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

Schematic/Electrical Parts

SHUTTLES and ELEVATING CONVEYORS MARK V CONTROLS

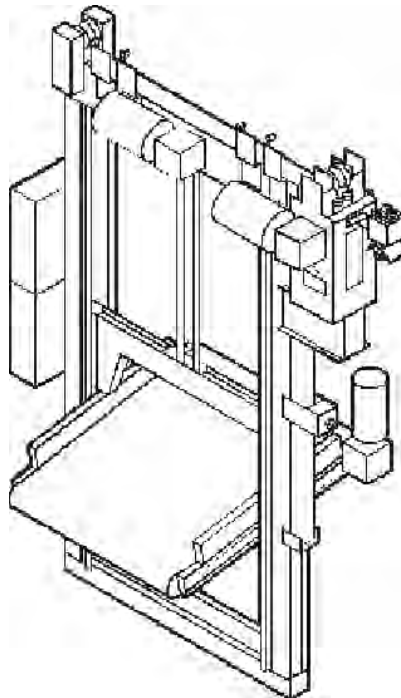


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COMPONENT PARTS LIST

<u>COMPONENT NUMBER</u>	<u>FUNCTION OF THIS COMPONENT</u>	<u>WHERE TO FIND THIS COMPONENT</u>	<u>MIL NOR P/N</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>
	>>CONTROL BOX LAYOUTS				
01	DETAIL-SHUTTLE LEFT CONTROL BOX	W6SH5STG1	B2T2006020	SHUTTLE HIGH VOLT C-BOX	SEE FUNCTION
02	DETAIL-SHUTTLE RIGHT CONTROLLER BOX	W6SH5STG2	B2T2006021	SHUTTLE LOW VOLT C-BOX	SEE FUNCTION
03	DETAIL-REMOTE CONTROLLER DOOR	W6SH5STG2	B2TAG90073	REMOTE SHUTTLE CONTROL DOOR	SEE FUNCTION
04	DETAIL-CONTROL BOARDS	W6SH5STG2	B2TAG96020	SHUTTLE CONTROL BOARDS	SEE FUNCTION
05	DETAIL-SHUTTLE LEFT CONTROL W/ BLT INV	W6SH5STG3	B2T2006022	SHUTTLE HIGH VOLT C-BOX W / INVERTER	SEE FUNCTION
06	DETAIL-SHUTTLE RIGHT CONTR W/ BLT INV	W6SH5STG3	B2T2006023	SHUTTLE LOW VOLT C-BOX W / INVERTER	SEE FUNCTION
BA	>>PRINTED CIRCUIT BOARDS				
BADR-1	BOARD-DEVICE ADDRESS SETTING	W6SH5SDC	08BSKPST	BD:KEYPAD SWITCH ->TESTED	PROCESSOR BX
BBB-1	BOARD-MEMORY BATT BACKUP (NOT USED)	W6SH5SBD	08BSBB1T	BOARD: SER BATT BACKUP-TEST	PROCESSOR BX
BIO-2	BOARD-8OUTPUT/16INPUT #2	W6SH5SBD	08BS816CHT	BD:SERIAL 8OUT-16IN HIGH SPD-TEST	CONTROL BOX
BIO-1	BOARD-8OUTPUT/16INPUT #1	W6SH5SBD	08BS816CT	BD:SERIAL 8OUT-16INPUT-TEST	CONTROL BOX
BIO-3	BOARD-8OUTPUT/16INPUT #3	W6SH5SBD	08BS816CT	BD:SERIAL 8OUT-16INPUT-TEST	CONTROL BOX
BIO-3	BOARD-8OUTPUT/16INPUT #3	W6SH5SIX	08BS816CT	BD:SERIAL 8OUT-16INPUT-TEST	CONTROL BOX
BIO-4	BOARD-8OUTPUT/16INPUT #4	W6SH5SBD	08BS816CT	BD:SERIAL 8OUT-16INPUT-TEST	CONTROL BOX
BIO-4	BOARD-8OUTPUT/16INPUT #4	W6SH5SY	08BS816CT	BD:SERIAL 8OUT-16INPUT-TEST	CONTROL BOX
BIO-5	BOARD-8OUTPUT/16INPUT #5	W6SH5SBD	08BS816CT	BD:SERIAL 8OUT-16INPUT-TEST	CONTROL BOX
BIO-6	BOARD-8OUTPUT/16INPUT #6	W6SH5SBD	08BS816CT	BD:SERIAL 8OUT-16INPUT-TEST	CONTROL BOX
BMTH	BOARD-5 CARD MOTHER	W6SH5SBD	08BS5MTHAT	SER 5 CARD MOTHER BD->TEST	CONTROL BOX
BO2	BOARD-6 OUTPUT	W6SH5SDC	08BN6OAT	6 OUTPUT BOARD->TEST	PROCESSOR BX
BPB	BOARD-186 PROCESSOR	W6SH5SDC	08BSPE2T	SERIAL 186 PROC BD+FP->TEST	PROCESSOR BX
BPB < 7/24/17	BOARD-186 PROCESSOR	W6SH5SBD	08BSPE2T	SERIAL 186 PROC BD+FP->TEST	PROCESSOR BX
BPB > 7/24/17	BOARD-186 PROCESSOR	W6SH5SBD	08BSPE3T	BD: SERIAL 186PROCESSOR SMD->TEST	PROCESSOR BX
BPS	FILTER-POSITION PROX INPUT	W6SH5SI2A	EACCP501	ASSY:SHUTTLE CNT PROX FILTER	CONTROL BOX
CB	>>CIRCUIT BREAKERS - OIL				
CBB	CIRCUIT BRKR-OVERLOAD BELTS	W6SH5SMTRA	09FTB006T	OVERLOAD PROTECTOR ADJ 4-6.3	CONTROL BOX
CD	>>RELAY-TIME DELAY				
CDDN	DELAY-DOWN	W6SH5SMC	09CA01SM74	TDR .1S-10M 100-120VAC	HI V CONTROL BX
CDDN	DELAY-DOWN	W6SH5SMCC	09CA01SM74	TDR .1S-10M 100-120VAC	HI V CONTROL BX
CDDN	DELAY-DOWN	W6SH5MEC	09CA01SM74	TDR .1S-10M 100-120VAC	HI V CONTROL BX
CDDN	DELAY-DOWN	W6SH5MFC	09CA01SM74	TDR .1S-10M 100-120VAC	HI V CONTROL BX
CDDN	DELAY-DOWN	W6SH5MH	09CA01SM74	TDR .1S-10M 100-120VAC	HI V CONTROL BX
CDDN	DELAY-DOWN	W6SH5SMJ	09CA01SM74	TDR .1S-10M 100-120VAC	HI V CONTROL BX

COMPONENT PARTS LIST

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CDDN	DELAY-DOWN	W6SH5SMK	09CA01SM74	TDR .1S-10M 100-120VAC	HI V CONTRL BX
CDDN	DELAY-DOWN	W6SH5SML	09CA01SM74	TDR .1S-10M 100-120VAC	HI V CONTRL BX
CDDN	DELAY-DOWN	W6SH5SMN	09CA01SM74	TDR .1S-10M 100-120VAC	HI V CONTRL BX
CDGKC	DELAY-CONFIRM	W6SH5SES	09CA01SM74	TDR .1S-10M 100-120VAC	LO V CONTRL BX
CDIO	DELAY-INVERTER FAULT	W6SH5SVS	09CF007537	TDR F7.5S 2PDT 11PIN 120V60C	VARI SPD BOX
CDJOG	DELAY-JOG	W6SH5SMM	09CF007537	TDR F7.5S 2PDT 11PIN 120V60C	CONTROL BOX
CDMC	OFF DELAY - BED STOP, 3 WIRE	W6SH5SMJ	09CA030S37	TDR (OFF DELAY) 1.5-30 SEC AC/DC 24-240V	LO V CONTRL BX
CDMC	OFF DELAY - BED STOP, 3 WIRE	W6SH5SMH	09CA030S37	TDR (OFF DELAY) 1.5-30 SEC AC/DC 24-240V	LO V CONTRL BX
CDUP	DELAY-UP	W6SH5SMC	09CA01SM74	TDR .1S-10M 100-120VAC	HI V CONTRL BX
CDUP	DELAY-UP	W6SH5SMCC	09CA01SM74	TDR .1S-10M 100-120VAC	HI V CONTRL BX
CDUP	DELAY-UP	W6SH5SMEC	09CA01SM74	TDR .1S-10M 100-120VAC	HI V CONTRL BX
CDUP	DELAY-UP	W6SH5SMFC	09CA01SM74	TDR .1S-10M 100-120VAC	HI V CONTRL BX
CDUP	DELAY-UP	W6SH5SMH	09CA01SM74	TDR .1S-10M 100-120VAC	HI V CONTRL BX
CDUP	DELAY-UP	W6SH5SMJ	09CA01SM74	TDR .1S-10M 100-120VAC	HI V CONTRL BX
CDUP	DELAY-UP	W6SH5SMK	09CA01SM74	TDR .1S-10M 100-120VAC	HI V CONTRL BX
CDUP	DELAY-UP	W6SH5SML	09CA01SM74	TDR .1S-10M 100-120VAC	HI V CONTRL BX
CDUP	DELAY-UP	W6SH5SMN	09CA01SM74	TDR .1S-10M 100-120VAC	HI V CONTRL BX
CL	>>RELAY-LATCH				
CLSFD	LATCH-SLOW DOWN	W6SH5SVS	09CL2C-C37	RELAY-LATCH DPDT 120V 2-COIL	CONTROL BOX
CLSFLU	LATCH-SLOW UP	W6SH5SVS	09CL2C-C37	RELAY-LATCH DPDT 120V 2-COIL	CONTROL BOX
CLT	LATCH-TAUT CHAIN FAULT	W6SH5SS+A	09CL2C-C37	RELAY-LATCH DPDT 120V 2-COIL	CONTROL BOX
CLT	LATCH-TAUT CHAIN FAULT	W6SH5SS+D	09CL2C-C37	RELAY-LATCH DPDT 120V 2-COIL	CONTROL BOX
CP	>>PHOTOEYES				
CPBD0	PHOTOEYE-DISC END OF BELT 0	W6SH5SI1	09RPE011	PHOTOEYE VALU-BEAM 10-30DC	END OF BELT
CPBD0	PHOTOEYE-DISC END OF BELT 0	W6SH5SI1A	09RPE011	PHOTOEYE VALU-BEAM 10-30DC	END OF BELT
CPBD0	PHOTOEYE-DISC END OF BELT 0	W6SH5SI1B	09RPE011	PHOTOEYE VALU-BEAM 10-30DC	END OF BELT
CPBD1	PHOTOEYE-DISC END OF BELT 1	W6SH5SI1	09RPE011	PHOTOEYE VALU-BEAM 10-30DC	END OF BELT
CPBD1	PHOTOEYE-DISC END OF BELT 1	W6SH5SI1A	09RPE011	PHOTOEYE VALU-BEAM 10-30DC	END OF BELT
CPBD1	PHOTOEYE-DISC END OF BELT 1	W6SH5SI1B	09RPE011	PHOTOEYE VALU-BEAM 10-30DC	END OF BELT
CPBD2	PHOTOEYE-DISC END OF BELT 3	W6SH5SI1	09RPE011	PHOTOEYE VALU-BEAM 10-30DC	END OF BELT
CPBD2	PHOTOEYE-DISC END OF BELT 3	W6SH5SI1B	09RPE011	PHOTOEYE VALU-BEAM 10-30DC	END OF BELT
CPBL0	PHOTOEYE-LOAD END OF BELT 0	W6SH5SI2A	09RPE011	PHOTOEYE VALU-BEAM 10-30DC	END OF BELT
CPBL1	PHOTOEYE-LOAD END OF BELT 1	W6SH5SI2A	09RPE011	PHOTOEYE VALU-BEAM 10-30DC	END OF BELT

COMPONENT PARTS LIST

<u>COMPONENT</u>	<u>FUNCTION OF</u>	<u>WHERE TO FIND</u>	<u>MIL NOR P/N</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>
<u>NUMBER</u>	<u>THIS COMPONENT</u>	<u>THIS COMPONENT</u>			
CPBL2	PHOTOEYE-LOAD END OF BELT 2	W6SH5SI2A	09RPE011	PHOTOEYE VALU-BEAM 10-30DC	END OF BELT
CPBX0	PHOTOEYE-EXTREME DISCHARGE BELT 0	W6SH5SI1	09RPE011	PHOTOEYE VALU-BEAM 10-30DC	END OF BELT
CPBX0	PHOTOEYE-EXTREME DISCHARGE BELT 0	W6SH5SI1A	09RPE011	PHOTOEYE VALU-BEAM 10-30DC	END OF BELT
CPBX0	PHOTOEYE-EXTREME DISCHARGE BELT 0	W6SH5SI1B	09RPE011	PHOTOEYE VALU-BEAM 10-30DC	END OF BELT
CPBX1	PHOTOEYE-EXTREME DISCHARGE BELT 1	W6SH5SI1	09RPE011	PHOTOEYE VALU-BEAM 10-30DC	END OF BELT
CPBX1	PHOTOEYE-EXTREME DISCHARGE BELT 1	W6SH5SI1A	09RPE011	PHOTOEYE VALU-BEAM 10-30DC	END OF BELT
CPBX1	PHOTOEYE-EXTREME DISCHARGE BELT 1	W6SH5SI1B	09RPE011	PHOTOEYE VALU-BEAM 10-30DC	END OF BELT
CPBX2	PHOTOEYE-EXTREME DISCHARGE BELT 2	W6SH5SI1	09RPE011	PHOTOEYE VALU-BEAM 10-30DC	END OF BELT
CPBX2	PHOTOEYE-EXTREME DISCHARGE BELT 2	W6SH5SI1A	09RPE011	PHOTOEYE VALU-BEAM 10-30DC	END OF BELT
CPBX2	PHOTOEYE-EXTREME DISCHARGE BELT 2	W6SH5SI1B	09RPE011	PHOTOEYE VALU-BEAM 10-30DC	END OF BELT
CPSP	PHOTOEYE-SHUTTLE POSITION (COSH-A-M)	W6SH5SI2A	09RPE014	PHOTOEYE CONVERGENT MODE D.C.	SHUT LOW RAIL
CR	>>RELAY-PILOT OR CONTROL				
CRB0F	CONTACTOR-FORWARD BELT 0	W6SH5SML	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRB0F	CONTACTOR-FORWARD BELT 0	W6SH5SMM	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRB1F	CONTACTOR-FORWARD BELT 1	W6SH5SML	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRB1R	CONTACTOR-REVERSE BELT 1	W6SH5SML	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRBD	RELAY-SHUTTLE DISCHARGE	W6SH5SS+	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRBD	RELAY-SHUTTLE DISCHARGE	W6SH5SS+A	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRBD	RELAY-SHUTTLE DISCHARGE	W6SH5SS+D	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRBD0	RELAY-DISCHARGE END BLOCKED BELT 0	W6SH5SI1A	09C02DDDD24	RELAY 3PDT SILVER 11PIN 24VDC	CONTROL BOX
CRBD1	RELAY-DISCHARGE END BLOCKED BELT 1	W6SH5SI1A	09C02DDDD24	RELAY 3PDT SILVER 11PIN 24VDC	CONTROL BOX
CRBF	CONTACTOR-BELT 0 AFTER DELAY	W6SH5SMM	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRBOR	CONTACTOR-REVERSE BELT 0	W6SH5SML	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRBOR	CONTACTOR-REVERSE BELT 0	W6SH5SMM	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRBOU	RELAY-DISCHARGE END BLOCKED	W6SH5SLC	09C024D24	RELAY 4PDT DIFGLD 14PIN 24V	CONTROL BOX
CRBOU	RELAY-DISCHARGE END BLOCKED	W6SH5SLM	09C024D24	RELAY 4PDT DIFGLD 14PIN 24V	CONTROL BOX
CRCL	RELAY-TAUT CHAIN	W6SH5SS+A	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRCL	RELAY-TAUT CHAIN	W6SH5SS+D	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CREED	RELAY-ELEVATOR DOWN	W6SH5SPEA	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CREEU	RELAY-ELEVATOR UP	W6SH5SPEA	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRERA	RELAY-ELEVATOR AT DISCHARGE POSITION	W6SH5SPEIA	09C024D24	RELAY 4PDT DIFGLD 14PIN 24V	CONTROL BOX
CREXL	RELAY-EXT TO UNLOAD	W6SH5SLF	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CREYL	RELAY-BELT FULLY EXTENDED TO LOAD	W6SH5SL	09C024D37	4PDT "KH" 110/120V	CONTROL BOX

COMPONENT PARTS LIST

<u>COMPONENT</u>	<u>FUNCTION OF</u>	<u>WHERE TO FIND</u>	<u>MIL NOR PIN</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>
<u>NUMBER</u>	<u>THIS COMPONENT</u>	<u>THIS COMPONENT</u>			
CRFE	RELAY-HI SPD BLT EXTENDED	W6SH5SLF	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRFR	RELAY-HI SPD BLT RETRACTED	W6SH5SLM	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRGK	RELAY- GATE KEY	W6SH5SES	09C024D37	4PDT "KH" 110/120V	LO V CNTRL BOX
CRGK1	RELAY- GATE KEY	W6SH5SES	09C024D37	4PDT "KH" 110/120V	LO V CNTRL BOX
CRL	RELAY-SHUTTLE IS LOADED	W6SH5SLM	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRL	RELAY-SHUTTLE IS LOADED	W6SH5SLC	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRM	RELAY-MANUAL	W6SH5SMFC	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRM	RELAY-MANUAL	W6SH5SMFC	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRM	RELAY-MANUAL	W6SH5SMH	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRM	RELAY-MANUAL	W6SH5SMJ	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRM	RELAY-MANUAL	W6SH5SMK	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRM	RELAY-MANUAL	W6SH5SMN	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRMA	RELAY-MANUAL	W6SH5SMFC	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRMA	RELAY-MANUAL	W6SH5SMH	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRMA	RELAY-MANUAL	W6SH5SMK	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRMA	RELAY-MANUAL	W6SH5SMN	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRMB	RELAY-MANUAL	W6SH5SMH	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRMB	RELAY-MANUAL	W6SH5SMK	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRMB	RELAY-MANUAL	W6SH5SMN	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRMC	RELAY-MANUAL	W6SH5SMH	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRMC	RELAY-MANUAL	W6SH5SMJ	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRRTL	RELAY-FULLY RETRACTED FROM UNLD & LD	W6SH5SBM	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRRTL	RELAY-FULLY RETRACTED FROM UNLD & LD	W6SH5SBN	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRRTL	RELAY-FULLY RETRACTED FROM UNLD & LD	W6SH5SBP	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRRTL	RELAY-FULLY RETRACTED FROM UNLD & LD	W6SH5SLC	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRRTL	RELAY-FULLY RETRACTED FROM UNLD & LD	W6SH5SLD1	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRRTL	RELAY-FULLY RETRACTED FROM UNLD & LD	W6SH5SLF	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRRTLA	RELAY-FULLY RETRACTED FROM UNLD & LD	W6SH5SBM	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRRTLA	RELAY-FULLY RETRACTED FROM UNLD & LD	W6SH5SBN	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRRTLA	RELAY-FULLY RETRACTED FROM UNLD & LD	W6SH5SBP	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRRTLA	RELAY-FULLY RETRACTED FROM UNLD & LD	W6SH5SLD1	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRRTLA	RELAY-FULLY RETRACTED FROM UNLD & LD	W6SH5SLF	09C024D37	4PDT "KH" 110/120V	CONTROL BOX

COMPONENT PARTS LIST

<u>COMPONENT NUMBER</u>	<u>FUNCTION OF THIS COMPONENT</u>	<u>WHERE TO FIND THIS COMPONENT</u>	<u>MIL NOR PIN</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>
CRS+	RELAY-3-WIRE	W6SH5SS+	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRS+	RELAY-3-WIRE	W6SH5SS+A	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRS+	RELAY-3-WIRE	W6SH5SS+D	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRS+A	RELAY-3-WIRE	W6SH5SIG	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRS+A	RELAY-3-WIRE	W6SH5SIGA	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRS+A	RELAY-3-WIRE	W6SH5SIH	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRS+A	RELAY-3-WIRE	W6SH5SIHA	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRSD	RELAY-SLOW TRAVERSING SPEED	W6SH5SIP	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRSD	RELAY-SLOW TRAVERSING SPEED	W6SH5SIPA	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRSD	RELAY-SLOW TRAVERSING SPEED	W6SH5SIT	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRSD	RELAY-SLOW TRAVERSING SPEED	W6SH5SITA	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRSD	RELAY-SLOW TRAVERSING SPEED	W6SH5SITB	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRSGF	RELAY-SIGNAL MOVING	W6SH5SMC	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRSLS	RELAY-SHUTTLE CLOSE TO ELEVATOR	W6SH5SEIA	09C024D24	RELAY 4PDT DIFGLD 14PIN 24V	CONTROL BOX
CRSSE	RELAY-STOP ELEVATOR FROM MOVING	W6SH5SPEB	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRTC	RELAY-MAX UP LIMIT	W6SH5SS+D	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRTCD	RELAY-MAX DOWN LIMIT	W6SH5SS+D	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRUD	RELAY-UP/DOWN SLOW	W6SH5SIG	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRUD	RELAY-UP/DOWN SLOW	W6SH5SIGA	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRUD	RELAY-UP/DOWN SLOW	W6SH5SIH	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRUD	RELAY-UP/DOWN SLOW	W6SH5SIHA	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRVEU	EXTEND TO UNLOAD	W6SH5SL	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRVEU	EXTEND TO UNLOAD	W6SH5SLA	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRVEX	RETRACT FROM UNLOAD	W6SH5SL	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRVEX	RETRACT FROM UNLOAD	W6SH5SLA	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRVEY	EXTEND TO LOAD	W6SH5SLM	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRVEY	EXTEND TO LOAD	W6SH5SLA	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRVEZ	RETRACT FROM LOAD	W6SH5SLM	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRVEZ	RETRACT FROM LOAD	W6SH5SLA	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRX	RELAY-EXTEND BELT 0	W6SH5SLD1	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRX1	RELAY-EXTEND BELT 1	W6SH5SLD1	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRXM	RELAY-LOW POSITION	W6SH5SITB	09C024E24	RELAY 4PDT DIFGLD 14PIN 24VDC	CONTROL BOX
CRXMIDA	RELAY-MOVE DOWN	W6SH5SVS	09C024D37	4PDT "KH" 110/120V	CONTROL BOX

COMPONENT PARTS LIST

<u>COMPONENT</u>	<u>FUNCTION OF</u>	<u>WHERE TO FIND</u>	<u>MIL NOR P/N</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>
<u>NUMBER</u>	<u>THIS COMPONENT</u>	<u>THIS COMPONENT</u>			
CRXMUA	RELAY-MOVE UP	W6SH5SVS	09C024D37	4PDT "KH" 110/120V	CONTROL BOX
CRZL	RELAY-LOW POSITION	W6SH5STB	09C024E24	RELAY 4PDT DIFGLD 14PIN 24VDC	CONTROL BOX
CS	>>CONTACTOR-MOTOR STARTER				
CSB	CONTACTOR-INVERTER BELTS	W6SH5SS+	09MC08B337	12A 3P MCS CONT NR 120V5/6	CONTROL BOX
CSB	CONTACTOR-INVERTER BELTS	W6SH5SS+A	09MC08B337	12A 3P MCS CONT NR 120V5/6	CONTROL BOX
CSB	CONTACTOR-INVERTER BELTS	W6SH5SS+D	09MC08B337	12A 3P MCS CONT NR 120V5/6	CONTROL BOX
CSB0F	CONTACTOR-FORWARD BELT 0	W6SH5SMC	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSB0F	CONTACTOR-FORWARD BELT 0	W6SH5SMCC	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSB0F	CONTACTOR-FORWARD BELT 0	W6SH5SMEC	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSB0F	CONTACTOR-FORWARD BELT 0	W6SH5SMFC	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSB0F	CONTACTOR-FORWARD BELT 0	W6SH5SMH	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSB0F	CONTACTOR-FORWARD BELT 0	W6SH5SMJ	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSB0F	CONTACTOR-FORWARD BELT 0	W6SH5SMK	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSB0F	CONTACTOR-FORWARD BELT 0	W6SH5SMN	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSB0F	CONTACTOR-FORWARD BELT 0	W6SH5SMC	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSB1F	CONTACTOR-FORWARD BELT 1	W6SH5SMEC	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSB1F	CONTACTOR-FORWARD BELT 1	W6SH5SMFC	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSB1F	CONTACTOR-FORWARD BELT 1	W6SH5SMH	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSB1F	CONTACTOR-FORWARD BELT 1	W6SH5SMK	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSB1F	CONTACTOR-FORWARD BELT 1	W6SH5SMN	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSB1F	CONTACTOR-FORWARD BELT 1	W6SH5SMC	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSB1R	CONTACTOR-REVERSE BELT 1	W6SH5SMH	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSB1R	CONTACTOR-REVERSE BELT 1	W6SH5SMK	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSB1R	CONTACTOR-REVERSE BELT 1	W6SH5SMN	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSB1R	CONTACTOR-REVERSE BELT 1	W6SH5SMC	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSB1R	CONTACTOR-REVERSE BELT 1	W6SH5SMFC	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSB1R	CONTACTOR-REVERSE BELT 1	W6SH5SMH	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSB1R	CONTACTOR-REVERSE BELT 1	W6SH5SMK	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSB1R	CONTACTOR-REVERSE BELT 1	W6SH5SMN	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSB2F	CONTACTOR-FORWARD BELT 2	W6SH5SMC1	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSB2R	CONTACTOR-REVERSE BELT 2	W6SH5SMC1	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSB3F	CONTACTOR-FORWARD BELT 3	W6SH5SMC1	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSB3R	CONTACTOR-REVERSE BELT 3	W6SH5SMC1	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSBOR	CONTACTOR-REVERSE BELT 0	W6SH5SMC	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSBOR	CONTACTOR-REVERSE BELT 0	W6SH5SMCC	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSBOR	CONTACTOR-REVERSE BELT 0	W6SH5SMEC	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX

COMPONENT PARTS LIST

<u>COMPONENT</u>	<u>FUNCTION OF</u>	<u>WHERE TO FIND</u>	<u>MIL NOR P/N</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>
<u>NUMBER</u>	<u>THIS COMPONENT</u>	<u>THIS COMPONENT</u>			
CSBR	CONTACTOR-REVERSE BELT 0	W6SH5MFC	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSBR	CONTACTOR-REVERSE BELT 0	W6SH5SMH	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSBR	CONTACTOR-REVERSE BELT 0	W6SH5SMJ	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSBR	CONTACTOR-REVERSE BELT 0	W6SH5SMK	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSBR	CONTACTOR-REVERSE BELT 0	W6SH5SMN	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSBR	CONTACTOR-BRAKE	W6SH5SIP	09MC08B337	12A 3P MCS CONT NR 120V5/6	CONTROL BOX
CSBR	CONTACTOR-BRAKE	W6SH5SIPA	09MC08B337	12A 3P MCS CONT NR 120V5/6	CONTROL BOX
CSBR	CONTACTOR-BRAKE	W6SH5SIT	09MC08B337	12A 3P MCS CONT NR 120V5/6	CONTROL BOX
CSBR	CONTACTOR-BRAKE	W6SH5SITA	09MC08B337	12A 3P MCS CONT NR 120V5/6	CONTROL BOX
CSBR1	CONTACTOR-BRAKE UP/DOWN	W6SH5SIG	09MC08B337	12A 3P MCS CONT NR 120V5/6	CONTROL BOX
CSBR1	CONTACTOR-BRAKE UP/DOWN	W6SH5SIGA	09MC08B337	12A 3P MCS CONT NR 120V5/6	CONTROL BOX
CSBR1	CONTACTOR-BRAKE UP/DOWN	W6SH5SIH	09MC08B337	12A 3P MCS CONT NR 120V5/6	CONTROL BOX
CSBR1	CONTACTOR-BRAKE UP/DOWN	W6SH5SIHA	09MC08B337	12A 3P MCS CONT NR 120V5/6	CONTROL BOX
CSE	CONTACTOR-EXT HI SPD BELT	W6SH5SLF	09MR08B337	12A 3P MCS CONT NR 120V5/6	CONTROL BOX
CSH	CONTACTOR-HOIST	W6SH5SHSA	09MC08B337	12A 3P MCS CONT NR 120V5/6	CONTROL BOX
CSR	CONTACTOR-RET HI SPD BELT	W6SH5SLF	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSVP	CONTACTOR-ENABLE INVERTER	W6SH5SVS	09MC08B337	12A 3P MCS CONT NR 120V5/6	CONTROL BOX
CSVS	CONTACTOR-VARIABLE SPD INVERTER	W6SH5SS+	09MC08B337	12A 3P MCS CONT NR 120V5/6	CONTROL BOX
CSVS	CONTACTOR-VARIABLE SPD INVERTER	W6SH5SS+A	09MC08B337	12A 3P MCS CONT NR 120V5/6	CONTROL BOX
CSVS	CONTACTOR-VARIABLE SPD INVERTER	W6SH5SS+D	09MC08B337	12A 3P MCS CONT NR 120V5/6	CONTROL BOX
CSVS1	CONTACTOR-VAR SPD INV UP/DOWN	W6SH5SIG	09MC08B337	12A 3P MCS CONT NR 120V5/6	CONTROL BOX
CSVS1	CONTACTOR-VAR SPD INV UP/DOWN	W6SH5SIGA	09MC08B337	12A 3P MCS CONT NR 120V5/6	CONTROL BOX
CSVS1	CONTACTOR-VAR SPD INV UP/DOWN	W6SH5SIH	09MC08B337	12A 3P MCS CONT NR 120V5/6	CONTROL BOX
CSVS1	CONTACTOR-VAR SPD INV UP/DOWN	W6SH5SIHA	09MC08B337	12A 3P MCS CONT NR 120V5/6	CONTROL BOX
CSXSD	CONTACTOR-DOWN	W6SH5SMC	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSXSD	CONTACTOR-DOWN	W6SH5SMCC	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSXSD	CONTACTOR-DOWN	W6SH5SMEC	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSXSD	CONTACTOR-DOWN	W6SH5SMFC	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSXSD	CONTACTOR-DOWN	W6SH5SMH	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSXSD	CONTACTOR-DOWN	W6SH5SMJ	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSXSD	CONTACTOR-DOWN	W6SH5SML	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSXSD	CONTACTOR-DOWN	W6SH5SMN	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSXSU	CONTACTOR-UP	W6SH5SMC	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX

COMPONENT PARTS LIST

<u>COMPONENT NUMBER</u>	<u>FUNCTION OF THIS COMPONENT</u>	<u>WHERE TO FIND THIS COMPONENT</u>	<u>MIL NOR P/N</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>
CSXSU	CONTACTOR-UP	W6SH5SMCC	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSXSU	CONTACTOR-UP	W6SH5SMCC	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSXSU	CONTACTOR-UP	W6SH5SMFC	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSXSU	CONTACTOR-UP	W6SH5SMH	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSXSU	CONTACTOR-UP	W6SH5SMJ	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSXSU	CONTACTOR-UP	W6SH5SML	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
CSXSU	CONTACTOR-UP	W6SH5SMN	09MR08B337	12A 3P REV+2N/C 120V5/6 IEC	CONTROL BOX
DI	>>DIODE, ARRESTER				
DIAC	DIODE, VOLTAGE ARRESTER	W6SH5SMT2	09X001	SECONDARY ARRESTER 650V3P	HI V CONTROL BX
DIAC	DIODE, VOLTAGE ARRESTER	W6SH5SMT3	09X001	SECONDARY ARRESTER 650V3P	HI V CONTROL BX
DIAC	DIODE, VOLTAGE ARRESTER	W6SH5SMT4	09X001	SECONDARY ARRESTER 650V3P	HI V CONTROL BX
DIAC	DIODE, VOLTAGE ARRESTER	W6SH5SMT5	09X001	SECONDARY ARRESTER 650V3P	HI V CONTROL BX
DIAC	DIODE, VOLTAGE ARRESTER	W6SH5SMT6	09X001	SECONDARY ARRESTER 650V3P	HI V CONTROL BX
EB	>>BUZZER OR AUDIBLE SIGNAL				
EBSG	BUZZER-SIGNAL AUDIBLE	W6SH5SS+	09H015	BUZZER 115V W/6-32 CRT+6" LEADS	PROCESSOR BX
EBSG	BUZZER-SIGNAL AUDIBLE	W6SH5SS+A	09H015	BUZZER 115V W/6-32 CRT+6" LEADS	PROCESSOR BX
EBSG	BUZZER-SIGNAL AUDIBLE	W6SH5SS+D	09H015	BUZZER 115V W/6-32 CRT+6" LEADS	PROCESSOR BX
EBSGF	BUZZER-SIGNAL AUDIBLE MOVING	W6SH5SMC	09H020	ALARM SONALERT 115V	CONTROL BOX
EBSGF	BUZZER-SIGNAL AUDIBLE MOVING	W6SH5SMCC	09H020	ALARM SONALERT 115V	CONTROL BOX
EBSGF	BUZZER-SIGNAL AUDIBLE MOVING	W6SH5SMCC	09H020	ALARM SONALERT 115V	CONTROL BOX
EBSGF	BUZZER-SIGNAL AUDIBLE MOVING	W6SH5SMFC	09H020	ALARM SONALERT 115V	CONTROL BOX
EBSGF	BUZZER-SIGNAL AUDIBLE MOVING	W6SH5SMH	09H020	ALARM SONALERT 115V	CONTROL BOX
EBSGF	BUZZER-SIGNAL AUDIBLE MOVING	W6SH5SMJ	09H020	ALARM SONALERT 115V	CONTROL BOX
EBSGF	BUZZER-SIGNAL AUDIBLE MOVING	W6SH5SMK	09H020	ALARM SONALERT 115V	CONTROL BOX
EBSGF	BUZZER-SIGNAL AUDIBLE MOVING	W6SH5SML	09H020	ALARM SONALERT 115V	CONTROL BOX
EBSGF	BUZZER-SIGNAL AUDIBLE MOVING	W6SH5SMN	09H020	ALARM SONALERT 115V	CONTROL BOX
ED	>>DISPLAY-ELECTRONIC				
EDM	DISPLAY-MICROPROCESSOR	W6SH5SK+D	08BSEVFD5U	BDSER VFD 2LINE-9600B-TEST	PROCESSOR BX
EF	>>FUSE OR FUSE HOLDER				
EF37	FUSE-120VAC XFORMER SECONDARY	W6SH5SP	09FF006AMA	FUSE BK/ABC 6 AMP 250V BUSS	CONTROL BOX
EFHV1	FUSE-120V XFORMER PRIMARY #1	W6SH5SP	09FF005AWN	BUSE BUSS KTK 5AMP 600V=HPS HOLDER	CONTROL BOX
EFHV2	FUSE-120V XFORMER PRIMARY #2	W6SH5SP	09FF005AWN	BUSE BUSS KTK 5AMP 600V=HPS HOLDER	CONTROL BOX
EFS	>>>FLASHER				

