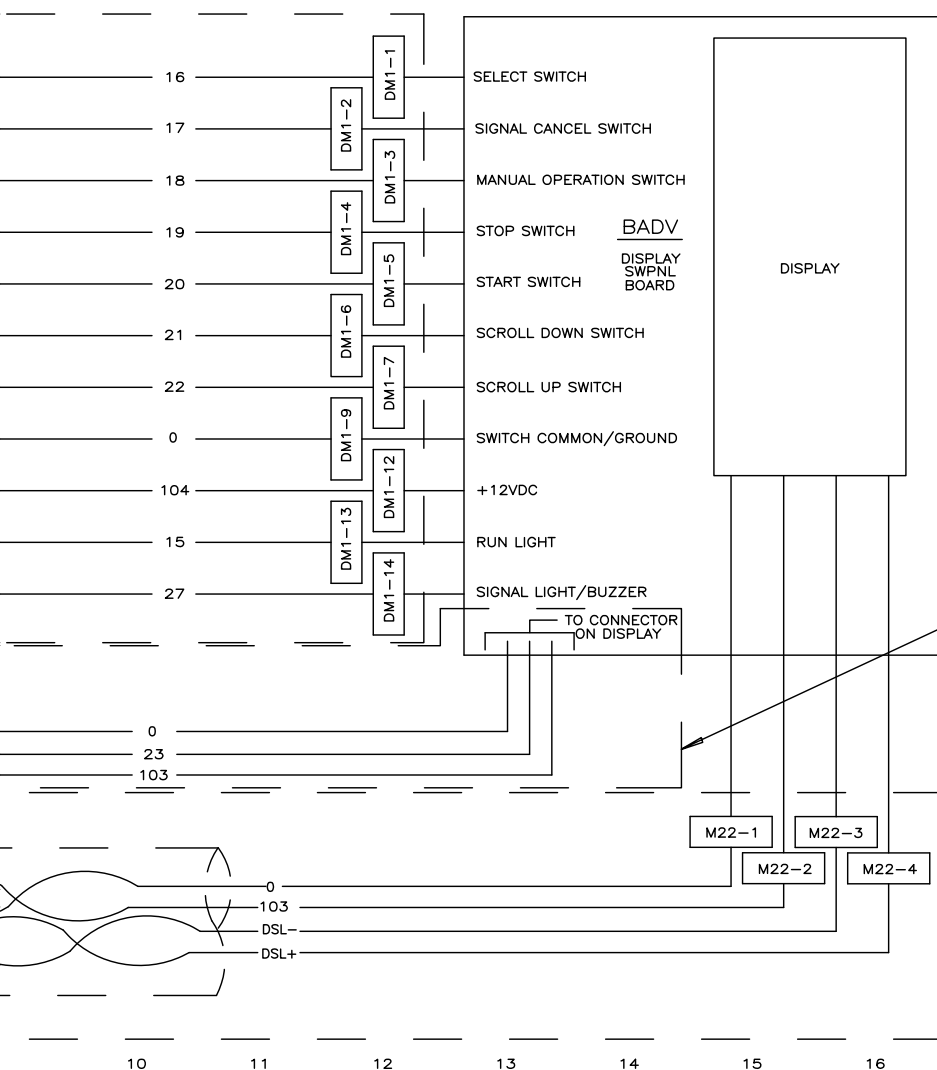
W7H7JTG1
2010303B



WIRE COLOR CODE	
WIRE COLOR	APPLICATION
RED	A.C. CONTROL
RED/WHITE	A.C. COMMON
BLUE	+5 VDC
BLUE/ORANGE	+12VDC
YELLOW/GREEN	GROUND
BLUE/WHITE	D.C. GROUND
BLUE/BLACK	D.C. CONTROL SIGNALS

NOTES

1. M1, M2, M4, AND M7 ARE LOCATED ON BAUP 188 PROCESSOR BOARD.
2. DM1 IS LOCATED ON BADU DISPLAY SWPNL BOARD.
3. WCD IS THE DOWNLOAD CONNECTOR LOCATED ON THE SIDE OF THE SWITCH PANEL CONTROL BOX.



DISPLAY WIRING ON MACHINES
MANUFACTURED BEFORE APRIL 1, 2005

DISPLAY WIRING ON MACHINES
MANUFACTURED AFTER APRIL 1, 2005

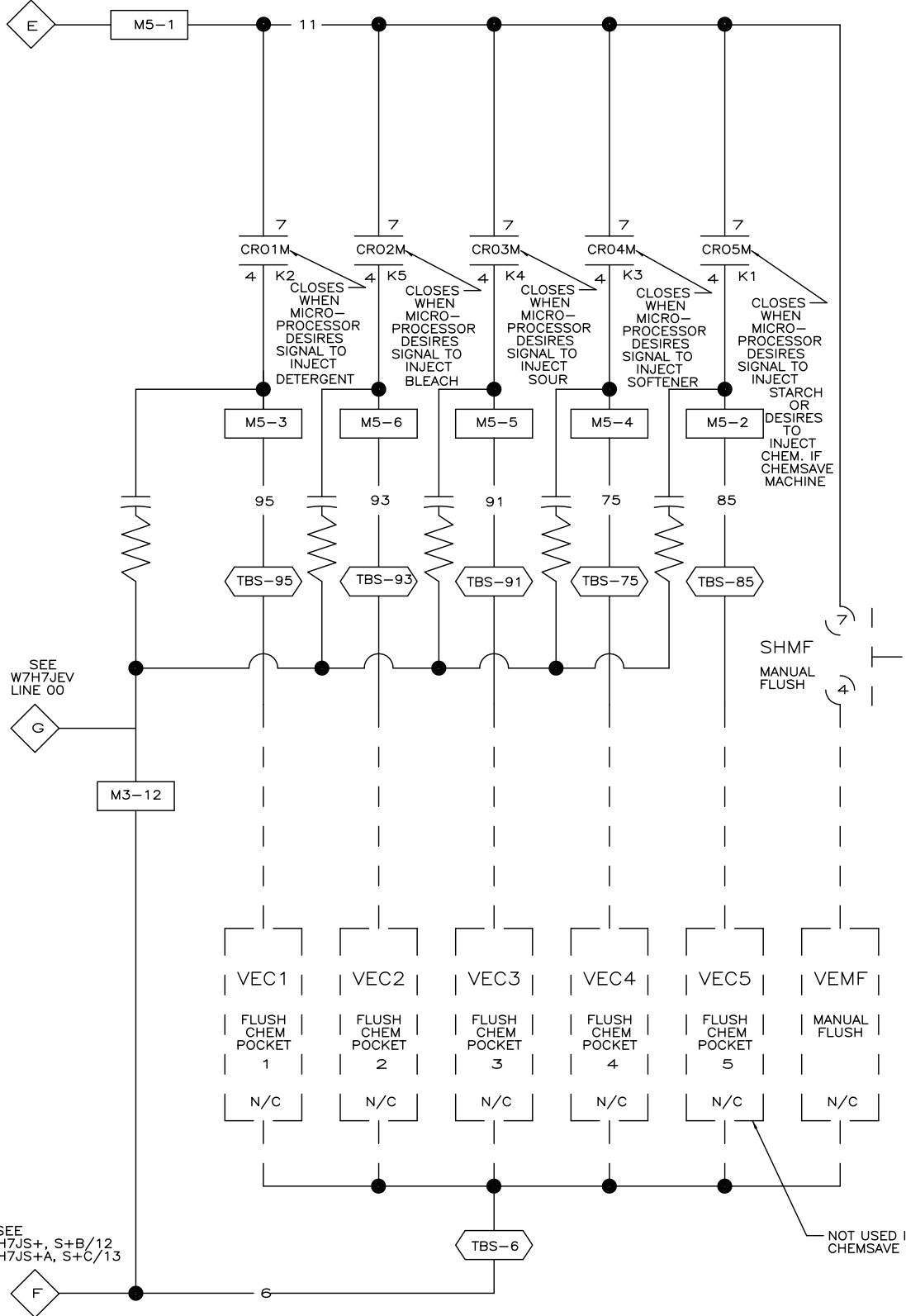
W7H7JBW

MICRO 7 SYSTEMS

SCHEMATIC: BOARD TO BOARD WIRING

PELLERIN MILNOR CORPORATION

SEE
W7H7JS+, S+A, S+B, S+C/12



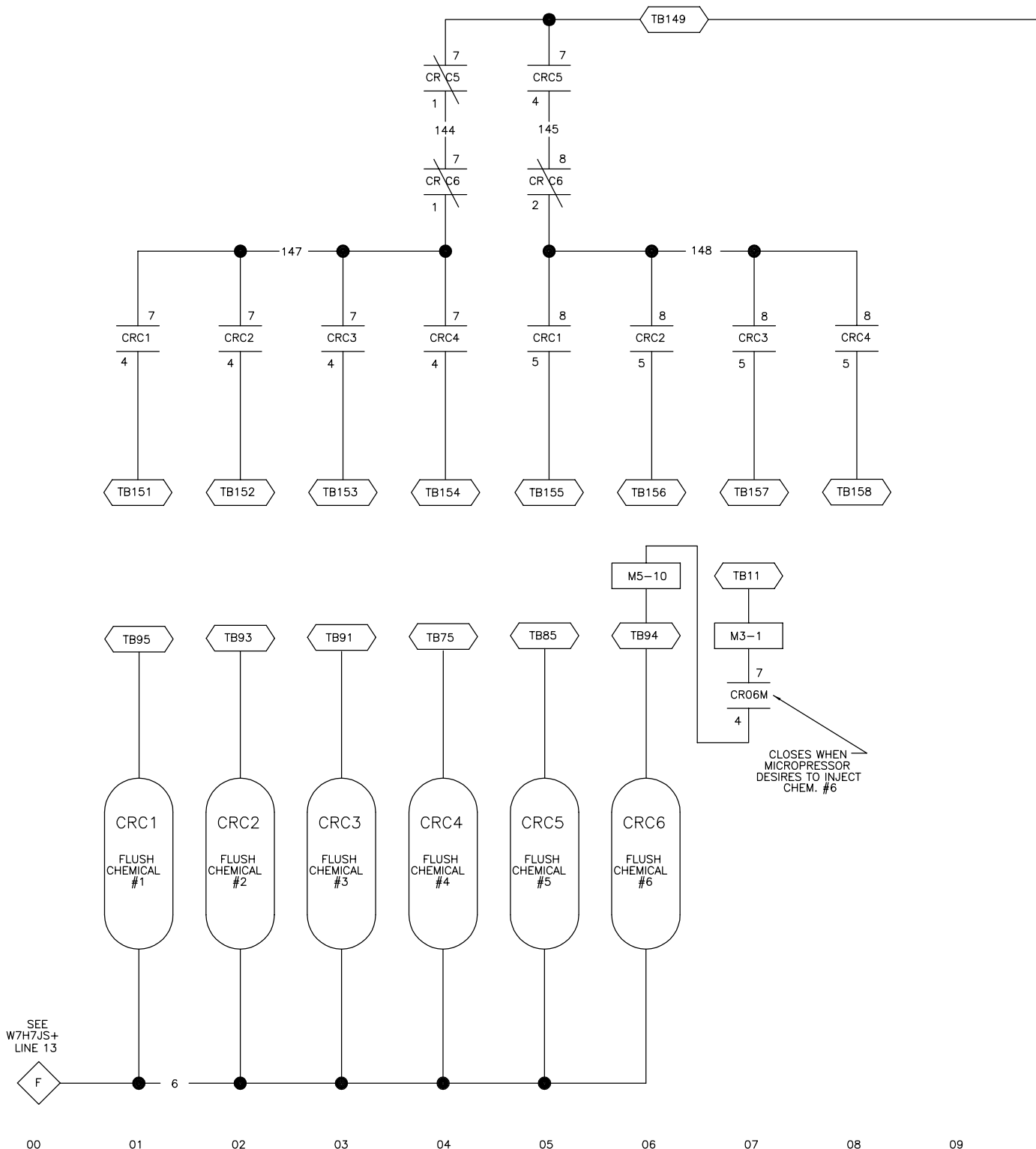
NOTES:

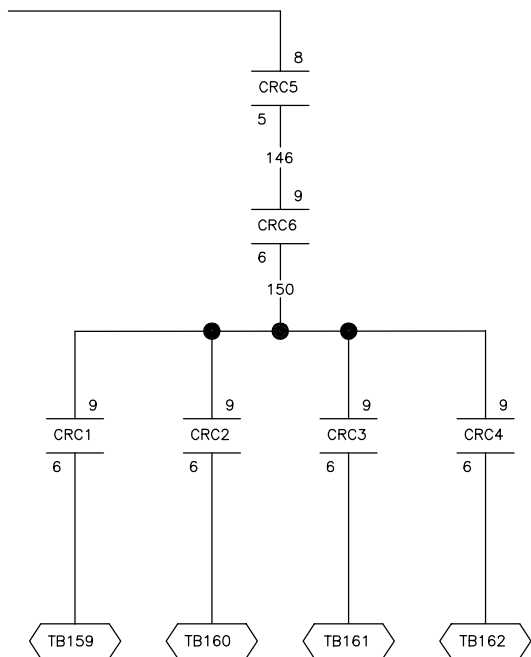
1. M 5 IS LOCATED ON THE PROCESSOR BOARD.
2. TBS IS LOCATED NEAR THE REAR ACCESS PANEL
NEXT TO THE INCOMING POWER CONNECTIONS.