COMPONENT PARTS LIST

<u>COMPONENT</u>	<u>FUNCTION OF</u>	<u>WHERE TO FIND</u>	<u>MIL NOR P/N</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>
<u>NUMBER</u>	<u>THIS COMPONENT</u>	<u>THIS COMPONENT</u>			
EFSGF	FLASHER-AUDIBLE ALARM -MOVING	W6SH5SMC	08FL007537	FLASHER 120V 1AMP 75FL/MIN	CONTROL BOX
EFSGF	FLASHER-AUDIBLE ALARM -MOVING	W6SH5SMCC	08FL007537	FLASHER 120V 1AMP 75FL/MIN	CONTROL BOX
EFSGF	FLASHER-AUDIBLE ALARM -MOVING	W6SH5SMEC	08FL007537	FLASHER 120V 1AMP 75FL/MIN	CONTROL BOX
EFSGF	FLASHER-AUDIBLE ALARM -MOVING	W6SH5SMFC	08FL007537	FLASHER 120V 1AMP 75FL/MIN	CONTROL BOX
EFSGF	FLASHER-AUDIBLE ALARM -MOVING	W6SH5SMH	08FL007537	FLASHER 120V 1AMP 75FL/MIN	CONTROL BOX
EFSGF	FLASHER-AUDIBLE ALARM -MOVING	W6SH5SMJ	08FL007537	FLASHER 120V 1AMP 75FL/MIN	CONTROL BOX
EFSGF	FLASHER-AUDIBLE ALARM -MOVING	W6SH5SMK	08FL007537	FLASHER 120V 1AMP 75FL/MIN	CONTROL BOX
EFSGF	FLASHER-AUDIBLE ALARM -MOVING	W6SH5SML	08FL007537	FLASHER 120V 1AMP 75FL/MIN	CONTROL BOX
EFSGF	FLASHER-AUDIBLE ALARM -MOVING	W6SH5SMN	08FL007537	FLASHER 120V 1AMP 75FL/MIN	CONTROL BOX
EL	>>LIGHT-PILOT OR INDICATOR				
ELEXL	LIGHT-BELT 0 EXTEND TO UNLOAD	W6SH5SL	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	COSLIDE SWPNL
ELEXL	LIGHT-BELT 0 EXTEND TO UNLOAD	W6SH5SLA	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	COSLIDE SWPNL
ELEXL	LIGHT-BELT 0 EXTEND TO UNLOAD	W6SH5SLD1	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	COSLIDE SWPNL
ELEXL	LIGHT-BELT 0 EXTEND TO UNLOAD	W6SH5SLF	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	COSLIDE SWPNL
ELEXL	LIGHT-BELT 0 EXTEND TO UNLOAD	W6SH5SLG	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	COSLIDE SWPNL
ELEYL	LIGHT-BELT 0 EXTEND TO LOAD	W6SH5SL	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	COSLIDE SWPNL
ELEYL	LIGHT-BELT 0 EXTEND TO LOAD	W6SH5SLA	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	COSLIDE SWPNL
ELEYL	LIGHT-BELT 0 EXTEND TO LOAD	W6SH5SLC	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	COSLIDE SWPNL
ELEYLA	LIGHT-BELT 0 EXTEND TO UNLOAD REMOTE	W6SH5SL	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	REMOTE SWPNL
ELEYLA	LIGHT-BELT 0 EXTEND TO UNLOAD REMOTE	W6SH5SLC	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	REMOTE SWPNL
ELL	LIGHT-SHUTTLE IS LOADED	W6SH5SLC	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	COSLIDE SWPNL
ELL	LIGHT-SHUTTLE IS LOADED	W6SH5SLM	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	COSLIDE SWPNL
ELM	LIGHT-MANUAL OPERATION	W6SH5SMC	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	CONTROL BOX
ELM	LIGHT-MANUAL OPERATION	W6SH5SMCC	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	CONTROL BOX
ELM	LIGHT-MANUAL OPERATION	W6SH5SMEC	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	CONTROL BOX
ELM	LIGHT-MANUAL OPERATION	W6SH5SMFC	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	CONTROL BOX
ELM	LIGHT-MANUAL OPERATION	W6SH5SMH	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	CONTROL BOX
ELM	LIGHT-MANUAL OPERATION	W6SH5SMJ	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	CONTROL BOX
ELM	LIGHT-MANUAL OPERATION	W6SH5SMK	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	CONTROL BOX
ELM	LIGHT-MANUAL OPERATION	W6SH5SML	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	CONTROL BOX
ELM	LIGHT-MANUAL OPERATION	W6SH5SMN	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	CONTROL BOX
ELRTL	LIGHT-FULLY RETRACTED FROM LD & UNLD	W6SH5SBM	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	COSLIDE SWPNL
ELRTL	LIGHT-FULLY RETRACTED FROM LD & UNLD	W6SH5SBN	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	COSLIDE SWPNL

COMPONENT PARTS LIST

COMPONENT NUMBER	FUNCTION OF THIS COMPONENT	WHERE TO FIND THIS COMPONENT	MIL NOR P/N	DESCRIPTION	LOCATION
ELRTL	LIGHT-FULLY RETRACTED FROM LD & UNLD	W6SH5SBP	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	COSLIDE SWPNL
ELRTL	LIGHT-FULLY RETRACTED FROM LD & UNLD	W6SH5SLC	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	COSLIDE SWPNL
ELRTL	LIGHT-FULLY RETRACTED FROM LD & UNLD	W6SH5SLD1	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	COSLIDE SWPNL
ELRTL	LIGHT-FULLY RETRACTED FROM LD & UNLD	W6SH5SLF	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	COSLIDE SWPNL
ELRTLA	LIGHT-FULLY RETRACTED FROM LD & UNLD	W6SH5SBN	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	REMOTE SWPNL
ELSG	LIGHT-SIGNAL VISUAL	W6SH5SS+	09J060WH37	LAMP 1/2" WH 120 TAB IDI1050QC4	PROCESSOR BX
ELSG	LIGHT-SIGNAL VISUAL	W6SH5SS+A	09J060WH37	LAMP 1/2" WH 120 TAB IDI1050QC4	PROCESSOR BX
ELSG	LIGHT-SIGNAL VISUAL	W6SH5SS+D	09J060WH37	LAMP 1/2" WH 120 TAB IDI1050QC4	PROCESSOR BX
ELSGF	LIGHT-ROTATION SIGNAL BEACON	W6SH5SMC	09H025V37	BEACON ROT.120V 5.5"DIA AMB #MV110	CONTROL BOX
ELSGF	LIGHT-ROTATION SIGNAL BEACON	W6SH5SMCC	09H025V37	BEACON ROT.120V 5.5"DIA AMB #MV110	CONTROL BOX
ELSGF	LIGHT-ROTATION SIGNAL BEACON	W6SH5SMEC	09H025V37	BEACON ROT.120V 5.5"DIA AMB #MV110	CONTROL BOX
ELSGF	LIGHT-ROTATION SIGNAL BEACON	W6SH5SMFC	09H025V37	BEACON ROT.120V 5.5"DIA AMB #MV110	CONTROL BOX
ELSGF	LIGHT-ROTATION SIGNAL BEACON	W6SH5SMH	09H025V37	BEACON ROT.120V 5.5"DIA AMB #MV110	CONTROL BOX
ELSGF	LIGHT-ROTATION SIGNAL BEACON	W6SH5SMJ	09H025V37	BEACON ROT.120V 5.5"DIA AMB #MV110	CONTROL BOX
ELSGF	LIGHT-ROTATION SIGNAL BEACON	W6SH5SMK	09H025V37	BEACON ROT.120V 5.5"DIA AMB #MV110	CONTROL BOX
ELSGF	LIGHT-ROTATION SIGNAL BEACON	W6SH5SML	09H025V37	BEACON ROT.120V 5.5"DIA AMB #MV110	CONTROL BOX
ELSGF	LIGHT-ROTATION SIGNAL BEACON	W6SH5SMN	09H025V37	BEACON ROT.120V 5.5"DIA AMB #MV110	CONTROL BOX
ELSL	LIGHT-LED BEACON SIGNAL LEFT	W6SH5SFS	09H025V12R	BEACON ROTARY RED LED 12VDC	SIDE OF SHUTTLE
ELSGR	LIGHT-LED BEACON SIGNAL RIGHT	W6SH5SFS	09H025V12R	BEACON ROTARY RED LED 12VDC	SIDE OF SHUTTLE
ELSL	LIGHT-EMERGENCY STOP ILLUMINATED	W6SH5SS+	09N507E	ESTOP SWITCH HEAD RED CLEAR NEEDS 09J	SIDE OF SHUTTLE
ELSL	LIGHT-EMERGENCY STOP ILLUMINATED	W6SH5SS+A	09N507E	ESTOP SWITCH HEAD RED CLEAR NEEDS 09J	SIDE OF SHUTTLE
ELSL	LIGHT-EMERGENCY STOP ILLUMINATED	W6SH5SS+D	09N507E	ESTOP SWITCH HEAD RED CLEAR NEEDS 09J	SIDE OF SHUTTLE
ELSR	LIGHT-EMERGENCY STOP ILLUMINATED	W6SH5SS+	09N507E	ESTOP SWITCH HEAD RED CLEAR NEEDS 09J	SIDE OF SHUTTLE
ELSR	LIGHT-EMERGENCY STOP ILLUMINATED	W6SH5SS+A	09N507E	ESTOP SWITCH HEAD RED CLEAR NEEDS 09J	SIDE OF SHUTTLE
ELSR	LIGHT-EMERGENCY STOP ILLUMINATED	W6SH5SS+D	09N507E	ESTOP SWITCH HEAD RED CLEAR NEEDS 09J	SIDE OF SHUTTLE
ELSRO	LIGHT-EMERGENCY STOP ILLUMINATED	W6SH5SS+	09N507E	ESTOP SWITCH HEAD RED CLEAR NEEDS 09J	SIDE OF SHUTTLE
ELSRO	LIGHT-EMERGENCY STOP ILLUMINATED	W6SH5SS+A	09N507E	ESTOP SWITCH HEAD RED CLEAR NEEDS 09J	SIDE OF SHUTTLE
ELSRO	LIGHT-EMERGENCY STOP ILLUMINATED	W6SH5SS+D	09N507E	ESTOP SWITCH HEAD RED CLEAR NEEDS 09J	SIDE OF SHUTTLE
ELT	LIGHT-TAUT CHAIN	W6SH5SS+	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	CONTROL BOX
ELT	LIGHT-TAUT CHAIN	W6SH5SS+A	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	CONTROL BOX
ELT	LIGHT-TAUT CHAIN	W6SH5SS+D	09J060A37	LAMP 1/2" AMB 125V IDI 1050QC3	CONTROL BOX
EM	>>ELECTROMAGNET AND SOLENOID				
EMCF	FAN-INVERTER COOLING	W6SH5SVS	13AF100A37	FAN 92CFM115V60 NEWARK #90F6921	VARI SPD BOX

COMPONENT PARTS LIST

W6SH5SPL/2025256N

<u>COMPONENT NUMBER</u>	<u>FUNCTION OF THIS COMPONENT</u>	<u>WHERE TO FIND THIS COMPONENT</u>	<u>MIL NOR P/N</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>
EMS	>>EMERGENCY STOP				
EMSL	SWITCH+EMERGENCY STOP (LEFT SIDE)	W6SH5SS+	09N505	SW ASSY EMER STOP	SIDE OF SHUTTLE
EMSL	SWITCH+EMERGENCY STOP (LEFT SIDE)	W6SH5SS+	09N507F	ESTOP CONTACT BLOCK WITH 120VAC LIGHT SIDE OF SHUTTLE	SIDE OF SHUTTLE
EMSL	SWITCH+EMERGENCY STOP (LEFT SIDE)	W6SH5SS+A	09N505	SW ASSY EMER STOP	SIDE OF SHUTTLE
EMSL	SWITCH+EMERGENCY STOP (LEFT SIDE)	W6SH5SS+A	09N507F	ESTOP CONTACT BLOCK WITH 120VAC LIGHT SIDE OF SHUTTLE	SIDE OF SHUTTLE
EMSL	SWITCH+EMERGENCY STOP (LEFT SIDE)	W6SH5SS+D	09N505	SW ASSY EMER STOP	SIDE OF SHUTTLE
EMSL	SWITCH+EMERGENCY STOP (LEFT SIDE)	W6SH5SS+D	09N507F	ESTOP CONTACT BLOCK WITH 120VAC LIGHT SIDE OF SHUTTLE	SIDE OF SHUTTLE
EMSR	SWITCH+EMERGENCY STOP (RIGHT SIDE)	W6SH5SS+	09N505	SW ASSY EMER STOP	SIDE OF SHUTTLE
EMSR	SWITCH+EMERGENCY STOP (RIGHT SIDE)	W6SH5SS+	09N507F	ESTOP CONTACT BLOCK WITH 120VAC LIGHT SIDE OF SHUTTLE	SIDE OF SHUTTLE
EMSR	SWITCH+EMERGENCY STOP (RIGHT SIDE)	W6SH5SS+A	09N505	SW ASSY EMER STOP	SIDE OF SHUTTLE
EMSR	SWITCH+EMERGENCY STOP (RIGHT SIDE)	W6SH5SS+A	09N507F	ESTOP CONTACT BLOCK WITH 120VAC LIGHT SIDE OF SHUTTLE	SIDE OF SHUTTLE
EMSR	SWITCH+EMERGENCY STOP (RIGHT SIDE)	W6SH5SS+D	09N505	SW ASSY EMER STOP	SIDE OF SHUTTLE
EMSR	SWITCH+EMERGENCY STOP (RIGHT SIDE)	W6SH5SS+D	09N507F	ESTOP CONTACT BLOCK WITH 120VAC LIGHT SIDE OF SHUTTLE	SIDE OF SHUTTLE
EMSR0	SWITCH+EMERGENCY STOP	W6SH5SS+	09N505	SW ASSY EMER STOP	CONTROL BOX
EMSR0	SWITCH+EMERGENCY STOP	W6SH5SS+	09N507F	ESTOP CONTACT BLOCK WITH 120VAC LIGHT CONTROL BOX	CONTROL BOX
EMSR0	SWITCH+EMERGENCY STOP	W6SH5SS+A	09N505	SW ASSY EMER STOP	CONTROL BOX
EMSR0	SWITCH+EMERGENCY STOP	W6SH5SS+A	09N507F	ESTOP CONTACT BLOCK WITH 120VAC LIGHT CONTROL BOX	CONTROL BOX
EMSR0	SWITCH+EMERGENCY STOP	W6SH5SS+D	09N505	SW ASSY EMER STOP	CONTROL BOX
EMSR0	SWITCH+EMERGENCY STOP	W6SH5SS+D	09N507F	ESTOP CONTACT BLOCK WITH 120VAC LIGHT CONTROL BOX	CONTROL BOX
ES	>>POWER SUPPLY-ELECTRONIC				
ESPS1	POWER SUPPLY-120V TO +12,-12,+5V PROC	W6SH5SBD	08PSS3401T	40 WATT POWER SUPPLY TESTED	PROCESSOR BX
ESPS2	POWER SUPPLY-120V TO +12,-12,+5V CNTL	W6SH5SBD	08PSS3401T	40 WATT POWER SUPPLY TESTED	CONTROL BOX
ESPS3	POWER SUPPLY-24VDC	W6SH5SBD	08PSL1B224	PWR SUP 100-240VAC TO 24VDC	CONTROL BOX
ET	>>THERMAL OVERLOAD DEVICES				
ETB0	OVERLOAD-BELT 0 MOTOR	W6SH5SMTR	09FTC0010T	OL RELAY 1.0-2.9A AB#193-A3D1	CONTROL BOX
ETB1	OVERLOAD-BELT 1 MOTOR	W6SH5SMTR	09FTC0010T	OL RELAY 1.0-2.9A AB#193-A3D1	CONTROL BOX
ETB2	OVERLOAD-BELT 2 MOTOR	W6SH5SMTR	09FTC0010T	OL RELAY 1.0-2.9A AB#193-A3D1	CONTROL BOX
ETB3	OVERLOAD-BELT 3 MOTOR	W6SH5SMTR	09FTC0010T	OL RELAY 1.0-2.9A AB#193-A3D1	CONTROL BOX
ETDB	OVERLOAD-DYNAMIC BRAKE	W6SH5SMTRA	09F024A	OL RELAY 1P SZ1 SQD #9065-C01	CONTROL BOX
ETDB	OVERLOAD-DYNAMIC BRAKE(COSHR)	W6SH5SMTRA	09F024A	OL RELAY 1P SZ1 SQD #9065-C01	VARI SPD BOX
ETDB	OVERLOAD-DYNAMIC BRAKE	W6SH5SVS	09F024A	OL RELAY 1P SZ1 SQD #9065-C01	VARI SPD BOX
EX	>>TRANSFORMERS				
EX37	TRANSFORMER-INCOMING VOLT.120VAC	W6SH5SP	MESSAGE EW	SEE EX37-1, -2, OR -3 FOR VOLTAGE	CONTROL BOX

COMPONENT PARTS LIST

<u>COMPONENT NUMBER</u>	<u>FUNCTION OF THIS COMPONENT</u>	<u>WHERE TO FIND THIS COMPONENT</u>	<u>MIL NOR PIN</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>
EX37-1	TRANSFORMER-208/240>120VAC	W6SH5SP	09U249AA37	XFMR 200-240V PRI/120VSEC/250VA	CONTROL BOX
EX37-2	TRANSFORMER-380/480>120VAC	W6SH5SP	09U200AAB	XFMR 380-480V/240-120V-250VA	CONTROL BOX
EX37-3	TRANSFORMER-600>120VAC	W6SH5SP	09U251AB37	XFMR 600V PRI/120VSC-250VA-3%REG	CONTROL BOX
EX83A	TRANSFORMER-380>428VAC	W6SH5SMT3	09US030B96	XFMR 3PH 3KVA 480 TO 240V	CONTROL BOX
EX83B	TRANSFORMER-380>428VAC	W6SH5SMT3	09US030B96	XFMR 3PH 3KVA 480 TO 240V	CONTROL BOX
EX84A	TRANSFORMER-400>448VAC	W6SH5SMT4	09US030B96	XFMR 3PH 3KVA 480 TO 240V	CONTROL BOX
EX84B	TRANSFORMER-400>448VAC	W6SH5SMT4	09US030B96	XFMR 3PH 3KVA 480 TO 240V	CONTROL BOX
EX88A	TRANSFORMER-415>439VAC	W6SH5SMT5	09US030B96	XFMR 3PH 3KVA 480 TO 240V	CONTROL BOX
EX88B	TRANSFORMER-415>439VAC	W6SH5SMT5	09US030B96	XFMR 3PH 3KVA 480 TO 240V	CONTROL BOX
EX96A	TRANSFORMER-BUCK 600V TO 480 #1	W6SH5SMT6	09US030A96	XFMR 1PH 3KVA 240/480X120/240	SIDE OF SHUTTLE
EX96B	TRANSFORMER-BUCK 600V TO 480 #2	W6SH5SMT6	09US030A96	XFMR 1PH 3KVA 240/480X120/240	SIDE OF SHUTTLE
EXH	TRANSFORMER-208>240VAC	W6SH5SHSA	09UB25AU71	AUTOXFMR 208V/230V 250VA UL/CSA	CONTROL BOX
FIL/INV	>>BELT INVERTER AND FILTERS				
FILB1	FILTER-INCOMING POWER	W6SH5SMTRA	09MVFLTR1	INCOME POWER FILTER CAP	CONTROL BOX
FILBO	FILTER-INCOMING POWER	W6SH5SMTRA	09MVFLTR1	INCOME POWER FILTER CAP	CONTROL BOX
INVB-LOW VOLT	INVERTER-BELT 1	W6SH5SMTRA	09MMWD01174	GA500 INVERTER 11 AMP 230V	CONTROL BOX
INVB-LOW VOLT	INVERTER-BELT 1	W6SH5SMTRA	09MMWB01174	V1000 INVERTER 11AMP 230V	CONTROL BOX
INVB-HIGH VOLT	INVERTER-BELT 1	W6SH5SMTRA	09MMWD00596	GA500 INVERTER 5.6 AMP 460V	CONTROL BOX
INVB-HIGH VOLT	INVERTER-BELT 1	W6SH5SMTRA	09MMWB00596	V1000 INVERTER 5.5AMP 460V	CONTROL BOX
INVB-LOW VOLT	INVERTER-BELT 0	W6SH5SMTRA	09MMWD01174	GA500 INVERTER 11 AMP 230V	CONTROL BOX
INVB-LOW VOLT	INVERTER-BELT 0	W6SH5SMTRA	09MMWB01174	V1000 INVERTER 11AMP 230V	CONTROL BOX
INVB-HIGH VOLT	INVERTER-BELT 0	W6SH5SMTRA	09MMWD00596	GA500 INVERTER 5.6 AMP 460V	CONTROL BOX
INVB-HIGH VOLT	INVERTER-BELT 0	W6SH5SMTRA	09MMWB00596	V1000 INVERTER 5.5AMP 460V	CONTROL BOX
INVD BR	RESISTORS-DYNAMIC BRAKING BELTS	W6SH5SMTRA	09MV100RES	RESIST 100 OHM 225WATT ADJ	CONTROL BOX
KB	>>KEYBOARD-ELECTRONIC				
KBM	KEYPAD-MICROPROCESSOR	W6SH5SK+D	08ND0206N	KEYPAD-DOME-2X6 MATRIX NUME.	PROCESSOR BX
LA	>>LASER				
LA1	LASER <MAY, 2025	W6SH5SLR	09RLE0001	LASER-LONG RANGE TIME-OF-FLIGHT LASER END OF BELT	
LA1	LASER >MAY, 2025	W6SH5SLR	09RLE0005T	200 METER LASER DISTANCE SENSOR RS422END OF BELT	
MV	INVERTER-UP DOWN	W6SH5SVS	MESSAGE EW	SEE MV-1 OR MV-2 FOR CORRECT VOLTAGE	VARI SPD BOX
MV	>>MOTOR POWER INVERTERS				
MVDBR	RESISTOR-DYNAMIC BRAKE	W6SH5SITB	09MV100RES	RESIST 100 OHM 225WATT ADJ	VARI SPD BOX
MVDBR	RESISTOR-DYNAMIC BRAKE	W6SH5SVS	09MV100RES	RESIST 100 OHM 225WATT ADJ	VARI SPD BOX

COMPONENT PARTS LIST

<u>COMPONENT</u>	<u>FUNCTION OF</u>	<u>WHERE TO FIND</u>	<u>MIL NOR P/N</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>
<u>NUMBER</u>	<u>THIS COMPONENT</u>	<u>THIS COMPONENT</u>			
MV-HIGH VOLT	INVERTER-380-460V SUPPLY	W6SH5SVS	09MMW/D00596	GA500 INVERTER 5.6 AMP 460V	VARI SPD BOX
MV-HIGH VOLT	INVERTER-380-460V SUPPLY	W6SH5SVS	09MMW/B00596	V1000 INVERTER 5.5AMP 460V	VARI SPD BOX
MV-LOW VOLT	INVERTER-200-230V SUPPLY	W6SH5SVS	09MMW/D01174	GA500 INVERTER 11 AMP 230V	VARI SPD BOX
MV-LOW VOLT	INVERTER-200-230V SUPPLY	W6SH5SVS	09MMW/B01174	V1000 INVERTER 11AMP 230V	VARI SPD BOX
MX	>>3-PHASE REACTORS				
MXB0	REACTOR-BELT 0	W6SH5SMTRA	09MX050A96	REACTOR-5HP 460V 8A	CONTROL BOX
MXB1	REACTOR-BELT 1	W6SH5SMTRA	09MX050A96	REACTOR-5HP 460V 8A	CONTROL BOX
PL	>>POWER SUPPLY				
PLFL	POWER SUPPLY-FLASHING LIGHT	W6SH5SFS	08PSS3401T	40 WATT POWER SUPPLY TESTED	CONTROL BOX
PX	>>PROXIMITY SWITCH				
PXA	PROX SW- SAFETY BED LOCK RETRACTED	W6SH5SLA	09RPS18AAU	PRXSW QK CONN 18M NO-AC UNSHLD	LOAD END FRAME
PXB	PROX SW- SAFETY BED LOCK RETRACTED	W6SH5SLA	09RPS18AAU	PRXSW QK CONN 18M NO-AC UNSHLD	LOAD END FRAME
PXD1	PROX SW-DISCHARGE STATION 1	W6SH5I2A	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	TOP OF SHUTTLE
PXD1A	PROX SW-DISCHARGE STATION SW 1	W6SH5I3	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	TOP OF SHUTTLE
PXDO	PROX SW-DISCHARGE STATION 0	W6SH5I2A	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	TOP OF SHUTTLE
PXDOA	PROX SW-DISCHARGE STATION SW 0	W6SH5I3	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	TOP OF SHUTTLE
PXERD	PROX SW-DISCHARGE POSITION	W6SH5SPEI	09RPM18ADU	PRXSW QD CONN 18M NO-DC UNSHLD	SIDE OF BELT
PXERD	PROX SW-DISCHARGE POSITION	W6SH5SPEIA	09RPM18ADU	PRXSW QD CONN 18M NO-DC UNSHLD	SIDE OF BELT
PXERH	PROX SW-HOME POSITION	W6SH5SPEI	09RPM18ADU	PRXSW QD CONN 18M NO-DC UNSHLD	AT TOP
PXERH	PROX SW-HOME POSITION	W6SH5SPEIA	09RPM18ADU	PRXSW QD CONN 18M NO-DC UNSHLD	AT TOP
PXEXL	PROX SW-FULLY EXTENDED TO UNLOAD	W6SH5SL	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF BELT
PXEXL	PROX SW-FULLY EXTENDED TO UNLOAD	W6SH5SLA	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF BELT
PXEXL	PROX SW-FULLY EXTENDED TO UNLOAD	W6SH5SLD1	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF BELT
PXEXL	PROX SW-FULLY EXTENDED TO UNLOAD	W6SH5SLF	09RPS18AAU	PRXSW QK CONN 18M NO-AC UNSHLD	SIDE OF BELT
PXEXL	PROX SW-FULLY EXTENDED TO UNLOAD	W6SH5SLG	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF BELT
PXEXL2	PROX SW -EXTENDED TO UNLOAD BELT 1	W6SH5SLD1	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF BELT
PXEYL	PROX SW-FULLY EXTENDED TO LOAD	W6SH5SL	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF BELT
PXEYL	PROX SW-FULLY EXTENDED TO LOAD	W6SH5SLA	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF BELT
PXEYL	PROX SW-FULLY EXTENDED TO LOAD	W6SH5SLC	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF BELT
PXFE	PROX SW-HI SPD BELT EXTENDED	W6SH5SLF	09RPS18AAU	PRXSW QK CONN 18M NO-AC UNSHLD	SIDE OF BELT
PXFR	PROX SW-HI SPD BELT RETRACTED	W6SH5SLF	09RPS18AAU	PRXSW QK CONN 18M NO-AC UNSHLD	SIDE OF BELT
PXH0	PROX SW-HOME STATION 0	W6SH5I1	09RPM18ADU	PRXSW QD CONN 18M NO-DC UNSHLD	TOP OF SHUTTLE
PXH0	PROX SW-HOME STATION 0	W6SH5I1A	09RPM18ADU	PRXSW QD CONN 18M NO-DC UNSHLD	TOP OF SHUTTLE

COMPONENT PARTS LIST

<u>COMPONENT NUMBER</u>	<u>FUNCTION OF THIS COMPONENT</u>	<u>WHERE TO FIND THIS COMPONENT</u>	<u>MIL NOR P/N</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>
PXH0	PROX SW-HOME STATION 0	W6SH5SI1B	09RPM18ADU	PRXSW QD CONN 18M NO-DC UNSHLD	TOP OF SHUTTLE
PXH1	PROX SW-HOME STATION 1	W6SH5SI1	09RPM18ADU	PRXSW QD CONN 18M NO-DC UNSHLD	TOP OF SHUTTLE
PXH1	PROX SW-HOME STATION 1	W6SH5SI1A	09RPM18ADU	PRXSW QD CONN 18M NO-DC UNSHLD	TOP OF SHUTTLE
PXH1	PROX SW-HOME STATION 1	W6SH5SI1B	09RPM18ADU	PRXSW QD CONN 18M NO-DC UNSHLD	TOP OF SHUTTLE
PXL0	PROX SW-LOAD STATION 0	W6SH5SI2A	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	TOP OF SHUTTLE
PXL1	PROX SW-LOAD STATION 1	W6SH5SI2A	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	TOP OF SHUTTLE
PXLP0	PROX SW-LOAD POSITION 0	W6SH5SI1	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF BELT
PXLP0	PROX SW-LOAD POSITION 0	W6SH5SI1A	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF BELT
PXLP0	PROX SW-LOAD POSITION 0	W6SH5SI1B	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF BELT
PXLP1	PROX SW-LOAD POSITION 1	W6SH5SI1	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF BELT
PXLP1	PROX SW-LOAD POSITION 1	W6SH5SI1A	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF BELT
PXLP1	PROX SW-LOAD POSITION 1	W6SH5SI1B	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF BELT
PXLP1	PROX SW-LOAD POSITION 1 (2 WIDE)	W6SH5SI3	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF BELT
PXLP2	PROX SW-LOAD POSITION 2	W6SH5SI2A	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF BELT
PXLP2	PROX SW-LOAD POSITON 2 (2 WIDE)	W6SH5SI3	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF BELT
PXLP3	PROX SW-LOAD POSITION 3	W6SH5SI2A	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF BELT
PXMP0	PROX SW-UNLOAD POSITION 0	W6SH5SI3	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF BELT
PXMP1	PROX SW-LOAD STATION SW #1	W6SH5SI3	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	TOP OF SHUTTLE
PXMP2	PROX SW-LOAD STATION SW #2	W6SH5SI3	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	TOP OF SHUTTLE
PXPTP	PROX SW-PIVOT DISCHARGE LEVEL	W6SH5SPEI	09RPM18ADU	PRXSW QD CONN 18M NO-DC UNSHLD	FLOOR
PXPTP	PROX SW-PIVOT DISCHARGE LEVEL	W6SH5SPEIA	09RPM18ADU	PRXSW QD CONN 18M NO-DC UNSHLD	AT TOP
PXRTL	PROX SW-RETRACT FROM LOAD & UNLOAD	W6SH5SBM	09RPS18CAU	PRXSW QK CONN 18M NO-AC UNSHLD	SIDE OF BELT
PXRTL	PROX SW-RETRACT FROM LOAD & UNLOAD	W6SH5SBN	09RPS18CAU	PRXSW QK CONN 18M NO-AC UNSHLD	SIDE OF BELT
PXRTL	PROX SW-RETRACT FROM LOAD & UNLOAD	W6SH5SBP	09RPS18CAU	PRXSW QK CONN 18M NO-AC UNSHLD	SIDE OF BELT
PXRTL	PROX SW-RETRACT FROM LOAD & UNLOAD	W6SH5SLC	09RPS18CAU	PRXSW QK CONN 18M NO-AC UNSHLD	SIDE OF BELT
PXRTL	PROX SW-RETRACT FROM LOAD & UNLOAD	W6SH5SLD1	09RPS18CAU	PRXSW QK CONN 18M NO-AC UNSHLD	SIDE OF BELT
PXRTL2	PROX SW-RETRACT FROM LD & UNLD BLT 2	W6SH5SLD1	09RPS18CAU	PRXSW QK CONN 18M NO-AC UNSHLD	SIDE OF BELT
PXSD	PROX SW-SLOW DOWN	W6SH5SIP	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	TOP OF SHUTTLE
PXSD	PROX SW-SLOW DOWN	W6SH5SIPA	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	TOP OF SHUTTLE
PXSD	PROX SW-SLOW DOWN	W6SH5SIT	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	TOP OF SHUTTLE
PXSD	PROX SW-SLOW DOWN	W6SH5SITA	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	TOP OF SHUTTLE
PXSD	PROX SW-SLOW TRAVERSE SPEED	W6SH5SITB	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	TOP OF SHUTTLE
PXSDH	PROX SW-SLOW UP/DOWN SPEED	W6SH5SIG	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF SHUTTLE