W7H7JCF
SCHEMATIC: FLUSHING SUPPLIES
220V1P50HZ/240V1P60HZ
PELLERIN MILNOR CORPORATION

~~W7H7JCF~~
~~2017166B~~

~~W7H7JCF~~
~~2017166B~~





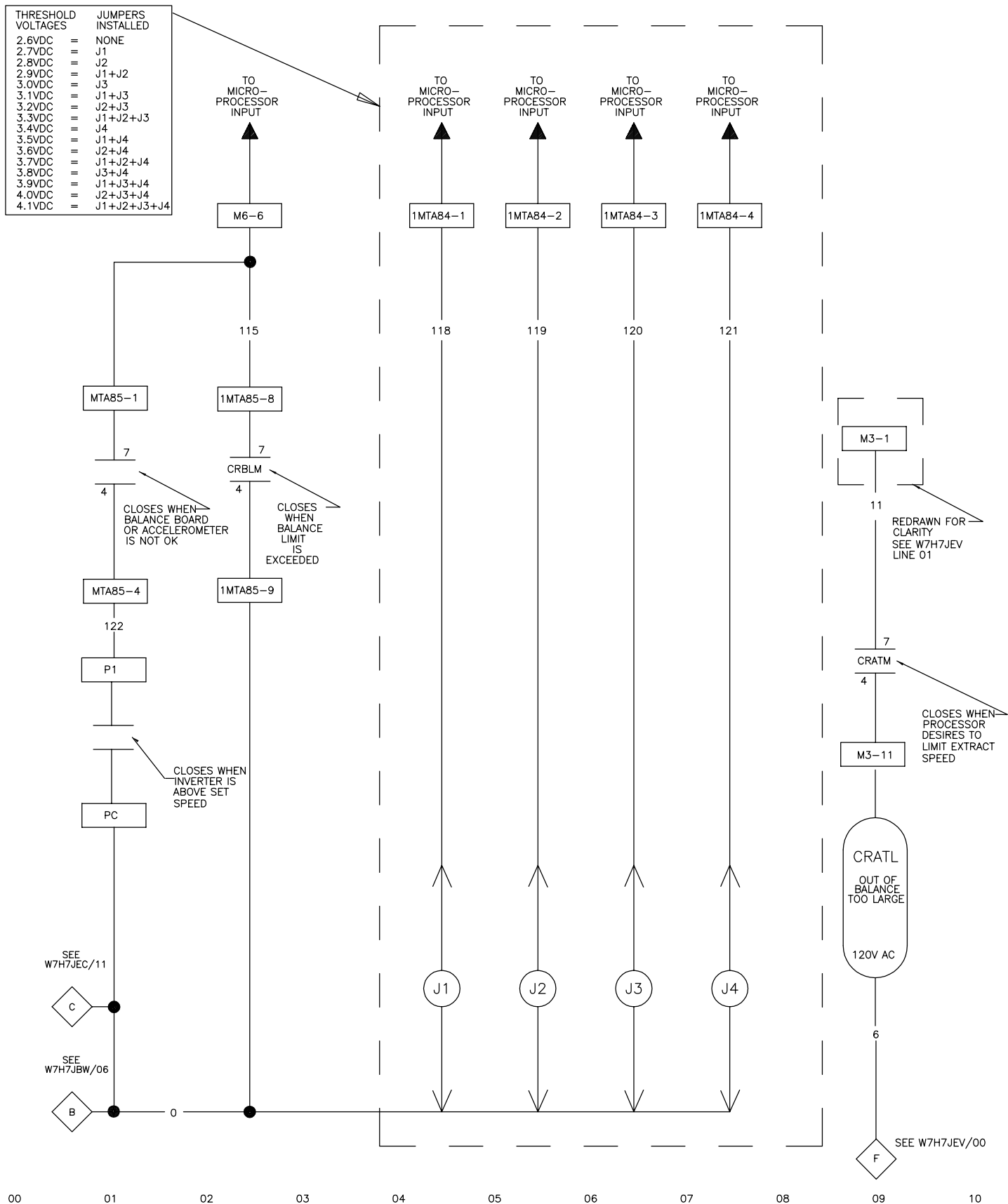
W7H7JCM

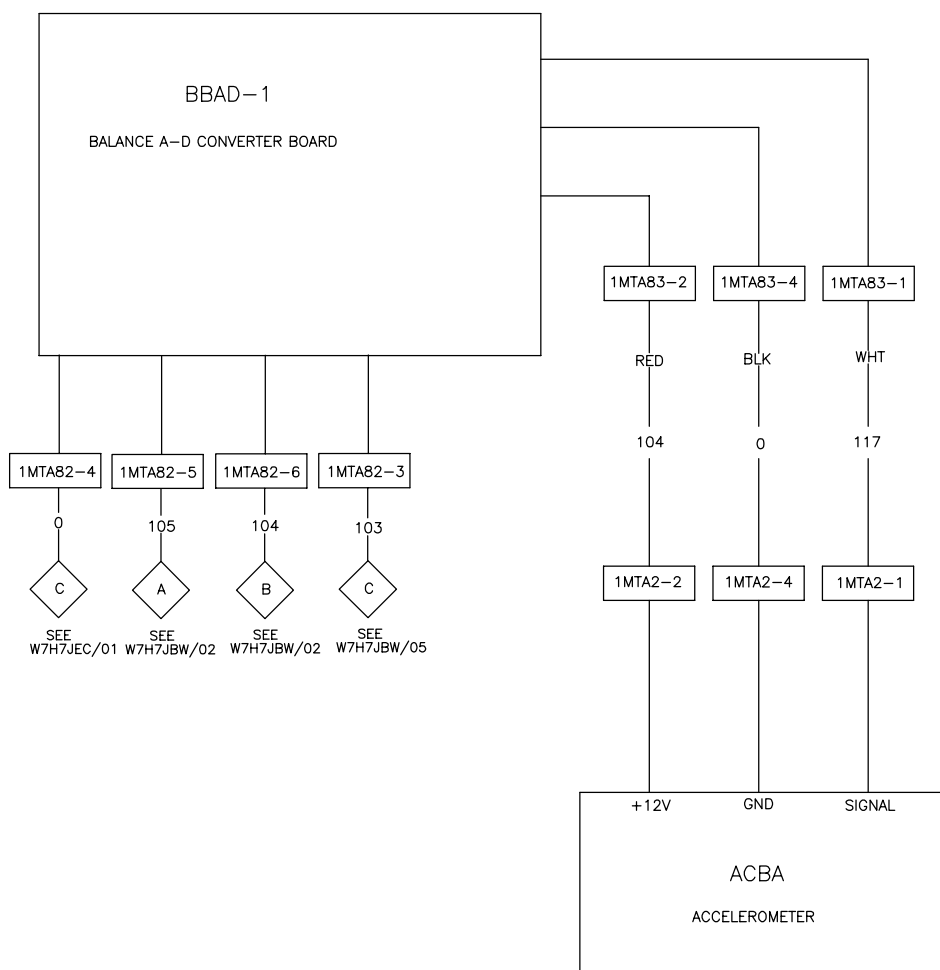
MICRO 7 SYSTEMS MARK V
 SCHEMATIC: OPTIONAL 12 CHEMICAL FLUSHING
 220V1P50HZ/240V1P60HZ
 PELLERIN MILNOR CORPORATION

W7H7JCM
 2006355B

W7H7JCM
 2006355B

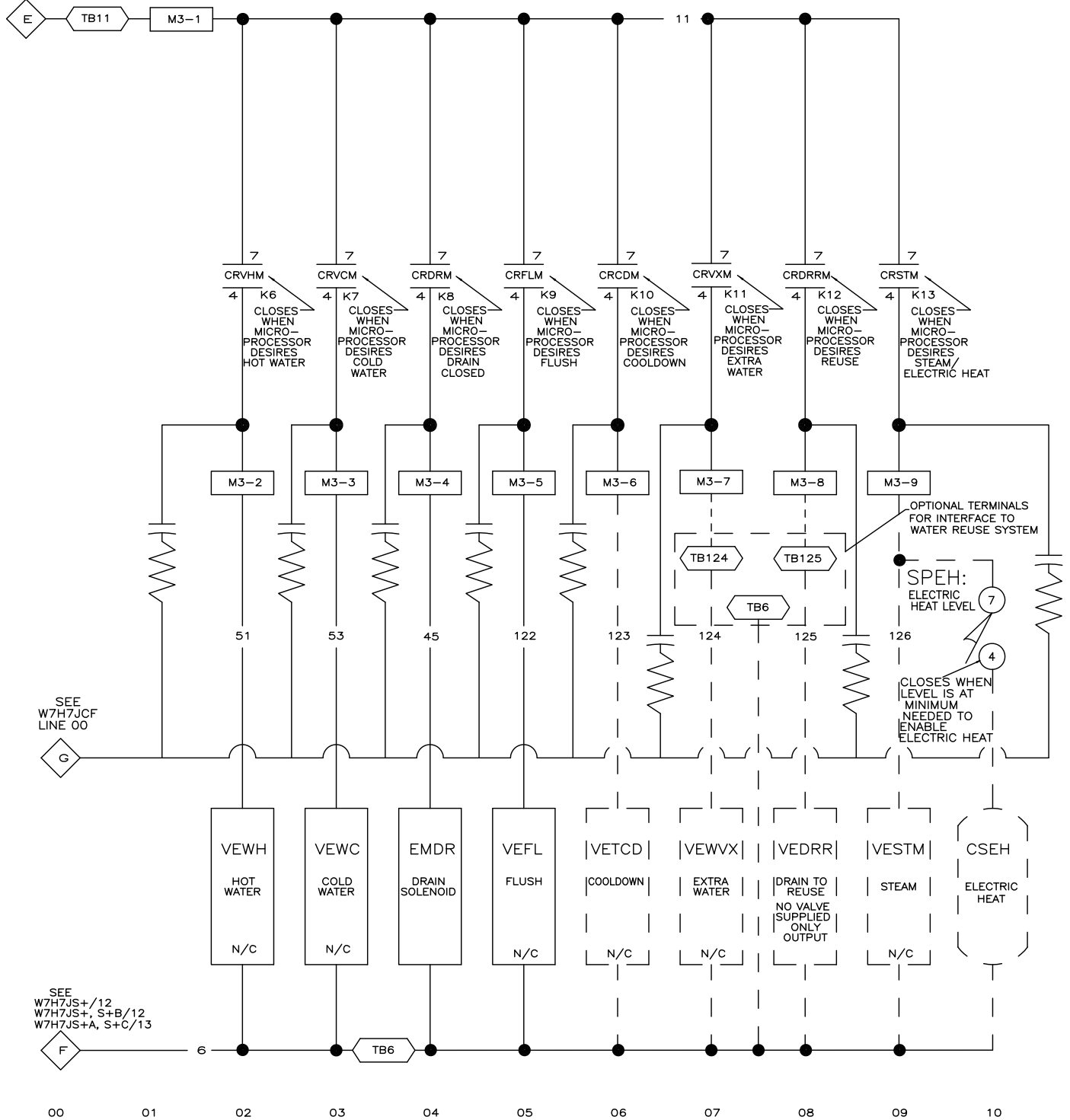
SPEED LIMIT THRESHOLD
INPUTS ARE TO LIMIT
SPEED IN EXTRACT WHEN
THE MACHINE IS OUT OF BALANCE.
JUMPERS ARE ADDED AT THE
FACTORY TO ADJUST FOR VARIATIONS
IN ACCELEROMETERS.





W7H7JEC
ExactXtract-HDT™
SCHEMATIC: EXTRACT SPEED LIMIT CONTROL
FOR 30V_J MACHINES ONLY
PELLERIN MILNOR CORPORATION

SEE
W7H7JS+, S+A, S+B, S+C/12



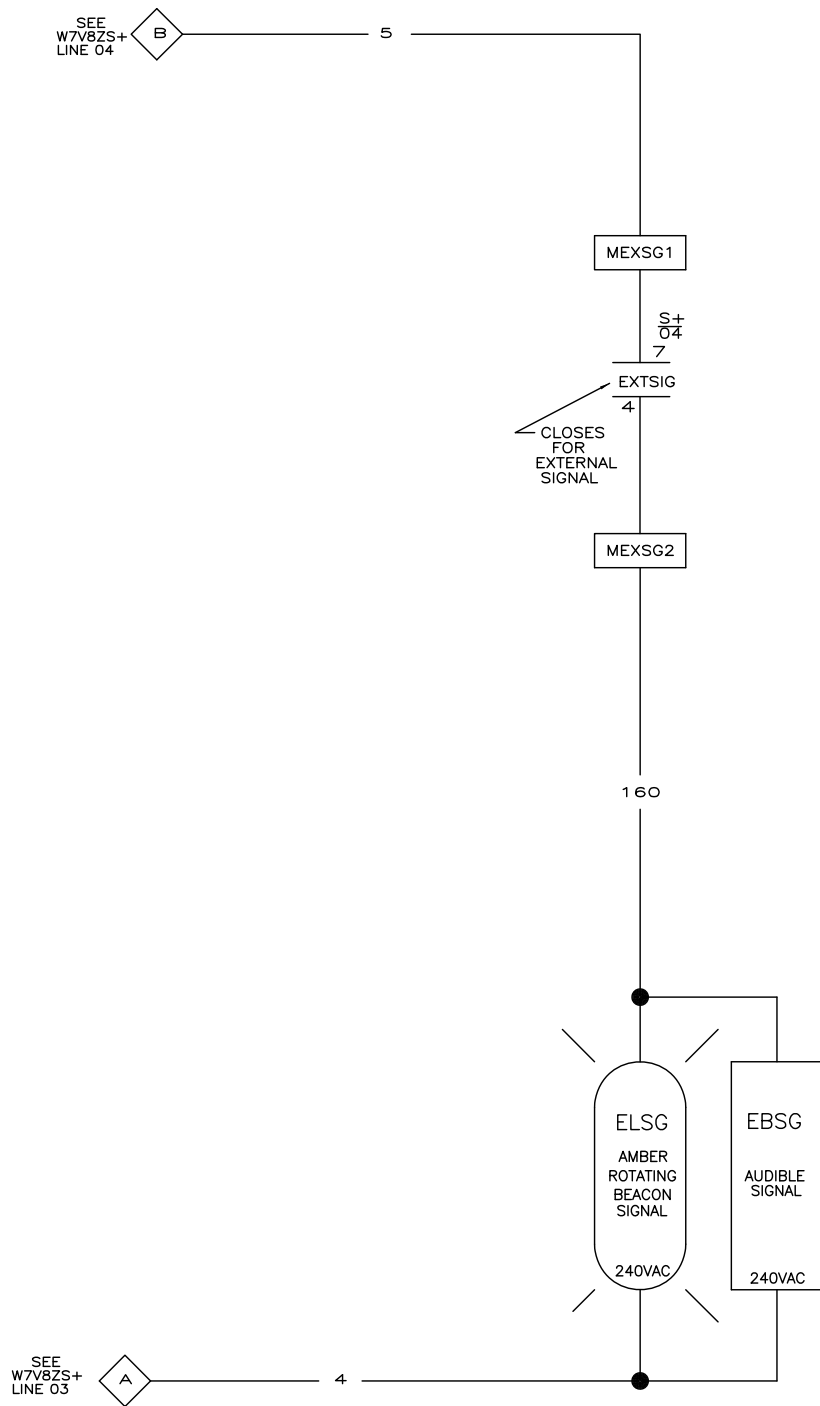
W7H7JEV
SCHEMATIC: ELECTRIC VALVES
220V1P50HZ/240V1P60HZ
PELLERIN MILNOR CORPORATION

W7H7JEV
2017166B

NOTES:

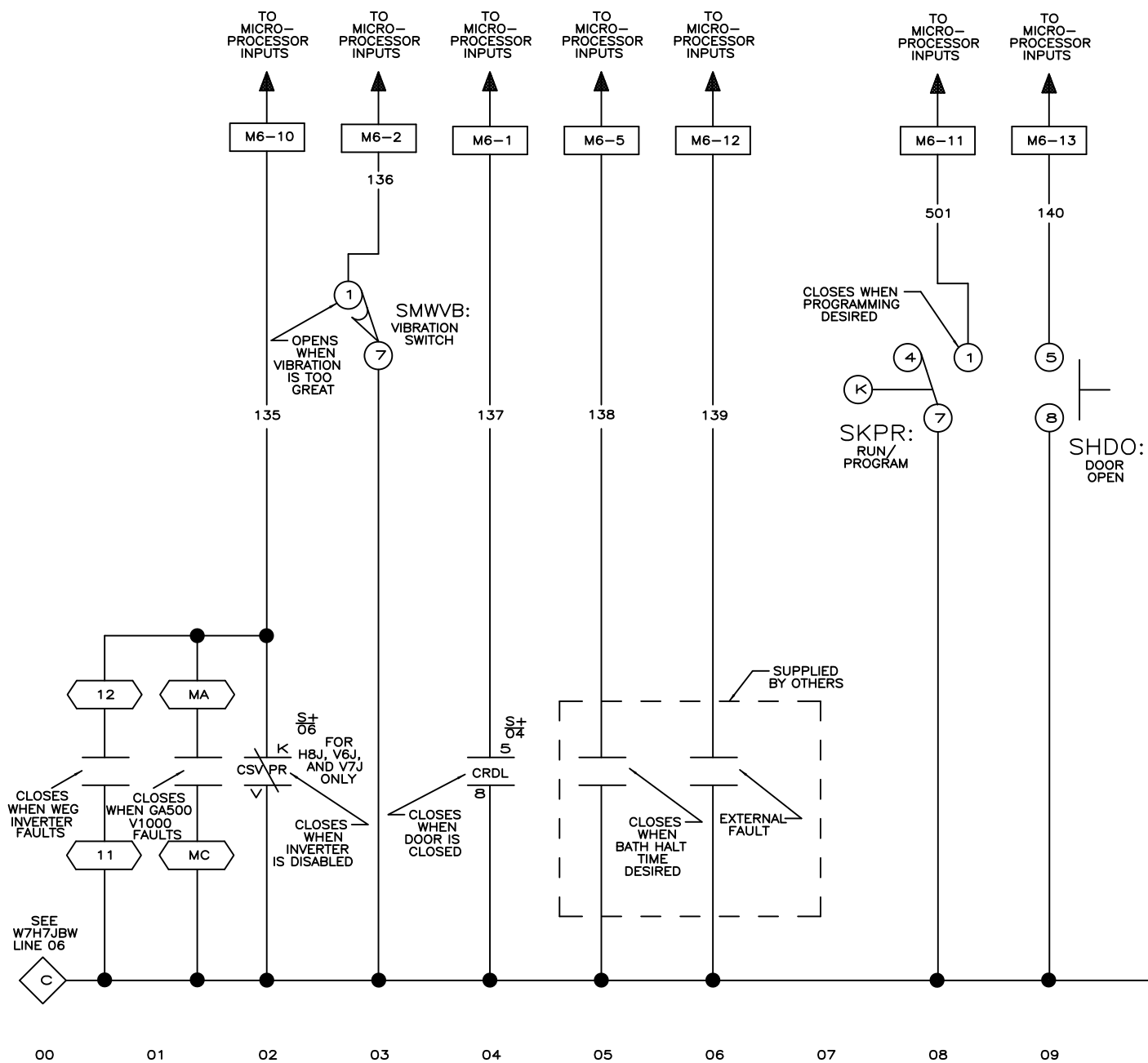
1. M3 IS LOCATED ON THE BAUP (188 PROCESSOR BOARD).
2. COMPONENTS IN DOTTED LINES ARE OPTIONAL.

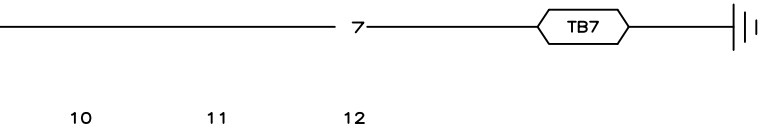
W7H7JEV
2017166B



W7H7JES
SCHEMATIC: OPTIONAL EXTERNAL SIGNAL
PELLERIN MILNOR CORPORATION

W7H7JES
2024353B





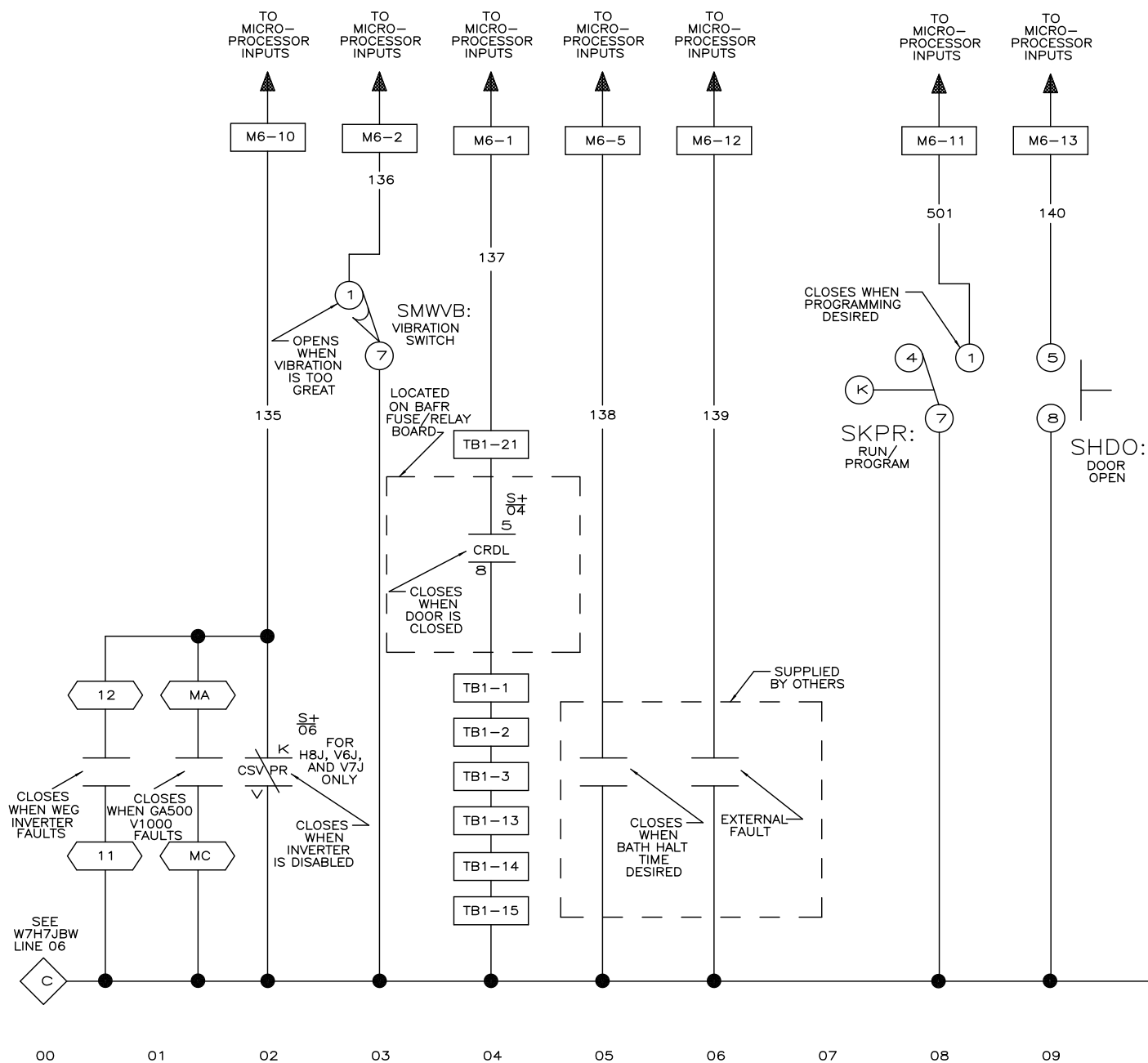
NOTES

1. M6 IS LOCATED ON THE PROCESSOR BOARD.

W7H7JIA

SCHEMATIC: MICROPROCESSOR INPUTS

PELLERIN MILNOR CORPORATION



W7H7JIB

SCHEMATIC: MICROPROCESSOR INPUTS

REPLACES W7H7JIA FOR FUSE/RELAY BOARD

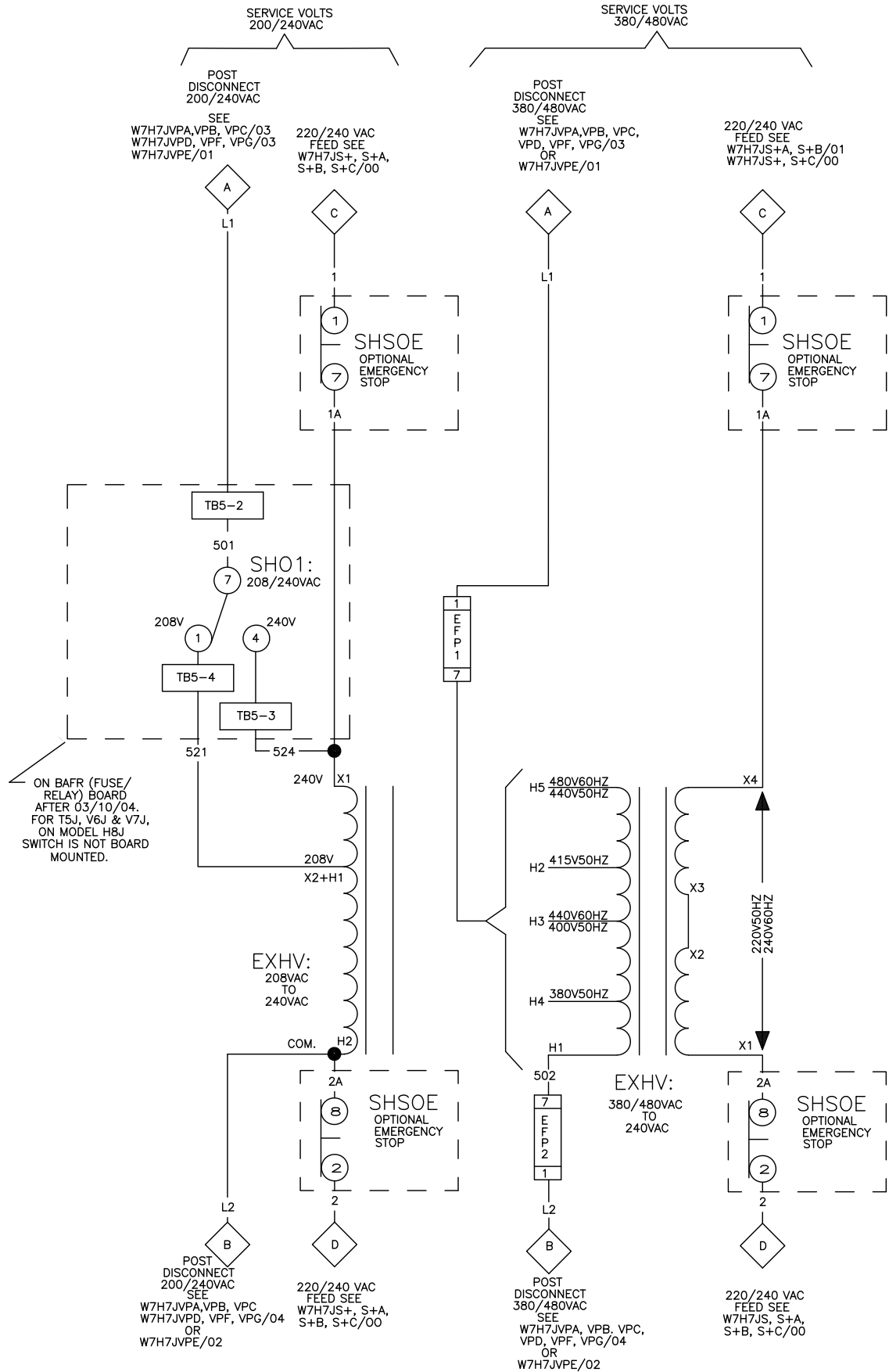
PELLERIN MILNOR CORPORATION

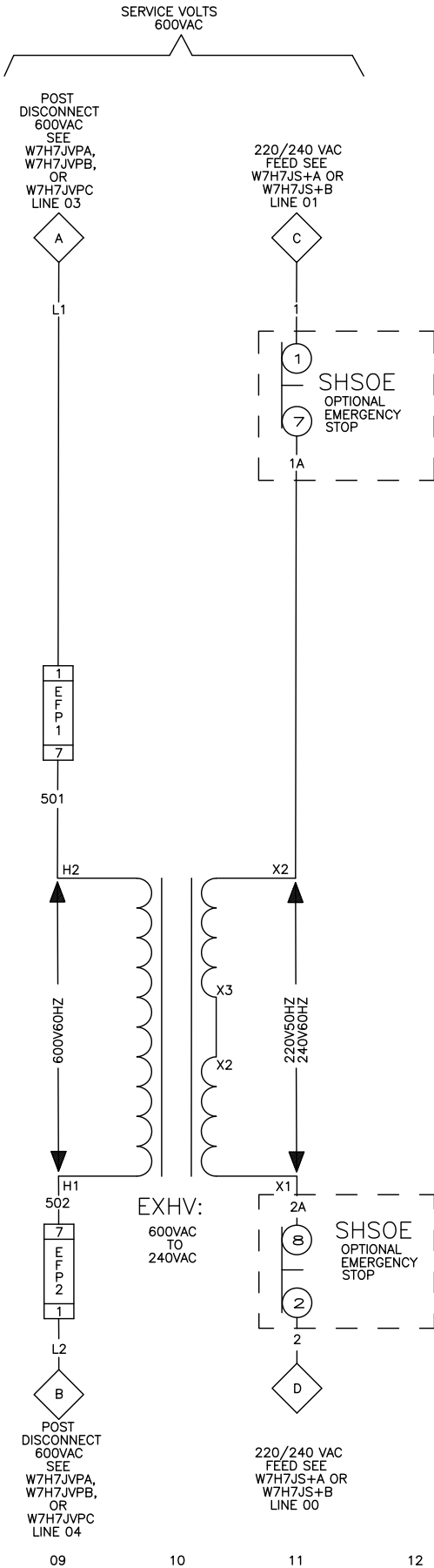
NOTES

1. M6 IS LOCATED ON THE
PROCESSOR BOARD.



10 11 12



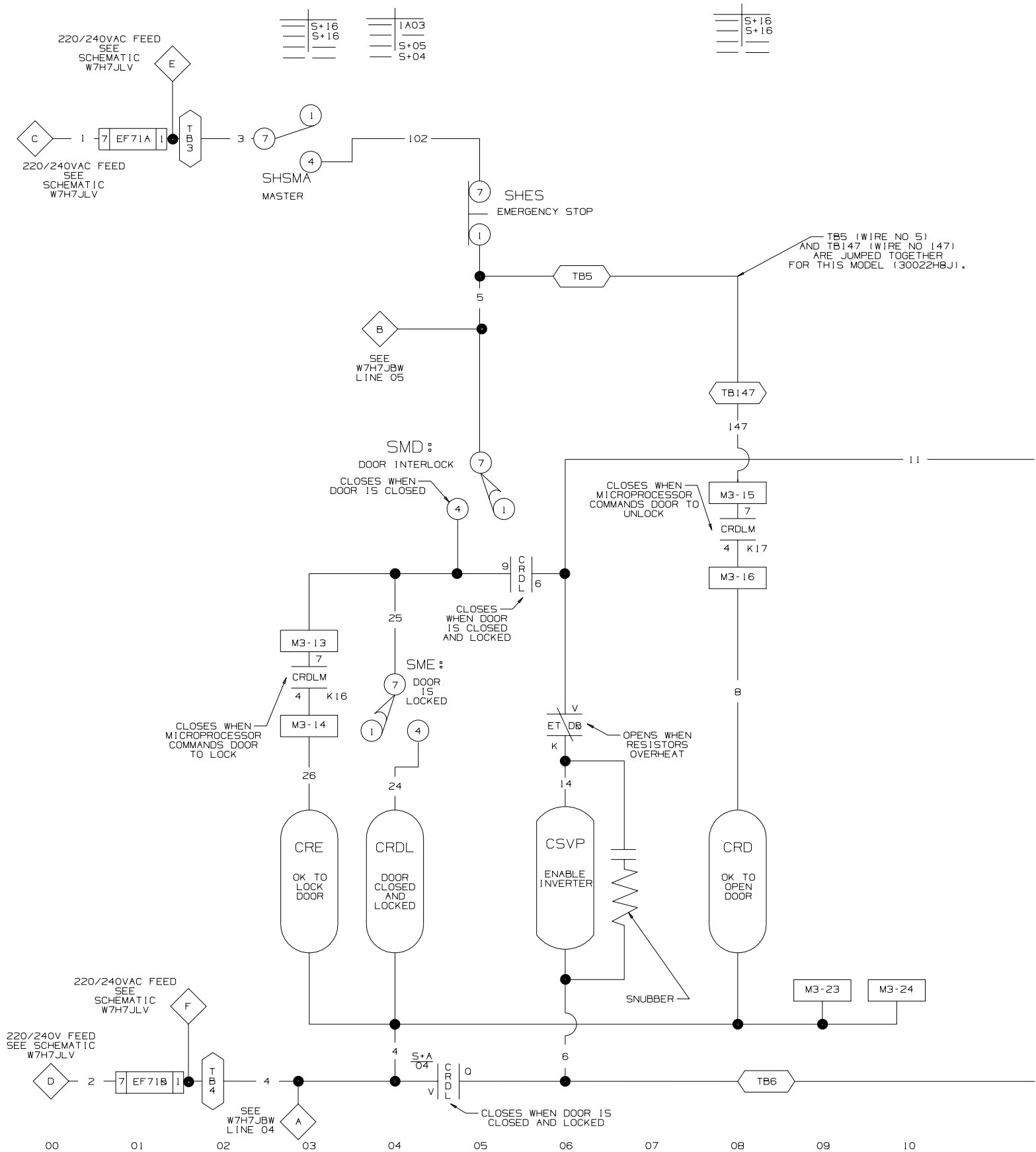


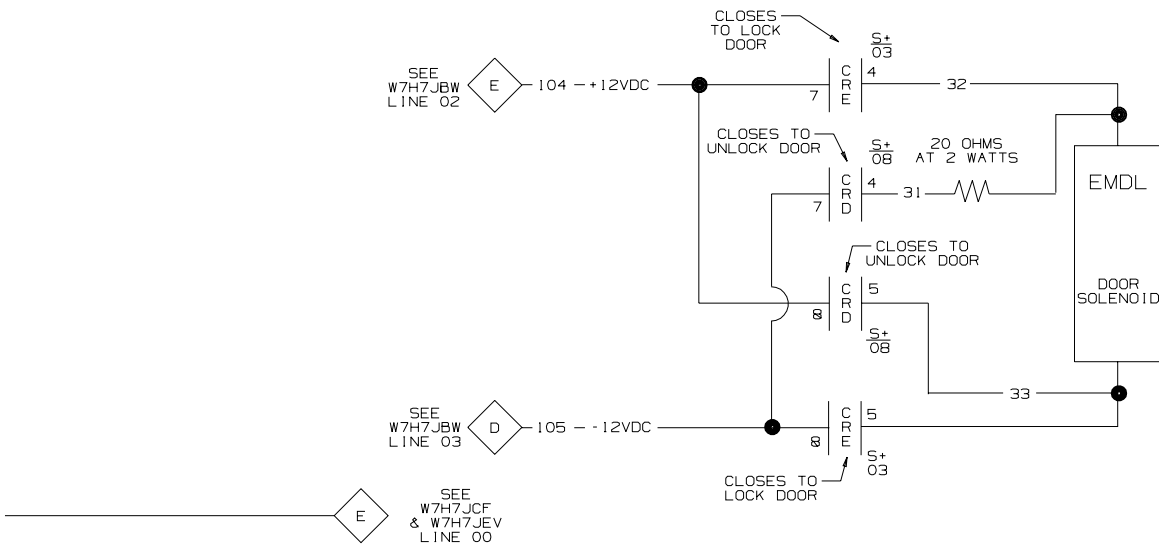
W7H7JLV

SCHEMATIC: CONTROL CIRCUIT TRANSFORMER

220V1P50HZ/240V1P60HZ

PELLERIN MILNOR CORPORATION



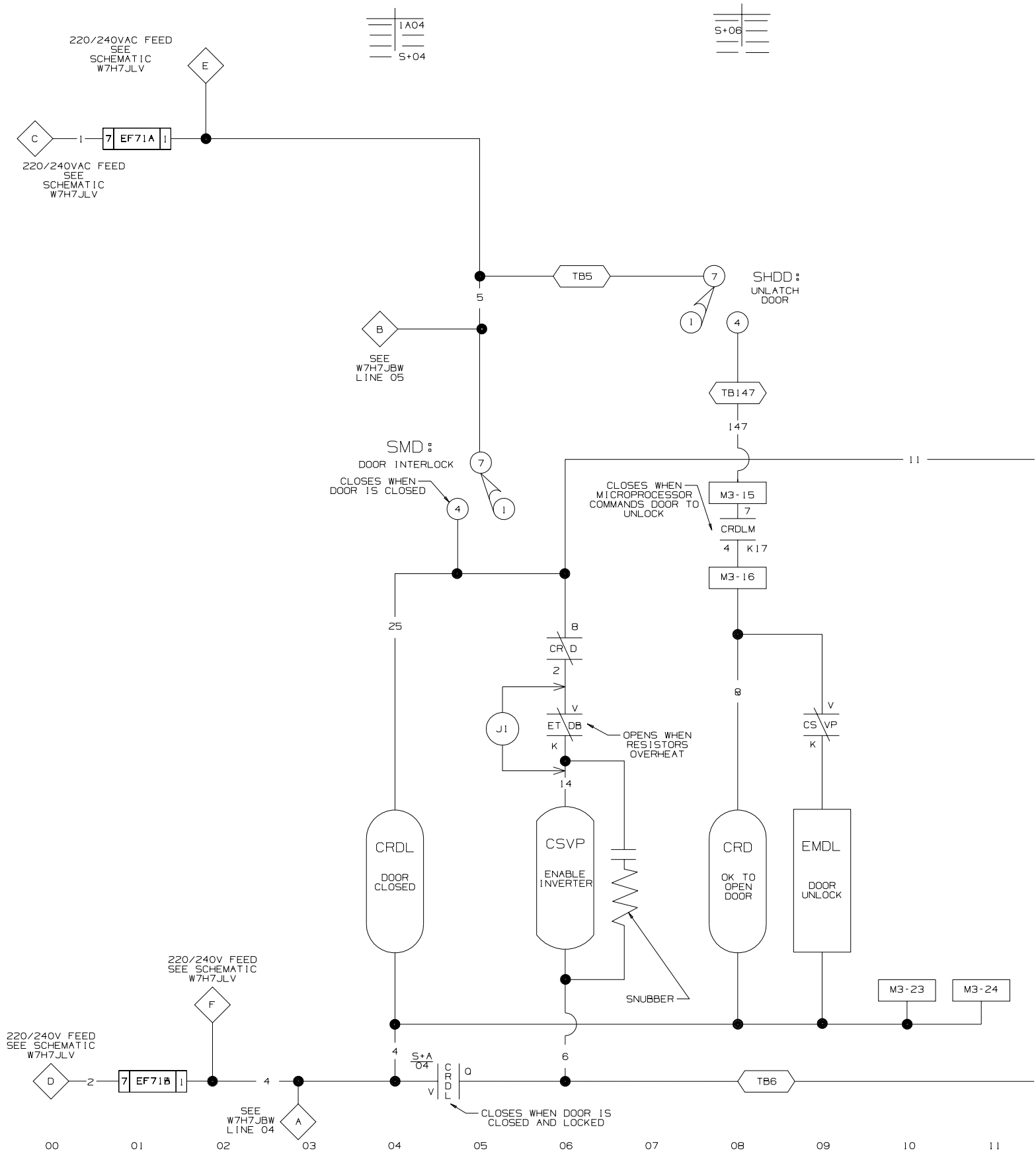


W7H7JS+
 SCHEMATIC: START CIRCUIT & DOOR INTERLOCK
 FOR 30022 H8J
 220V, 1P, 50HZ/240V, 1P, 60HZ
 PELLERIN MILNOR CORPORATION