COMPONENT PARTS LIST

<u>COMPONENT</u>	<u>FUNCTION OF</u>	<u>WHERE TO FIND</u>	<u>MIL NOR P/N</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>
<u>NUMBER</u>	<u>THIS COMPONENT</u>	<u>THIS COMPONENT</u>			
PXSDH	PROX SW-SLOW UP/DOWN SPEED	W6SH5S1GA	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF SHUTTLE
PXSDH	PROX SW-SLOW UP/DOWN SPEED	W6SH5S1H	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF SHUTTLE
PXSDH	PROX SW-SLOW UP/DOWN SPEED	W6SH5S1HA	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF SHUTTLE
PXSDL	PROX SW-DOWN LIMIT	W6SH5S11B	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF SHUTTLE
PXSL1	PROX SW-POS. 1 SHUTTLE FRONT OF ELEV.	W6SH5S1EI	09RPM18ADU	PRXSW QD CONN 18M NO-DC UNSHLD	FLOOR
PXSL1	PROX SW-POS. 1 SHUTTLE FRONT OF ELEV.	W6SH5S1EIA	09RPM18ADU	PRXSW QD CONN 18M NO-DC UNSHLD	FLOOR
PXSL2	PROX SW-POS. 2 SHUTTLE FRONT OF ELEV.	W6SH5S1EI	09RPM18ADU	PRXSW QD CONN 18M NO-DC UNSHLD	FLOOR
PXSL2	PROX SW-POS. 2 SHUTTLE FRONT OF ELEV.	W6SH5S1EIA	09RPM18ADU	PRXSW QD CONN 18M NO-DC UNSHLD	FLOOR
PXSL3	PROX SW-POS. 3 SHUTTLE FRONT OF ELEV.	W6SH5S1EI	09RPM18ADU	PRXSW QD CONN 18M NO-DC UNSHLD	FLOOR
PXSL3	PROX SW-POS. 3 SHUTTLE FRONT OF ELEV.	W6SH5S1EIA	09RPM18ADU	PRXSW QD CONN 18M NO-DC UNSHLD	FLOOR
PXSL4	PROX SW-POS. 4 SHUTTLE FRONT OF ELEV.	W6SH5S1EI	09RPM18ADU	PRXSW QD CONN 18M NO-DC UNSHLD	FLOOR
PXSL4	PROX SW-POS. 4 SHUTTLE FRONT OF ELEV.	W6SH5S1EIA	09RPM18ADU	PRXSW QD CONN 18M NO-DC UNSHLD	FLOOR
PXSL5	PROX SW. SHUTTLE CLOSE TO ELEVATOR	W6SH5S1EIA	09RPM18ADU	PRXSW QD CONN 18M NO-DC UNSHLD	FLOOR
PXSP	PROX SW-SHUTTLE RAIL POSITION	W6SH5S12A	09EPM30ADU	PRXSW QC CONN 30M NO-DC UNSHLD	SIDE OF SHUTTLE
PXTC	PROX SW-TAUT CHAIN	W6SH5S1+A	09RPS40AAS	PROXSW 40M NO/NC-AC-RECT	TOP OF SHUTTLE
PXTC	PROX SW-TAUT CHAIN	W6SH5S1+D	09RPS40AAS	PROXSW 40M NO/NC-AC-RECT	TOP OF SHUTTLE
PXTRL	PROX SW-FULLY RETRACTED	W6SH5SLF	09RPS18AAU	PRXSW QK CONN 18M NO-AC UNSHLD	SIDE OF BELT
PXUP0	PROX SW-UNLOAD POSITION 0	W6SH5S11	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF SHUTTLE
PXUP0	PROX SW-UNLOAD POSITION 0	W6SH5S1IA	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF SHUTTLE
PXUP0	PROX SW-UNLOAD POSITION 0	W6SH5S11B	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF SHUTTLE
PXUP1	PROX SW-UNLOAD POSITION 1	W6SH5S11	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF SHUTTLE
PXUP1	PROX SW-UNLOAD POSITION 1	W6SH5S1IA	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF SHUTTLE
PXUP1	PROX SW-UNLOAD POSITION 1	W6SH5S11B	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF SHUTTLE
PXUP2	PROX SW-UNLOAD POSITION 2	W6SH5S11	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF SHUTTLE
PXUP2	PROX SW-UNLOAD POSITION 2	W6SH5S1IA	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF SHUTTLE
PXUP2	PROX SW-UNLOAD POSITION 2	W6SH5S11B	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF SHUTTLE
PXUP3	PROX SW-UNLOAD POSITION 3	W6SH5S12A	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF SHUTTLE
PXUP3	PROX SW-UNLOAD POSITON #2 (2 WIDE)	W6SH5S13	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF SHUTTLE
PXVP0	PROX SW-UNLOAD POSITON 0	W6SH5S13	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF SHUTTLE
PXVP1	PROX SW-UNLOAD POSITON 1	W6SH5S13	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	SIDE OF SHUTTLE
PXX	PROX SW-UNLOAD POSITON 1	W6SH5S11	09RPM18ADU	PRXSW QD CONN 18M NO-DC UNSHLD	END OF RAIL
PXX	PROX SW-UNLOAD POSITON 1	W6SH5S1IA	09RPM18ADU	PRXSW QD CONN 18M NO-DC UNSHLD	END OF RAIL
PXX	PROX SW-UNLOAD POSITON 1	W6SH5S11B	09RPM18ADU	PRXSW QD CONN 18M NO-DC UNSHLD	END OF RAIL

COMPONENT PARTS LIST

<u>COMPONENT</u>	<u>FUNCTION OF</u>	<u>WHERE TO FIND</u>	<u>MIL NOR P/N</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>
<u>NUMBER</u>	<u>THIS COMPONENT</u>	<u>THIS COMPONENT</u>			
PXZL	PROX SW-LOW POSITION	W6SH5STB	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	TOP OF SHUTTLE
PXZM	PROX SW-LOW POSITION	W6SH5STB	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD	TOP OF SHUTTLE
RS	>>RESISTOR				
RS01	RESISTOR-5V LOADING	W6SH5SBD	ECEUV8R	LOAD RESISTOR ASSY MILTOUCH	CONTROL BOX
SH	>>SWITCH-HAND OPERATED				
SHB0	SWITCH-BELT 0 FORWARD/REVERSE	W6SH5SMC	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHB0	SWITCH-BELT 0 FORWARD/REVERSE	W6SH5SMCC	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHB0	SWITCH-BELT 0 FORWARD/REVERSE	W6SH5SMCC	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHB0	SWITCH-BELT 0 FORWARD/REVERSE	W6SH5SMFC	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHB0	SWITCH-BELT 0 FORWARD/REVERSE	W6SH5SMH	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHB0	SWITCH-BELT 0 FORWARD/REVERSE	W6SH5SMJ	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHB0	SWITCH-BELT 0 FORWARD/REVERSE	W6SH5SMK	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHB0	SWITCH-BELT 0 FORWARD/REVERSE	W6SH5SML	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHB0	SWITCH-BELT 0 FORWARD/REVERSE	W6SH5SMM	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHB0	SWITCH-BELT 0 FORWARD/REVERSE	W6SH5SMN	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHB1	SWITCH-BELT 1 FORWARD/REVERSE	W6SH5SMC	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHB1	SWITCH-BELT 1 FORWARD/REVERSE	W6SH5SMCC	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHB1	SWITCH-BELT 1 FORWARD/REVERSE	W6SH5SMFC	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHB1	SWITCH-BELT 1 FORWARD/REVERSE	W6SH5SMH	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHB1	SWITCH-BELT 1 FORWARD/REVERSE	W6SH5SMK	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHB1	SWITCH-BELT 1 FORWARD/REVERSE	W6SH5SML	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHB1	SWITCH-BELT 1 FORWARD/REVERSE	W6SH5SMN	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHB2	SWITCH-BELT 2 FORWARD/REV	W6SH5SMC1	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHB3	SWITCH-BELT 3 FORWARD/REV	W6SH5SMC1	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHE	SWITCH-RETRACT FROM LOAD	W6SH5SLC	09N405PB11	SWASSY PB BK 1NO/1NC	CONTROL BOX
SHE	SWITCH-RETRACT FROM LOAD	W6SH5SLM	09N405PB11	SWASSY PB BK 1NO/1NC	CONTROL BOX
SHER	SWITCH-EXTEND/RETRACT	W6SH5SES	09N405S320	SWASSY S3W 2NO	COSLIDE SWPNL
SHER	SWITCH-EXTEND/RETRACT	W6SH5SLD1	09N405S320	SWASSY S3W 2NO	COSLIDE SWPNL
SHER	SWITCH-EXTEND/RETRACT	W6SH5SLF	09N405S320	SWASSY S3W 2NO	COSLIDE SWPNL
SHER1	SWITCH-EXTEND/RETRACT BELT 1	W6SH5SLD1	09N405S320	SWASSY S3W 2NO	COSLIDE SWPNL
SHFS	SWITCH-FORMULA SELECTOR	W6SH5SX	09N041N	ROTSW 5-POLE 8-POSIT 5A125V	COSLIDE SWPNL
SHL	SWITCH-BELT IS LOADED	W6SH5SLC	09N405PB10	SWASSY PB BK 1NO	COSLIDE SWPNL
SHL	SWITCH-BELT IS LOADED	W6SH5SLM	09N405PB10	SWASSY PB BK 1NO	COSLIDE SWPNL

COMPONENT PARTS LIST

<u>COMPONENT NUMBER</u>	<u>FUNCTION OF THIS COMPONENT</u>	<u>WHERE TO FIND THIS COMPONENT</u>	<u>MIL NOR P/N</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>
SHLR	SWTCH-LEFT/RIGHT	W6SH5SIP	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHLR	SWTCH-LEFT/RIGHT	W6SH5SIPA	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHLR	SWTCH-LEFT/RIGHT	W6SH5SIT	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHLR	SWTCH-LEFT/RIGHT	W6SH5SITA	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHLR	SWTCH-LEFT/RIGHT	W6SH5SITB	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHMD	SWTCH-ENABLE DOWN	W6SH5SIG	09N405PB11	SWASSY PB BK 1NO/1NC	CONTROL BOX
SHMD	SWTCH-ENABLE DOWN	W6SH5SIGA	09N405PB11	SWASSY PB BK 1NO/1NC	CONTROL BOX
SHMD	SWTCH-ENABLE DOWN	W6SH5SIH	09N405PB11	SWASSY PB BK 1NO/1NC	CONTROL BOX
SHMD	SWTCH-ENABLE DOWN	W6SH5SIHA	09N405PB11	SWASSY PB BK 1NO/1NC	CONTROL BOX
SHMD	SWTCH-ENABLE DOWN	W6SH5SMC	09N405PB11	SWASSY PB BK 1NO/1NC	CONTROL BOX
SHMD	SWTCH-ENABLE DOWN	W6SH5SMCC	09N405PB11	SWASSY PB BK 1NO/1NC	CONTROL BOX
SHMD	SWTCH-ENABLE DOWN	W6SH5SMEC	09N405PB11	SWASSY PB BK 1NO/1NC	CONTROL BOX
SHMD	SWTCH-ENABLE DOWN	W6SH5SMFC	09N405PB11	SWASSY PB BK 1NO/1NC	CONTROL BOX
SHMD	SWTCH-ENABLE DOWN	W6SH5SMH	09N405PB11	SWASSY PB BK 1NO/1NC	CONTROL BOX
SHMD	SWTCH-ENABLE DOWN	W6SH5SMJ	09N405PB11	SWASSY PB BK 1NO/1NC	CONTROL BOX
SHMD	SWTCH-ENABLE DOWN	W6SH5SMK	09N405PB11	SWASSY PB BK 1NO/1NC	CONTROL BOX
SHMD	SWTCH-ENABLE DOWN	W6SH5SML	09N405PB11	SWASSY PB BK 1NO/1NC	CONTROL BOX
SHMD	SWTCH-ENABLE DOWN	W6SH5SMN	09N405PB11	SWASSY PB BK 1NO/1NC	CONTROL BOX
SHMD	SWTCH-MOTOR DISCONNECT	W6SH5SMTR	09N042204	DISCON SWITCH 40A 600V 2POS 4P	CONTROL BOX
SHMO	SWTCH-AUTOMATIC/MANUAL	W6SH5SI1	09N405M212	SW ASSY M2W 1NO+2NC	CONTROL BOX
SHMO	SWTCH-AUTOMATIC/MANUAL	W6SH5SI1A	09N405M212	SW ASSY M2W 1NO+2NC	CONTROL BOX
SHMO	SWTCH-AUTOMATIC/MANUAL	W6SH5SI1B	09N405M212	SW ASSY M2W 1NO+2NC	CONTROL BOX
SHMO	SWTCH-AUTOMATIC/MANUAL	W6SH5SIG	09N405M212	SW ASSY M2W 1NO+2NC	CONTROL BOX
SHMO	SWTCH-AUTOMATIC/MANUAL	W6SH5SIGA	09N405M212	SW ASSY M2W 1NO+2NC	CONTROL BOX
SHMO	SWTCH-AUTOMATIC/MANUAL	W6SH5SIH	09N405M212	SW ASSY M2W 1NO+2NC	CONTROL BOX
SHMO	SWTCH-AUTOMATIC/MANUAL	W6SH5SIHA	09N405M212	SW ASSY M2W 1NO+2NC	CONTROL BOX
SHMO	SWTCH-AUTOMATIC/MANUAL	W6SH5SIP	09N405M212	SW ASSY M2W 1NO+2NC	CONTROL BOX
SHMO	SWTCH-AUTOMATIC/MANUAL	W6SH5SIPA	09N405M212	SW ASSY M2W 1NO+2NC	CONTROL BOX
SHMO	SWTCH-AUTOMATIC/MANUAL	W6SH5SIT	09N405M212	SW ASSY M2W 1NO+2NC	CONTROL BOX
SHMO	SWTCH-AUTOMATIC/MANUAL	W6SH5SITA	09N405M212	SW ASSY M2W 1NO+2NC	CONTROL BOX
SHMO	SWTCH-AUTOMATIC/MANUAL	W6SH5SITB	09N405M212	SW ASSY M2W 1NO+2NC	CONTROL BOX
SHMO	SWTCH-AUTOMATIC/MANUAL	W6SH5SMC	09N405M212	SW ASSY M2W 1NO+2NC	CONTROL BOX
SHMO	SWTCH-AUTOMATIC/MANUAL	W6SH5SMCC	09N405M212	SW ASSY M2W 1NO+2NC	CONTROL BOX

COMPONENT PARTS LIST

<u>COMPONENT NUMBER</u>	<u>FUNCTION OF THIS COMPONENT</u>	<u>WHERE TO FIND THIS COMPONENT</u>	<u>MIL NOR PIN</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>
SHMO	SWITCH-AUTOMATIC/MANUAL	W6SH5MEC	09N405M212	SW ASSY M2W 1NO+2NC	CONTROL BOX
SHMO	SWITCH-AUTOMATIC/MANUAL	W6SH5MFC	09N405M212	SW ASSY M2W 1NO+2NC	CONTROL BOX
SHMO	SWITCH-AUTOMATIC/MANUAL	W6SH5SMH	09N405M212	SW ASSY M2W 1NO+2NC	CONTROL BOX
SHMO	SWITCH-AUTOMATIC/MANUAL	W6SH5SMJ	09N405M212	SW ASSY M2W 1NO+2NC	CONTROL BOX
SHMO	SWITCH-AUTOMATIC/MANUAL	W6SH5SMK	09N405M212	SW ASSY M2W 1NO+2NC	CONTROL BOX
SHMO	SWITCH-AUTOMATIC/MANUAL	W6SH5SML	09N405M212	SW ASSY M2W 1NO+2NC	CONTROL BOX
SHMO	SWITCH-AUTOMATIC/MANUAL	W6SH5SMN	09N405M212	SW ASSY M2W 1NO+2NC	CONTROL BOX
SHMO	SWITCH-AUTOMATIC/MANUAL	W6SH5SPEA	09N405M212	SW ASSY M2W 1NO+2NC	CONTROL BOX
SHR	SWITCH-EXTEND TO LOAD	W6SH5SLC	09N405PB11	SWASSY PB BK 1NO/1NC	CONTROL BOX
SHR	SWITCH-EXTEND TO LOAD	W6SH5SLM	09N405PB11	SWASSY PB BK 1NO/1NC	CONTROL BOX
SHS+	SWITCH-START	W6SH5SS+	09N405PG10	SWASSY PBGN 1NO	PROCESSOR BOX
SHS+	SWITCH-START	W6SH5SS+A	09N405PG10	SWASSY PBGN 1NO	PROCESSOR BOX
SHS+	SWITCH-START	W6SH5SS+D	09N405PG10	SWASSY PBGN 1NO	PROCESSOR BOX
SHSFR	SWITCH-RANGE SELECT-FORMULA	W6SH5SIX	09N405M210	SWASSY M2W 1NO	COSLIDE SWPNL
SHSG	SWITCH-SIGNAL CANCEL	W6SH5S12A	09N405PY10	SW ASSY PB YELLOW 1NO	PROCESSOR BOX
SHSMA	SWITCH-MASTER	W6SH5SS+	09N405M210	SWASSY M2W 1NO	PROCESSOR BOX
SHSMA	SWITCH-MASTER	W6SH5SS+A	09N405M210	SWASSY M2W 1NO	PROCESSOR BOX
SHSMA	SWITCH-MASTER	W6SH5SS+D	09N405M210	SWASSY M2W 1NO	PROCESSOR BOX
SHSO	SWITCH-STOP	W6SH5SS+	09N405PR01	SW ASSY PBRD 1NC	PROCESSOR BOX
SHSO	SWITCH-STOP	W6SH5SS+A	09N405PR01	SW ASSY PBRD 1NC	PROCESSOR BOX
SHSO	SWITCH-STOP	W6SH5SS+D	09N405PR01	SW ASSY PBRD 1NC	PROCESSOR BOX
SHTL	SWITCH-TEST LAMP	W6SH5SMC	09N405PB11	SWASS PBBK 1NO/1NC	CONTROL BOX
SHTL	SWITCH-TEST LAMP	W6SH5SMC	09N405PB11	SWASS PBBK 1NO/1NC	CONTROL BOX
SHUD	SWITCH-UP/DOWN	W6SH5SIG	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHUD	SWITCH-UP/DOWN	W6SH5SIGA	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHUD	SWITCH-UP/DOWN	W6SH5SIH	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHUD	SWITCH-UP/DOWN	W6SH5SIHA	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHUD	SWITCH-UP/DOWN	W6SH5SMC	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHUD	SWITCH-UP/DOWN	W6SH5SMCC	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHUD	SWITCH-UP/DOWN	W6SH5SMEC	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHUD	SWITCH-UP/DOWN	W6SH5SMFC	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHUD	SWITCH-UP/DOWN	W6SH5SMH	09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHUD	SWITCH-UP/DOWN	W6SH5SMJ	09N405S320	SWASSY S3W 2NO	CONTROL BOX

COMPONENT PARTS LIST

<u>COMPONENT NUMBER</u>	<u>FUNCTION OF THIS COMPONENT</u>	<u>WHERE TO FIND</u>		<u>MIL NOR P/N</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>
		<u>THIS COMPONENT</u>	<u>THIS COMPONENT</u>			
SHUD	SWITCH-UP/DOWN	W6SH5SMK		09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHUD	SWITCH-UP/DOWN	W6SH5SML		09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHUD	SWITCH-UP/DOWN	W6SH5SMN		09N405S320	SWASSY S3W 2NO	CONTROL BOX
SHUD	SWITCH-UP/DOWN	W6SH5SPEA		09N405S320	SWASSY S3W 2NO	CONTROL BOX
SK	>>SWITCH-KEYLOCK					
SKMD	SWITCH-ENABLE DOWN	W6SH5SIG		09N127C	KEYSW SPST 7A120VAC SCREW TERM	CONTROL BOX
SKMD	SWITCH-ENABLE DOWN	W6SH5SIGA		09N127C	KEYSW SPST 7A120VAC SCREW TERM	CONTROL BOX
SKMD	SWITCH-ENABLE DOWN	W6SH5SIH		09N127C	KEYSW SPST 7A120VAC SCREW TERM	CONTROL BOX
SKMD	SWITCH-ENABLE DOWN	W6SH5SIHA		09N127C	KEYSW SPST 7A120VAC SCREW TERM	CONTROL BOX
SKMD	SWITCH-ENABLE DOWN	W6SH5SMC		09N127C	KEYSW SPST 7A120VAC SCREW TERM	CONTROL BOX
SKMD	SWITCH-ENABLE DOWN	W6SH5SMCC		09N127C	KEYSW SPST 7A120VAC SCREW TERM	CONTROL BOX
SKMD	SWITCH-ENABLE DOWN	W6SH5SMEC		09N127C	KEYSW SPST 7A120VAC SCREW TERM	CONTROL BOX
SKMD	SWITCH-ENABLE DOWN	W6SH5SMFC		09N127C	KEYSW SPST 7A120VAC SCREW TERM	CONTROL BOX
SKMD	SWITCH-ENABLE DOWN	W6SH5SMH		09N127C	KEYSW SPST 7A120VAC SCREW TERM	CONTROL BOX
SKMD	SWITCH-ENABLE DOWN	W6SH5SMJ		09N127C	KEYSW SPST 7A120VAC SCREW TERM	CONTROL BOX
SKMD	SWITCH-ENABLE DOWN	W6SH5SMK		09N127C	KEYSW SPST 7A120VAC SCREW TERM	CONTROL BOX
SKMD	SWITCH-ENABLE DOWN	W6SH5SML		09N127C	KEYSW SPST 7A120VAC SCREW TERM	CONTROL BOX
SKMD	SWITCH-ENABLE DOWN	W6SH5SMN		09N127C	KEYSW SPST 7A120VAC SCREW TERM	CONTROL BOX
SKPRO	SWITCH-RUN/PROGRAM	W6SH5SI2A		09N127C	KEYSW SPST 7A120VAC SCREW TERM	PROCESSOR BOX
SM	>>SWITCH-MECHANICAL OPERATED					
SM1	SWITCH-SLOW UP	W6SH5SVS		09RM01406G	CAPSW 6FT ROTARY ACTUATED GOL	SIDE OF SHUTTLE
SM2	SWITCH-SLOW DOWN	W6SH5SVS		09RM01406G	CAPSW 6FT ROTARY ACTUATED GOL	SIDE OF SHUTTLE
SMB1	SWITCH-BUMP BELT 1	W6SH5SLC		09R012	MICSW SPDT PAINTED BZE6-RN 01	SIDE OF BELT
SMB1	SWITCH-BUMP BELT 1	W6SH5SLM		09R012	MICSW SPDT PAINTED BZE6-RN 01	SIDE OF BELT
SMB2	SWITCH-BUMP BELT 2	W6SH5SLC		09R012	MICSW SPDT PAINTED BZE6-RN 01	SIDE OF BELT
SMB2	SWITCH-BUMP BELT 2	W6SH5SLM		09R012	MICSW SPDT PAINTED BZE6-RN 01	SIDE OF BELT
SMKPL	SWITCH KICKPLATE LEFT SIDE	W6SH5SS+		09RM01312S	CAPSW 12' 90DEG ROLLER SILVER	LEFT SIDE, CART
SMKPL	SWITCH KICKPLATE LEFT SIDE	W6SH5SS+A		09RM01312S	CAPSW 12' 90DEG ROLLER SILVER	LEFT SIDE, CART
SMKPL	SWITCH KICKPLATE LEFT SIDE	W6SH5SS+D		09RM01312S	CAPSW 12' 90DEG ROLLER SILVER	LEFT SIDE, CART
SMKPR	SWITCH KICKPLATE RIGHT SIDE	W6SH5SS+		09RM01312S	CAPSW 12' 90DEG ROLLER SILVER	RIGHT SIDE, CART
SMKPR	SWITCH KICKPLATE RIGHT SIDE	W6SH5SS+A		09RM01312S	CAPSW 12' 90DEG ROLLER SILVER	RIGHT SIDE, CART
SMKPR	SWITCH KICKPLATE RIGHT SIDE	W6SH5SS+D		09RM01312S	CAPSW 12' 90DEG ROLLER SILVER	RIGHT SIDE, CART
SMSDL	SWITCH-HOIST DOWN LIMIT	W6SH5SI1		09R012	MICSW SPDT PAINTED BZE6-RN 01	TOP OF SHUTTLE

COMPONENT PARTS LIST

<u>COMPONENT</u>	<u>FUNCTION OF</u>	<u>WHERE TO FIND</u>	<u>MIL NOR P/N</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>
<u>NUMBER</u>	<u>THIS COMPONENT</u>	<u>THIS COMPONENT</u>			
SMSDL	SWITCH-HOIST DOWN LIMIT	W6SH5S1A	09R012	MICSW SPDT PAINTED BZE6-RN 01	TOP OF SHUTTLE
SMSDL	SWITCH-HOIST DOWN LIMIT	W6SH5SS+D	09R012	MICSW SPDT PAINTED BZE6-RN 01	TOP OF SHUTTLE
SMSUL	SWITCH-HOIST UP LIMIT	W6SH5S1I	09R012	MICSW SPDT PAINTED BZE6-RN 01	TOP OF SHUTTLE
SMSUL	SWITCH-HOIST UP LIMIT	W6SH5S1IA	09R012	MICSW SPDT PAINTED BZE6-RN 01	TOP OF SHUTTLE
SMSUL	SWITCH-HOIST UP LIMIT	W6SH5S1IB	09R012	MICSW SPDT PAINTED BZE6-RN 01	TOP OF SHUTTLE
SMTCT1	SWITCH-UP LIMIT	W6SH5SS+	09R012	MICSW SPDT PAINTED BZE6-RN 01	TOP OF SHUTTLE
SMTCT1	SWITCH-UP LIMIT	W6SH5SS+A	09R012	MICSW SPDT PAINTED BZE6-RN 01	TOP OF SHUTTLE
SMTCT1	SWITCH-UP LIMIT	W6SH5SS+D	09R012	MICSW SPDT PAINTED BZE6-RN 01	TOP OF SHUTTLE
SMTCT2	SWITCH-TAUT CHAIN	W6SH5SS+	09R012	MICSW SPDT PAINTED BZE6-RN 01	TOP OF SHUTTLE
SMTCT2	SWITCH-TAUT CHAIN	W6SH5SS+D	09R012	MICSW SPDT PAINTED BZE6-RN 01	TOP OF SHUTTLE
SMTDL	SWITCH-DOWN LIMIT	W6SH5S13	09R012	MICSW SPDT PAINTED BZE6-RN 01	DOOR ASSEMBLY
SMTUL	SWITCH-UP LIMIT	W6SH5S13	09R012	MICSW SPDT PAINTED BZE6-RN 01	DOOR ASSEMBLY
SPA	SWITCH-AIR PRESSURE	W6SH5SPEI	09N082B10	PRESSW NASON CLOSE FALLING AT 9PSI	AIR VALVE BOX
SPA	SWITCH-AIR PRESSURE	W6SH5SPEIA	09N082B10	PRESSW NASON CLOSE FALLING AT 9PSI	ELEV JUNCT BOX
STDB	SWITCH-THERMOSTAT DYNAMIC BRAKE	W6SH5SS+	30RA175T	THERMOSTAT OPENS AT 175F	VARI SPD BOX
STDB	SWITCH-THERMOSTAT DYNAMIC BRAKE	W6SH5SS+A	30RA175T	THERMOSTAT OPENS AT 175F	VARI SPD BOX
STDB	SWITCH-THERMOSTAT DYNAMIC BRAKE	W6SH5SS+D	30RA175T	THERMOSTAT OPENS AT 175F	VARI SPD BOX
VE	>>VALVE-ELECTRIC OPERATED				
VECBC	VALVE-CONVEYOR BED CYLINDERS	W6SH5SLA	96R301B37	1/8" AIRPILOT 3W NC 120V50/60	AIR VALVE BOX
VEED	VALVE-ELEVATOR DOWN	W6SH5SPEA	96R301B37	1/8" AIRPILOT 3W NC 120V50/60	AIR VALVE BOX
VEEDA	VALVE-ELEVATOR DOWN	W6SH5SPEA	96R301B37	1/8" AIRPILOT 3W NC 120V50/60	AIR VALVE BOX
VEEU	VALVE-ELEVATOR UP	W6SH5SPEA	96R301B37	1/8" AIRPILOT 3W NC 120V50/60	AIR VALVE BOX
VEEUA	VALVE-ELEVATOR UP	W6SH5SPEA	96R301B37	1/8" AIRPILOT 3W NC 120V50/60	AIR VALVE BOX
VEPDP	VALVE-PIVOT TO DISCHARGE POSITION	W6SH5SPEA	96R301B37	1/8" AIRPILOT 3W NC 120V50/60	AIR VALVE BOX
VEPDP	VALVE-PIVOT TO DISCHARGE POSITION	W6SH5SPEB	96R301B37	1/8" AIRPILOT 3W NC 120V50/60	ELEV JUNCT BOX
VEPHP	VALVE-PIVOT TO HOME POSITION	W6SH5SPEA	96R301B37	1/8" AIRPILOT 3W NC 120V50/60	AIR VALVE BOX
VEPHP	VALVE-PIVOT TO HOME POSITION	W6SH5SPEB	96R301B37	1/8" AIRPILOT 3W NC 120V50/60	ELEV JUNCT BOX
VERT	VALVE-RETRACT BELT 0 TO UNLOAD	W6SH5SL	96R301A37	1/8" PILOT 3W-NC 110/50 120/60	AIR VALVE BOX
VERT	VALVE-RETRACT BELT 0 TO UNLOAD	W6SH5SLA	96R301A37	1/8" PILOT 3W-NC 110/50 120/60	AIR VALVE BOX
VERT	VALVE-RETRACT BELT 0 TO UNLOAD	W6SH5SLD1	96R301A37	1/8" PILOT 3W-NC 110/50 120/60	AIR VALVE BOX
VERT	VALVE-RETRACT BELT 0 TO UNLOAD	W6SH5SLF	96R301A37	1/8" PILOT 3W-NC 110/50 120/60	AIR VALVE BOX
VERT	VALVE-RETRACT BELT 0 TO UNLOAD	W6SH5SLG	96R301A37	1/8" PILOT 3W-NC 110/50 120/60	AIR VALVE BOX
VERT1	VALVE-RETRACT BELT 1 TO UNLOAD	W6SH5SLA1	96R301A37	1/8" PILOT 3W-NC 110/50 120/60	AIR VALVE BOX

COMPONENT PARTS LIST

<u>COMPONENT NUMBER</u>	<u>FUNCTION OF THIS COMPONENT</u>	<u>WHERE TO FIND THIS COMPONENT</u>	<u>MIL NOR PIN</u>	<u>DESCRIPTION</u>	<u>LOCATION</u>
VERT1	VALVE-RETRACT BELT 1 TO UNLOAD	W6SH5SLD1	96R301A37	1/8" PILOT 3W-NC 110/50 120/60	AIR VALVE BOX
VERT1	VALVE-RETRACT BELT 1 TO UNLOAD	W6SH5SLG1	96R301A37	1/8" PILOT 3W-NC 110/50 120/60	AIR VALVE BOX
VEST	VALVE-EXTEND BELT 0 TO LOAD	W6SH5SLA	96R301A37	1/8" PILOT 3W-NC 110/50 120/60	AIR VALVE BOX
VEST	VALVE-EXTEND BELT 0 TO LOAD	W6SH5SL	96R301A37	1/8" PILOT 3W-NC 110/50 120/60	AIR VALVE BOX
VEST1	VALVE-EXTEND BELT 1 TO LOAD	W6SH5SLA1	96R301A37	1/8" PILOT 3W-NC 110/50 120/60	AIR VALVE BOX
VEX	VALVE-EXTEND BELT 0 TO UNLOAD	W6SH5SLA	96R301A37	1/8" PILOT 3W-NC 110/50 120/60	AIR VALVE BOX
VEX	VALVE-EXTEND BELT 0 TO UNLOAD	W6SH5SLC	96R301A37	1/8" PILOT 3W-NC 110/50 120/60	AIR VALVE BOX
VEX	VALVE-EXTEND BELT 0 TO UNLOAD	W6SH5SLD1	96R301A37	1/8" PILOT 3W-NC 110/50 120/60	AIR VALVE BOX
VEX	VALVE-EXTEND BELT 0 TO UNLOAD	W6SH5SLF	96R301A37	1/8" PILOT 3W-NC 110/50 120/60	AIR VALVE BOX
VEX	VALVE-EXTEND BELT 0 TO UNLOAD	W6SH5SLG	96R301A37	1/8" PILOT 3W-NC 110/50 120/60	AIR VALVE BOX
VEX	VALVE-EXTEND BELT 0 TO UNLOAD	W6SH5SLM	96R301A37	1/8" PILOT 3W-NC 110/50 120/60	AIR VALVE BOX
VEX1	VALVE-EXTEND BELT 1 TO UNLOAD	W6SH5SLA1	96R301A37	1/8" PILOT 3W-NC 110/50 120/60	AIR VALVE BOX
VEX1	VALVE-EXTEND BELT 1 TO UNLOAD	W6SH5SLD1	96R301A37	1/8" PILOT 3W-NC 110/50 120/60	AIR VALVE BOX
VEX1	VALVE-EXTEND BELT 1 TO UNLOAD	W6SH5SLG1	96R301A37	1/8" PILOT 3W-NC 110/50 120/60	AIR VALVE BOX
VEY	VALVE-EXTEND BELT 0 TO LOAD	W6SH5SLA	96R301A37	1/8" PILOT 3W-NC 110/50 120/60	AIR VALVE BOX
VEY	VALVE-EXTEND BELT 0 TO LOAD	W6SH5SLC	96R301A37	1/8" PILOT 3W-NC 110/50 120/60	AIR VALVE BOX
VEY	VALVE-EXTEND BELT 0 TO LOAD	W6SH5SLM	96R301A37	1/8" PILOT 3W-NC 110/50 120/60	AIR VALVE BOX
VEY1	VALVE-EXTEND BELT 1 TO LOAD	W6SH5SLA1	96R301A37	1/8" PILOT 3W-NC 110/50 120/60	AIR VALVE BOX

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 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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BMP720097/25142

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.