SEE W7H7JCF LINE 00

F

11 12 13 14 15 16



—  SEE
W7H7JCF
& W7H7JEV
LINE 00

—  SEE
W7H7JCF
LINE 01

 J1 ETDB IS NOT USED ON T5J MACHINES

12

13

14

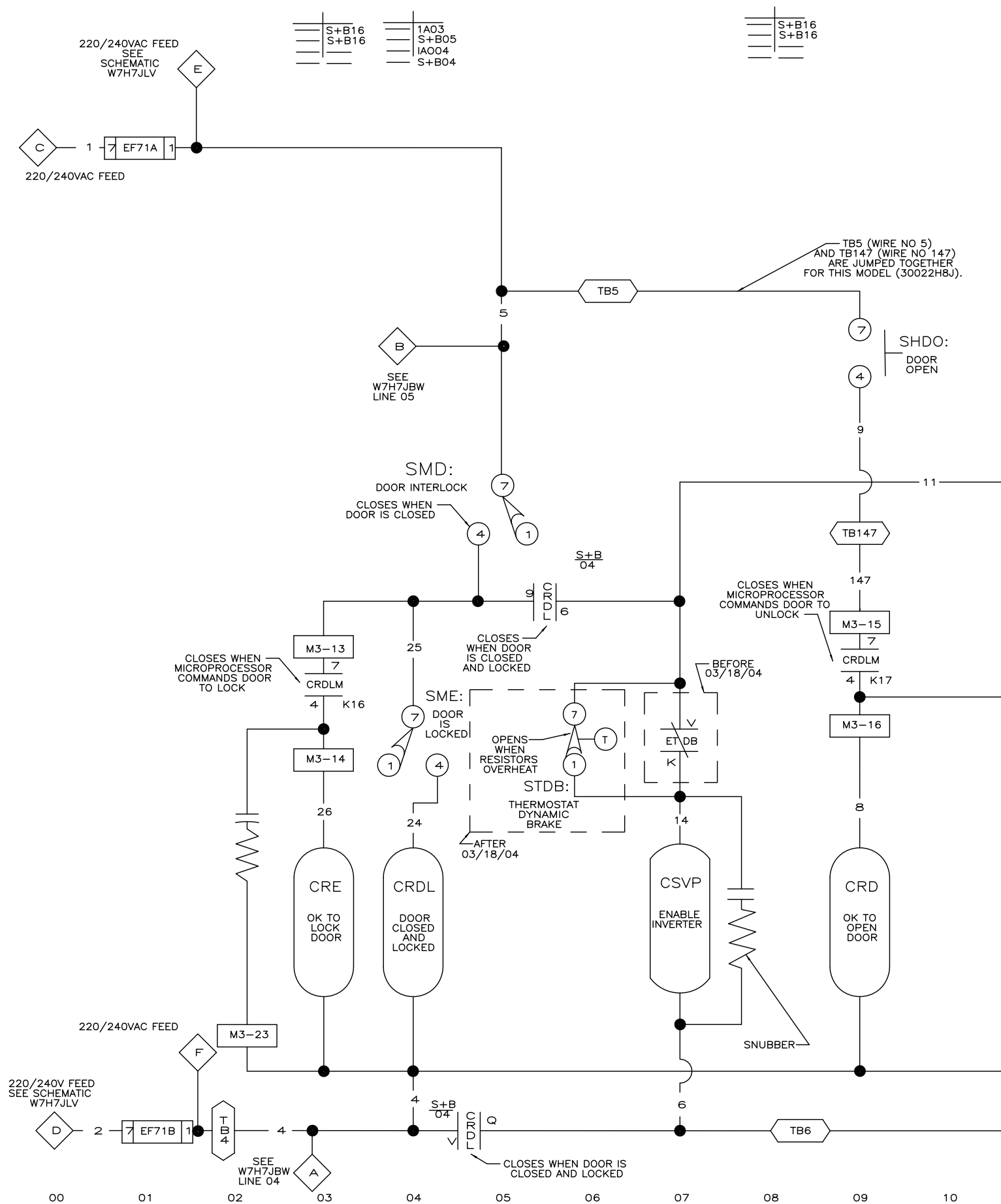
15

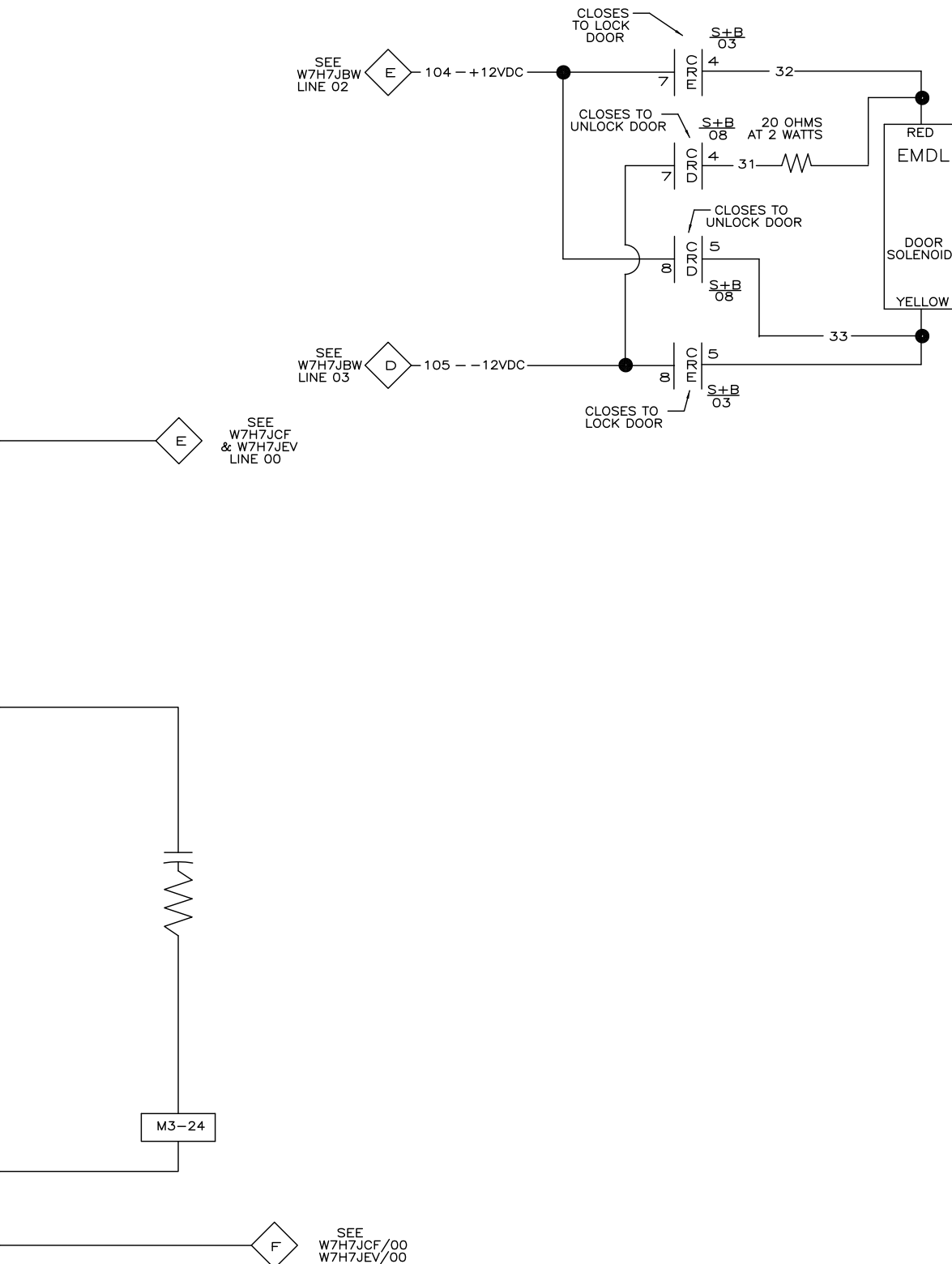
16

W7H7JS+A

SCHEMATIC: START CIRCUIT & DOOR INTERLOCK
FOR 30015T5J, V7J & 3022T5J, V6J

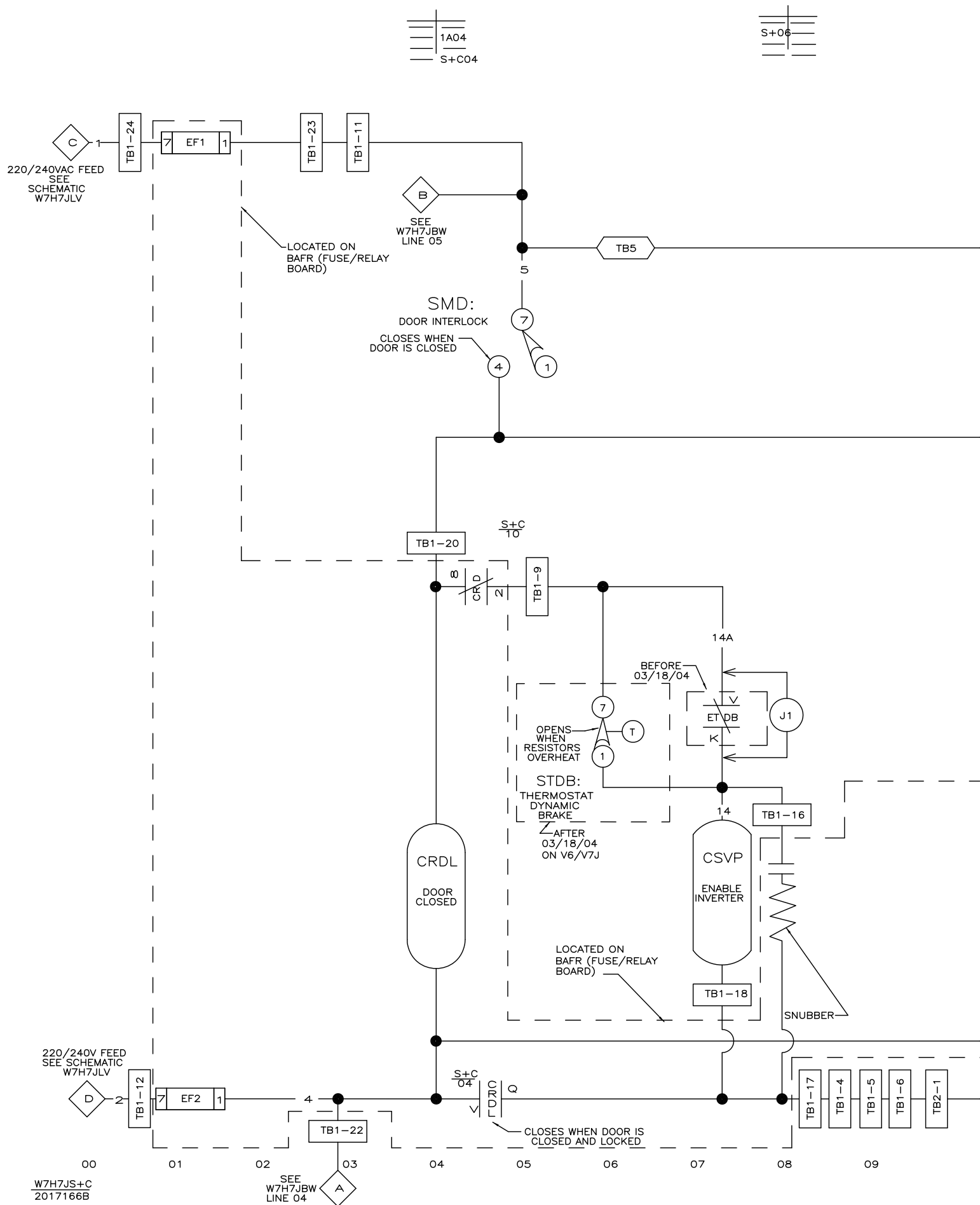
220V, 1P, 50HZ/240V, 1P, 60HZ
PELLERIN MILNOR CORPORATION

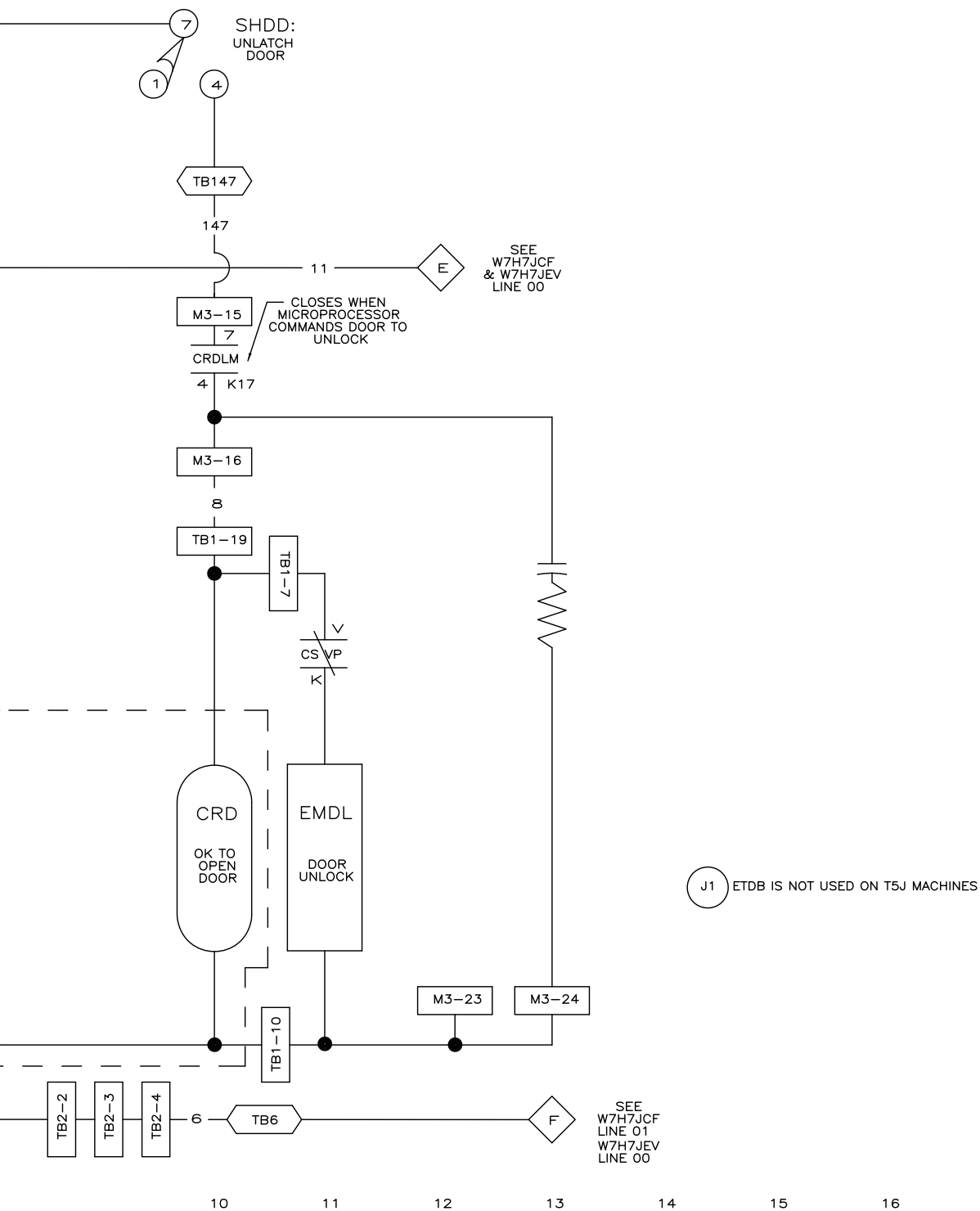




W7H7JS+B SCHEMATIC: START CIRCUIT & DOOR INTERLOCK FOR 30022 H8J (REPLACES W7H7JS+ MANUFACTURED AFTER 11/01/01

220V, 1P, 50HZ/240V, 1P, 60HZ
PELLERIN MILNOR CORPORATION





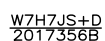
W7H7JS+C

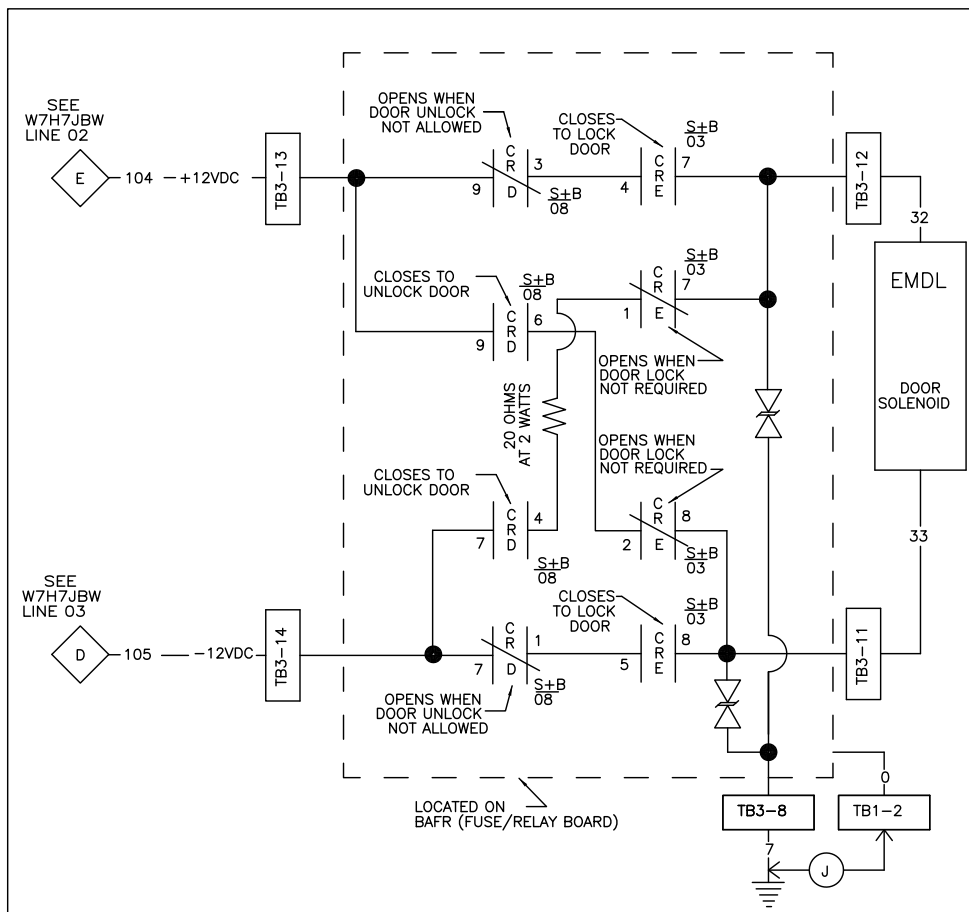
SCHEMATIC: START CIRCUIT & DOOR INTERLOCK
FOR 30015T5J, V7J & 3022T5J, V6J

REPLACES W7H7JS+A FOR FUSE/RELAY BOARD

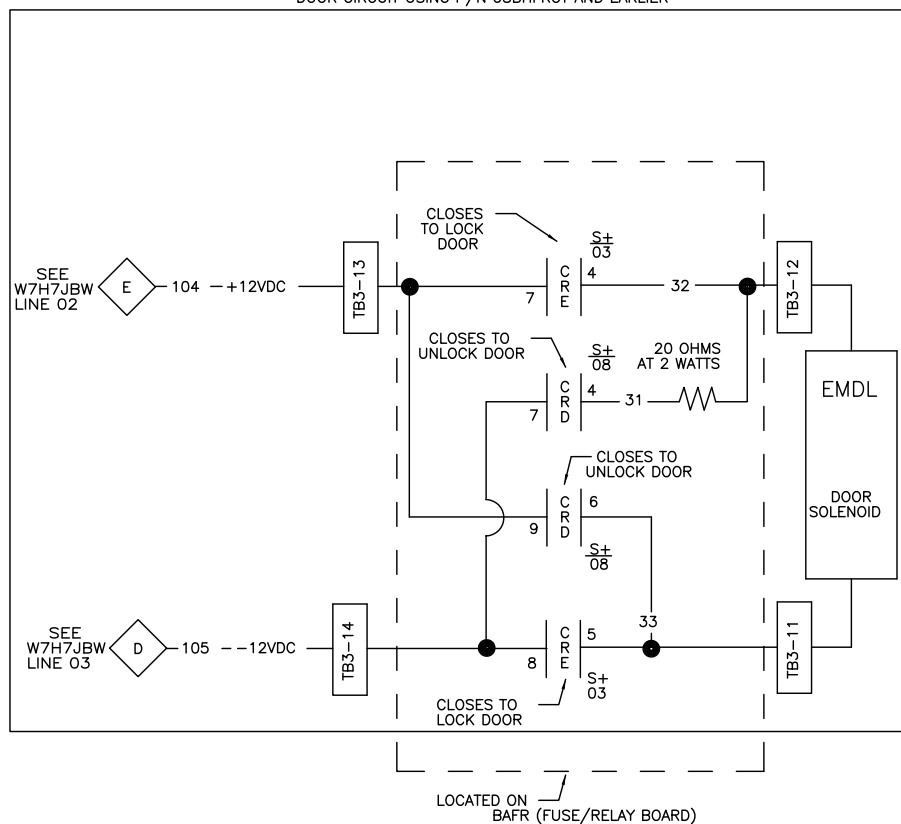
220V, 1P, 50HZ/240V, 1P, 60HZ

PELLERIN MILNOR CORPORATION

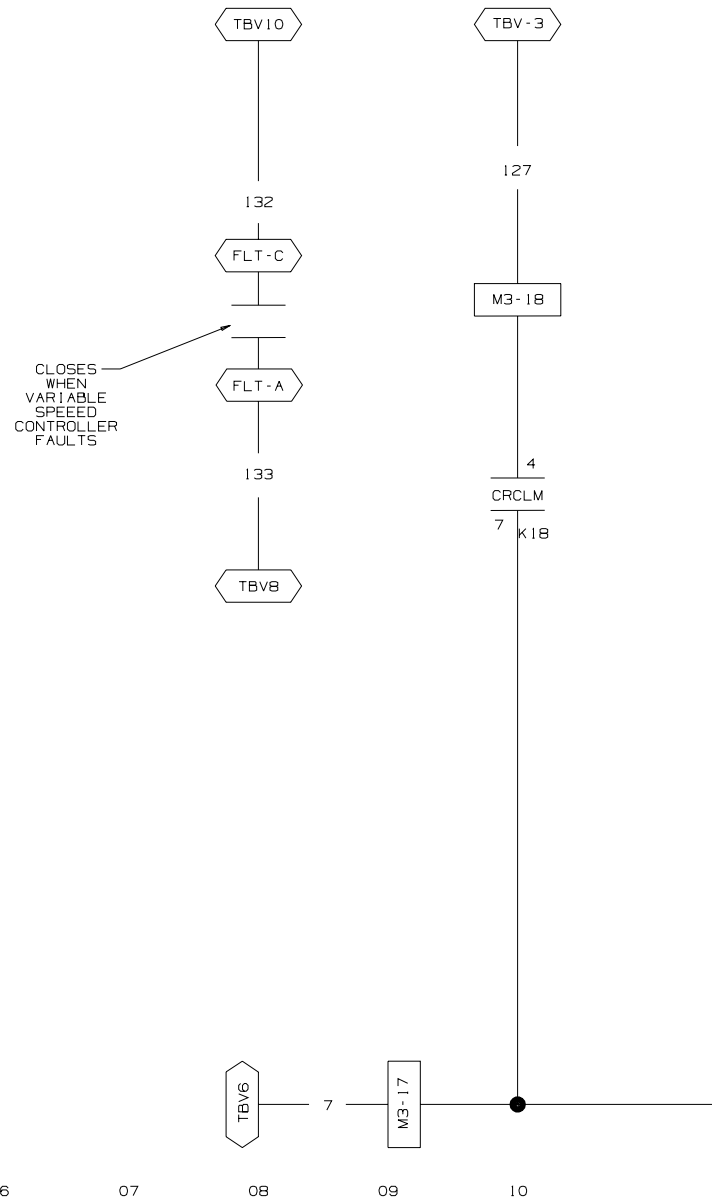
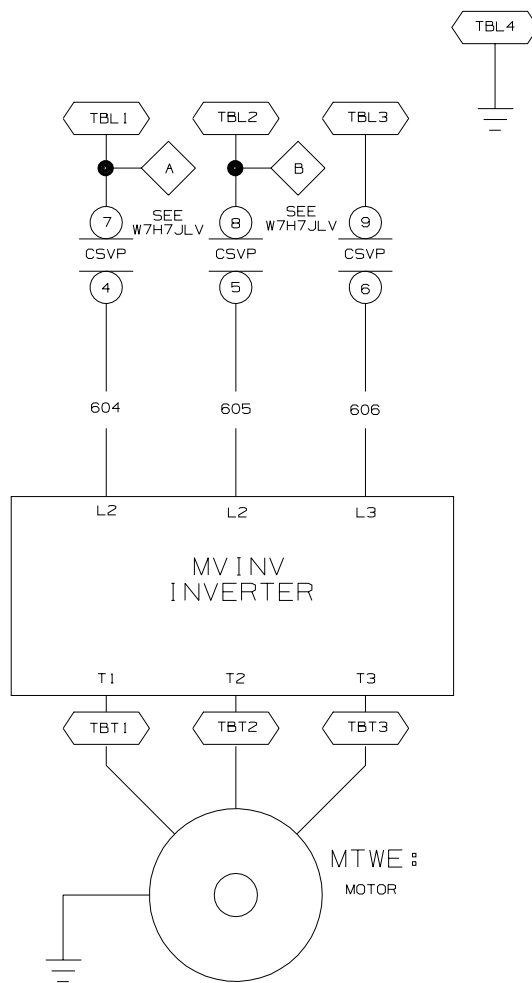
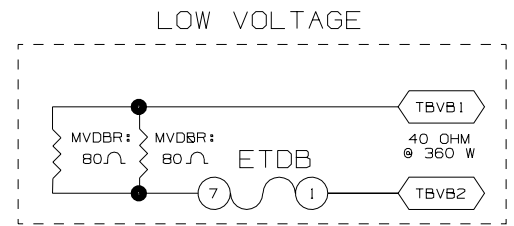
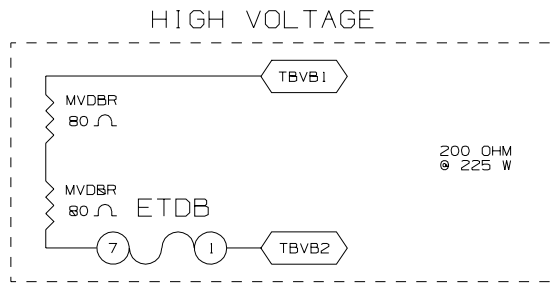




DOOR CIRCUIT USING P/N 08BHFRCT AND EARLIER

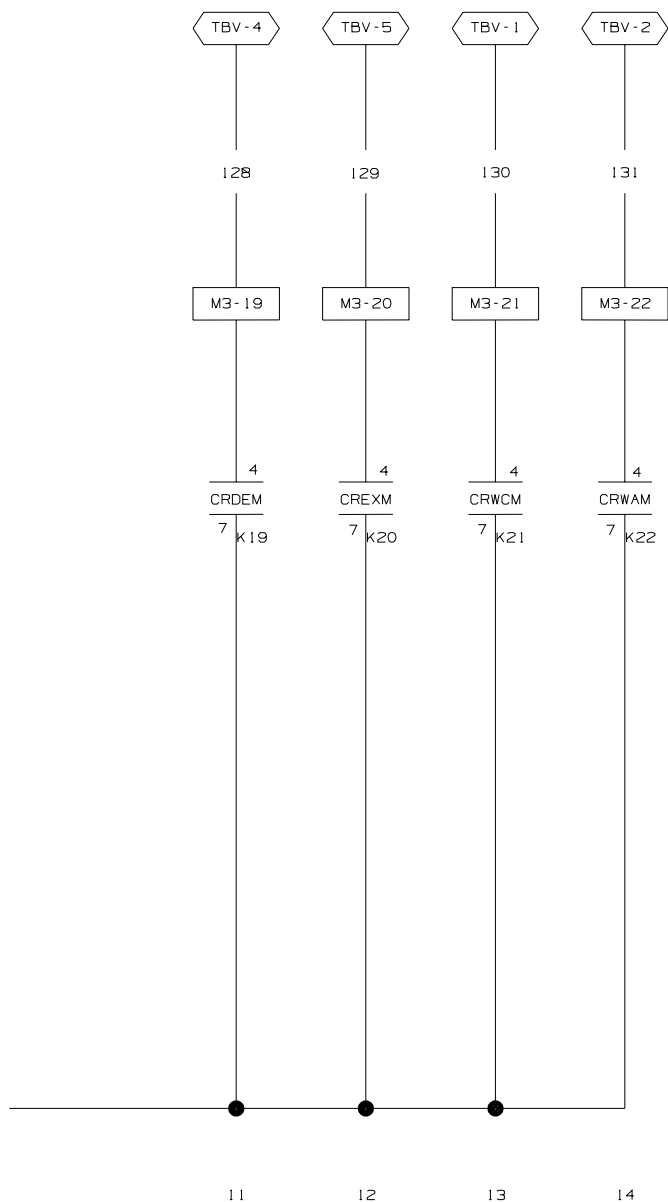


W7H7JS+D
 SCHEMATIC: START CIRCUIT & DOOR INTERLOCK
 FOR 30022VRJ
 220V, 1P, 50HZ/240V, 1P, 60HZ
 PELLERIN MILNOR CORPORATION



LITHO IN U.S.A.

00 01 02 03 04 05 06 07 08 09 10



	CW		CCW		
	K21	K22	K18	K19	K20
WASH 1	X				
WASH 2	X		X		
DRAIN	X			X	
EXTRACT 1	X				X
EXTRACT 2	X		X		X
EXTRACT 3	X			X	X
OUT OF EXTRACT					X

NOTES:

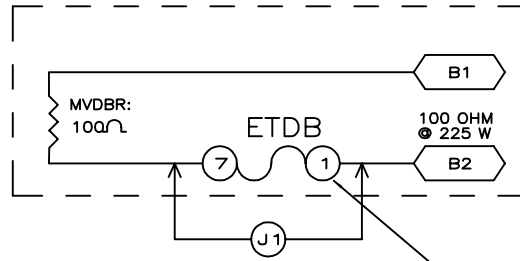
1. TBV IS LOCATED ON VARIABLE SPEED CONTROLLER BOX.

W7H7JVP

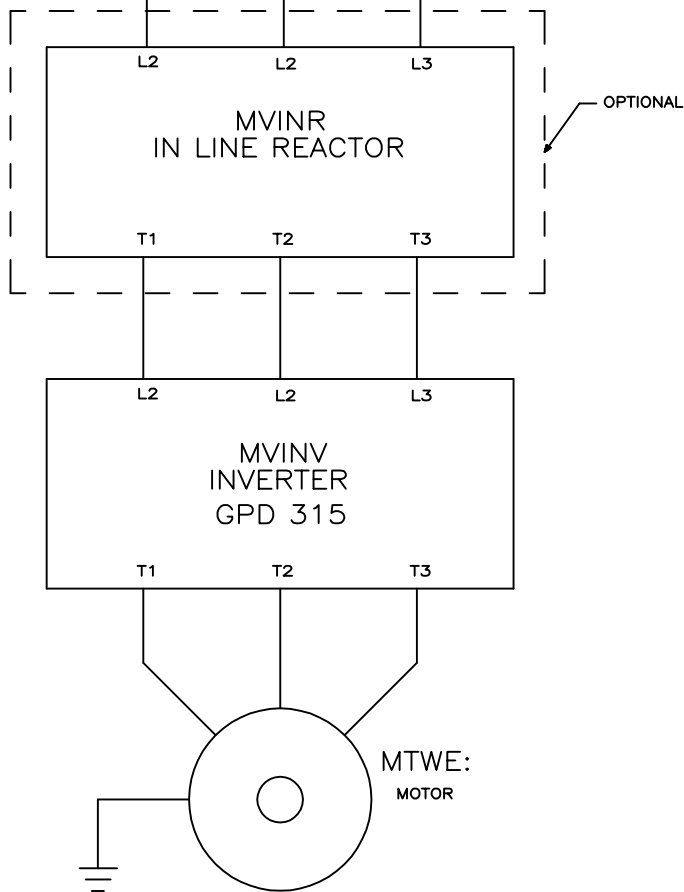
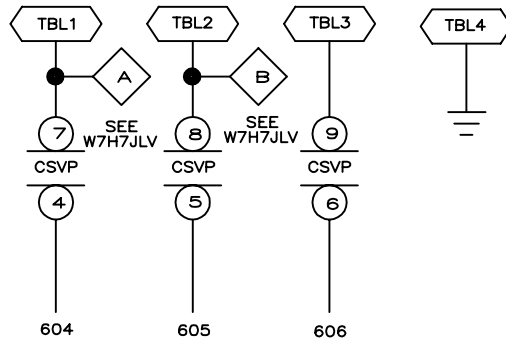
SCHEMATIC: VARIABLE SPEED CONTROLLER
FOR 30022H7J AND H8J (GPD333) OBSOLETE ON
MACHINES BUILT AFTER 4/1/00.