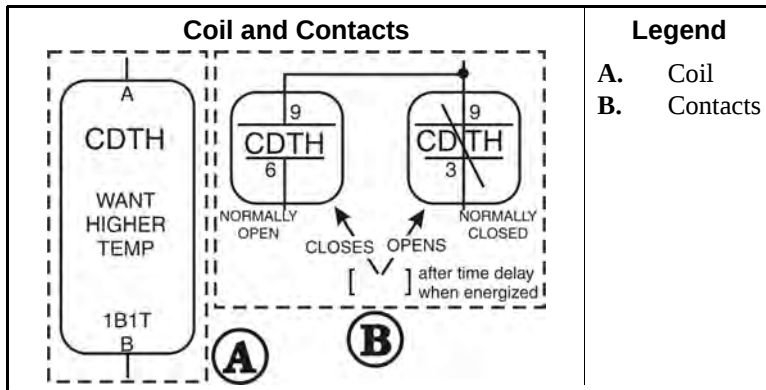
CB=Circuit Breaker (Figure 1)—Automatic switch that opens an electric circuit in abnormal current conditions (e.g., an overload).

Figure 1: Circuit Breaker (CB)



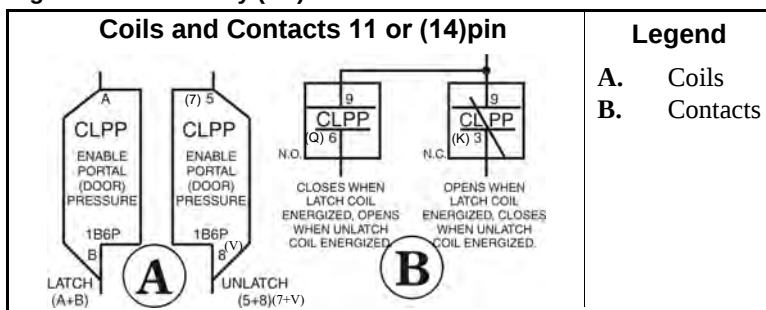
CD=Control, Time Delay Relay (Figure 2)—A relay whose contacts switch only after a fixed or adjustable delay, once voltage has been applied to its coil. The contacts switch back to normal (de-energized state) immediately when the voltage is removed.

Figure 2: Time Delay Relay (CD)



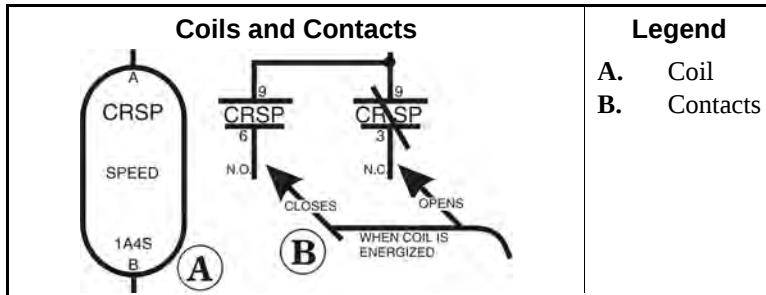
CL=Control, Latch Relay (Figure 3)—A relay which latches in an energized or set position when operated by one coil (the latch/set coil). The relay stays latched even though coil voltage is removed. The relay releases or unlatches when voltage is applied to a second coil (the unlatch/reset coil).

Figure 3: Latch Relay (CL)



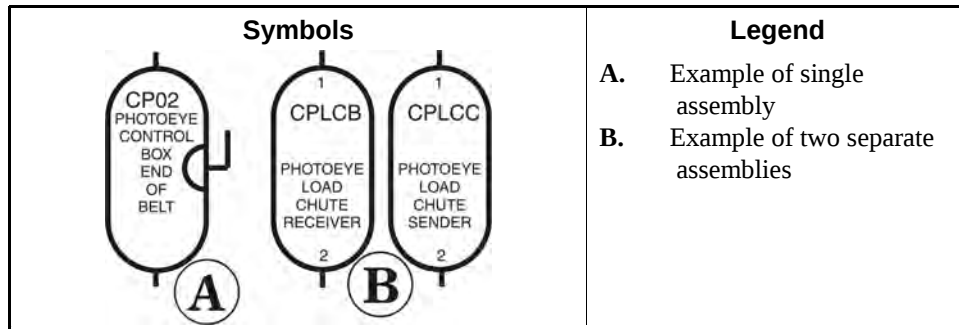
CR=Control, Relay (Figure 4)—A relay whose contacts switch immediately when voltage is applied to its coil and revert to normal when the voltage is removed.

Figure 4: Standard Relay (CR)



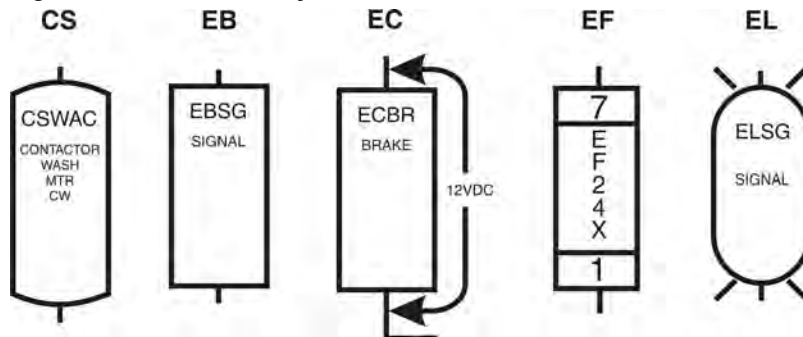
CP=Control, Photo-Eye (Figure 5)—Photo-eyes sense the presence of an object without direct physical contact. Photo-eyes consist of a transmitter, receiver, and output module. These components may be housed in one assembly with the transmitter bouncing light off of a reflector to the receiver, or these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

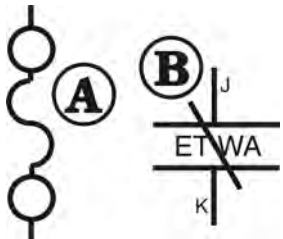
EL=Electric Light (Figure 6)—Indicator lights may be either incandescent or fluorescent.

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.

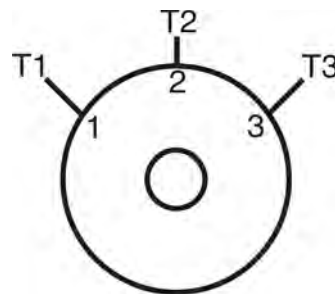
MN=Electronic Monitor (CRT)—A cathode ray tube used for visual presentation of data.

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

Figure 8: Transformer (EX)



Figure 9: Electric Motor (MR)

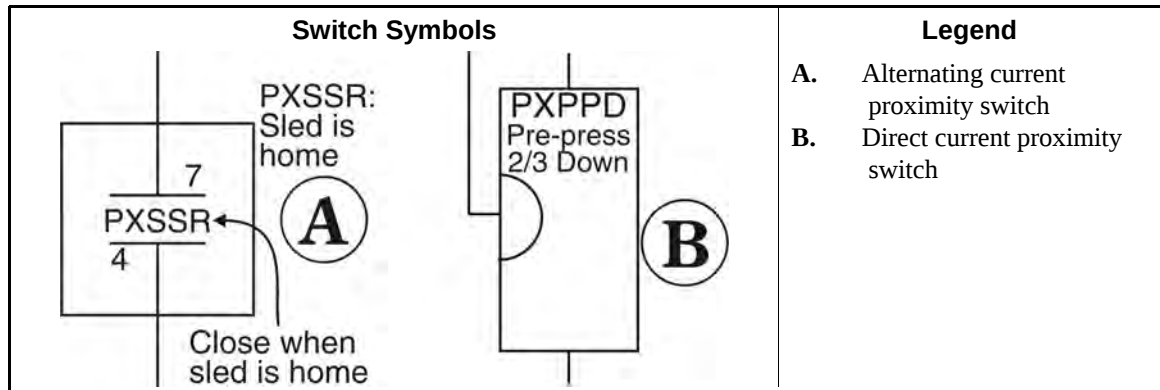


MV=Motor (Variable Speed) Inverter—To vary the speed of an AC motor, the volts to frequency ratio must be kept constant. The motor will overheat if this ratio is not maintained. The motor variable speed inverter converts three phase AC to DC. The inverter then uses this DC voltage to generate AC at the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

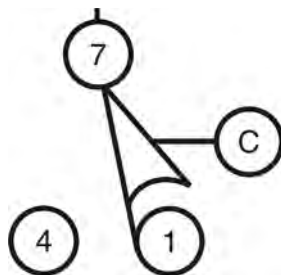
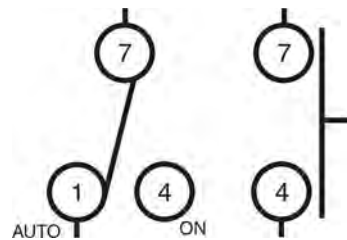


Figure 12: Hand Operated Switch (SH)



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)

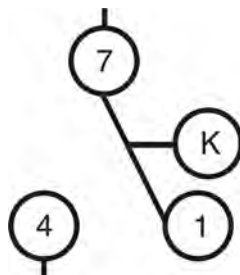
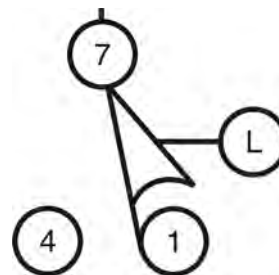


Figure 14: Level Switch (SL)



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)

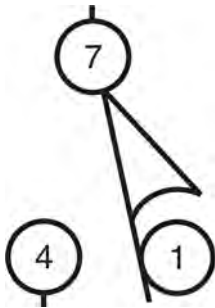
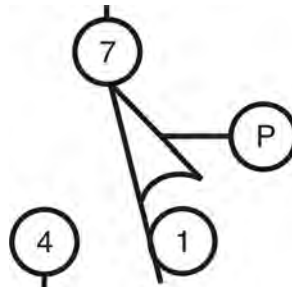


Figure 16: Pressure Switch (SP)



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)

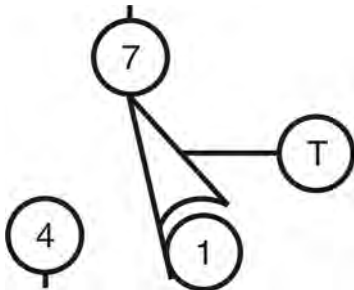
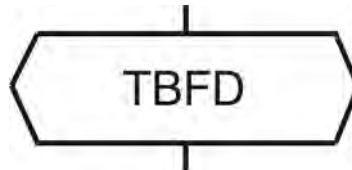


Figure 18: Terminal Board (TB)



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)

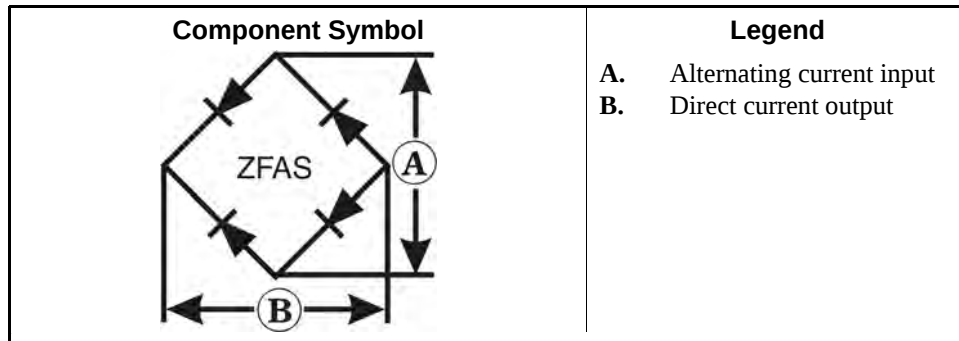
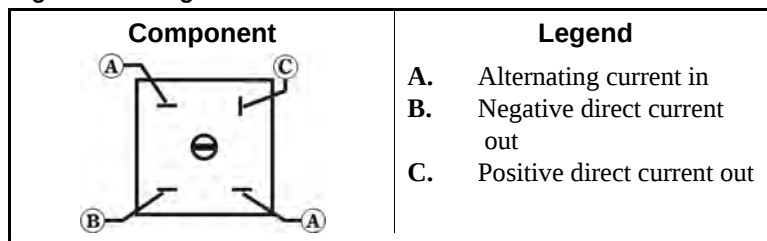


Figure 21: Bridge Rectifier



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.

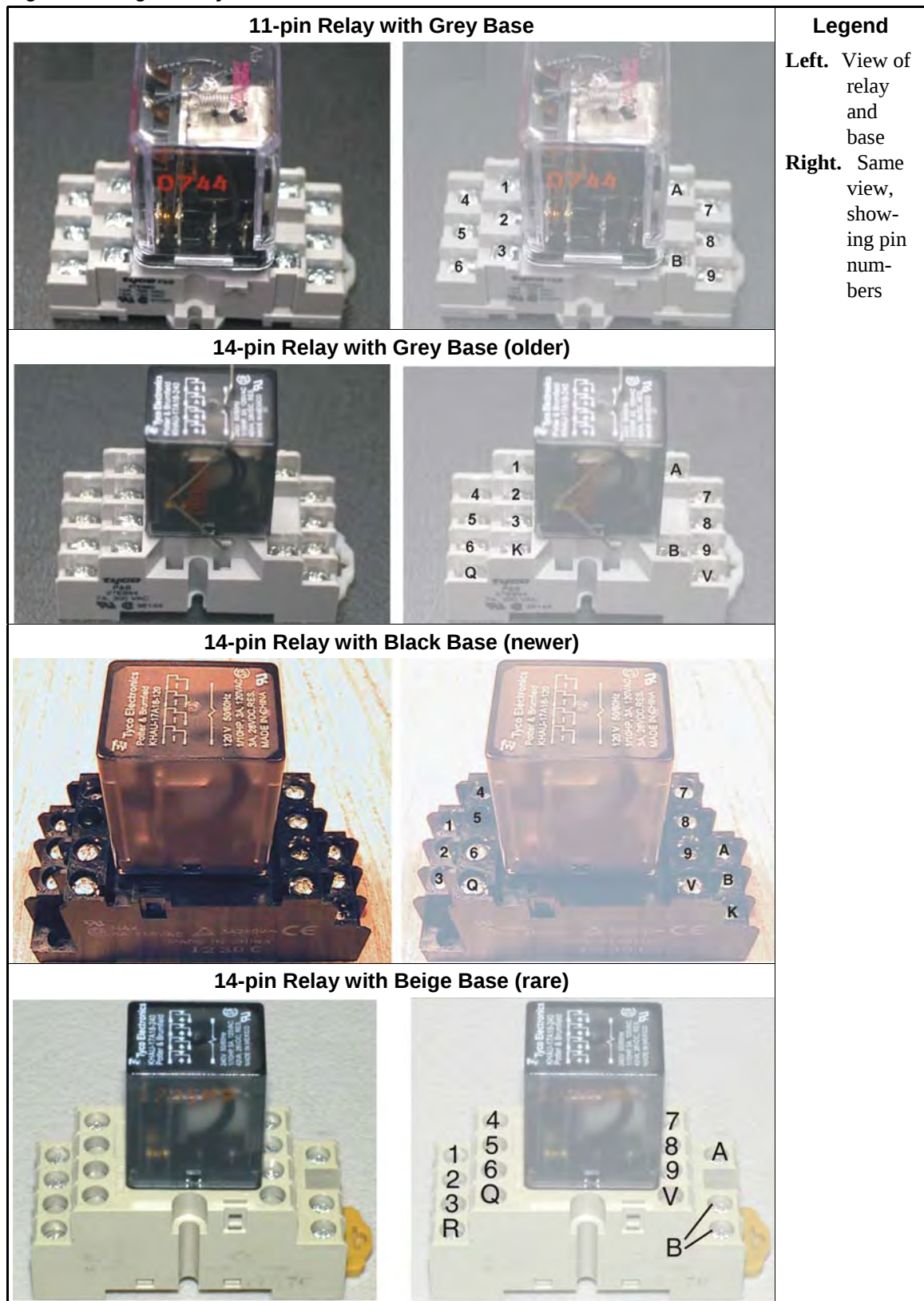
2. Component Terminal Numbering



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

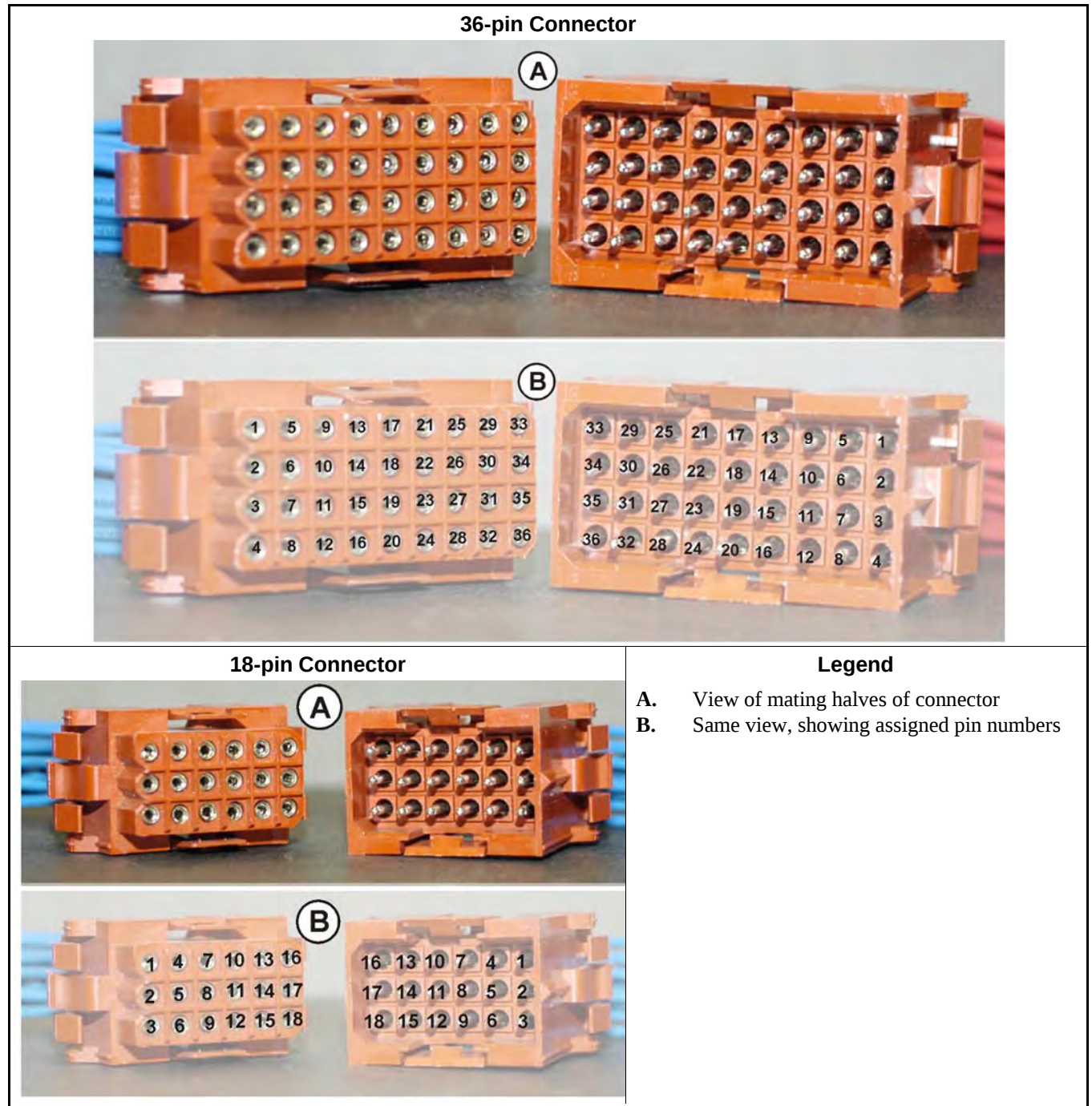


Figure 24: Molex Connector Pin Locations

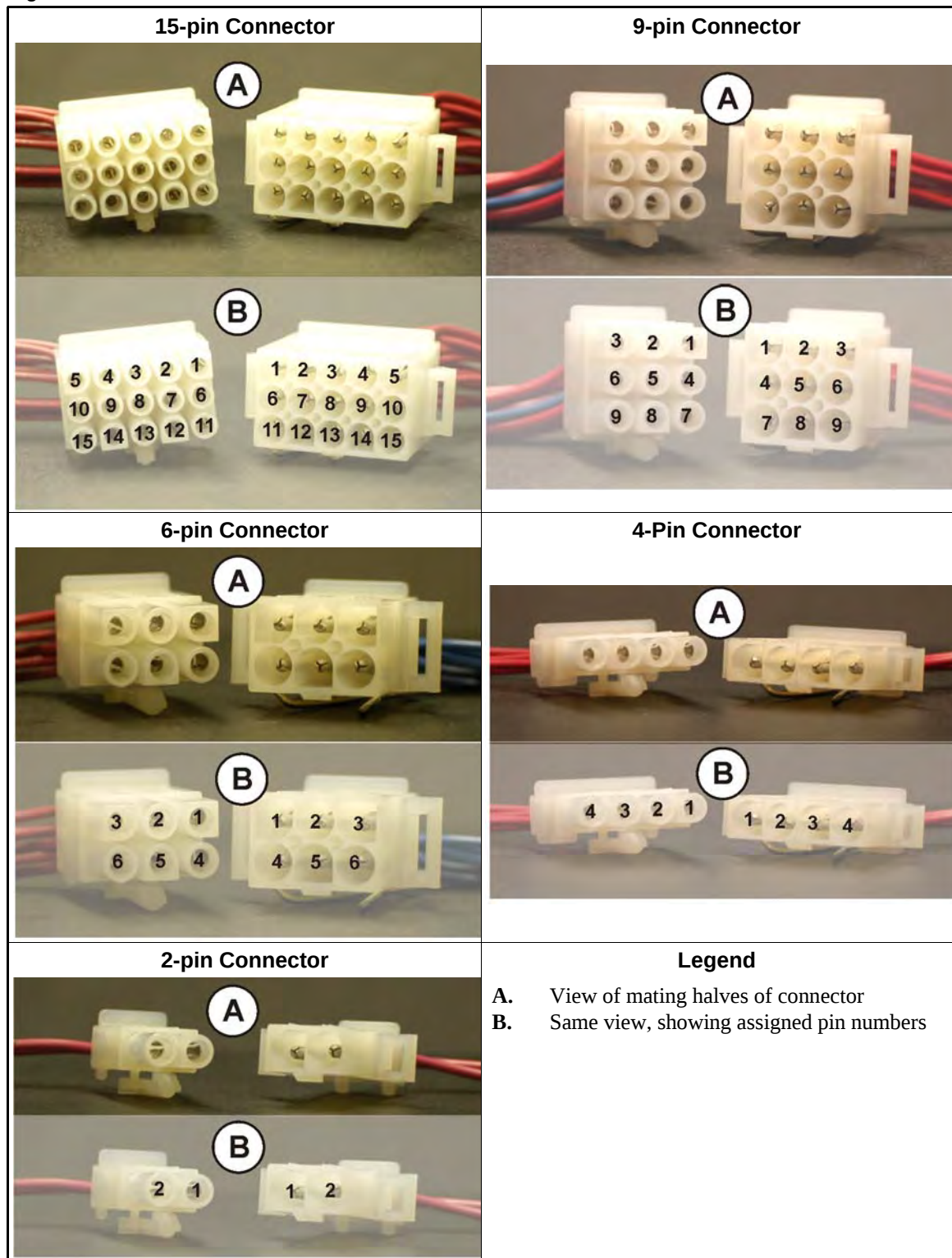


Figure 25: Pressure Switch

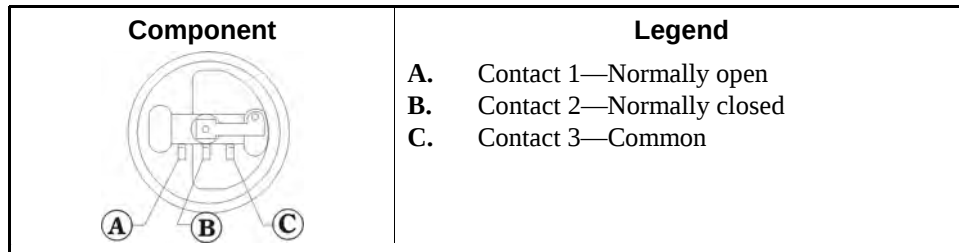


Figure 26: Toggle Switch

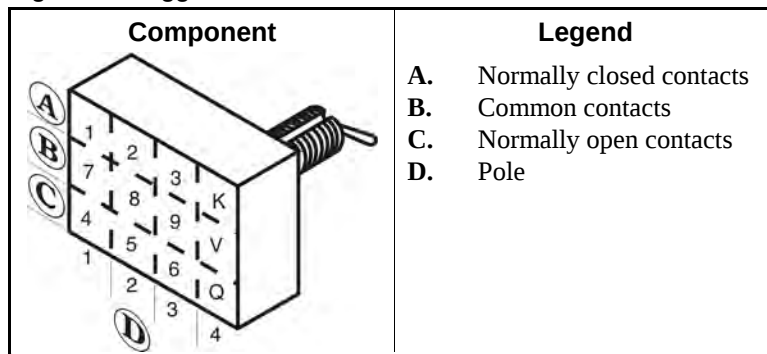
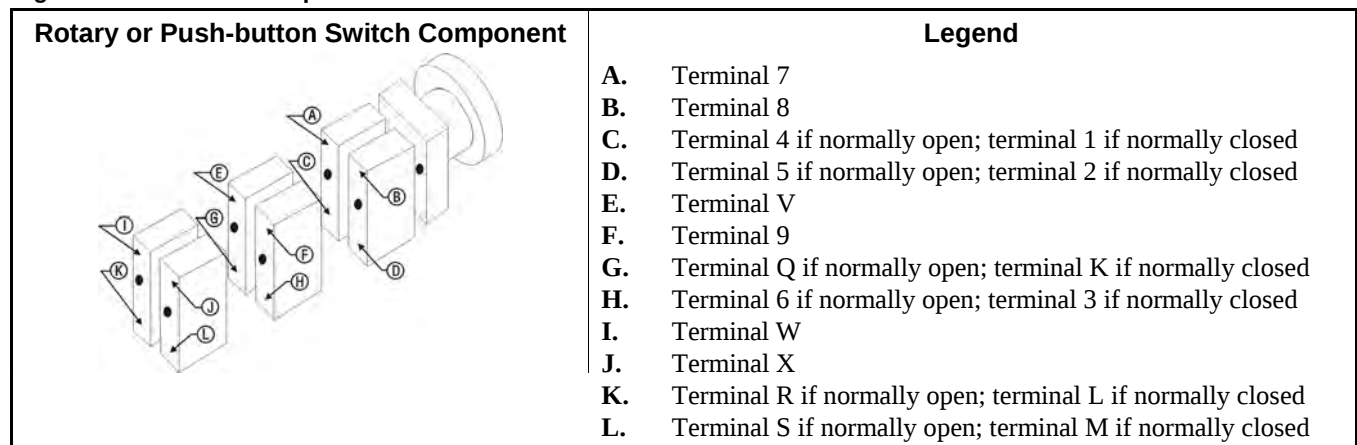


Figure 27: Switch with Replaceable Contact Blocks



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).

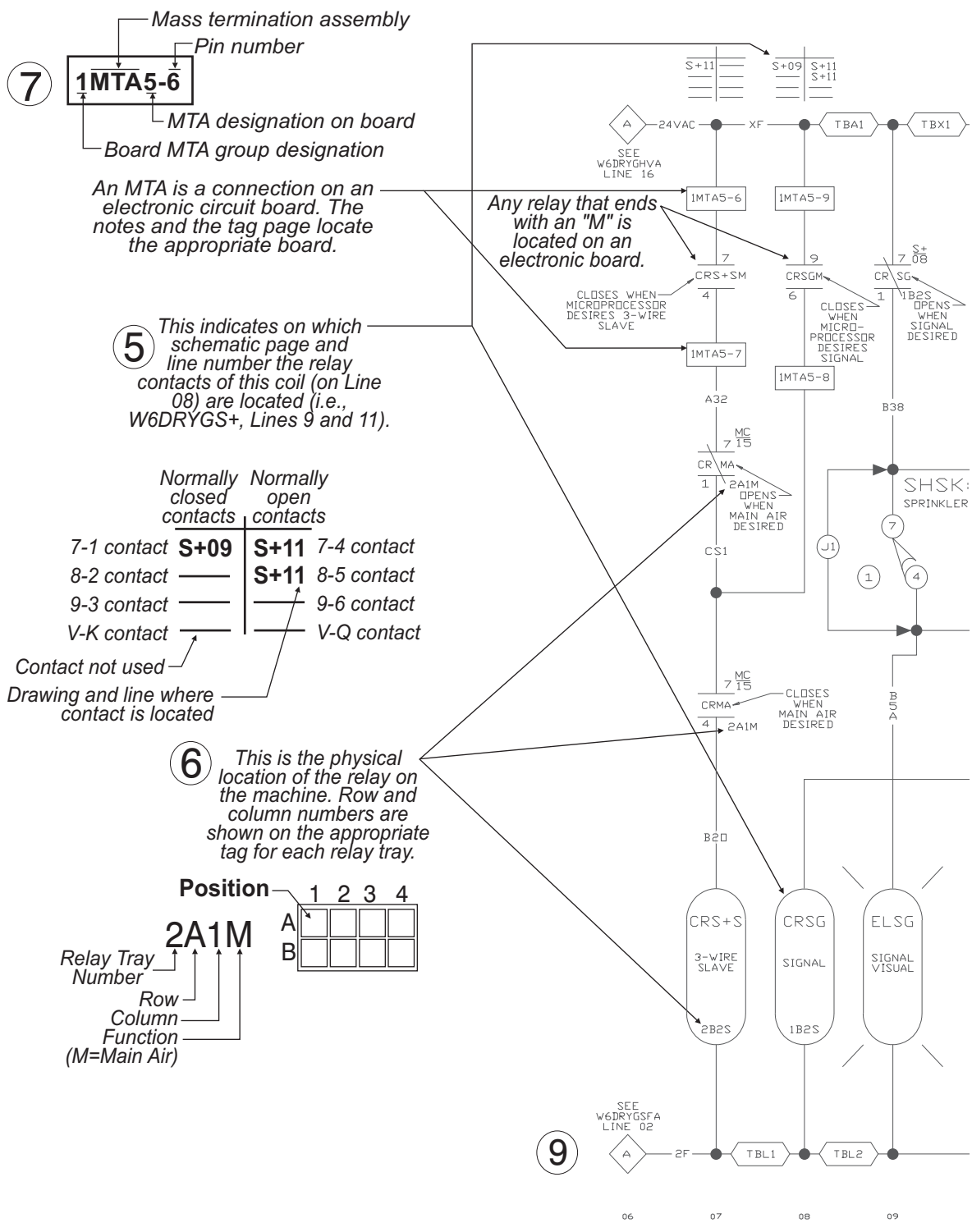
Whenever circuitry changes are significant enough to warrant publishing a new schematic drawing, the new drawing number will be the same as the old except for the major revision letter (A in the example).