PELLERIN MILNOR CORPORATION

ALL VOLTAGES 30015V7J,
30022V6J & 30022H8J



ETDB: IS REPLACED
BY STDB: AFTER 3/18/04
SEE W7H7JS+B OR C.



LITHO IN U.S.A.

00

01

02

03

04

05

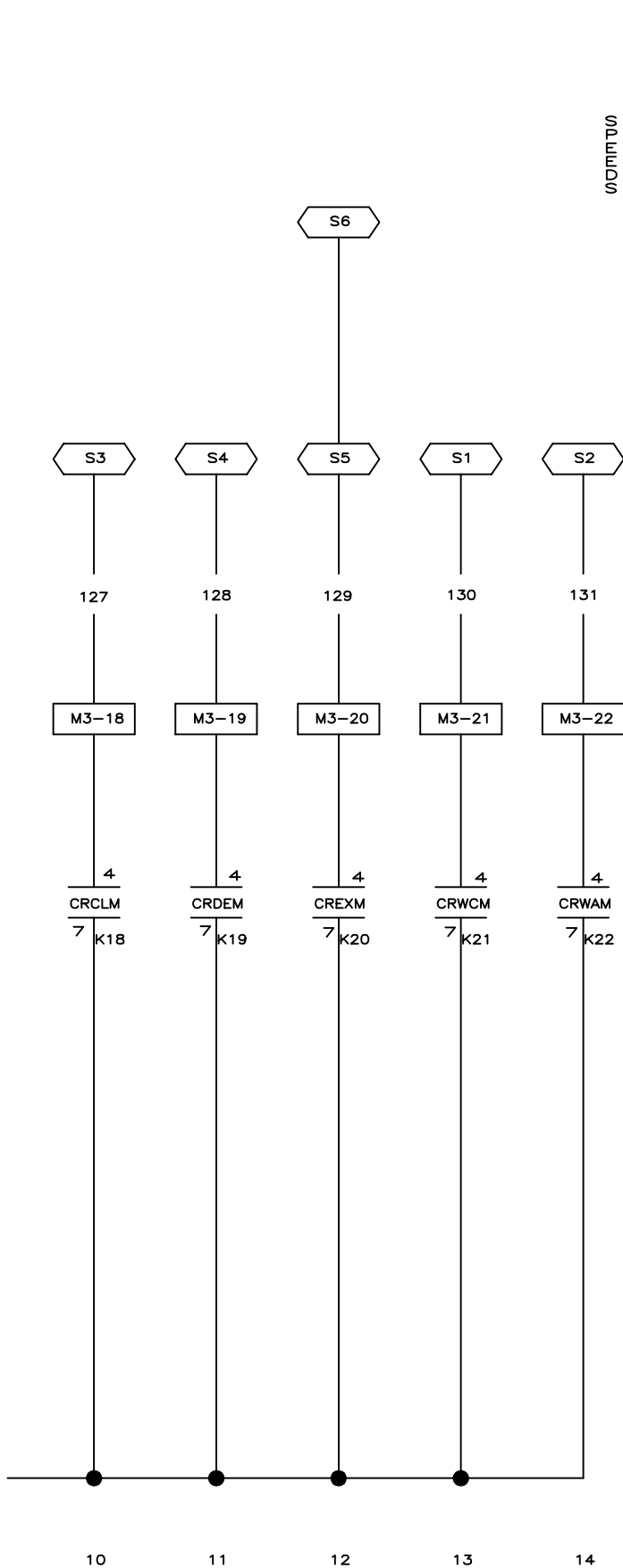
06

07

08

09

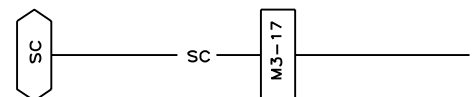
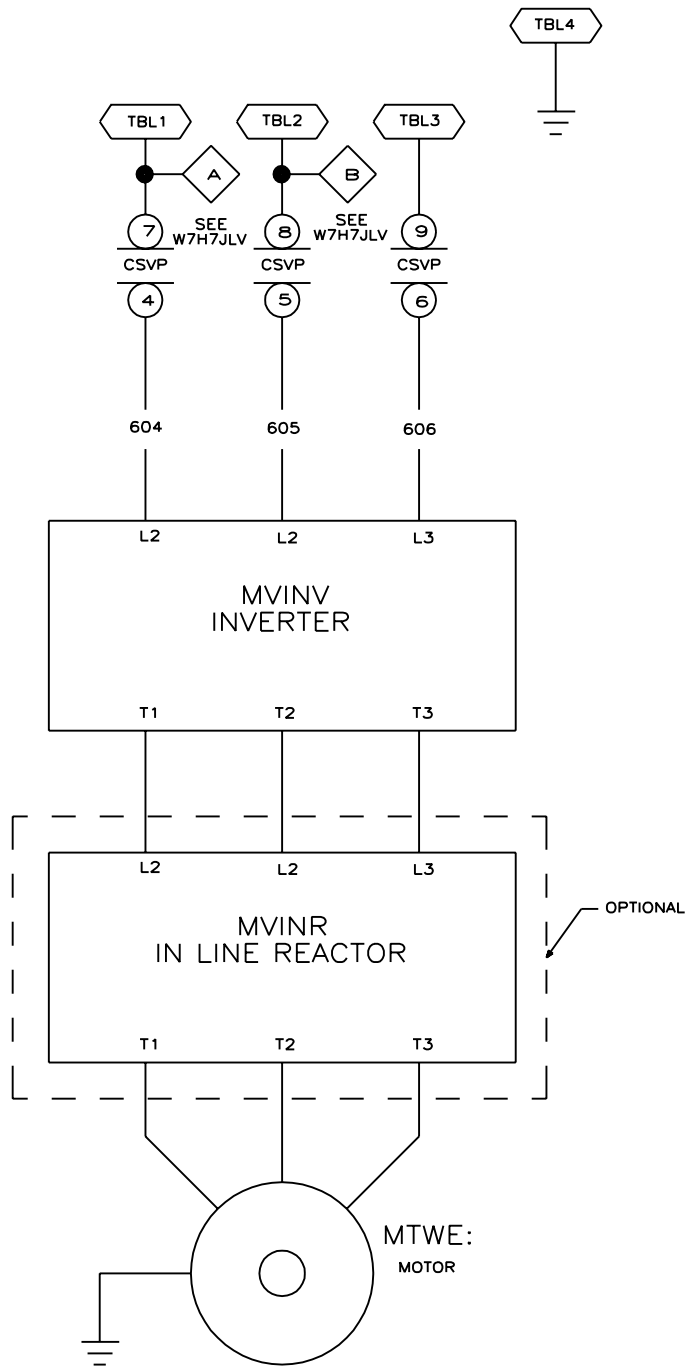
W7H7JVA
2008475B



	CW		CCW		
	K21	K22	K18	K19	K20
WASH 1	X				
WASH 2	X		X		
DRAIN	X			X	
RINS SAVE	X		X	X	
EXTRACT 1	X				X
EXTRACT 2	X		X		X
EXTRACT 3	X			X	X
OUT OF EXTRACT					X

W7H7JVPA
 SCHEMATIC: VARIABLE SPEED CONTROLLER
 FOR 30015V7J 30022H7J, H8J & V6J (GPD315)
 PELLERIN MILNOR CORPORATION

(J1) ADDED TO MACHINES
 BUILT AFTER 3/18/04.



LITHO IN U.S.A.

00

01

02

03

04

05

06

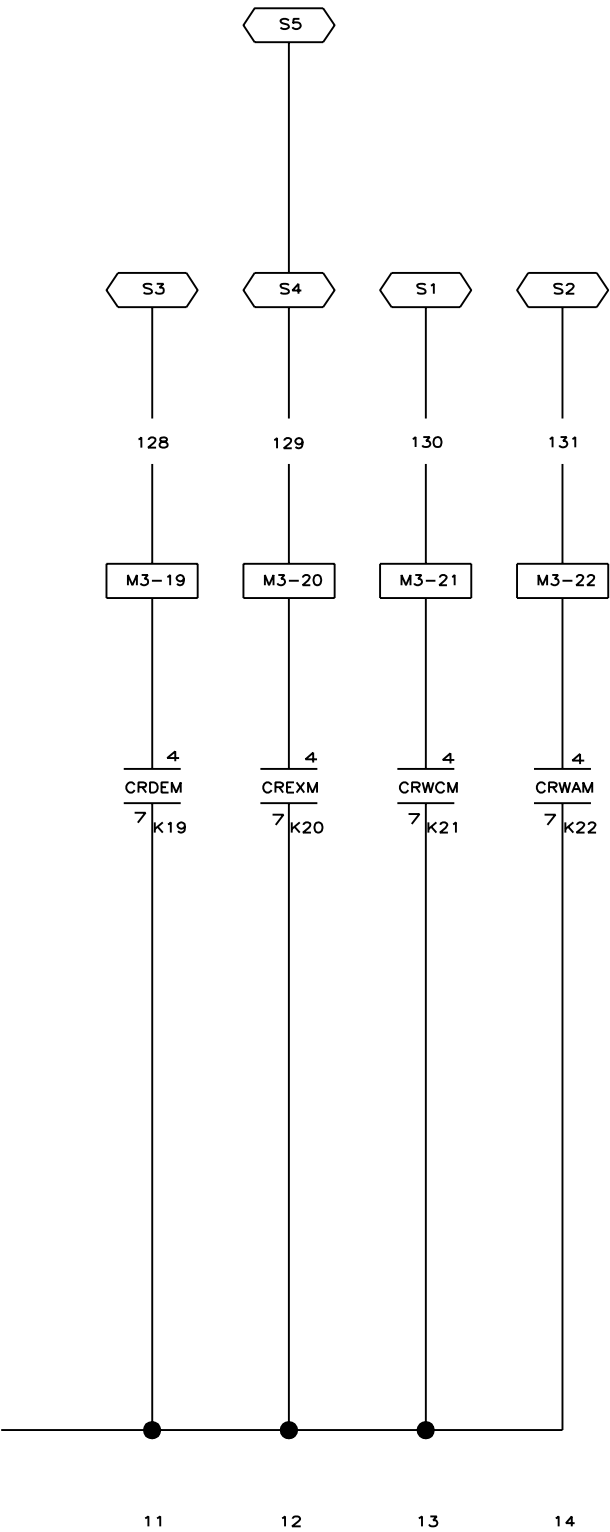
07

08

09

10

W7H7JVPB
2001416B



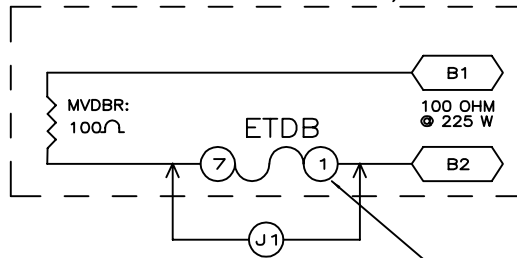
UNION DU

	CW	CCW			
	K21	K22	K18	K19	K20
WASH	X				
DRAIN	X			X	
EXTRACT	X				X

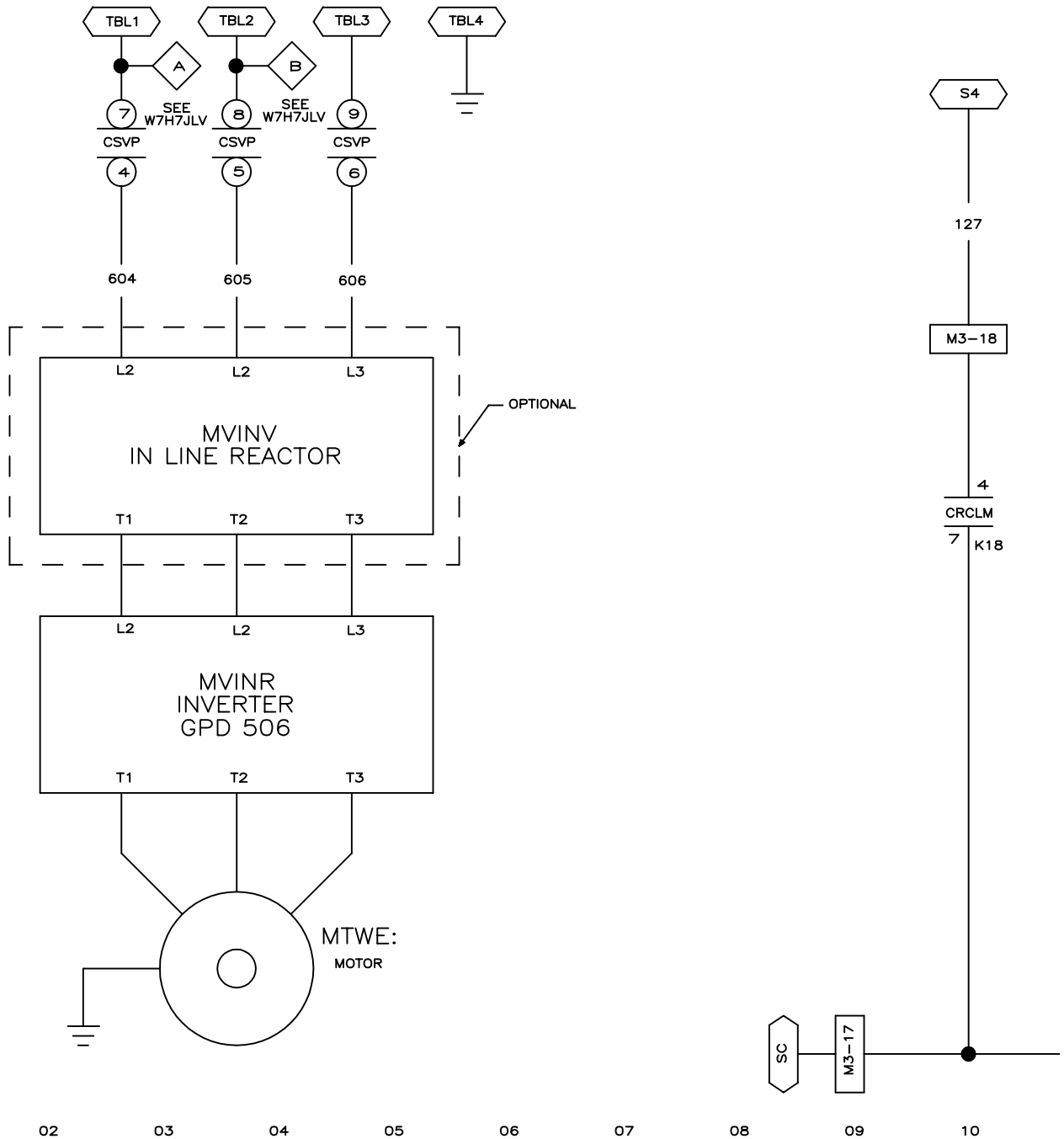
W7H7JVPB

SCHEMATIC: VARIABLE SPEED CONTROLLER
FOR 30015T5J & 30022T5J
(GPD305)
PELLERIN MILNOR CORPORATION

ALL VOLTAGE 30015V7J,
30022V6J & 30022H7, 8J



ETDB: IS REPLACED
BY STDB: AFTER 3/18/04
SEE W7H7JS+B OR C.

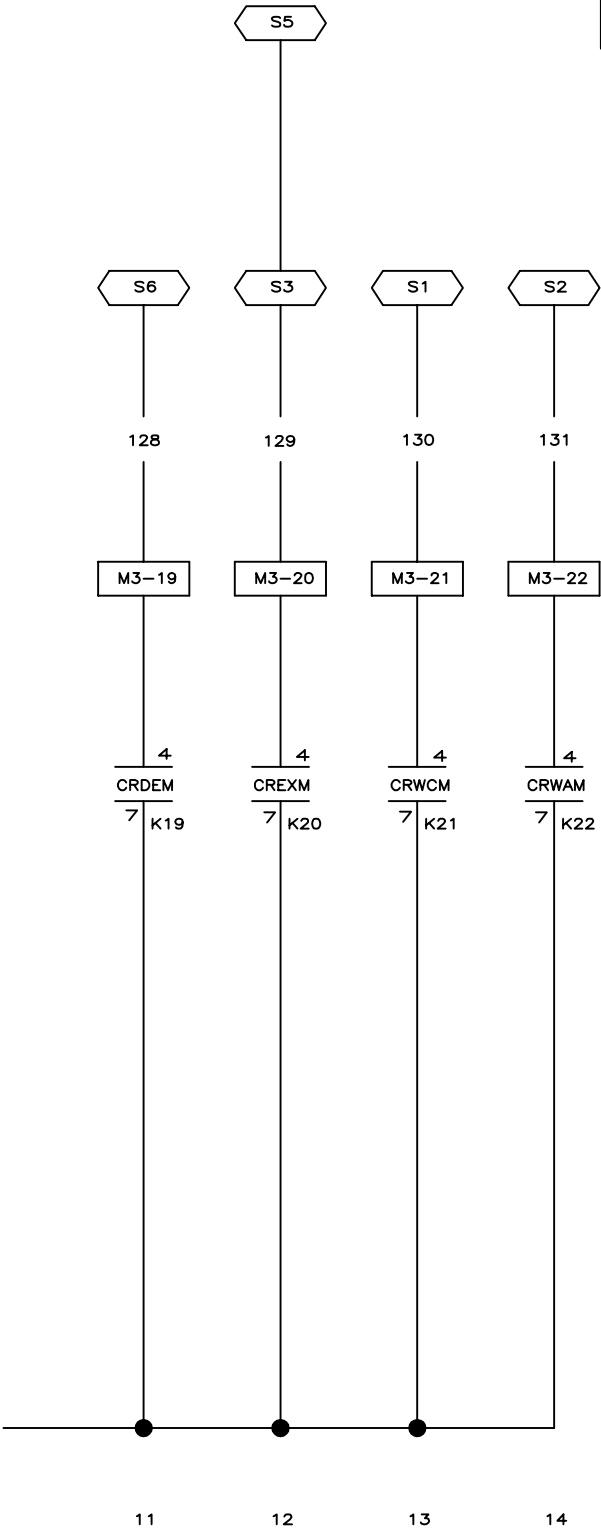


LITHO IN U.S.A.

00 01 02 03 04 05 06 07 08 09 10

W7H7JVPC
2008475B

	CW		CCW		
	K21	K22	K18	K19	K20
WASH 1	X				
WASH 2	X		X		
DRAIN	X			X	
RINS SAVE	X		X	X	
EXTRACT 1	X				X
EXTRACT 2	X		X		X
EXTRACT 3	X			X	X
OUT OF EXTRACT					X

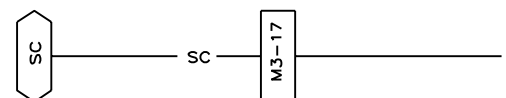
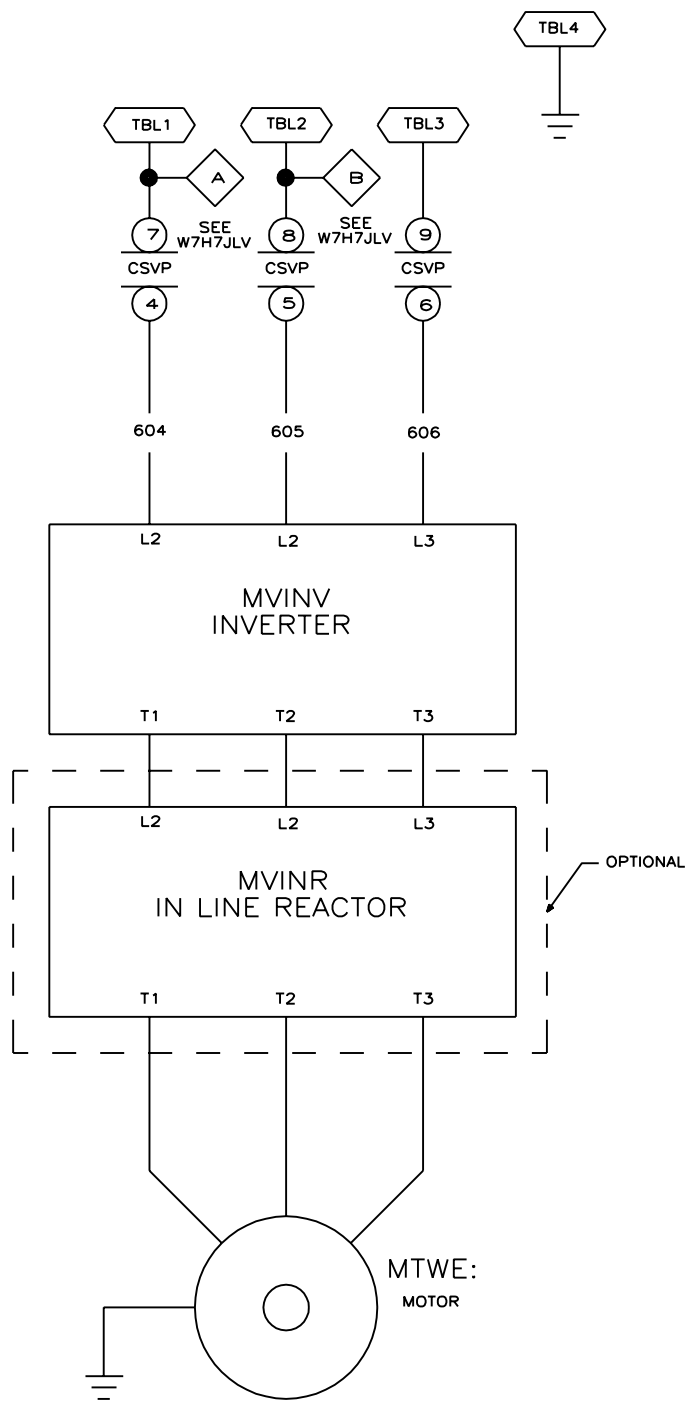


Ⓜ ADDED TO MACHINES
BUILT AFTER 3/18/04.

W7H7JVPC

SCHEMATIC: VARIABLE SPEED CONTROLLER
FOR 30015V7J 30022H7J, H8J & V6J WITH
SINGLE PHASE POWER (GPD506)

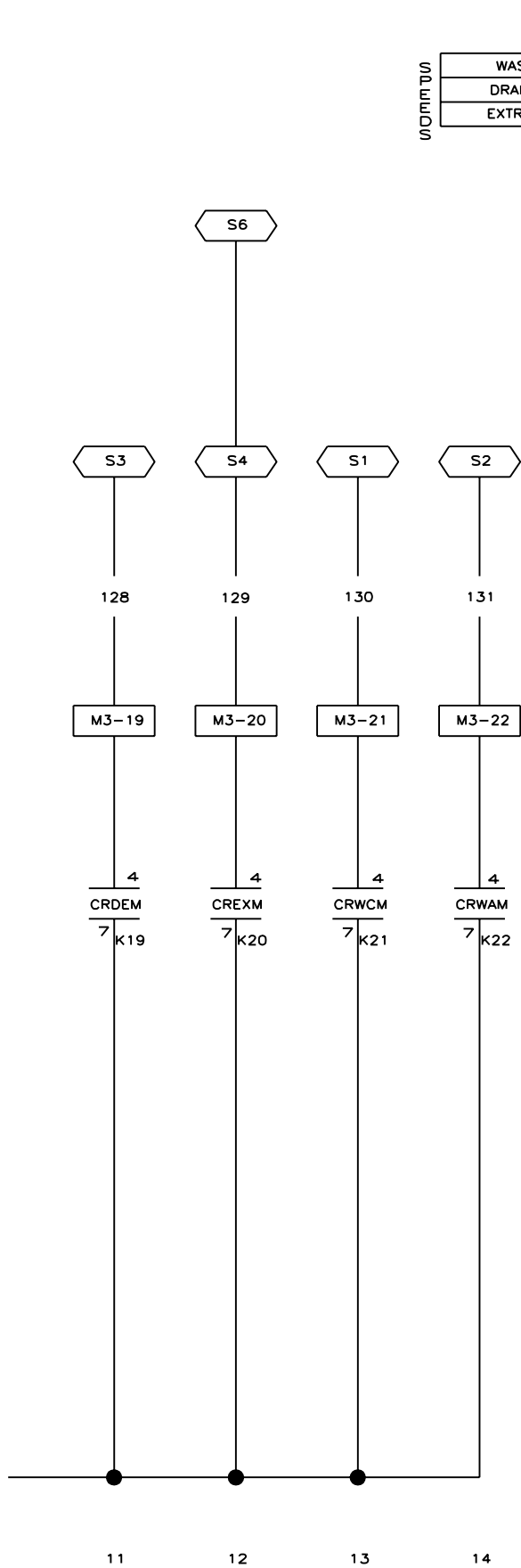
PELLERIN MILNOR CORPORATION



LITHO IN U.S.A.

00 01 02 03 04 05 06 07 08 09 10

W7H7JVPD
2001416B



W7H7JVPD
20014168

	CW	CCW			
	K21	K22	K18	K19	K20
WASH	X				
DRAIN	X			X	
EXTRACT	X				X

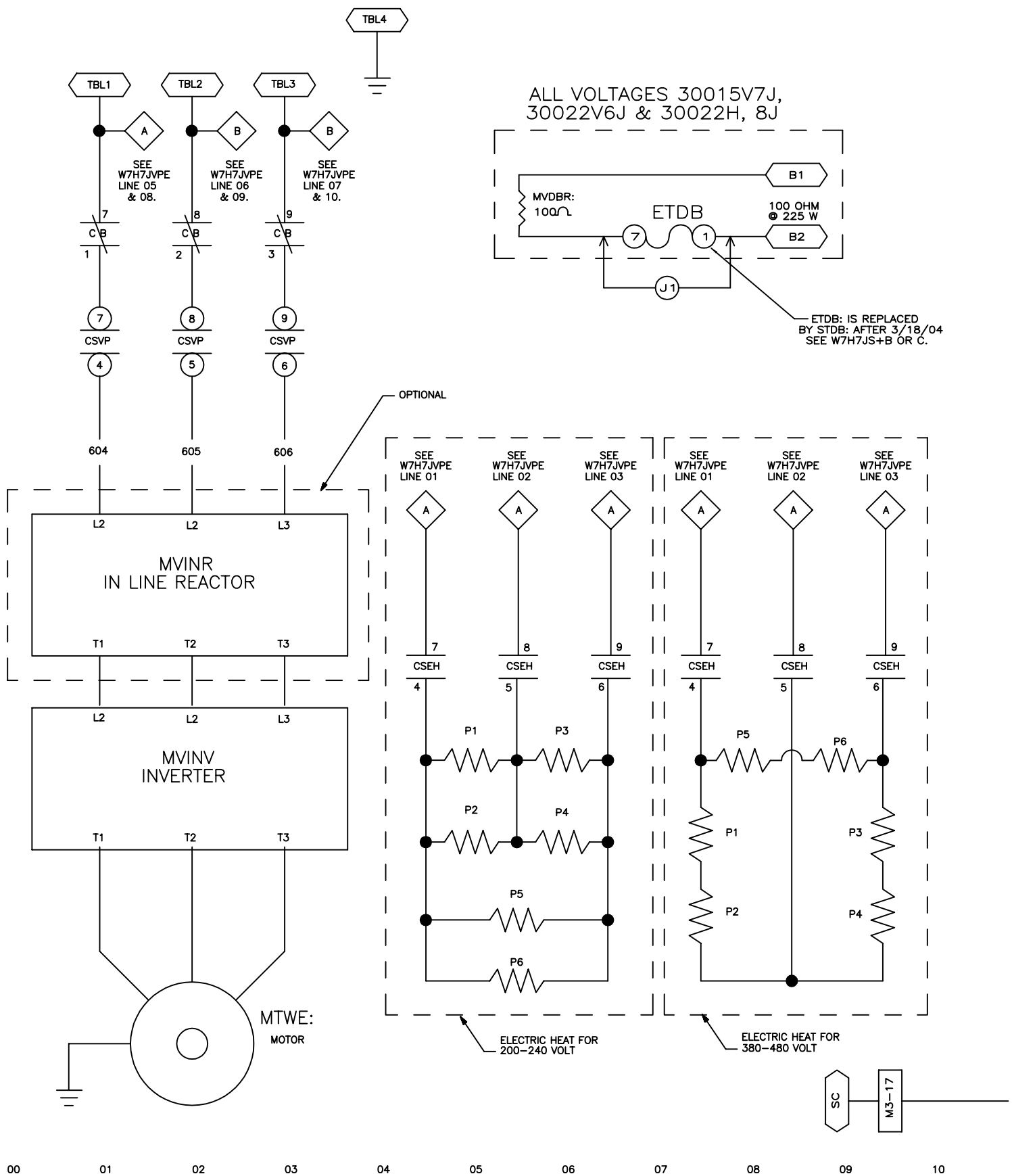
W7H7JVPD

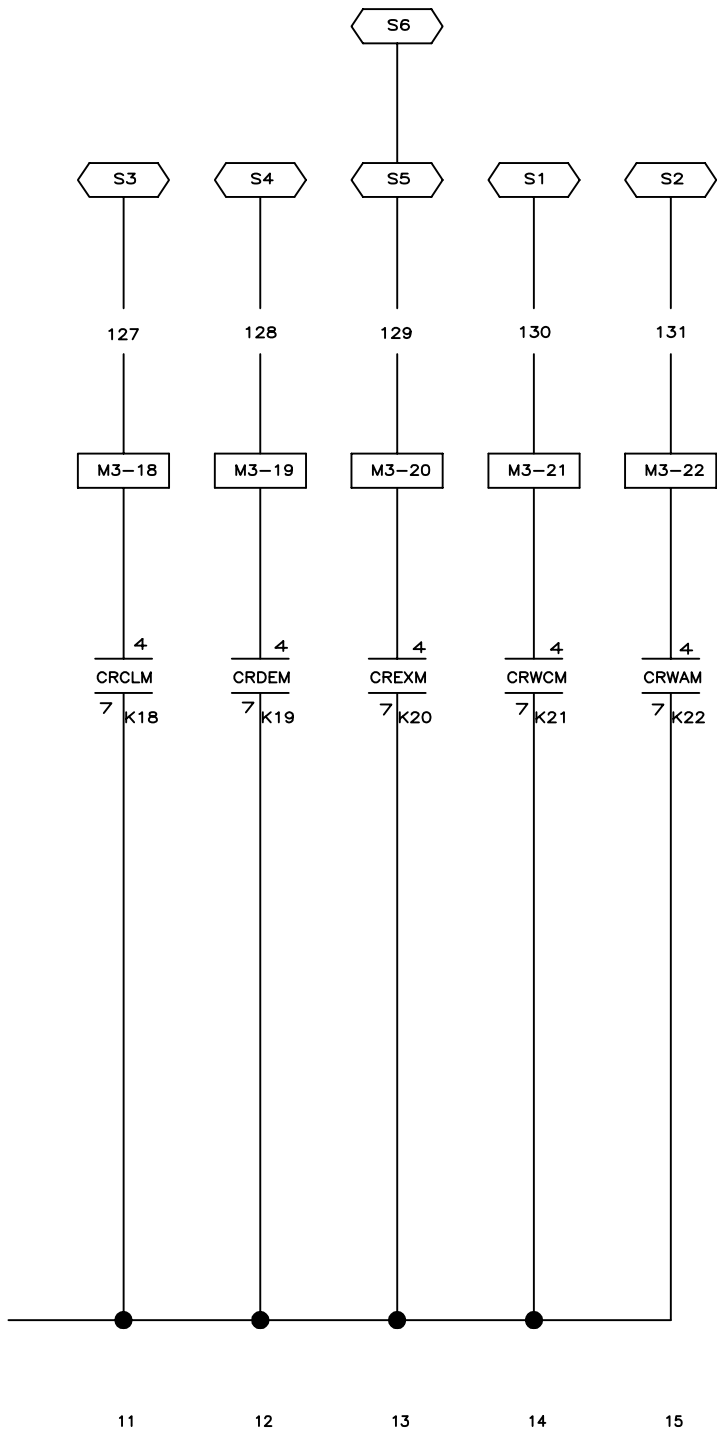
SCHEMATIC: VARIABLE SPEED CONTROLLER

FOR 30015T5J & 30022T5J WITH SINGLE PHASE POWER

(GPD315)

PELLERIN MILNOR CORPORATION



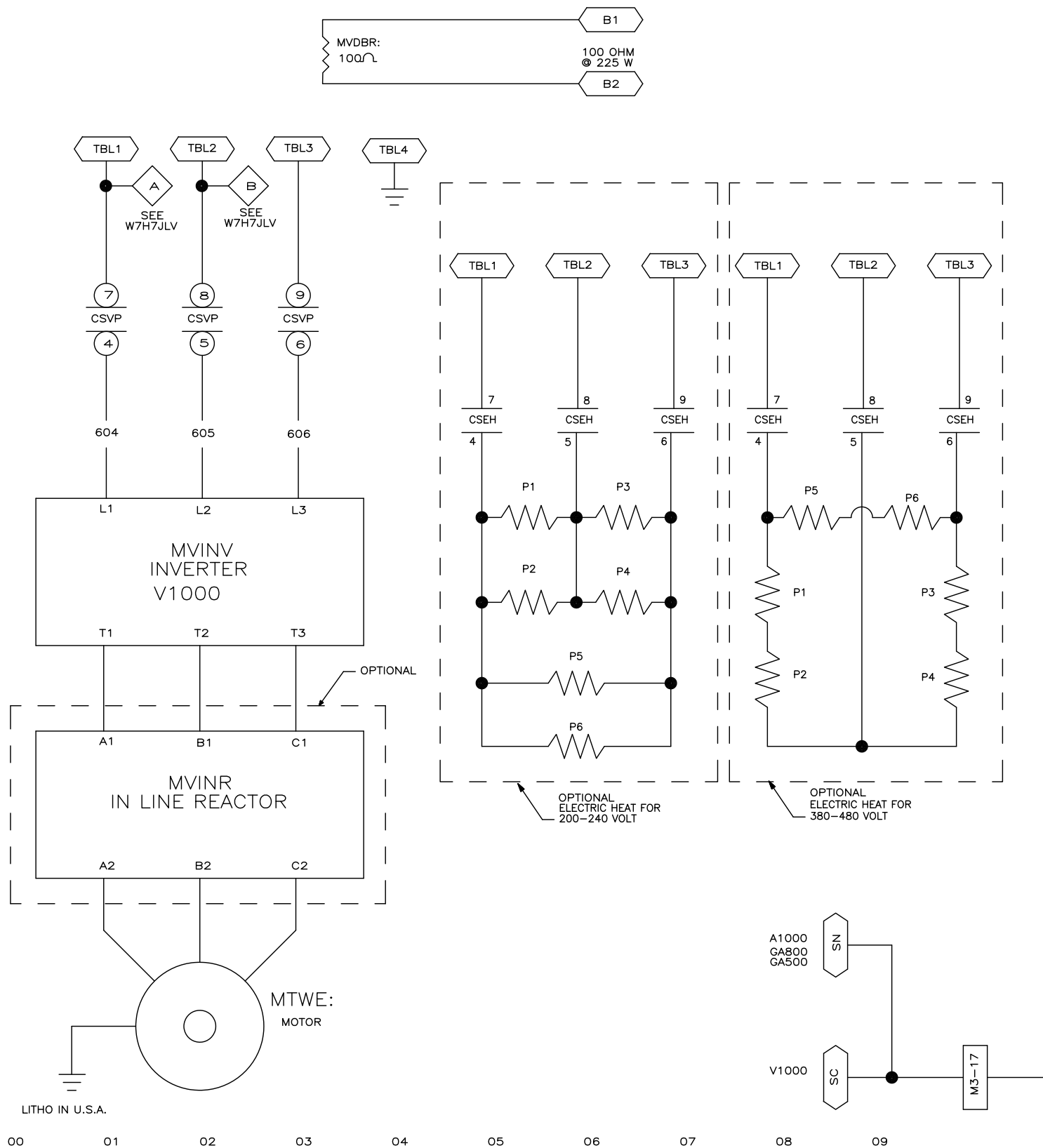


	CW		CCW		
	K21	K22	K18	K19	K20
WASH 1	X				
WASH 2	X		X		
DRAIN	X			X	
RINS SAVE	X		X	X	
EXTRACT 1	X				X
EXTRACT 2	X		X		X
EXTRACT 3	X			X	X
OUT OF EXTRACT					X