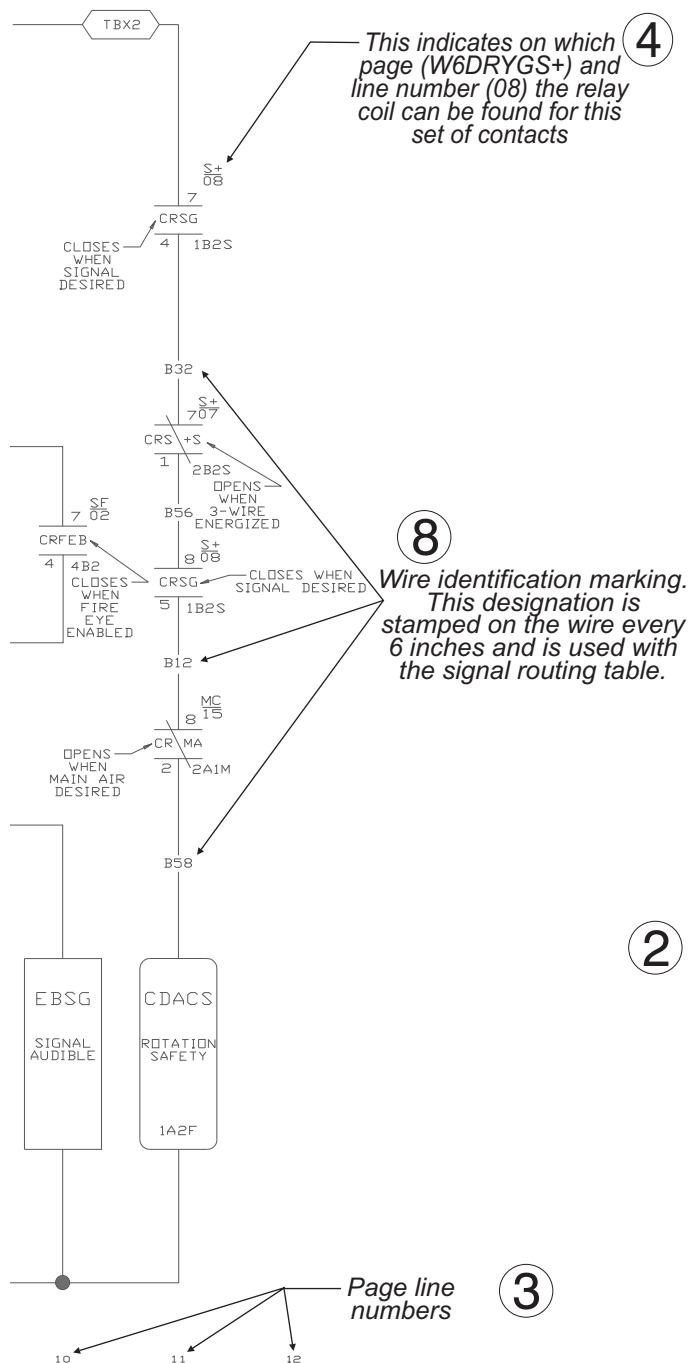
2. Included in the drawing title are the class of control system, the title of this circuit, and the circuit voltage.
3. Line numbers are provided along the bottom edge of the drawing. These permit service personnel in the field and at the Milnor® factory to quickly relate circuit locations when discussing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

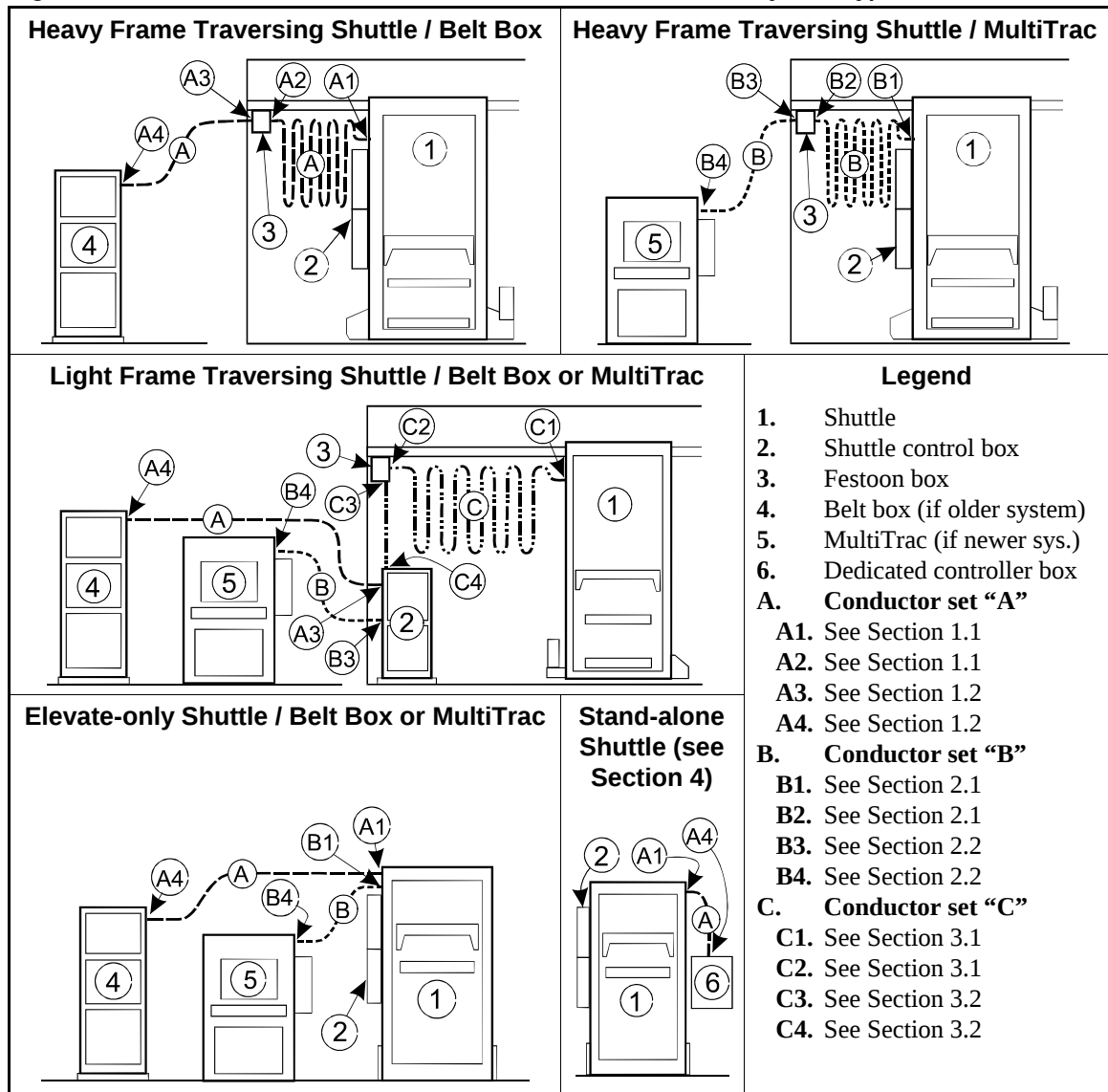
1. TBL IS LOCATED IN LEFT CONTROL BOX.
2. TBA IS LOCATED IN RIGHT CONTROL BOX.
3. TBX IS LOCATED IN LEFT CONTROL BOX.
4. 1MTA5 IS LOCATED ON BIDI (8 OUTPUT-16 INPUT BOARD).
5. REMOVE (J1) IF DRYER HAS VALVE SET SHUT OPTION.

On-Site Control Connections for Shuttles With Mark 5 Controls

This document covers typical connection procedures for shuttles used in Miltrac and MultiTrac systems. Special conditions not shown here may also arise. Contact Milnor Technical Support for assistance with conditions not shown. Referring to Figure 1, the types of on-site connections vary with the combination of:

- shuttle type: 1) heavy frame, traversing, 2) light frame, traversing, or 3) elevate-only, and
- system control type: 1) Miltrac in a central controls mounting panel (belt box), 2) MultiTrac, or 3) shuttle stand-alone.

Figure 1: Shuttle On-Site Connection Points for Various Shuttle and System Types



As shown in Figure 1, three sets of control conductors, "A", "B", and "C", commonly occur. These may be segmented, with some segments prefabricated and some fabricated on site. This document addresses all cabling and distinguishes between the two conditions.

1. Conductor Set “A” (see Figure 1)

Conductor set “A” applies to systems with Miltrac in a central controls mounting panel (belt box) and stand-alone shuttles with a dedicated controller box. In belt box systems, the shuttle processor board, keypad, display, and certain faceplate controls are located in the belt box. With stand-alone shuttles, these controls are located in a dedicated controller box. Conductor set “A” connects between the points in the shuttle control box and those in the belt box or dedicated controller box shown in Table 1.

Table 1: Shuttle (control box)-To-Shuttle Controller Connections (in belt box or dedicated controller box)

Purpose	Cable Specification	Connection Point			
		In Shuttle Control Box and Festoon Box*		On Shuttle Controller in Belt Box or Small Electric Box	
		Connector	Pin	Connector	Pin
Earth ground	One conductor: 14AWG (2.5mm ²) with 600VAC insulation	TB (ground terminal)	6	TBA (ground terminal)	6
120VAC faceplate controls	Multi-conductor cable: 18AWG (1.0mm ²) with 300VAC color coded insulation. Ground unused wires on one end only.	TB	19**	WCM	1**
		TB	15	WCM	2
		TB	23	WCM	4
		TB	16	WCM	5
		TB	5	WCM	6
		TB	6	WCM	7
		TB	4	WCM	9
Internal (board-to-board) serial link*	Two-conductor shielded cable: 18AWG (1.0mm ²) twisted pair with 300VAC color coded insulation and 85% braided shield. Ground shield one end only.	TB	106	1MTA33 (serial link #2 low)	1 or 2
		TB	107	1MTA33 (serial link #2 high)	3 or 4
* Tags in the festoon box identify which terminal strip pins in the festoon box correspond to the connection points in the shuttle control box.					
** The gate-operated safety switch(es) for safety fencing to be supplied by the customer are wired in series between these points.					

The procedures for on-site installation of cabling, including any intermediate segments of conductor set “A” are provided in the following sub-sections. The connection points may be on terminal blocks, terminal strips, mating connectors or wire-to-wire. Where possible, segments pre-fabricated at the factory use mating connectors that need only be plugged together. For segments that will be fabricated on site, the mating connectors and pins are provided in a bag located in the control box or cabinet.

- 1.1. A1-to-A2: Shuttle-to-Festoon Box (Milnor-supplied Festoon Cable)**—The festoon cable is fabricated at the Milnor factory. It contains the control conductors for the 120VAC faceplate controls and an internal serial link comprising conductor set A. It also contains three-phase power conductors which only run between the shuttle and the festoon box (where shuttle power is connected). At A1, secure the festoon cable to the shuttle at the shuttle junction box and plug together the mating connectors that were pre-wired to the 120VAC conductors. Use white caps (wire-to-wire) to connect the individually tagged and/or color coded three phase power conductors and serial link conductors. Connect the serial cable shields together also.

The festoon cable is shipped attached and pre-wired to the small festoon box at A2. At the site, the box need only be mounted on the rail or wall.

- 1.2. A3-to-A4: Festoon Box-to-Belt Box (fabricated on site)**—Whether the connections at A3 are made in the festoon box, as with heavy frame shuttles or in the shuttle control box, as with light frame shuttles, the connections are the same. Tags in the festoon box identify which terminal strip pins in the festoon box correspond to the shuttle control box connection points. Refer to Table 1 in either case.

2. Conductor Set “B” (see Figure 1)

Conductor set “B” applies to MultiTrac systems. In such systems, the shuttle processor board is located in the shuttle control box and communicates with MultiTrac via two or more serial links. Also, certain Shuttle faceplate controls are located on the MultiTrac cabinet. Conductor set “B” connects between the points in the shuttle control box and those in the MultiTrac cabinet shown in Table 2.

Table 2: Shuttle (control box)-To-MultiTrac (cabinet) Connections

Purpose	Cable Specification	Connection Point			
		In Shuttle Control Box and Festoon Box**		In MultiTrac Cabinet	
		Connector	Pin	Connector	Pin
Earth ground	One conductor: 14AWG (2.5mm²) with 600VAC insulation	TB (ground terminal)	6	TBA (ground terminal)	6
120VAC faceplate controls	Multi-conductor cable: 18AWG (1.0mm²) with 300VAC color coded insulation. Ground unused wires on one end only.	TB	4	*TBC	4
		TB	5	*TBC	5
		TB	15	*TBC	15
		TB	16	*TBC	16
		TB	18***	*TBC	19***
		On Shuttle Processor Board		In MultiTrac Cabinet	
Miltrac serial link	See document BICCUC01 "On Site Installation and Troubleshooting of Permanent Serial Communication Cables" for a complete explanation.	1MTA32	1or 2	Miltrac SRL	
Drynet serial link		1MTA32	3 or 4	Miltrac SRH	
		1MTA29	1or 2	Drynet SRL	
Mildata serial link		1MTA29	3 or 4	Drynet SRH	
		1MTA34	1or 2	Mildata SRL	
		1MTA34	3 or 4	Mildata SRL	
* Asterisk represents the shuttle number, as displayed in the faceplate controls. ** Tags in the festoon box identify which terminal strip pins in the festoon box correspond to the connection points in the shuttle control box. *** The gate-operated safety switch(es) for safety fencing to be supplied by the customer are wired in series either between pins TB18 (shown) and TB19 in the shuttle box, or between pins TBC19 (shown) and TBC18 in the Multitrac cabinet.					

The procedures for on-site installation of cabling, including any intermediate segments of conductor set “B” are provided in the following sub-sections. The connection points may be on terminal blocks, mating connectors, or wire-to-wire. Where possible, segments pre-fabricated at the factory use mating connectors that need only be plugged together. For segments that will be wired on site, the mating connectors and pins are provided in a bag located in the control box or cabinet.

- 2.1. B1-to-B2: Shuttle-to-Festoon Box (Milnor-supplied Festoon Cable)**—The festoon cable is fabricated at the Milnor factory. It contains the control conductors for the 120VAC faceplate controls and the external serial links (Miltrac, Mildata, and optional Drynet) comprising conductor set B. It also contains three-phase power conductors which only run between the shuttle and the festoon box (where shuttle power is connected). At B1, secure the festoon cable to the shuttle at the shuttle junction box and plug together the mating connectors that were pre-wired to the 120VAC conductors. Use white caps (wire-to-wire) to connect the individually tagged and/or color coded three phase power conductors and serial link conductors. Connect the serial cable shields together also.

The festoon cable is shipped attached and pre-wired to the small festoon box at B2. At the site, the box need only be mounted to the rail or wall.

- 2.2. B3-to-B4: Festoon Box-to-MultiTrac (Customer-supplied Cabling)**—Whether the connections at B3 are made in the festoon box, as with heavy frame shuttles, or in the shuttle control box, as with light frame shuttles, the connections are the same. Tags in the festoon box identify which terminal block pins in the festoon box correspond to the shuttle control box connection points. Refer to Table 2 in either case.

3. Conductor Set “C” (see Figure 1)

Conductor set “C” applies to systems with light frame traversing shuttles. In such systems, the shuttle control box, which is otherwise mounted on the shuttle frame is a free-standing cabinet located near the end of the shuttle path. This conductor set is comprised of 120VAC conductors for faceplate controls and individual motor feeds. Conductor set “C” connects between the shuttle and the remote shuttle control box. All connector set “C” segments are pre-fabricated at the factory. The procedures for on-site installation of the conductor set “C” segments are provided in the following sub-sections. The connection points may be on terminal blocks, terminal strips, or pre-wired mating connectors.

- 3.1. C1-to-C2: Shuttle-to-Festoon Box (Milnor-supplied Festoon Cable)**—The festoon cable is fabricated at the Milnor factory. At C1, secure the festoon cable to the shuttle at the shuttle junction box and plug together the mating connectors for the 120VAC conductors. Wire the motor feeds to the terminal block, matching the tags on the wires to those on the terminal block.

The festoon cable is shipped attached and pre-wired to the small festoon junction box at C2. At the site, the box need only be mounted on the rail or wall.

- 3.2. C3-to-C4: Festoon Box-to-Shuttle Control Box (Milnor-supplied Cable)**—All control conductors are in flexible cabling supplied by Milnor. The shuttle control box ships with the cable attached and pre-wired on this end (C4). At C3, secure the cable to the festoon box and plug together the pre-wired mating connectors for the 120VAC conductors. Wire the motor feed conductors to the terminal block, matching the tags on the individual conductors to those on the terminal block. A connector and pin identification tag is also provided in the festoon box.

4. About the Controls for Stand-alone, Elevating Shuttles

Elevate-only, stand-alone shuttles have a dedicated controller box containing the shuttle processor board, keypad, display and certain faceplate controls (see Note 1). The cabling between the shuttle and this box is conductor set “A” (see Table 1). However, the on-site connections, if any, are usually made with mating connectors.

This type of shuttle is most often used to load a Milnor dryer in a stand-alone (not part of an automated laundering system) configuration, and as such, is dedicated to that dryer. Typically, the shuttle and dryer controls are located together. These are usually, but not necessarily, mounted on the shuttle frame.

Note 1: Previously, Milnor stand-alone, elevate-only shuttles used relay logic controls. Today, these shuttles are only offered with microprocessor controls.

- 4.1. Stand-alone Shuttle Controls Mounted on the Shuttle Frame**—If the dedicated controller box is mounted on the shuttle frame, no on site connections for the shuttle are required. However, if the dryer control box is also mounted to the shuttle frame, on-site connections are required for the dryer. These are made via a flexible conduit. The shuttle will normally ship with the dryer control box mounted and the cabling attached. All connections on the shuttle end pre-wired, and mating connectors pre-wired on the other end. At the site, secure the other end of the cabling to the dryer and mate the connectors. Refer to the related section in document BICDUI01 for more information.
- 4.2. Stand-alone Shuttle Controls Located Remotely**—If the dedicated controller box will be near, but not on the shuttle frame (for example, if it is mounted on the dryer), the connections are normally made via a flexible conduit supplied by Milnor. The shuttle will normally ship with the cabling attached, all connections on the shuttle end pre-wired, and mating connectors installed on the other end. At the site, secure the other end of the conduit to the dedicated controller box, and mate the connectors.

— End of BICSUI01 —

Milnor® Allied Interface Specifications and Signals, Shuttle

An allied device that interfaces with the Milnor system machine equipped with Mark 5 or later microprocessor controls must meet the electrical specifications and functional requirements given in Section 1 “Electrical and Functional Specifications”.

The “Signals...” section(s) herein identify the allied interface signals and provide related information (see Section 2 “How the Signals Tables Are Organized”).

This document also provides useful information for troubleshooting allied interfaces:

- The **Display/code** and **Board/code** values in the signals tables, are cross-references to the output and input displays and to the output and input numbers on the I/O boards respectively. Section 4 “Monitoring Allied Interface Outputs and Inputs”, explains how to use these cross-references.
- As an aid in working with **numeric signals**, Section 5 “Decimal / Binary Conversion and How It Applies to Allied Interfaces” explains how to determine, for any batch code, which value (off or on) each signal in a group should pass.

1. Electrical and Functional Specifications



WARNING [1]: Electrocution and Electrical Burn Hazards—Contact with high voltage will electrocute or burn you. Power switches on the machine and the control box do not eliminate these hazards. High voltage is present at the machine unless the main machine power disconnect is off.

- Do not service machine unless qualified and authorized.
- Lock out and tag out power at the main machine disconnect before opening electric boxes and accessing electrical components.

For inputs from Milnor (Milnor outputs), the allied device must limit circuit load to that specified in Section 1.1, below. For outputs to Milnor (Milnor inputs), the allied device must supply circuitry that meets the specifications in Section 1.2, below. The functional requirements stated in Section 1.3 must be met for proper coordination and data exchange between the devices.

1.1. Permissible Load for Milnor Outputs—For signals from Milnor to allied (Milnor outputs/allied inputs), Milnor supplies potential-free contacts located on board-mounted relays. The signals are conducted by traces on the board having the following capacity:

- Maximum voltage: 240V
- Maximum current: 0.5 amps
- Maximum VA: 3



CAUTION [2]: Risk of Damage/Malfunction—Traces on control boards may burn out, requiring board replacement, if called upon to handle heavy currents. High voltages can cause arcing across traces.

- Do not apply loads exceeding the specified capacity.
- Do not use allied interface outputs to operate motors or for any other unintended purpose. These may, however, be used to operate relays that do not exceed the specified capacity.

1.2. Component Requirements for Milnor Inputs—For signals from allied to Milnor (allied outputs/Milnor inputs—which connect directly to control boards and are used to ground Milnor control inputs), Milnor applies a low energy signal as follows:

- Voltage: 5VDC or 12VDC
- Minimum current: 5 milliamps

The potential-free contacts supplied by allied and the circuit wiring must be capable of faithfully carrying these low energy signals.



CAUTION [3]: Risk of Bad Data—Resistance due to wire length or deteriorated contacts can mask signals. Inadequate shielding against electrical noise can trigger false signals.

- Keep wire runs as short as possible.
- Use a digital signal ground connection (wire number 2G on the CBW; wire number 7 on other Milnor devices), not merely chassis ground.
- Ground any spare wires.
- Pass all wires through a ferrite bead.
- Replace relays that have worn or corroded contacts.
- Do not run input wiring adjacent to, or in the same conduit with, any wires carrying AC. For example, do not run input and output wiring in the same conduit if AC is used to power Milnor output/allied input signals.

1.3. Functional Requirements

1. For numeric signals (batch codes) from allied to Milnor (allied loading interface), all signals must be properly set when the operational signal indicating this data is valid occurs. Signals must remain set for the longer of 5 seconds or through any subsequent operational signal requiring this data (see “Loading Interface non-Numeric Signals...”). Milnor will read all numeric signals during this time.
2. For numeric signals from Milnor to allied (allied discharge interface), allied must not read signals until the data valid, or other operational signal indicating data is valid occurs (see “Discharge Interface non-Numeric Signals...”).
3. Although not all the operational signals listed in the tables are necessarily required, (the signals used will vary with specific machine models and with variations in the operating cycle), those signals used, must occur in the order listed.
4. When connecting numeric signals between devices, ensure that signals are properly matched up with respect to significance (least significant-to-least significant, next least significant-to-next least significant, etc.).

2. How the Signals Tables Are Organized

For an allied device that loads the Milnor machine, Milnor provides an allied **loading interface**. For an allied device that receives goods from (discharges) the Milnor machine, Milnor provides an allied **discharge interface**. In both cases, some signals are used in groups to pass **numeric** values in binary and some signals are used individually to pass **non-numeric** (on/off) values. The receiving device can read the groups of numeric signals in any order as long as it reads this data during the window of time within which it is valid. However, because each signal within a group of numeric signals represents a specific digit of the binary number, the order of significance of the signals (**digit order**) must be understood and must match on sending and receiving devices. Most non-numeric signals provide operational information which must be exchanged according to a predetermined “handshaking” scheme. Hence, the sequence in which operational signals occur (**enabling order**) is critical. Accordingly, the signal information is presented in four tables:

1. **Loading interface numeric input signals and digit order**—In this table, signals are depicted in digit order, that is, the way they would be read as a binary number. The rightmost **column** represents the signal that carries the least significant digit. Each adjacent **column** to

the left is the signal representing the digit of next higher significance. The table is divided into **row** groups—one row group for each batch code provided. Each row group provides pertinent information for the signals used with that batch code. In an allied loading interface, all numeric signals pass from allied to Milnor and are therefore, **inputs** to Milnor.

2. **Loading interface non-numeric signals and enabling order**—In this table, each **row** represents a signal and each **column** provides pertinent information for that signal. Generally, these signals must be exchanged by the interfaced devices in the order listed. The labels given to operational signals in the schematics can vary from device to device. However, the document “Summary of Milnor Allied Interface Capability” provides generic names for these. The right-hand column of this table provides both the generic (function) name and the signal name as shown in the schematic, except where these are the same.
3. **Discharge interface numeric output signals and digit order**—This table is arranged the same as the “loading interface numeric...” table. However, in an allied discharge interface, all numeric signals pass from Milnor to allied and are therefore, **outputs** from Milnor.
4. **Discharge interface non-numeric signals and enabling order**—This table is arranged the same as the “loading interface non-numeric...” table. As with a loading interface, the devices need to exchange these signals in the order shown.

3. Signals—Shuttles With Mark 5 Controls [Document BICALC06]

Table 1: Loading Interface Numeric Input Signals and Digit Order—Shuttle

Signal name on schematic (e.g., Drycode A, B, etc.)-->		Common Conn.	Dedicated Connections (Binary Data Signals)								Least Significant	
			J	I	H	G	F	E	D	C	B	A
16 Drycodes (00 - 15)	Multi-terminal	TBK							TBI	TBI	TBI	TBI
	Pin Number	G							D	C	B	A
	Wire Number	7							403	402	401	400
	Display/code	--							i3/D	i3/C	i3/B	i3/A
	Board/code	--							io3/3	io3/1	io3/2	io3/0
16 Destina- tion Codes (00-15)	Multi-terminal	TBK							TBI	TBI	TBI	TBI
	Pin Number	H							H	G	F	E
	Wire Number	7							411	410	409	408
	Display/code	--							i3/H	i3/G	i3/F	i3/E
	Board/code	--							io3/7	io3/6	io3/5	io3/4
64 Custo- mer Codes (00-63)	Multi-terminal	TBG					TBJ	TBJ	TBJ	TBJ	TBJ	TBJ
	Pin Number	1 or 2					F	E	D	C	B	A
	Wire Number	7					443	442	441	440	439	438
	Display/code	--					i4/F	i4/E	i4/D	i4/C	i4/B	i4/A
	Board/code	--					io4/5	io4/4	io4/3	io4/2	io4/1	io4/0

Table 2: Loading Interface non-Numeric Signals and Enabling Order—Shuttle

Signal Direction	Common Connection*			Dedicated Connection			Display / code	Board / code	Function Name / Signal Name
Input	TBJ	Q	7	TBG	8	452	i4/O	io4/14	2nd level / go 2nd load position
Input	TBG	5	7	TBJ	J	446	i4/I	io4/8	opposite side / load reverse direction
Input	TBG	7	7	TBJ	G	444	i4/G	io4/6	at left / left of home
Input	TBG	5	7	TBJ	H	445	i4/H	io4/7	at right / right of home
Milnor reads in the directional signals above when it receives the "discharge desired / desires to load shuttle" signal below.									
Input	TBL	G	7	TBI	R	419	i3/P	io3/15	discharge desired / desires to load shuttle
Output*	TBE	2	470	TBE	1	471	o3/i	io6/o	load desired / shuttle is empty
Milnor reads in all batch data (previous table and next two signals) when it receives the "data valid" signal.									
Input	TBL	G	7	TBJ	R	453	i4/P	io4/15	new customer**
Input	TBL	G	7	TBI	J	412	i3/I	io3/8	single cake
Input	TBL	G	7	TBI	K	413	i3/J	io3/9	data valid
Output*	TBI	T	420	TBI	S	421	o2/c	io3/2	load allowed / shuttle desires to receive load
Output*	TBJ	X	458	TBJ	W	459	o1/k	io2/2	transfer not complete / shuttle is loading
Input	TBG	6	7	TBJ	N	450	i4/M	io4/12	error: cancel transfer / cancel transfer
Output*	TBI	X	424	TBI	W	425	o2/h	io3/7	transfer complete / shuttle is loaded (not COSLIDE) ***
If the shuttle can take another cake, the applicable signals shown in this table are repeated here.									
Input	TBG	7	7	TBJ	K	447	i4/J	io4/9	transfer complete / belt is loaded (COSLIDE)
* For outputs from Milnor, Milnor does not normally assign either pin of the potential-free contact as the common. Hence, both pins have unique pin and wire numbers.									
** The "new customer" input is used when it is not necessary to track batch codes electronically, but merely to ensure that different customers' goods are kept segregated. If the Milnor controller sees this input made at the appropriate time during the cycle, it will increment the customer codes by one (e.g., from 07 to 08) to signal downstream devices not to combine these batches.									
*** The duration of this output is controlled by the "Allied Loading Completed Delay" configure decision.									

Table 3: Discharge Interface Numeric Output Signals and Digit Order—Shuttle

Signal name on schematic (e.g., Drycode A, B, etc.)-->		Common Conn.*	Dedicated Connections (Binary Data Signals)								Least Significant	
			J	I	H	G	F	E	D	C	B	A
16 Drycodes (00 - 15)	Multi-terminal	n/a							TBK	TBK	TBK	TBI
	Pin Number	n/a							E • F	C • D	A • B	1 • 2
	Wire Number	n/a							436 • 437	434 • 435	432 • 433	430 • 431
	Display/code	--							o2/b	o2/a	o2/g	o2/f
	Board/code	--							io3/1	io3/0	io3/6	io3/5
16 Destination Codes (00-15)	Multi-terminal	n/a							TBL	TBL	TBL	TBJ
	Pin Number	n/a							E • F	C • D	A • B	1 • 2
	Wire Number	n/a							468 • 469	466 • 467	464 • 465	462 • 463
	Display/code	--							o2/j	o2/i	o2/o	o2/n
	Board/code	--							io4/1	io4/0	io4/4	io4/5
* For outputs from Milnor, Milnor does not normally assign either pin of the potential-free contact as the common. Hence, both pins have unique pin and wire numbers. In this table these are listed together in the same cell, with a dot between (e.g., C • D)												

Table 4: Discharge Interface non-Numeric Signals and Enabling Order—Shuttle

Signal Direction	Common Connection*			Dedicated Connection			Display / code	Board / code	Function Name / Signal Name
	Multi-terminal	Pin	Wire	Multi-terminal	Pin	Wire			
Output*	TBI	V	422	TBI	U	423	o2/d	io3/3	discharge desired / desires to unload
Input	TBL	H	7	TBI	M	415	i3/L	io3/11	2nd level / go 2nd unload position
Input	TBL	G	7	TBI	L	414	i3/K	io3/10	opposite side / load reverse direction
Input	TBL	H	7	TBI	Q	418	i3/O	io3/14	at left / left of home
Input	TBL	H	7	TBJ	L	448	i4/K	io4/10	at right / right of home
Milnor reads in the directional signals above when it receives the "load desired / machine desires load from shuttle" signal below.									
Input	TBL	H	7	TBI	N	416	i3/M	io3/12	load desired / machine desires load from shuttle **
Output*	TBJ	V	456	TBJ	U	457	o2/l	io4/3	discharge allowed / ready to unload
Input	TBG	1	7	TBI	P	417	i3/N	io3/13	load allowed / machine allowed to receive load from shuttle **
Output*	TBK	K	426	TBK	J	427	o2/p	io4/7	transfer not complete / not finished unloading
Input	TBG	8	7	TBJ	P	451	i4/N	io4/13	error: cancel transfer / cancel transfer
Milnor sets all batch data (previous table and next signal) before it enables the "data valid" signal.									
Output*	TBJ	Z	460	TBJ	Y	461	o2/m	io4/4	single cake
Output*	TBJ	T	454	TBJ	S	455	o2/k	io4/2	data valid
Output*	TBI	Z	428	TBI	Y	429	o2/e	io3/4	transfer complete / shuttle is finished unloading
Input	TBG	1	7	TBJ	M	449	i4/L	io4/11	transfer complete / allied discharge complete
* For outputs from Milnor, Milnor does not normally assign either pin of the potential-free contact as the common. Hence, both pins have unique pin and wire numbers.									
** These inputs must remain on until transfer is complete.									

4. Monitoring Allied Interface Outputs and Inputs

The status of outputs and inputs can be monitored on the machine display while the machine is in operation, as explained in the machine reference manual (see Note 1 and Note 2). Beginning with Mark 4 controls (Mark 9 on the CBW), output and input status can also be monitored on the I/O boards. These boards contain LED's—one green LED for each input and one red LED for each output (see Note 3). When the LED is illuminated, the circuit is made.

Note 1: It is also possible to actuate certain outputs for testing, as explained in the reference manual. However, the "Display/code" values in the tables herein, refer only to the displays used to view outputs/inputs.

Note 2: The outputs and inputs available for viewing on the display include some (but not all) allied interface signals as well as signals for many other functions. See the reference manual for a listing of all outputs and inputs that can be monitored during operation.

Note 3: Almost all allied interface outputs and inputs are passed via the I/O boards (peripheral boards) and are therefore, represented by LED's on the boards. A few, however, are passed directly via the processor board (direct outputs/inputs). The processor board does not contain LED's.

4.1. Identifying Outputs and Inputs on the Display Pages —On CBW's, some allied inputs are available for viewing on the Mentor *Direct and Standard Inputs* page (as indicated in the signals tables). It is fairly easy to identify signals on the Mentor because the signal names are displayed.

The single stage press, two stage press, centrifugal extractor, shuttle, COBUC, and dryer use a two or four line by 20 character LCD display (see Note 4). On these devices, each output or input

is represented by a character (lower or upper case letter) on the top line and a plus (+) or minus (-) sign under the character indicating the on/off status of the signal. The outputs and inputs span several display pages. Each page is accessed via the keypad and the procedures for doing so are explained in the reference manual. The “Display/code” values listed in the tables herein tell you which display page and character represent the indicated signal, as shown in the following example:

i2/H

Where:

i = **input** display page (o = **output** display page)

2 = the second in a series of input display pages. See the reference manual for the keystrokes used to access each display page in the series. Note that in some software such as the centrifugal extractor, page numbering begins with 0 (zero); that is, the first page is page #0. Hence, on software such as the extractor, i2 = inputs page #1 (the second inputs page).

H = This input is represented by the character “H” on the display.

Note 4: When the Milnor Dryer/Shuttle Controller is provided for a new installation, the LCD displays are omitted from the controllers for any shuttle(s) and dryer(s) also provided. In this case, inputs and outputs may be viewed on the monitor supplied with the shuttle/dryer controller. As with the CBW Mentor controller, it is easy to identify signals because the signal names are displayed.

4.2. Identifying Output and Input LED's On the I/O Boards (all except 76032 CBW)—Two types of output/input peripheral boards are used in conjunction with the allied interfaces covered herein. Their designations and capacities are:

1. **BO24-x**—contains 24 outputs (and no inputs). x is “1”, “2”, etc. indicating the first, second, etc. such board in this machine.
2. **BIO-x**—contains 16 inputs and 8 outputs. x is “1”, “2”, etc. indicating the first, second, etc. such board in this machine.

For all except the CBW, the peripheral boards are located in the low voltage electric box. The arrangement and combination of these boards within the card cage varies with the machine type and optional equipment provided. For the G3 CBW (Mark 9), the boards that support the explicit allied interface signals are located in the card cage in the left (Standard Output) section of the main control box.

A tag located in the electric box identifies the boards that may be provided and shows the position of each board in the card cage. Each 24 output board has a set of red LED's (numbered 0 through 23). Each 16/8 I/O board has two sets of LED's—a red set for the outputs (numbered 0 through 7) and a green set for the inputs (numbered 0 through 15). The “Board/code” values listed in the tables herein tell you which board and output or input number represent the indicated signal, as in the following example:

io2/5

Where:

io2 = the 16/8 I/O board designated “BIO-2”. (Other examples:
io1=BIO-1, o1=BO24-1, o2=BO24-2)

5 = input #5, if this signal is an input or output #5 if this signal is an output.

5. Decimal / Binary Conversion and How It Applies to Allied Interfaces

Batch codes (decimal numbers) are converted to binary by the sending controller, then passed via the numeric signals to the receiving controller, where they must be converted back to decimal numbers. For example, if an interface provides for passing 16 drycodes, then to pass drycode 14 (binary 1110), drycode signals D, C, B, and A (from most to least significant) must be on, on, on, and off respectively, during the “data valid” window.

Table 5 “Numeric Signal Decimal and Binary Values” shows, for the first 16 decimal numbers (e.g., drycodes 00 through 15), the corresponding binary numbers and which numeric signal carries each binary digit. This table's columns correspond to, and align with the columns in each table of numeric signals herein. For higher numbers, use the “Decimal Value of Signal” values in this table to convert between decimal and binary as explained herein.

Table 5: Numeric Signal Decimal and Binary Values

		Decimal Value of Group	Most Significant	Binary Data Signals								Least Significant																
Signal name on schematic (e.g., Drycode A, B, etc.)-->			J or K or 9	I or J or 8	H or 7	G or 6	F or 5	E or 4	D or 3	C or 2	B or 1	A or 0																
Decimal Value of Signal-->			512	256	128	64	32	16	8	4	2	1																
The number of data signals required for typical ranges of batch codes are as follows: <table><tr><td>Code Range</td><td>Signals Required</td></tr><tr><td>00-15</td><td>A-D</td></tr><tr><td>00-31</td><td>A-E</td></tr><tr><td>00-63</td><td>A-F</td></tr><tr><td>000-127</td><td>A-G</td></tr><tr><td>000-255</td><td>A-H</td></tr><tr><td>000-511</td><td>A-I or J</td></tr><tr><td>0000-1023</td><td>A-J or K</td></tr></table>		Code Range	Signals Required	00-15	A-D	00-31	A-E	00-63	A-F	000-127	A-G	000-255	A-H	000-511	A-I or J	0000-1023	A-J or K	0							0	0	0	0
		Code Range	Signals Required																									
		00-15	A-D																									
		00-31	A-E																									
		00-63	A-F																									
		000-127	A-G																									
		000-255	A-H																									
		000-511	A-I or J																									
		0000-1023	A-J or K																									
		1								0	0	0	1															
		2								0	0	1	0															
		3								0	0	1	1															
		4								0	1	0	0															
		5								0	1	0	1															
		6								0	1	1	0															
		7								0	1	1	1															
8								1	0	0	0																	
9								1	0	0	1																	
10								1	0	1	0																	
11								1	0	1	1																	
12								1	1	0	0																	
13								1	1	0	1																	
14								1	1	1	0																	
15								1	1	1	1																	

For convenience, an example and explanations of converting between decimal and binary follow. Many other examples and explanations can be found in mathematics texts, on the Internet, etc. Also, some pocket calculators and many computer programs are available for converting between decimal and binary.

Note 5: In Table 6, which follows, the “Decimal value of binary 1 in this position” is the same as “Decimal Value of Signal” in Table 5.

Table 6: Decimal Values for Binary Digit 1 In the First Ten Positions

Significance of digit	most least										
Position of digit	10	9	8	7	6	5	4	3	2	1	
Decimal value of binary 1 in this position	512	256	128	64	32	16	8	4	2	1	
Example binary number	1	0	0	1	0	1	1	0	1	0	
Decimal value carried down for this example	512	0	0	64	0	16	8	0	2	0	= 602

5.1. Converting Decimal to Binary—Referring to Table 6, if you want to convert decimal number 602 to binary, use the “Decimal value of binary 1 in this position” values, as follows:

512 = highest value not exceeding 602.

602 – 512 = 90

64 = highest value not exceeding 90.

90 – 64 = 26

16 = highest value not exceeding 26.

26 – 16 = 10

8 = highest value not exceeding 10.

10 – 8 = 2

2 = highest value not exceeding 2.

2 – 2 = 0

In the above arithmetic, you used the decimal values 512, 64, 16, 8, and 2. You did not use 256, 128, 32, 4, and 1. Placing a 1 in the position for each decimal value used and a 0 (zero) in each position not used, yields 1001011010. Hence, decimal 602 = binary 1001011010.

5.2. Converting Binary to Decimal—Referring to Table 6, if you want to convert binary to decimal, simply sum the decimal values corresponding to the 1's in each position of the binary number. Keep in mind that while a 1 in any position has a certain positive decimal value, a 0 (zero) in any position has the decimal value 0 (zero). The conversion for binary 1001011010 looks like this:

$$512 + 0 + 0 + 64 + 0 + 16 + 8 + 0 + 2 + 0 = 602$$

Hence, binary 1001011010 = decimal 602.

— End of BICALC02 —

Connections and Configuration Needed when Loading Multi-Cake Dryers with Single-Cake Shuttle

MSIN0913AE/9831AE

At times it is necessary to configure a system with a single-cake shuttle to provide multiple cakes for a single dryer load. This operation is only possible if the shuttle discharge and the dryer receive are both controlled by Miltrac.

Sequence of Operations

After the shuttle delivers the first cake to the dryer, the dryer basket begins turning and the dryer door remains open. The shuttle returns to the extraction device for the next cake, then delivers that cake to the dryer. This sequence continues until either the dryer receives the maximum number of cakes or the shuttle receives an incompatible cake.

Connections

Shuttle/Dryer

Referring to Figure 1, wire the output from the shuttle to the input of each dryer in the system.

[Note: This illustration will be replaced with official documents as soon as possible. The actual schematics and line numbers to be referenced are W6DR3FI2, 01 and 02; W6DR3FTC, 02-07; and W6SH5SIX, 14.]

Shuttle/No-Dry Station

If the dryers control a no-dry station, the input for "NO-DRY FINISHED RECEIVING" must be wired identically to the dryers. Use input 2MTA4-5 for LED-type boards, or 2MTA3-4 for older (non-LED) boards. If the no-dry station is always ready to accept a load, this input can be permanently grounded.

Configuration

Shuttle

Set configure decision "HOLD UNLOAD DEVICE TIL FULL" to 1=YES.

Set configure decision "FINISHED UNLOADING OUTPUT" to 1=YES. This requires that two additional 8/16 boards, with addresses 03h and 04h, be installed in the shuttle controller.

Dryer

Set configure decision "MAX CAKES TO RCV" to the maximum number of cakes the dryer can accept.

Miltrac: Configure Devices

Set "COMPATIBILITY?" to 1. This causes goods to be grouped into batches by code.

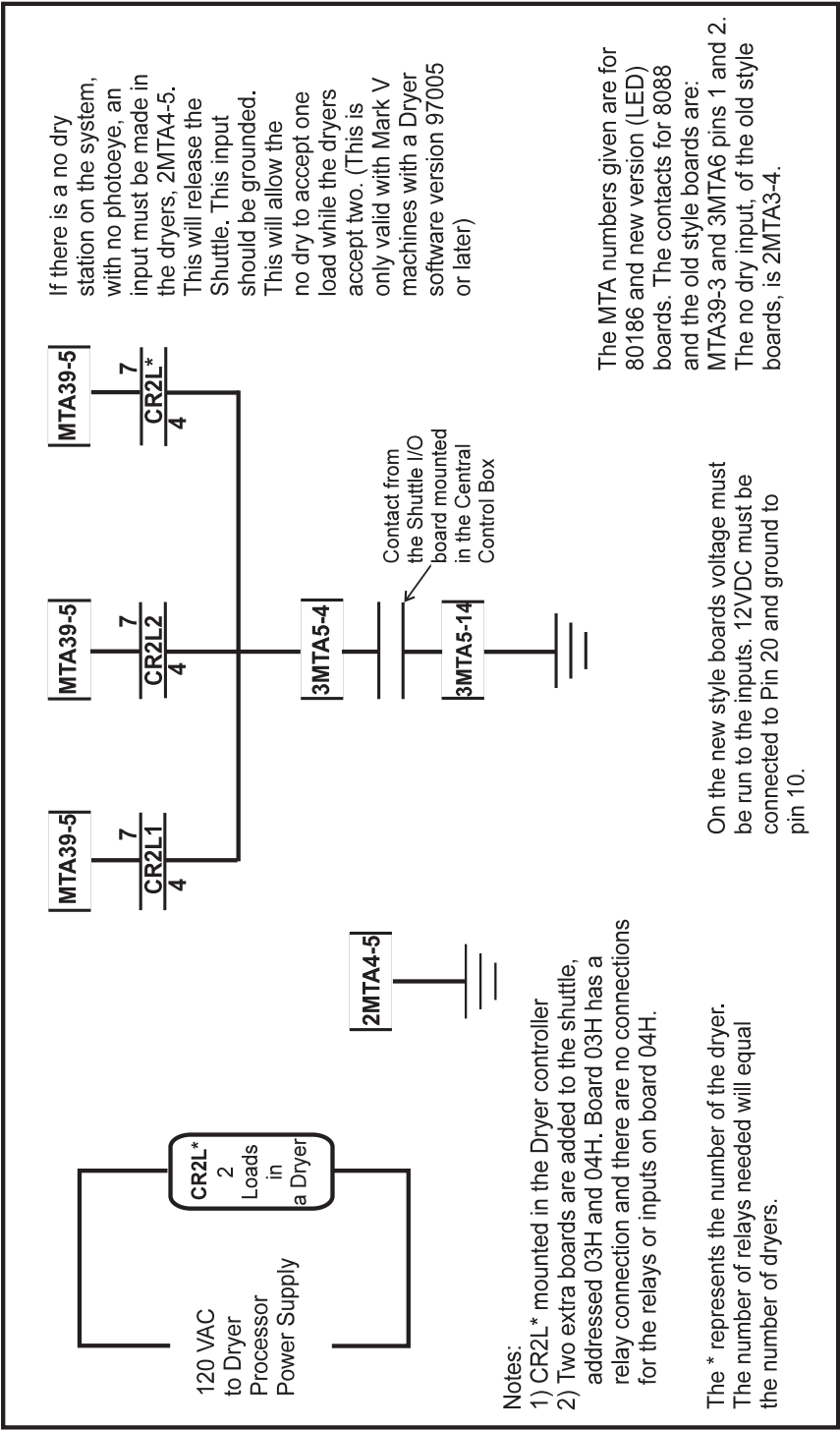


FIGURE 1 (MSIN0913AE)
Electrical Schematic - Shuttle to Dryers

Proximity Safeguarding for Automatic Shuttle Conveyors

Proximity safeguarding—a means of preventing personnel from entering the path of a machine, such as an industrial robot, that moves within a large area.

1. Applicability

This document—

applies to Milnor® automated laundering systems with shuttle conveyors that move without operator intervention (automatic operation),

does not apply to shuttles that require operator input continually, such as directing all shuttle movements (manual operation).

2. References for Proximity Safeguarding

ANSI Z8.1-2016 “American National Standard for Commercial Laundry and Drycleaning Equipment and Operations - Safety Requirements”

OSHA Standard 29 CFR § 1910.212 “General Requirements for All Machines”

OSHA Directive STD 01-12-002 - Pub 8-1.3 “Guidelines for Robotic Safety”

ANSI/RIA R15.06-2012 “American National Standard for Industrial Robots and Robot Systems- Safety Requirements”

ANSI/ASME B15.1-2000 “Safety Standard for Mechanical Power Transmission Apparatus”

OSHA Publication 3067 “Concepts and Techniques of Machine Safeguarding”

ISO 10472-1 “Safety Requirements for Industrial Laundry Machinery”

3. Hazards To Personnel in Proximity to Shuttle Conveyors

Milnor automated laundering systems use automatic shuttle conveyors to transport goods among the processing machines in the system. Depending on model, an automatic shuttle conveyor may move in any of the following ways, in addition to running its conveyor belt(s):

- It may travel along (traverse) a line of machines (typically dryers).
- Its conveyor bed(s) may ascend and descend (elevate) within the machine frame.
- Its conveyor bed(s) may extend and retract within the machine frame.
- The conveyor bed and frame may pivot.
- Wet goods shuttles have a bucket that elevates and tilts.

These motions pose strike, crush, sever, and entrapment hazards to personnel in proximity to the shuttle. **For the safety of personnel, owner/users must provide proximity safeguarding that protects personnel from the moving shuttle.**

A common method of proximity safeguarding is safety fencing with interlocked gates that disable the shuttle when a gate is opened. When a shuttle is disabled, this will eventually cause other machines in the system to hold (wait for action from another machine), but it will not necessarily cause them to immediately stop moving. In the case of a tunnel system, the press or centrifugal extractor can pose additional hazards to personnel in proximity to the equipment. **Hence, the safeguards must also disable any presses or extractors.** Tunnels and dryers do not pose a significant hazard to personnel merely because they are in proximity to the equipment, and need not be automatically disabled.



WARNING 1: Multiple Hazards—Proximity safeguarding provides only partial protection and only against injury resulting from entering the shuttle path. It is not a substitute for proper

lockout/tagout procedures and good safety practices.

- Always lockout/tagout any individual machine (or follow the published maintenance procedures) when performing maintenance or clearing a fault on that machine.
- Ensure that all personnel understand the safeguards and do not attempt to defeat them.
- Inspect safeguards weekly to ensure that they are not mechanically or electrically circumvented.

4. How Milnor Accommodates Proximity Safeguarding

Milnor provides connection points on shuttles, presses and centrifugal extractors for interfacing with devices such as gate interlock switches. These connection points are tagged for easy identification. When Milnor provides equipment layout drawings for an automated laundering system, it indicates on the drawing, the perimeter of the shuttle movement area that must be guarded. The following hazard statement is displayed on connection point tags as well as equipment layout drawings prepared by Milnor:



WARNING [2]: Strike, Crush, Sever, and Entrapment Hazards—Serious bodily injury or death can result to personnel in proximity to machinery/systems that traverse, elevate, extend, pivot, and/or tilt. The following mandatory minimum safety requirements must be installed with the machinery system (local codes may require additional precautions):

- Safety fence enclosing machine movement areas,
- Lockable electrical interlocks on all gates, properly interfaced as shown on machine schematics, to disable machine movement when any gate is opened,
- Signs to alert personnel to these hazards, placed prominently around the fenced area.

Although the objectives of proximity safeguarding are the same anywhere, design requirements vary with local codes (which occasionally change) and with the plant layout. For this reason, Milnor does not provide detailed designs or materials for proximity safeguarding. If the necessary expertise does not exist within the owner/user's organization, consult appropriate sources such as local engineers or architects specializing in industrial facility design.

5. Examples of Safety Fencing With Interlocked Gates

Fencing with interlocked gates like that depicted in [Figure 1](#) and [Figure 2](#), may be used to meet the proximity safeguarding requirement. Should the owner/user choose this method, the following information may be useful. However, **this information may not satisfy current or local code requirements. The owner/user must determine its suitability for his particular facility.**

Figure 1: Example Fence Layout for Automated Laundering System Where One Tunnel Serves a Bank of Dryers

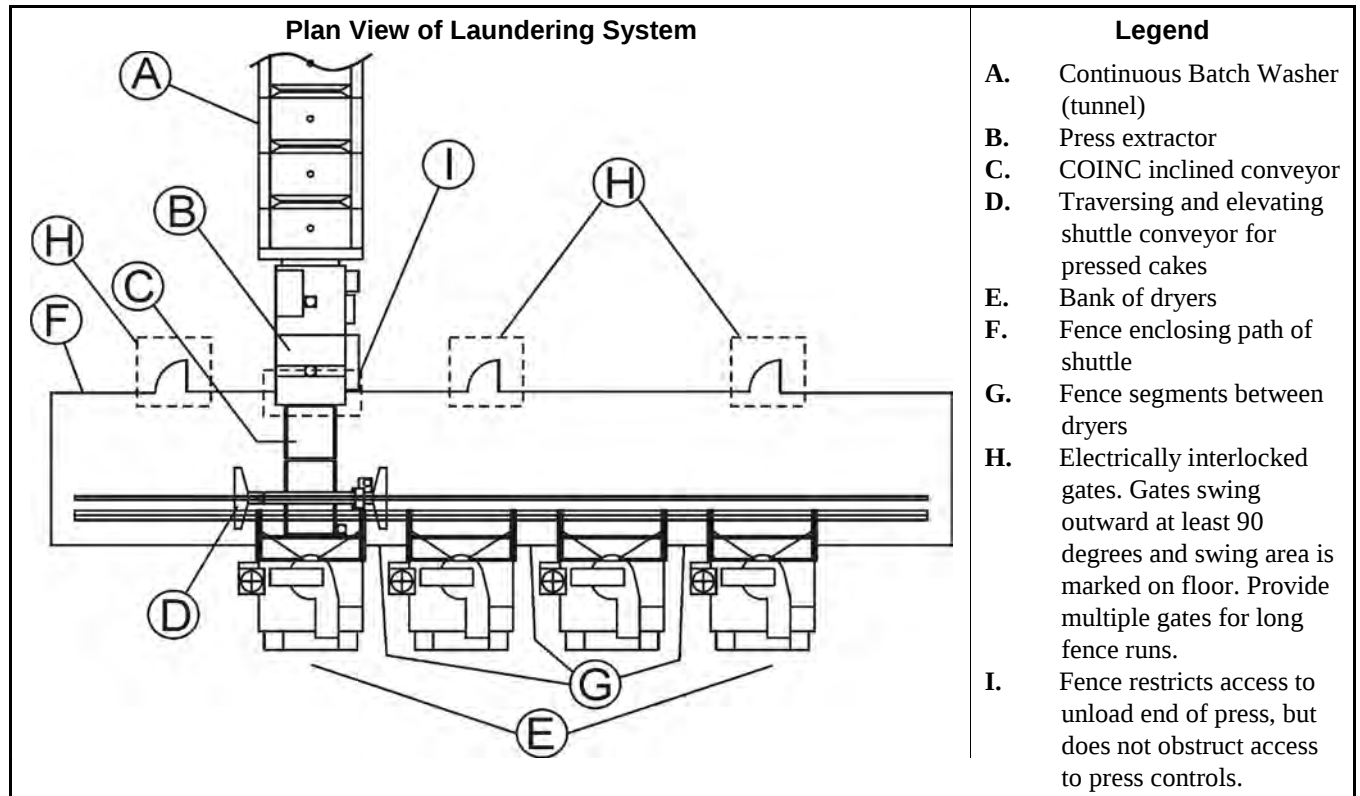
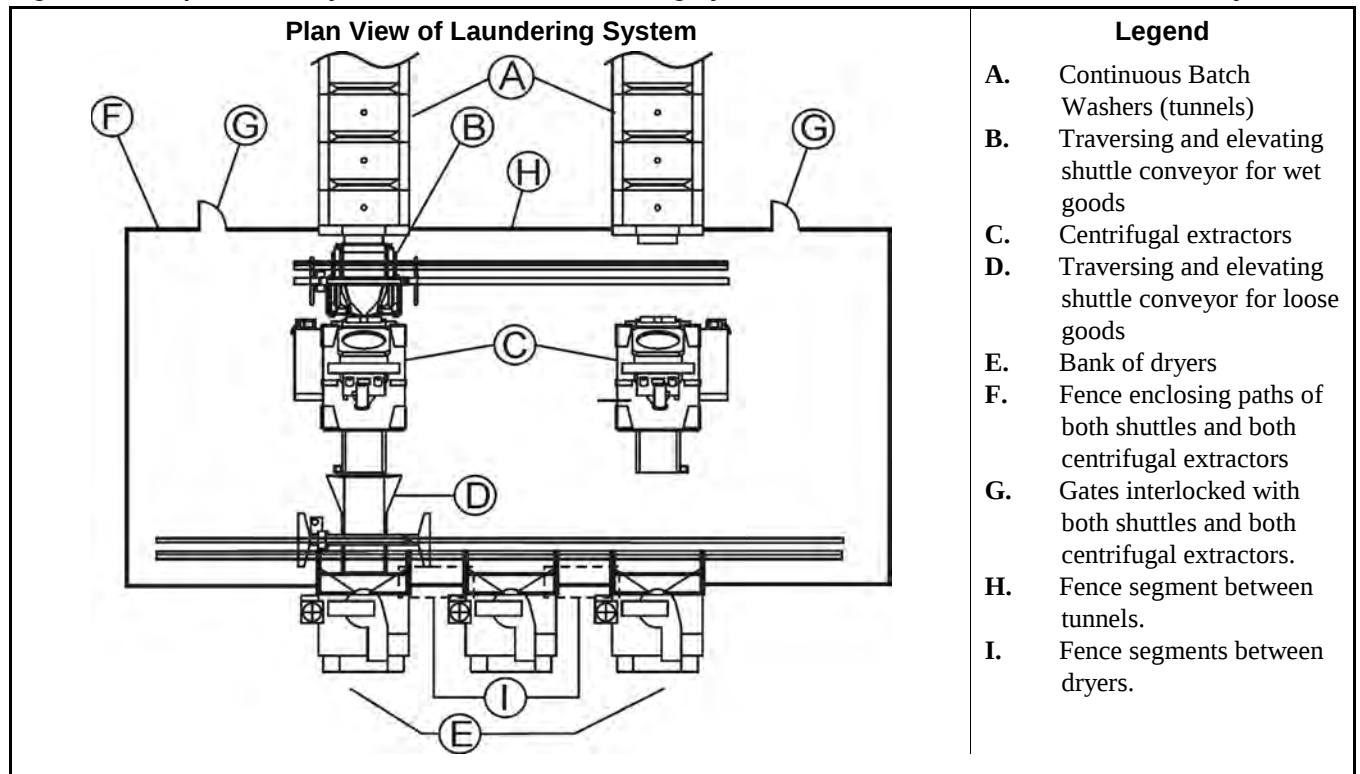


Figure 2: Example Fence Layout for Automated Laundering System Where Two Tunnels Serve a Bank of Dryers



- 5.1. Fence Dimensions**—The fence must discourage climbing over and prevent crawling under.
- 5.2. Fence Materials and Setback**—The fence must be constructed of materials and located so as to prevent personnel from reaching through gaps in the fence and contacting the enclosed machinery.
- 5.3. Gates**—Personnel gates must be held firmly closed but permit personnel to easily pass through when necessary. Gates must be equipped with a positive latching arrangement to prevent accidental opening. Adequate floor space must be provided to allow the gate to swing at least 90 degrees when fully open. Gates must open outward; that is, away from the fenced perimeter. The floor must be permanently marked to show the gate's swing area, to discourage obstructing its movement.
- 5.4. Control Circuitry**—All gates must be electrically interlocked with any shuttle conveyors within the fenced area and with any presses or centrifugal extractors that the fence either encloses or intersects. Opening any gate must have the following effects:
1. Shuttle(s), press(es), and/or centrifugal extractor(s) stop moving immediately.
 2. An audible alarm sounds.
 3. Shuttle(s), press(es), and/or centrifugal extractor(s) cannot be restarted merely by closing the gate(s), but must be restarted at the machine control panel once the gate(s) are closed.
- Milnor shuttles, presses and centrifugal extractors provide such functionality when properly interfaced with gate interlock switches.
- 5.5. System Emergency Stop Switches**—The laundry must establish rules and procedures that prohibit personnel from remaining within the fenced area with machine(s) enabled, except in accordance with published maintenance procedures. System emergency stop switches (panic buttons) should be provided inside and outside the fenced perimeter. Emergency stop switches should be located so that personnel anywhere inside the fenced perimeter are only a short distance from a switch, and they should be clearly marked as to their locations and function. Connect switches in series with the gate interlocks so that pressing an emergency stop switch performs the same control function as opening a gate.
- 5.6. Isolating Individual Machine Controls**—The interlock circuitry for each machine must be electrically isolated from that of the other machines. Hence, each gate interlock switch must provide as many pairs of dry contacts as there are machines to interface to. A pair of switch contacts must never be shared by two or more machines.
- 5.7. Recommended Signage**—Safety placards should be posted along the fence and at each gate, alerting personnel to the hazards within. At minimum, the size of lettering and distance between placards should be such that anyone contemplating entering the fenced area will likely see and read the placard first. Wording should be provided in each native language spoken by laundry personnel.

— End of BISUII01 —

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Wiring Safety Fence Gate Interlocks on Milnor® Shuttles, Presses and Centrifugal Extractors

This document is to be used in conjunction with Milnor document W6SYSSG “Micro 6 Systems Schematic: Customer-Provided Safety Fence Gate Interlock”. Together, these documents describe how to connect a customer-provided gate switch or series of switches to any Milnor shuttle, press, or centrifugal extractor. Another Milnor document—BISUUI01 “Proximity Safeguarding for Automatic Shuttle Conveyors”—discusses the general hazards that safety fencing addresses.

1. Precautions



WARNING 1: Electrocution and Electrical Burn Hazards—Contact with electric power can kill or seriously injure you. Electric power is present inside the cabinetry unless the main machine power disconnect is off.

- Do not service the machine unless qualified and authorized. You must clearly understand the hazards and how to avoid them.
- Perform all work with machine power locked out/tagged out.



WARNING 2: Strike and Crush Hazards—A traveling machine such as a shuttle can strike, crush, or entrap you if you ride on it or enter its path. Traveling machines or their components can move automatically in any direction. Placing a system machine on line by energizing the machine control may immediately summon a shuttle or other traveling machine.

- Lock out and tag out power to the traveling machine at the main machine disconnect if you must work in the path of the traveling machine.

2. Wiring Guidelines

As explained in BISUUI01, a gate interlock switch must have one pole per machine to be interlocked. Each pole on the switch must be electrically isolated from any other poles on that switch. The gate interlock circuit for a given machine is a series circuit that includes one pole per switch (per gate). This circuit is wired into, and becomes part of the machine's three-wire circuit (see definition below).

three-wire circuit—a circuit that provides control power for all machine functions. Any of several safety devices in the three-wire circuit will open the circuit and stop machine operation if a malfunction is detected. Once open, the three-wire circuit can only be closed by manual intervention and then only if the condition that opened the circuit is rectified.

W6SYSSG depicts schematically, various circuit segments the technician may encounter, depending on the type and age of the machine. Only one depiction will match a given machine. It may be helpful to refer to the electrical schematics for your machine; however, you should be able to identify the pertinent electrical components by referring to the tags inside the electric box doors on your machine. You will use one of two wiring methods depending on which circuit segment on W6SYSSG corresponds to your machine:

1. **Jumpered terminals**—Remove the jumper and connect the two incoming conductors to the terminals (pins) where the jumpers were removed. A tag was tied to the jumper at the factory to identify this as the gate interlock switch connection point.
2. **Circuitry that must be split**—Locate convenient connection points (e.g., a pin on a switch) at which to split the circuit and connect the incoming conductors. You may need to splice wires to complete the connection.

3. Testing

Once wiring is completed, it is vital to test the system to ensure that:

1. all gate interlocks function properly, and
2. all components that were part of the machine's three-wire circuit before the gate interlocks were added continue to function properly. The objective is to ensure that the added wiring did not inadvertently bypass existing components.

3.1. Testing Gate Interlocks

1. Close all gates.
2. Restore power to all interlocked machines.
3. **For each gate:**
 - a. Start all interlocked machines (①) and place in *Manual* mode (all machines idling in manual).
 - b. Open the gate and verify that all interlocked machines shut down (as indicated by their individual operator alarms).
 - c. Close the gate so the next gate can be tested.

3.2. Testing Three-wire Circuit Components on Each Interlocked Machine—

Typically, these include the components listed in [Table 1](#).

Table 1: Typical Three-wire Circuit Components

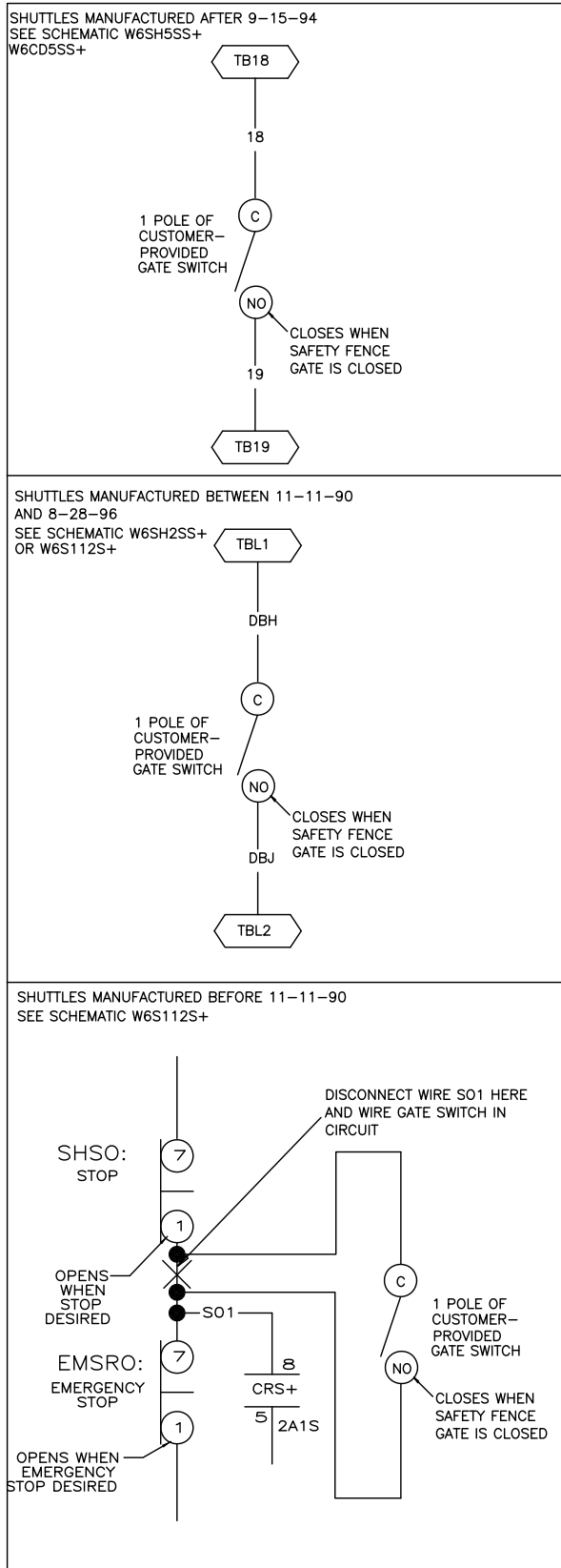
Component	Found On		
	Shuttle	Press	Centrifugal Extractor
Stop (①) push button on control panel	✓	✓	✓
Emergency Stop switch(es) (locking push button)	✓	✓	✓
Manually lifted access door (typically two per machine)		✓	
Manually removed access panel (typically two per machine)			✓
Pull cord (certain shuttles)	✓		
Kick plate (typically two per machine)	✓		

Test each interlocked machine as follows:

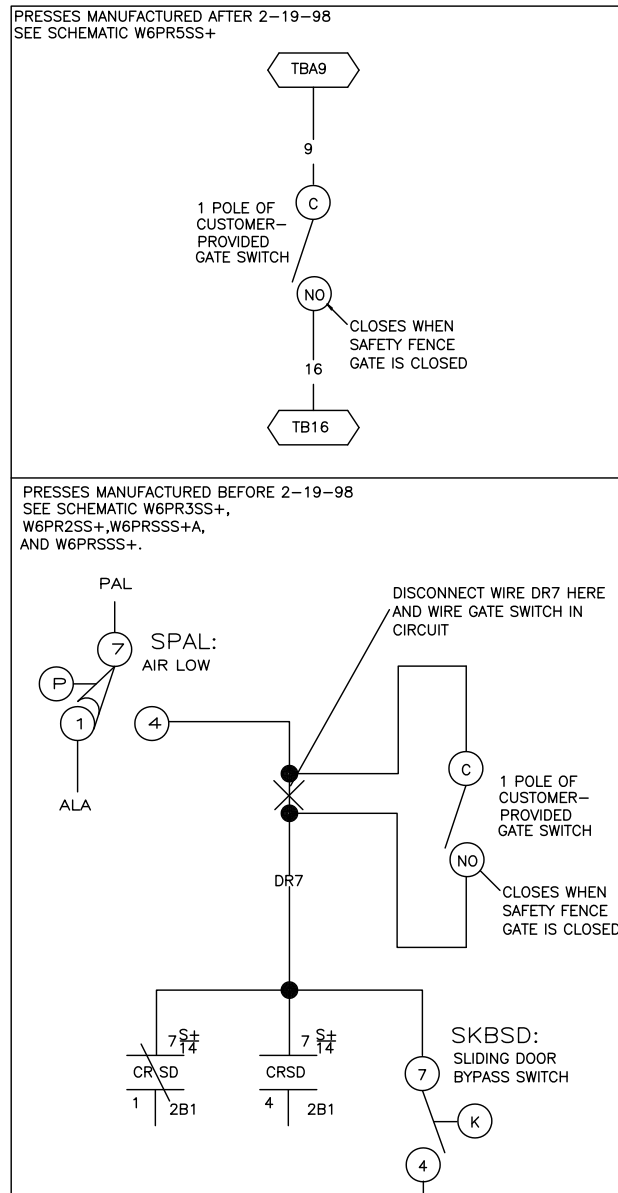
1. Start the machine and place in *Manual* mode (machine idling in manual).
2. For each three-wire circuit component on the machine:
 - a. Actuate the component (e.g., press the Stop button) and verify that the machine shuts down (as indicated by the operator alarm).
 - b. If needed, de-actuate the component. For example, release an Emergency Stop switch or close an access door, so the next component can be tested.