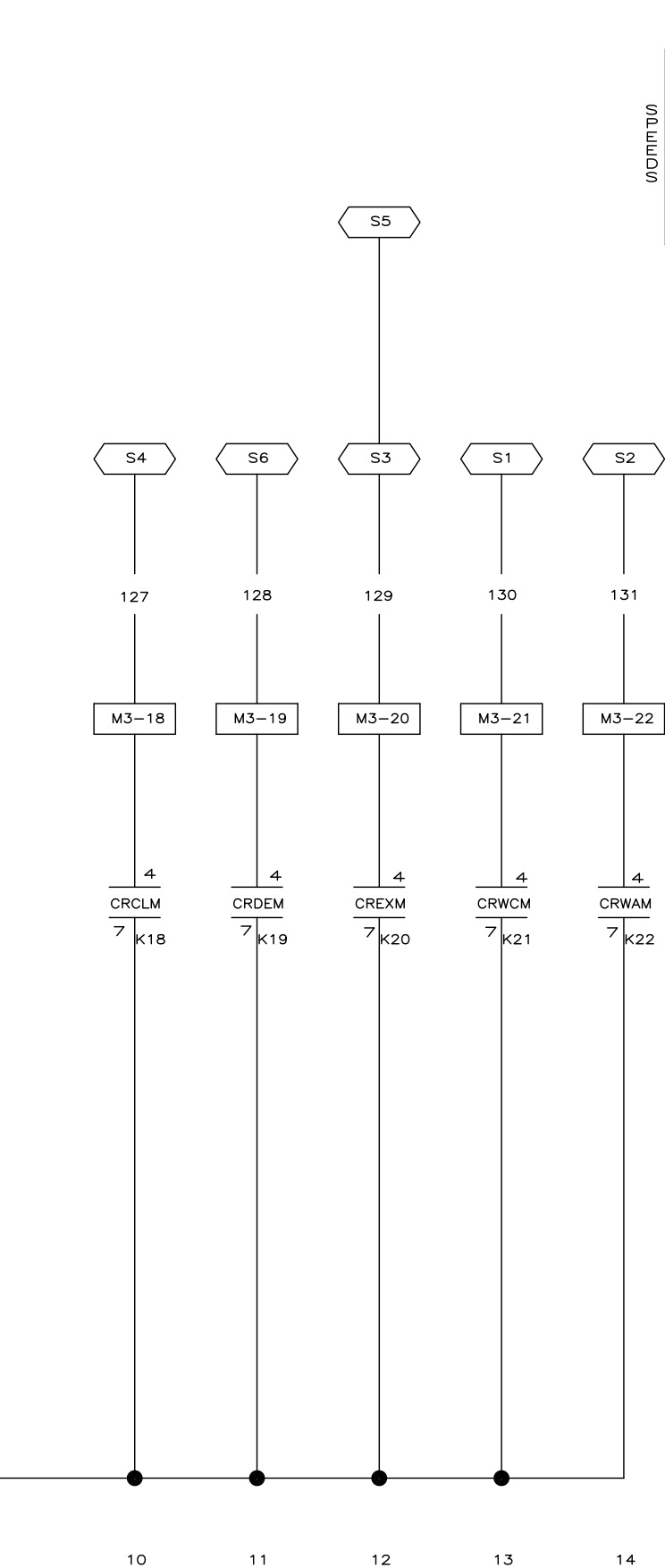
W7H7JVPE

SCHEMATIC: VARIABLE SPEED CONTROLLER
FOR 30015V7J 30022H7J, H8J & V6J (GPD315)
AND OPTIONAL ELECTRIC HEAT

PELLERIN MILNOR CORPORATION



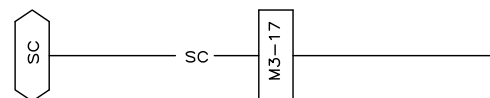
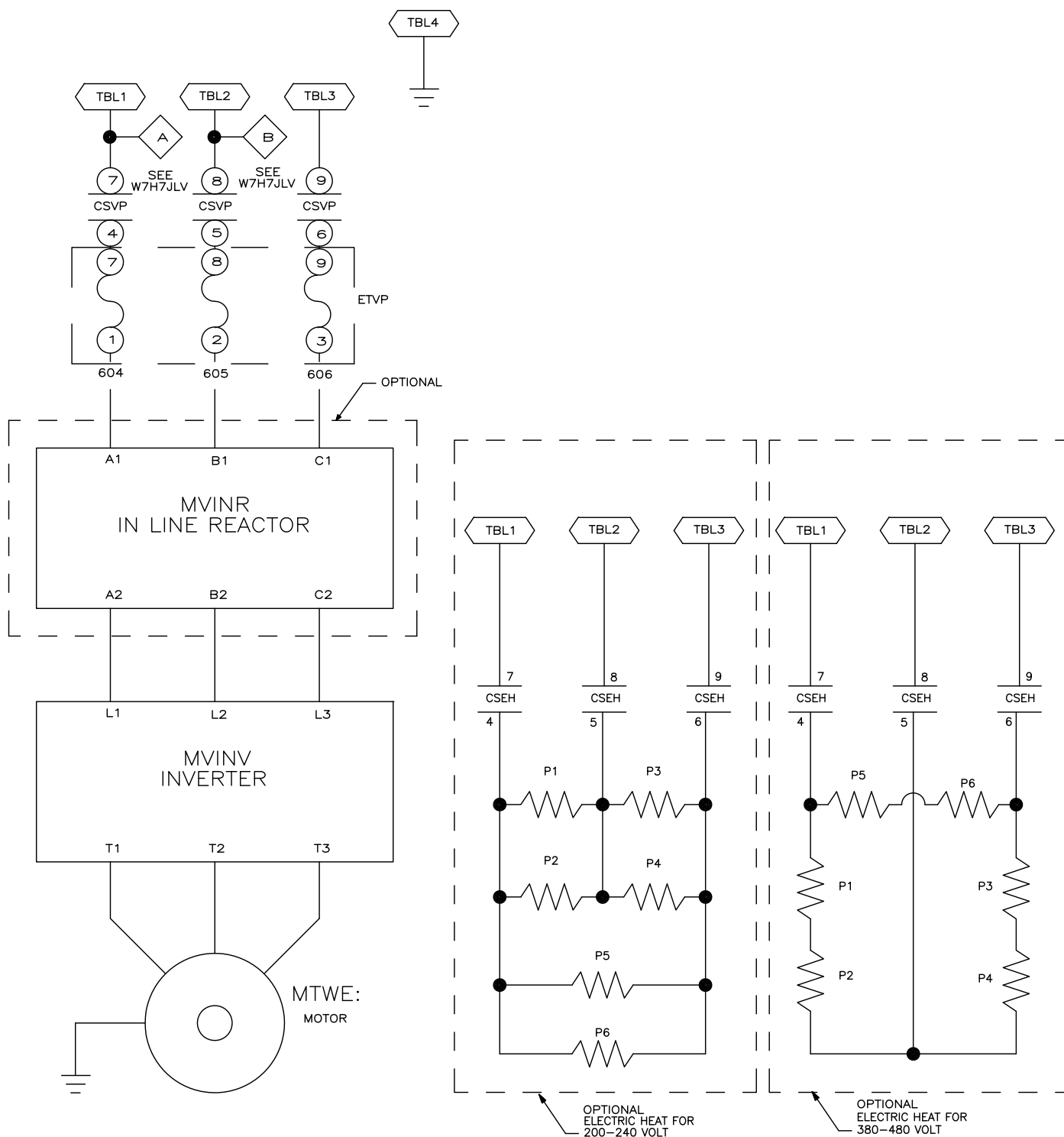
W7H7JVPF
 2021306B



CW CCW

	K21	K22	K18	K19	K20
WASH 1	X				
WASH 2	X		X		
RINS SAVE	X		X	X	
DRAIN	X			X	
EXTRACT 1	X				X
EXTRACT 2	X		X		X
EXTRACT 3	X			X	X
OUT OF EXTRACT					X

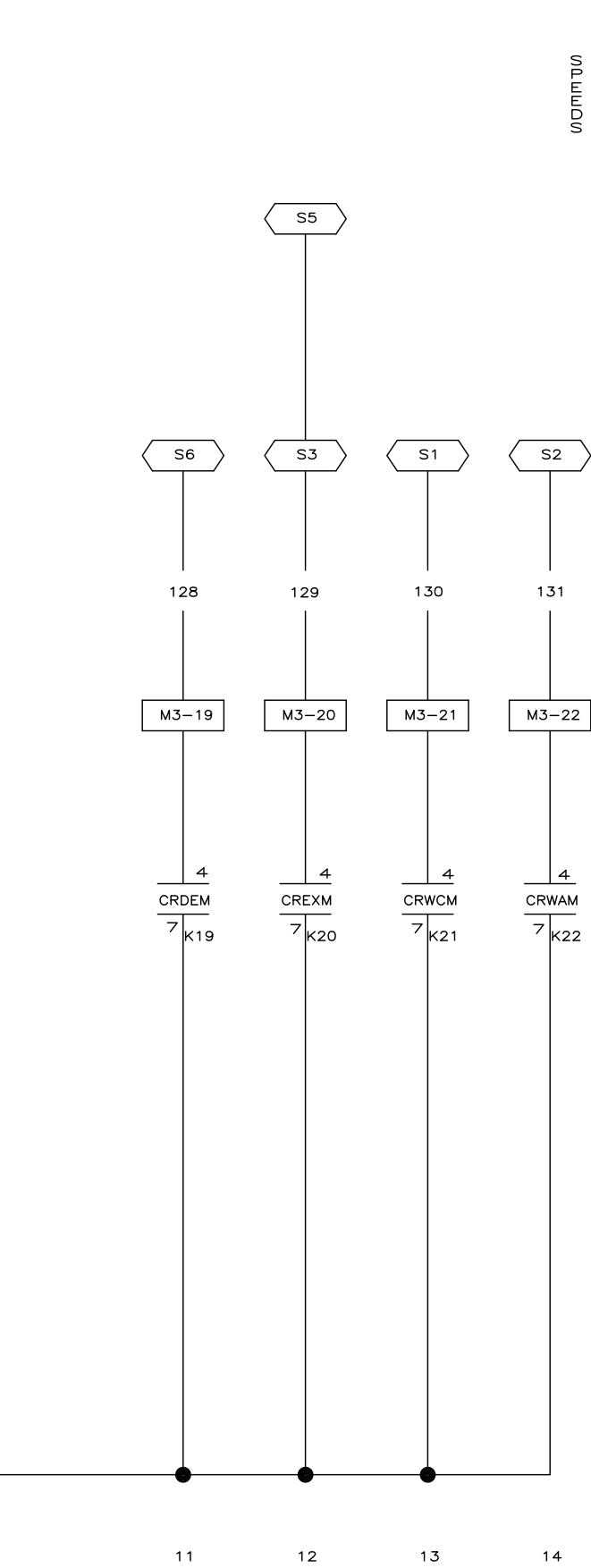
W7H7JVPF
 SCHEMATIC: VARIABLE SPEED CONTROLLER
 FOR 30015V7J 30022H7J, H8J V6J & VRJ
 V1000/GA500 3 PHASE AND SINGLE PHASE
 PELLERIN MILNOR CORPORATION



LITHO IN U.S.A.

00 01 02 03 04 05 06 07 08 09 10

W7H7JVP
2015162B



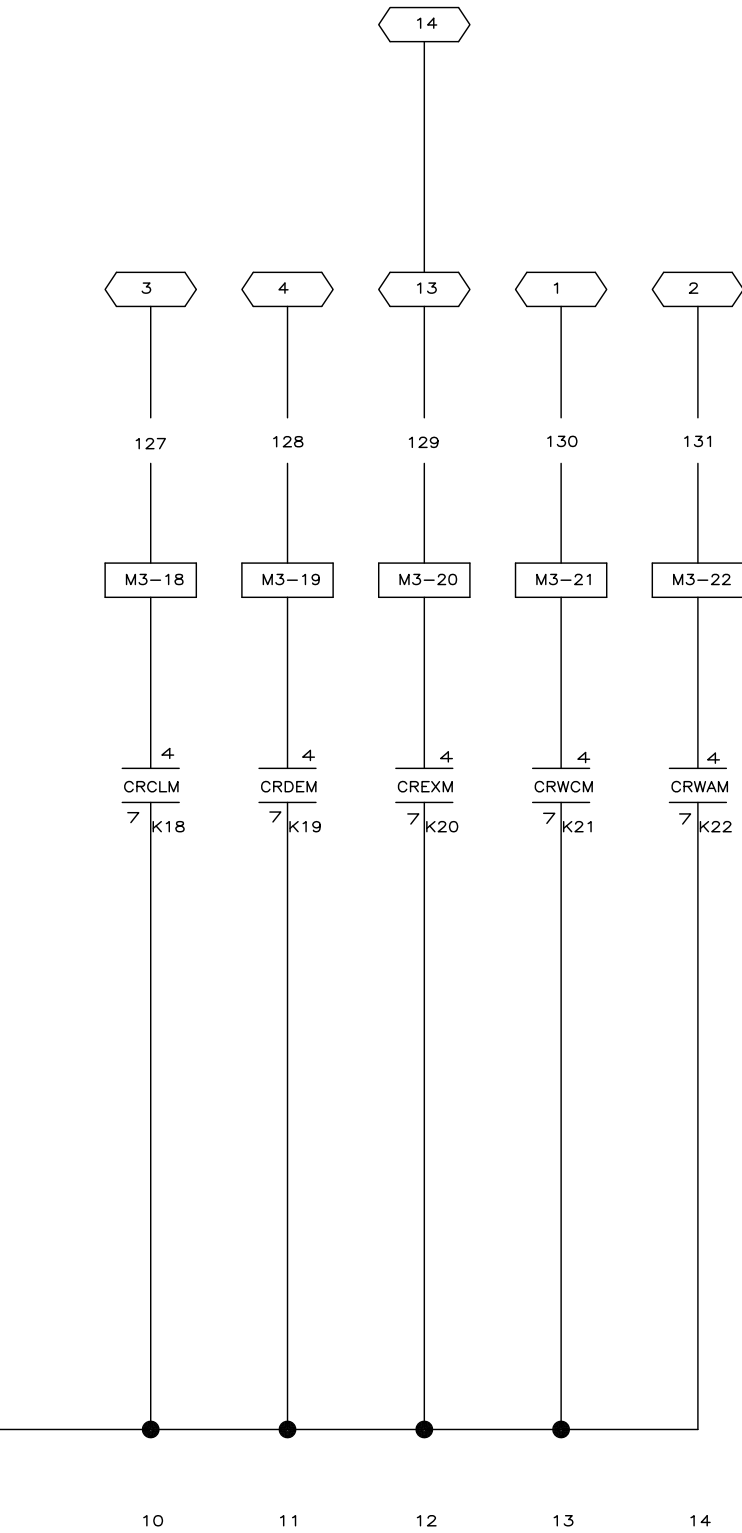
W7H7JVPG
2015162B

	CW	CCW			
	K21	K22	K18	K19	K20
WASH	X				
DRAIN	X			X	
EXTRACT	X				X

W7H7JVPG

SCHEMATIC: VARIABLE SPEED CONTROLLER
FOR 30015T5J & 30022T5J
V1000 3 PHASE AND SINGLE PHASE
PELLERIN MILNOR CORPORATION

	CW		CCW		
	K21	K22	K18	K19	K20
WASH 1	X				
WASH 2	X		X		
RINS SAVE	X		X	X	
DRAIN	X			X	
EXTRACT 1	X				X
EXTRACT 2	X		X		X
EXTRACT 3	X			X	X
OUT OF EXTRACT					X



W7H7JVPH
SCHEMATIC: VARIABLE SPEED CONTROLLER
FOR 30015V7J 30022H7J, H8J V6J & VRJ
WEG 3 PHASE
PELLERIN MILNOR CORPORATION