— End of BISUUI02 —

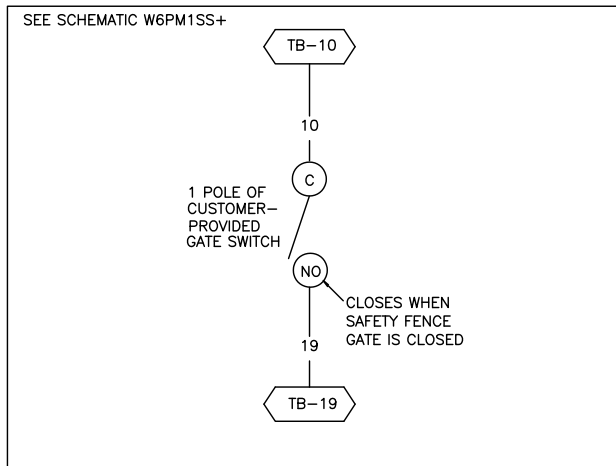
SAFETY FENCE GATE WIRING FOR ALL SHUTTLES



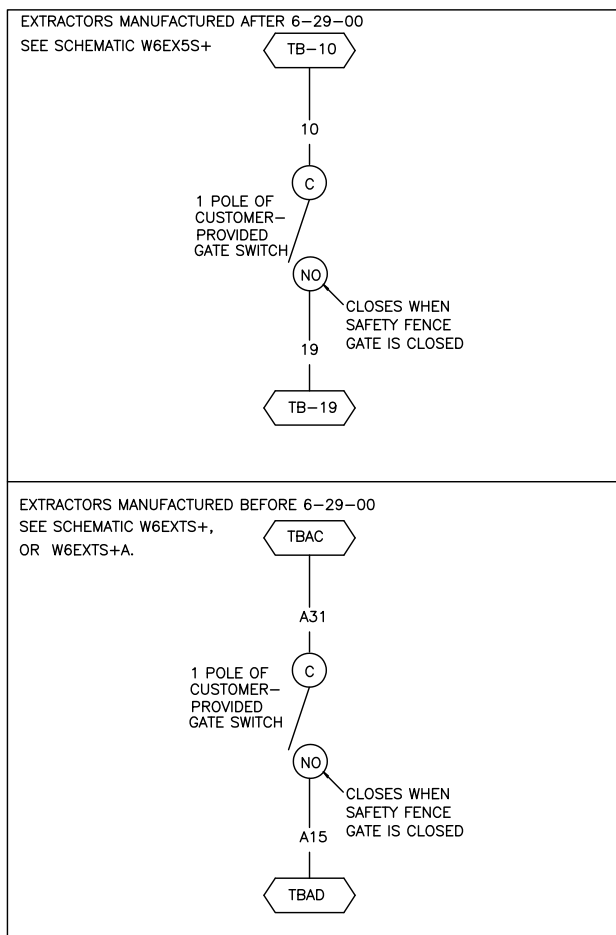
SAFETY FENCE GATE WIRING FOR ALL 2 STAGE PRESSES



SAFETY FENCE GATE WIRING FOR ALL SINGLE STAGE PRESSES



SAFETY FENCE GATE WIRING FOR ALL CENTRIFUGAL EXTRACTOR



NOTE:

THE SAFETY FENCE GATE INTERLOCK SWITCH PROVIDED BY THE END USER MUST HAVE A SEPERATE POLE FOR EACH MACHINE THAT IS WITHIN THE SAFETY FENCE AREA.

SHOWN ARE THE CONNECTION POINTS FOR EACH MACHINE THAT IS IN THE FENCED AREA.

IF MULTIPLE GATES GIVE ACCESS TO THE FENCED AREA THEN EACH GATE MUST HAVE AN INTERLOCK SWITCH WIRED IN SERIES BETWEEN THE MACHINE CONNECTION POINTS.

SEE MILNOR DOCUMENT BISUUI01 AND BISUUI02 "PROXIMITY SAFEGUARDING FOR AUTOMATIC SHUTTLE CONVEYORS" FOR MORE INFORMATION.

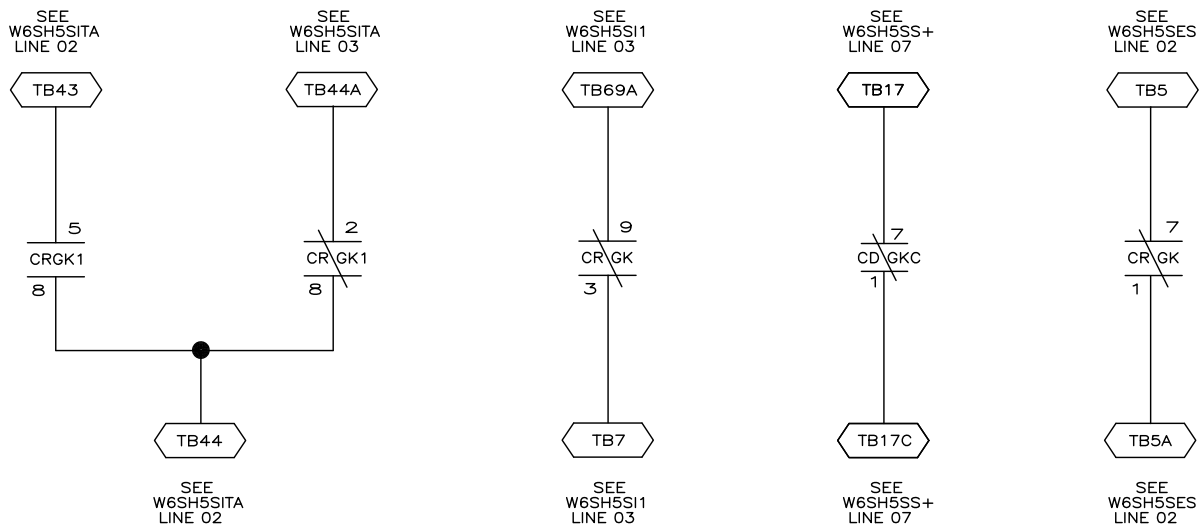
W6SYSSG

MICRO 6 SYSTEMS

PELLERIN MILNOR CORPORATION

SCHEMATIC: CUSTOMER PROVIDED SAFETY FENCE GATE INTERLOCK

W6SYSSG
2025283B



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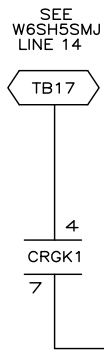
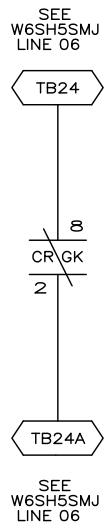
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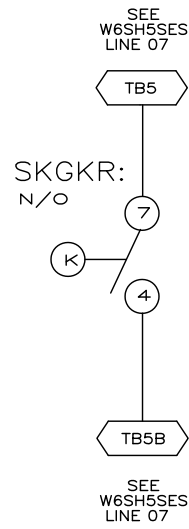
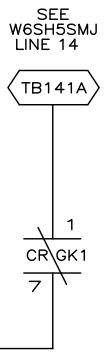
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CONTACTS DUPLICATED ON THIS PAGE
FOR EASE OF WIRING.
SEE INDIVIDUAL REFERENCES
FOR CONTACT LOCATION

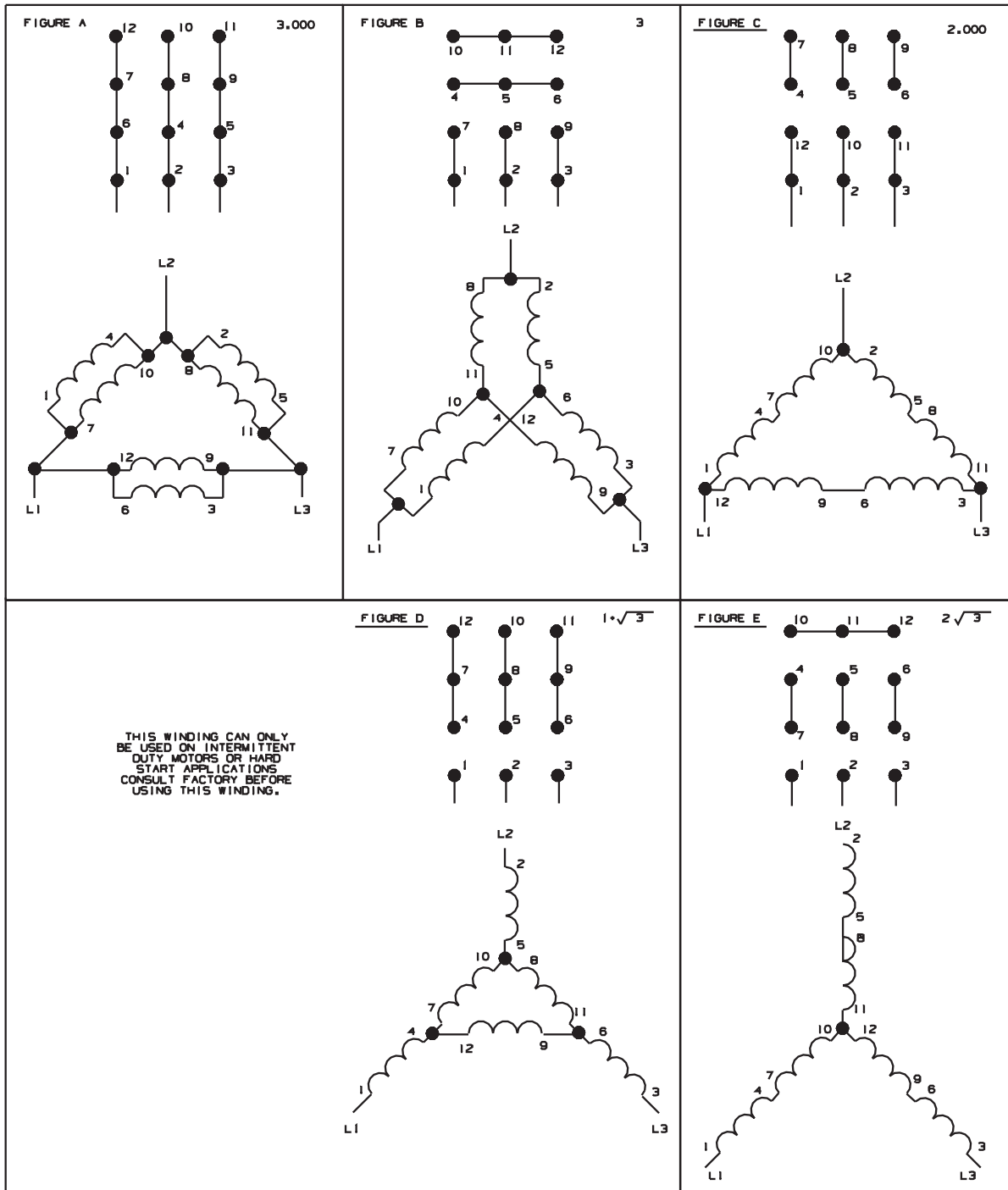


W6SYSSGA

MICRO 6 SYSTEMS MARK V

SCHEMATIC: GATE KEY INTERLOCK TO FORCE MANUAL CONTROL

FIGURE	ELECTRICAL VALUES	SUFFIXES							
		B		H		M		T	
		50HZ	60HZ	50HZ	60HZ	50HZ	60HZ	50HZ	60HZ
A	1,000	208	230			200	220	220	240
B	$\sqrt{3}$			208	240	346	380	380	
C	2,000	416	460	220	240	400	440	440	480
D	$1 + \sqrt{3}$						600		
E	$2\sqrt{3}$			380					



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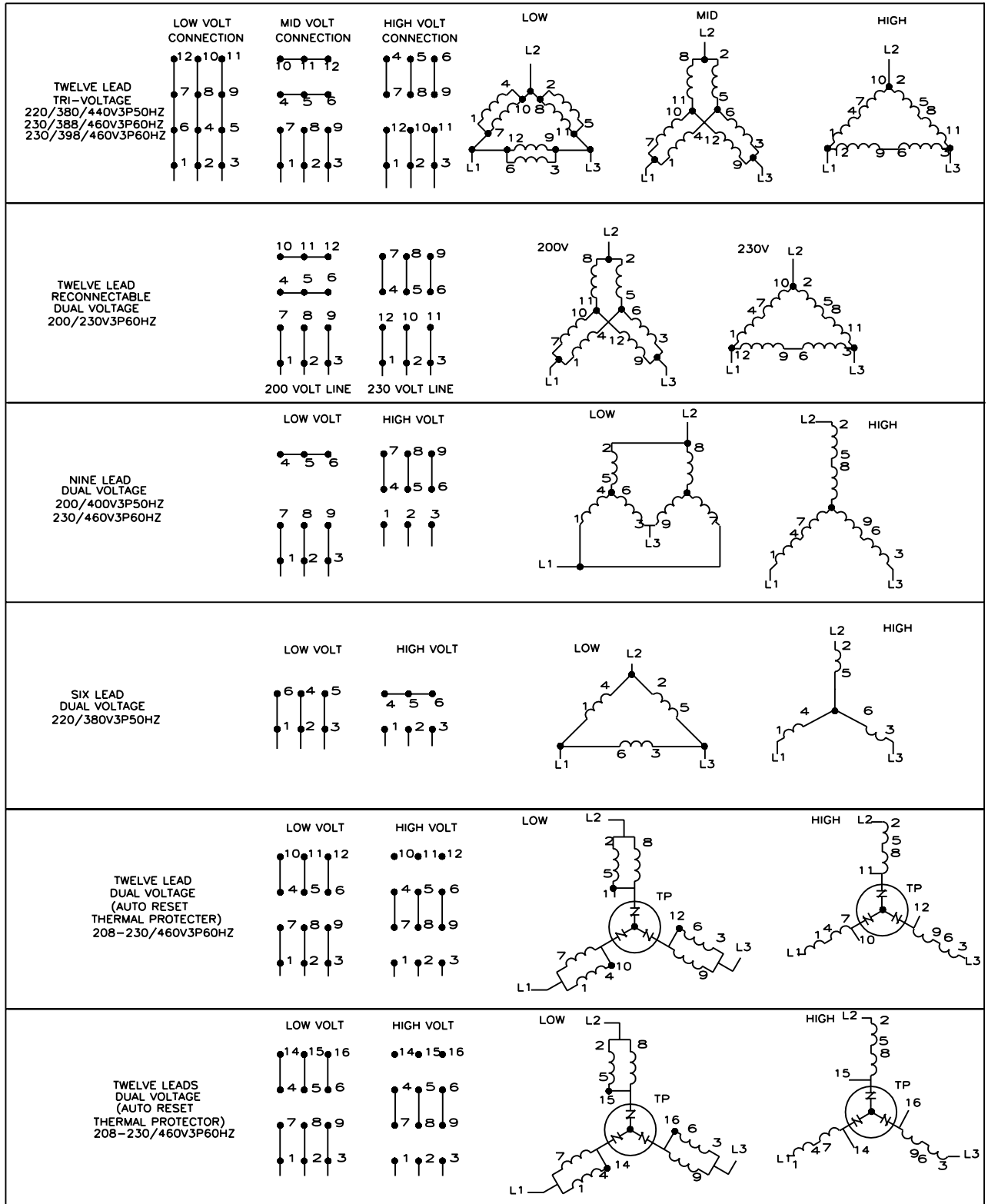
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BMP850029

MOTOR CONNECTION DIAGRAMS

THREE PHASE SINGLE SPEED MOTORS WITH MULTIPLE VOLTAGE RATINGS
(ONLY FOR MOTOR SUFFIXES LISTED)

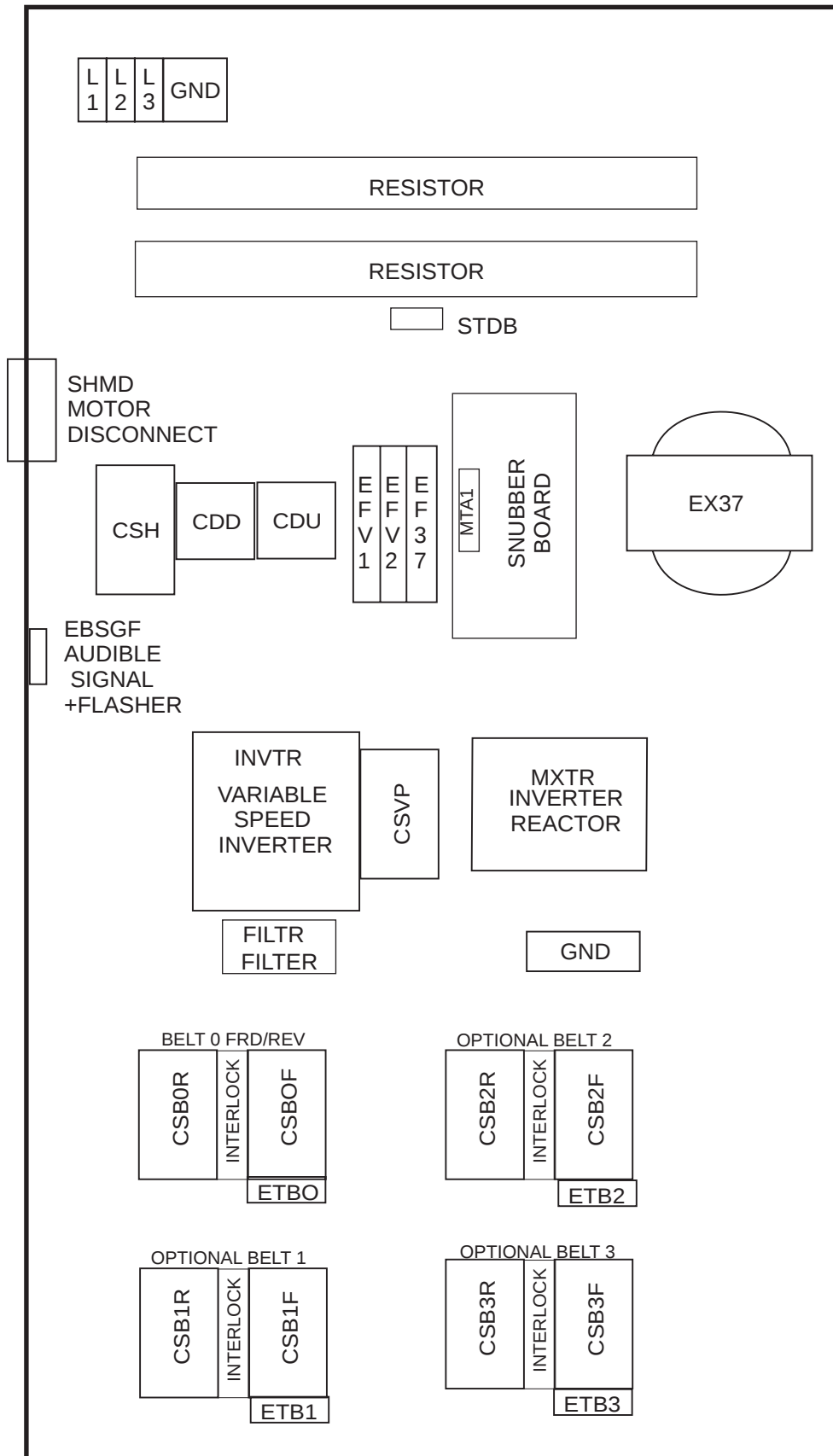
PELLERIN MILNOR CORPORATION



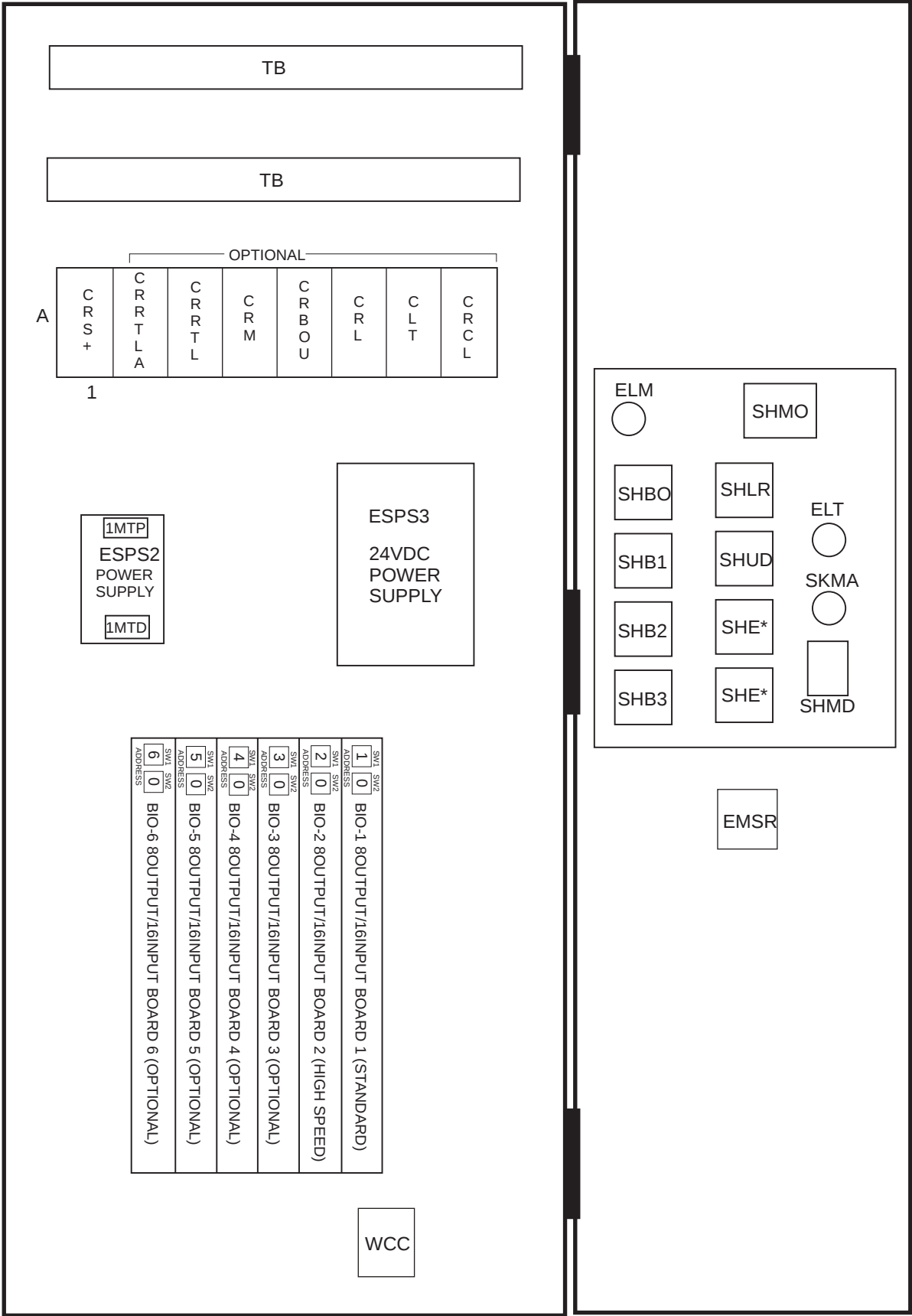
W80008

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

W80008
2001253A



MICRO 6 SYSTEMS SHUTTLE HIGH VOLTAGE CONTROL BOX



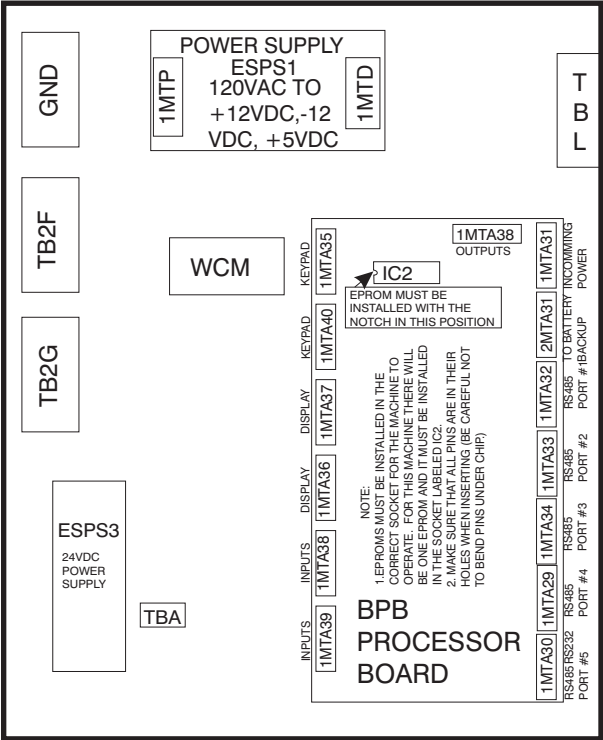
**MICRO 6 SYSTEMS
SHUTTLE LOW VOLTAGE CONTROL BOX**
PELLERIN MILNOR CORPORATION

B2T2006021
2008103G

W6SH5STG1
2012316B

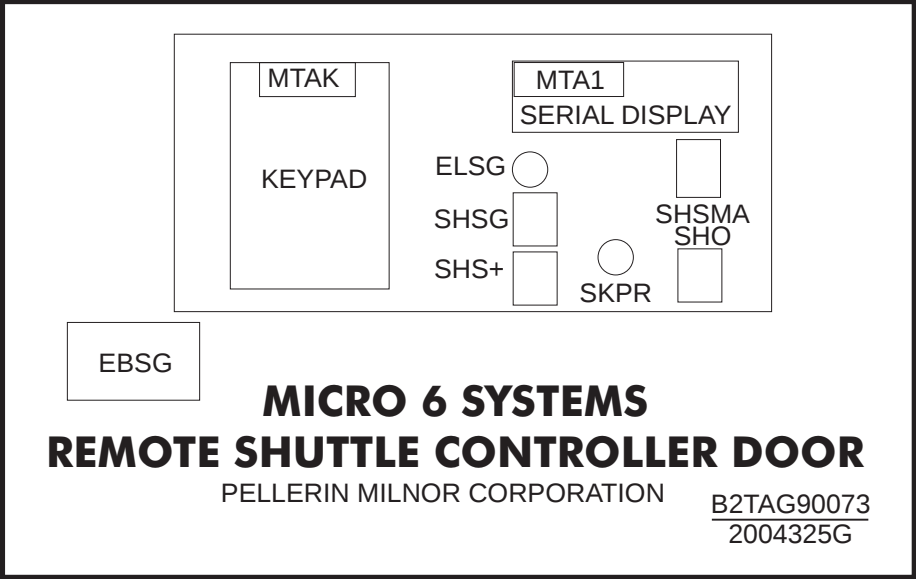
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MICRO 6 SYSTEMS MARK V CONTROLS
CONTROL BOX LAYOUTS W/O BELT INVERTERS
PELLERIN MILNOR CORPORATION

W6SH5STG1
2012316B



MICRO 6 SYSTEMS
REMOTE SHUTTLE CONTROLLER
PELLERIN MILNOR CORPORATION

B2TAG091095
2023455A



W6SH5STG2

MICRO 6 SYSTEMS MARK V CONTROLS CONTROL BOX LAYOUTS

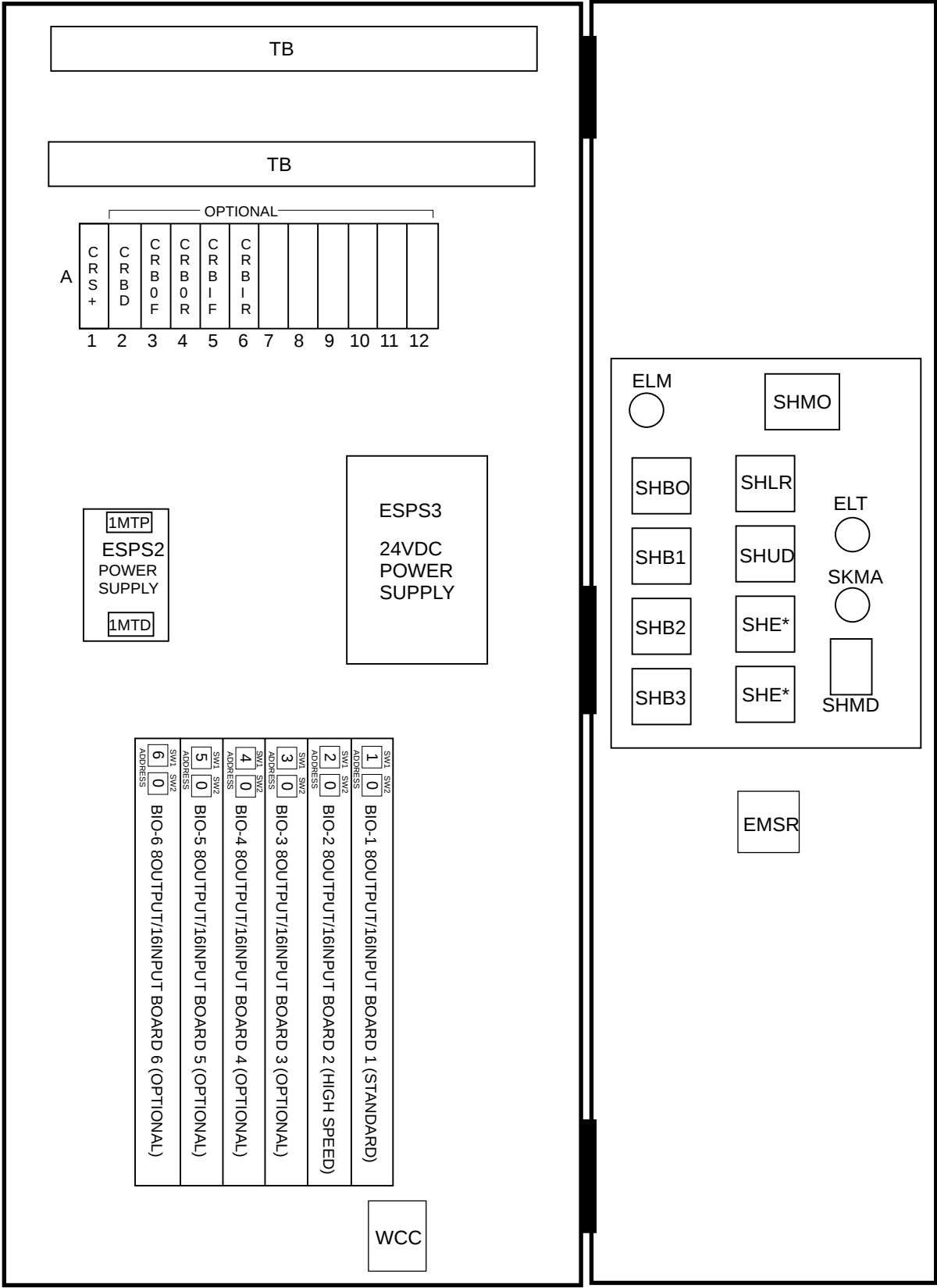
PELLERIN MILNOR CORPORATION

BIO-1 INPUTS 0 UNLOAD POSITION 1 1 UP OR DOWN LIMIT EXCEEDED 2 LOAD POSITION 1 3 LEFT OR RIGHT LIMIT EXCEEDED 4 LOAD POSITION 2 5 LOAD END BLOCKED BELT 1 6 UNLOAD END BLOCKED BELT 0 7 UNLOAD END BLOCKED BELT1 8 LOAD POSITION0 9 UNLOADPOSITION 0 10 ON WHEN IN AUTOMATIC 11 ON WHEN 3-WIRE ENERGIZED 12 HOME SWITCH 0 OR 1 13 DISCHARGE SWITCH 0 OR 1 14 LOAD SWITCH 0 OR 1 15 LOAD END BLOCKED BELT 0 OUTPUTS 0 MOVE UP 1 MOVE DOWN 2 MOVE LEFT 3 MOVE RIGHT 4 BELT 1 REVERSE 5 BELT 1 FORWARD 6 BELT 0 REVERSE 7 BELT 0 FORWARD	BIO-2 INPUTS 0 NOT USED 1 UNLOAD POSITION 2 2 GO DOWN BEFORE GOING UP 3 LOAD POSITION 3 4 UNLOAD POSITION 3 5 NOT USED 6 BELT OVER SHOOT EYE 7 ENCODER 8 RESET COUNTER 9 NOT USED 10 RETRACTED 11 EXTENDED TO LOAD 12 NOT USED 13 NOT USED 14 EXTENDED TO UNLOAD 15 RETRACTED OUTPUT 0 NOT USED 1 SIGNAL 2 NOT USED 3 SLOW DOWN 4 ALTERNATE DECEL / BELT 2 FWD 5 FLAG DOWN / BELT 2 REV 6 MOVEMENT COMMANDED 7 HIGH SPEED DISCHARGE	BIO-3 (DATA PASS) INPUTS 0 DRY CODE A 1 DRY CODE B 2 DRY CODE C 3 DRY CODE D 4 DESTINATION A 5 DESTINATION B 6 DESTINATION C 7 DESTINATION D 8 SINGLE CAKE 9 DATA VALID 10 DESIRES LOAD REVERSE 11 GO TO 2ND UNLOAD POSITION 12 MACHINE DESIRES LOAD 13 MACHINE IS ALLOWED TO LOAD 14 TO LEFT DESIRES LOAD 15 MACHINE DESIRES TO UNLOAD OUTPUTS 0 DRYCODE 2 1 DRYCODE 3 2 DESIRES TO RECEIVE LOAD 3 SHUTTLE DESIRES TO UNLOAD 4 SHUTTLE IS UNLOADED 5 DRYCODE 0 6 DRYCODE 1 7 SHUTTLE IS LOADED	BIO-4 (DATA PASS) INPUTS 0 CUSTOMER CODE A 1 CUSTOMER CODE B 2 CUSTOMER CODE C 3 CUSTOMER CODE D 4 CUSTOMER CODE E 5 CUSTOMER CODE F 6 TO LEFT, DESIRES TO LOAD 7 TO RIGHT DESIRES TO LOAD 8 LOAD SHUTTLE IN REVERSE 9 BELT IS LOADED 10 TO RIGHT DESIRES A LOAD 11 ALLIED DISCHARGE A LOAD 12 ALLIED LOADING CANCELLED 13 ALLIED DISCHARGE CANCELLED 14 ALLIED BELT 0 TO LOAD LEVEL 1 15 NEW CUSTOMER OUTPUTS 0 DESTINATION 2 1 DESTINATION 3 2 DATA VALID 3 READY TO UNLOAD 4 PARTIAL LOAD 5 DESTINATION 0 6 DESTINATION 1 7 NOT USED
BIO-5 (SEMI-AUTO, AUTO LOADING) INPUTS 0 LOAD STATION 3 (SHUTTLE CALL) 1 LOAD STATION 2 (SHUTTLE CALL) 2 LOAD STATION 1 (SHUTTLE CALL) 3 LOAD STATION 0 (SHUTTLE CALL) 4 LOAD STATION 4 (SHUTTLE CALL) 5 LOAD STATION 5 (SHUTTLE CALL) 6 LOAD STATION 6 (SHUTTLE CALL) 7 NOT USED 8 NOT USED 9 NOT USED 10 NOT USED 11 NOT USED 12 NOT USED 13 NOT USED 14 LOAD STATION 7 (SHUTTLE CALL) 15 NOT USED OUTPUTS 0 EXTEND BELT 1 TO UNLOAD 1 RETRACT BELT 1 FROM UNLOAD 2 EXTEND BELT 1 TO LOAD 3 RETRACT BELT 1 FROM LOAD 4 SEMI-AUTO LOAD DESIRED 5 SEMI-AUTO FIN. UNLOADING 6 NOT USED 7 NOT USED	BIO-6 (2-WIDE SHUTTLE + EXTEND/RETRACT) INPUTS 0 LOAD STATION SWITCH 1 OR 2 1 DISCH STATION SW 0 OR 1 2 UP OR DOWN LIMIT EXCEEDED 3 LOAD POSITION 0 (2-WIDE) 4 UNLOAD POSITION 0 (2-WIDE) 5 LOAD POSITION 1 (2-WIDE) 6 UNLOAD POSITION 1 (2-WIDE) 7 NOT USED 8 UNLOAD POSITION 2 (2-WIDE) 9 NOT USED 10 NOT USED 11 NOT USED 12 NOT USED 13 NOT USED 14 NOT USED 15 NOT USED OUTPUTS 0 I'M EMPTY 1 EXTEND TO UNLOAD 2 EXTEND TO LOAD 3 RETRACT FROM LOAD 4 RETRACT FROM UNLOAD 5 NOT USED 6 NOT USED 7 NOT USED	BIO-7 (COBUD) INPUTS 0 TILTED FULL UP 1 TILTED FULL DOWN 2 NOT USED 3 NOT USED 4 NOT USED 5 NOT USED 6 NOT USED 7 NOT USED 8 NOT USED 9 NOT USED 10 NOT USED 11 NOT USED 12 NOT USED 13 NOT USED 14 NOT USED 15 NOT USED OUTPUTS 0 TILT UP DESIRED 1 TILT DOWN DESIRED 2 COBUD HAS DISCHARGED 3 HERE COMES A LOAD 4 NOT USED 5 NOT USED 6 NOT USED 7 NOT USED	

MICRO 6 SYSTEMS
SHUTTLE CONTROL BOARDS
PELLERIN MILNOR CORPORATION

B2TAG96020
2025163A





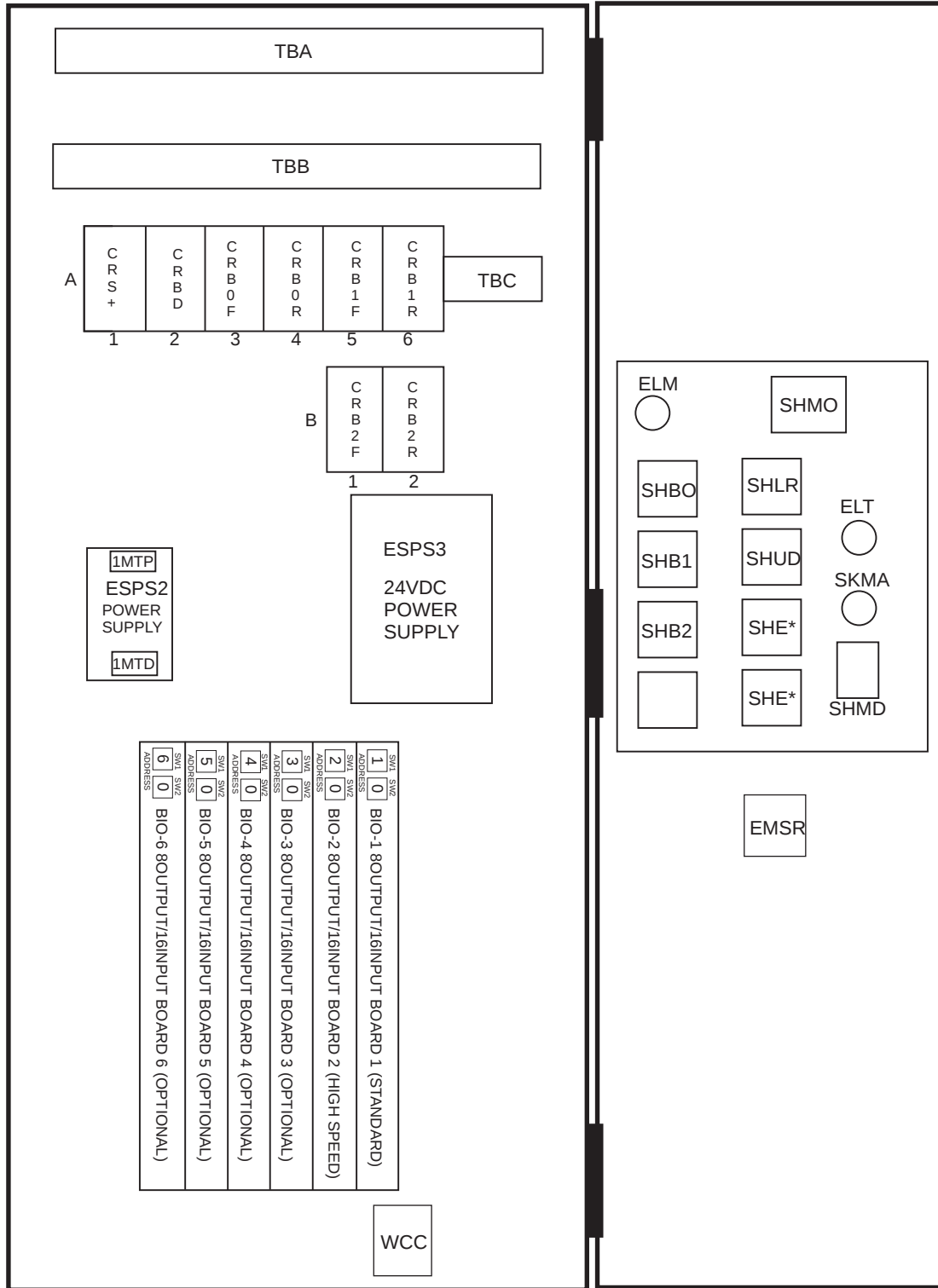
MICRO 6 SYSTEMS
SHUTTLE LOW VOLTAGE CONTROL BOX
WITH INVERTER DRIVEN BELTS
PELLERIN MILNOR CORPORATION

B2T2006023
2006403G

W6SH5STG3
MICRO 6 SYSTEMS MARK V CONTROLS
CONTROL BOX LAYOUTS W/ BELT INVERTERS
PELLERIN MILNOR CORPORATION

W6SH5STG3
2007064B

W6SH5STG3
2007064B



MICRO 6 SYSTEMS
SHUTTLE LOW VOLTAGE CONTROL BOX
WITH 3 INVERTER DRIVEN BELTS
 PELLERIN MILNOR CORPORATION

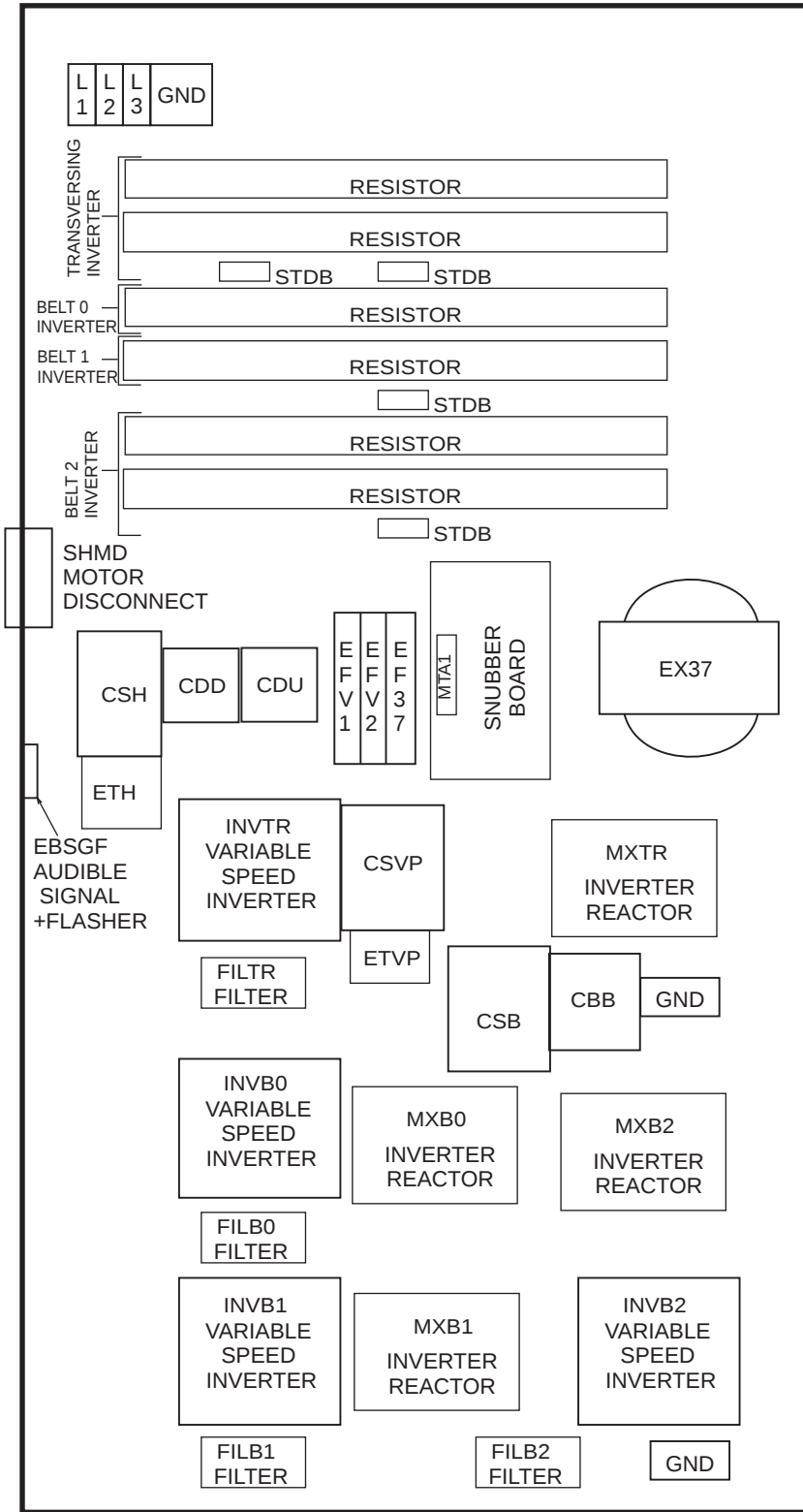
B2T2006023-3HIGH
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W6SH5STG4

MICRO 6 SYSTEMS MARK V CONTROLS

CONTROL BOX LAYOUTS

PELLERIN MILNOR CORPORATION

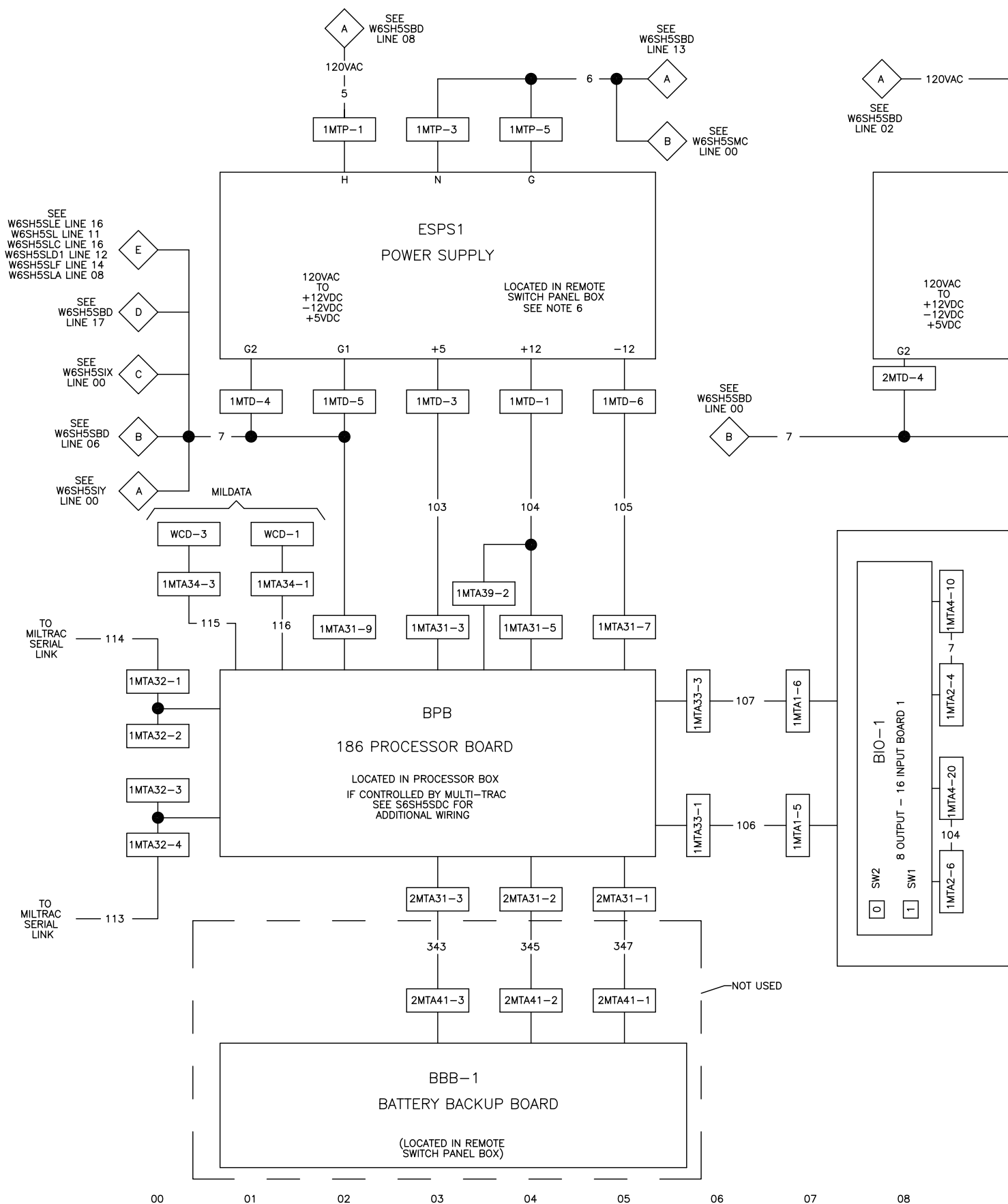


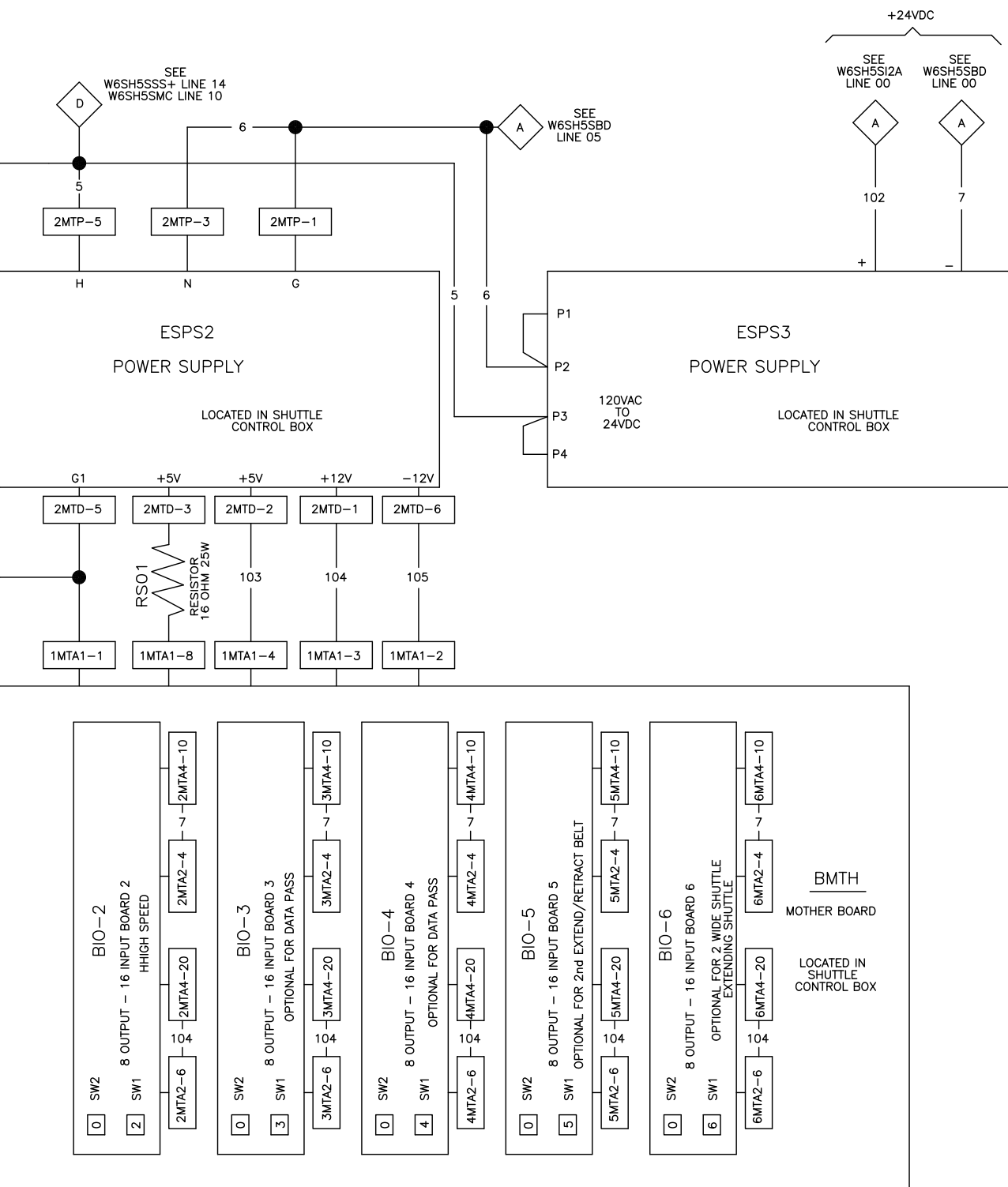
MICRO 6 SYSTEMS
SHUTTLE HIGH VOLTAGE CONTROL BOX
WITH 3 INVERTER DRIVEN BELTS
 PELLERIN MILNOR CORPORATION B2T2006022-3HIGH
 2025176A

Shuttle/Elevating Conveyors

Load=No Extension

Unload=No Extension





WIRING COLORING CODE

WIRE NO.	VOLTAGE	WIRE COLOR
103	+5VDC	BLUE
104	+12VDC	BLUE/ORANGE
105	-12VDC	BLUE/BLACK
7	SIGNAL GROUND	BLUE/WHITE
107	SERIAL HIGH	BLUE/RED
106	SERIAL LOW	BLUE/BLACK
114	MILNET HIGH	BLUE/RED
113	MILNET LOW	BLUE/BLACK
6	CONTROL GROUND	RED/WHITE
24VAC	LOW VOLTAGE CONTROL	RED/BLUE
120VAC	HIGH VOLTAGE CONTROL	RED
INPUTS	INPUTS TO MICRO	BLUE/BLACK
102	+24 VDC	BLUE

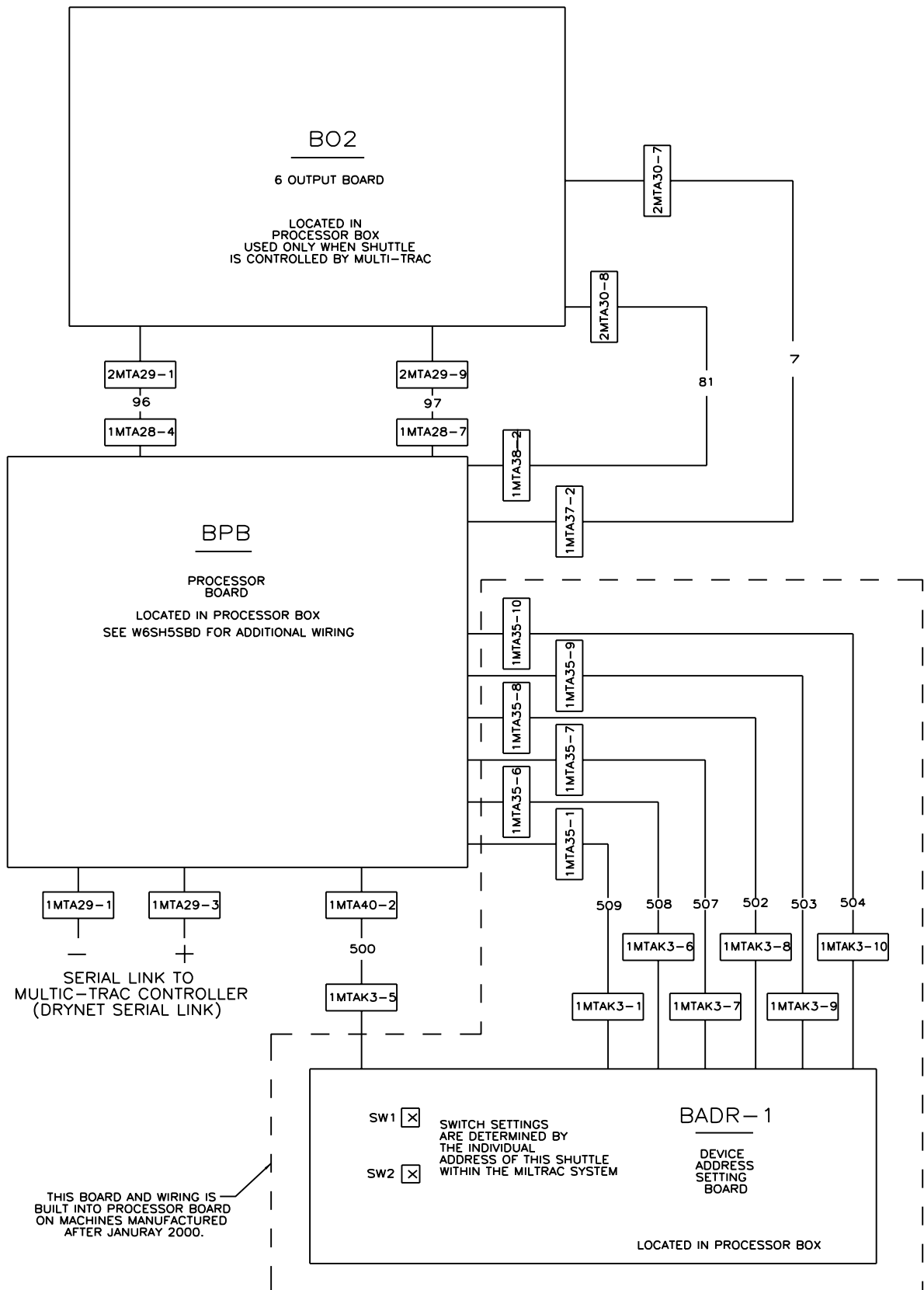
NOTES:

- 2MTP, 2MTD ARE LOCATED ON ESPS2 (POWER SUPPLY).
- 1MTP, 1MTD ARE LOCATED ON ESPS1 (POWER SUPPLY).
- 1MTA31, 1MTA32, 1MTA33, 1MTA34, 2MTA31 ARE LOCATED IN BPB (PROCESSOR BOARD).
- WCD IS THE DOWNLOAD/PRINTER/MILDATA CONNECTOR.
- 2MTA41 IS LOCATED ON BBB-1 (BATTERY BACKUP BOARD).
- IF SHUTTLE IS CONTROLLED BY MULTI-TRAC, THEN PROCESSOR BOX IS MOUNTED ON SHUTTLE CONTROLLER BOX. ESPS1 POWER SUPPLY DOES NOT EXIST AND THE PROCESSOR BOARDS POWER AND GROUND (WIRE# 103, 104, 105 AND 17) ARE SUPPLIED FROM ESPS2 IN SHUTTLE CONTROL BOX.

W6SH5SBD

MICRO 6 SYSTEMS MARK V CONTROLS
SCHEMATIC: BOARD TO BOARD WIRING
110V1P50HZ/120V1P60HZ

PELLERIN MILNOR CORPORATION

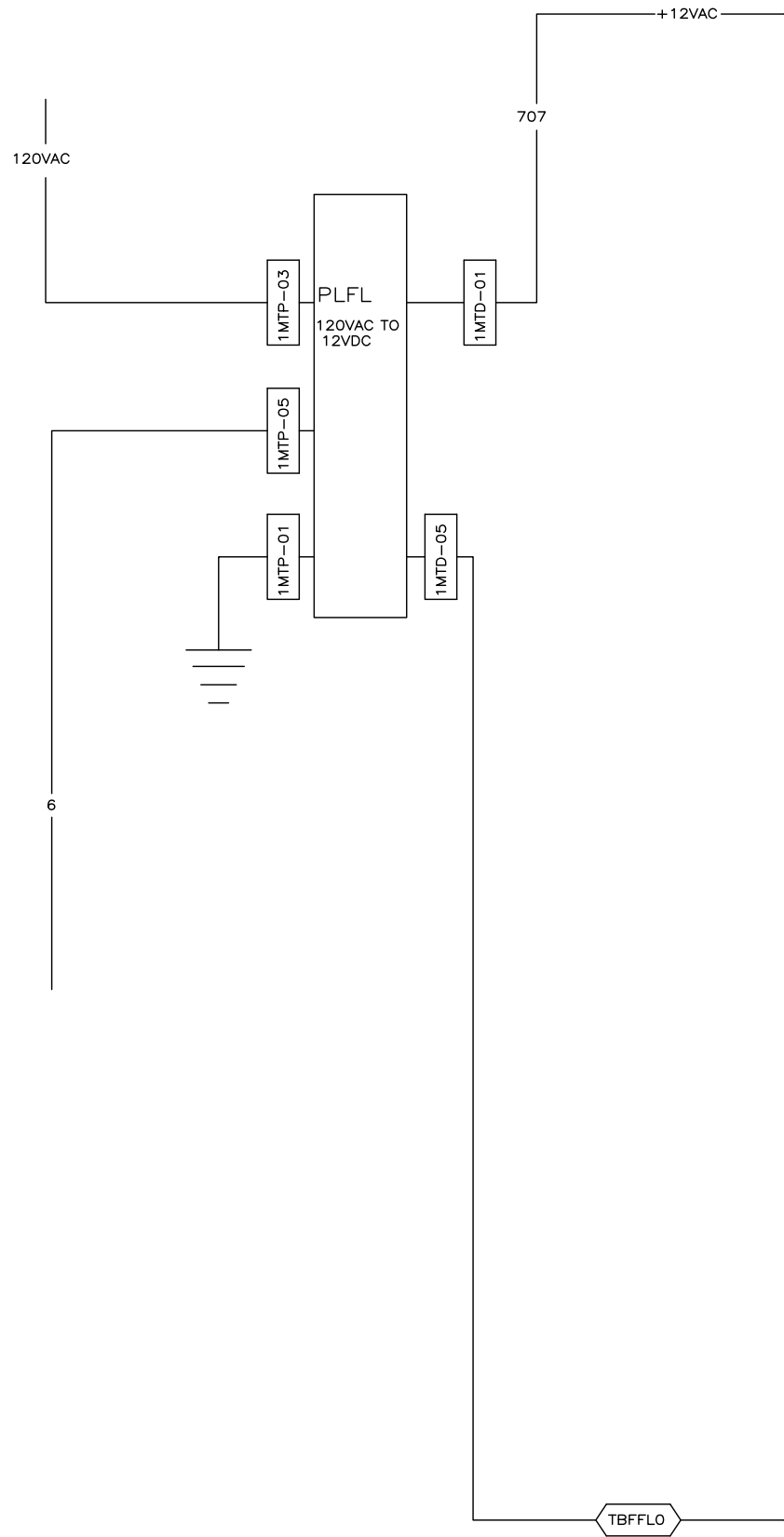


NOTE:
THIS SCHEMATIC IS USED ONLY
WHEN THE SHUTTLE IS CONTROLLED BY A DRYER/
SHUTTLE CONTROLLER RATHER THAN AN INDIVIDUAL
SHUTTLE CONTROLLER, THIS SCHEMATIC REPLACES
W6SH5SK+D AND THE DIRECT INPUT FOR THE PROGRAM
KEY AS SHOWN ON W6SH5SI2A LINE 09.

W6SH5SDC

MICRO 6 SYSTEMS MARK V CONTROLS
SCHEMATIC; ADDITIONAL BOARD
WIRING FOR INTERFACE WITH
MULTI-TRAC CONTROLLER
PELLERIN MILNOR CORPORATION

W6SH5SDC
~~2003365B~~



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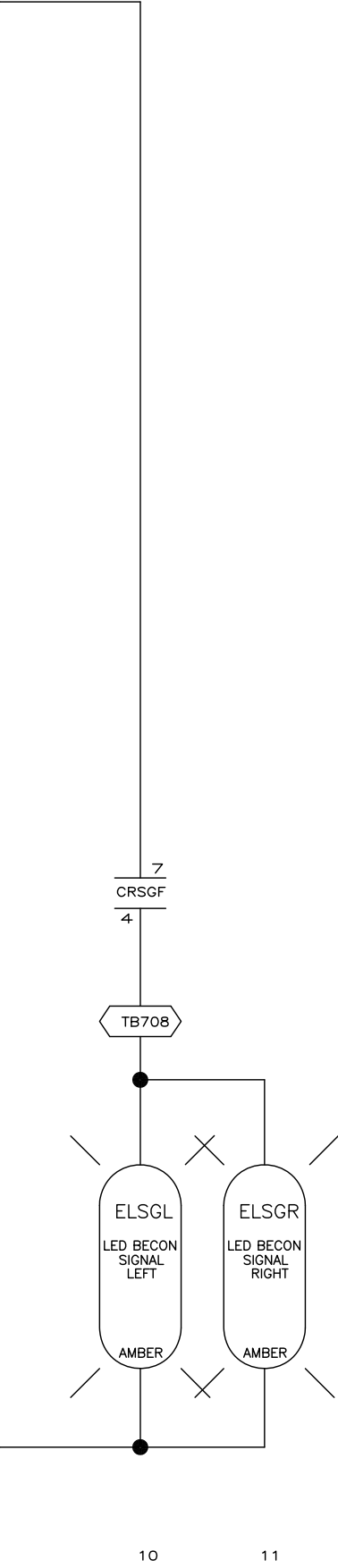
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W6SH5SFS

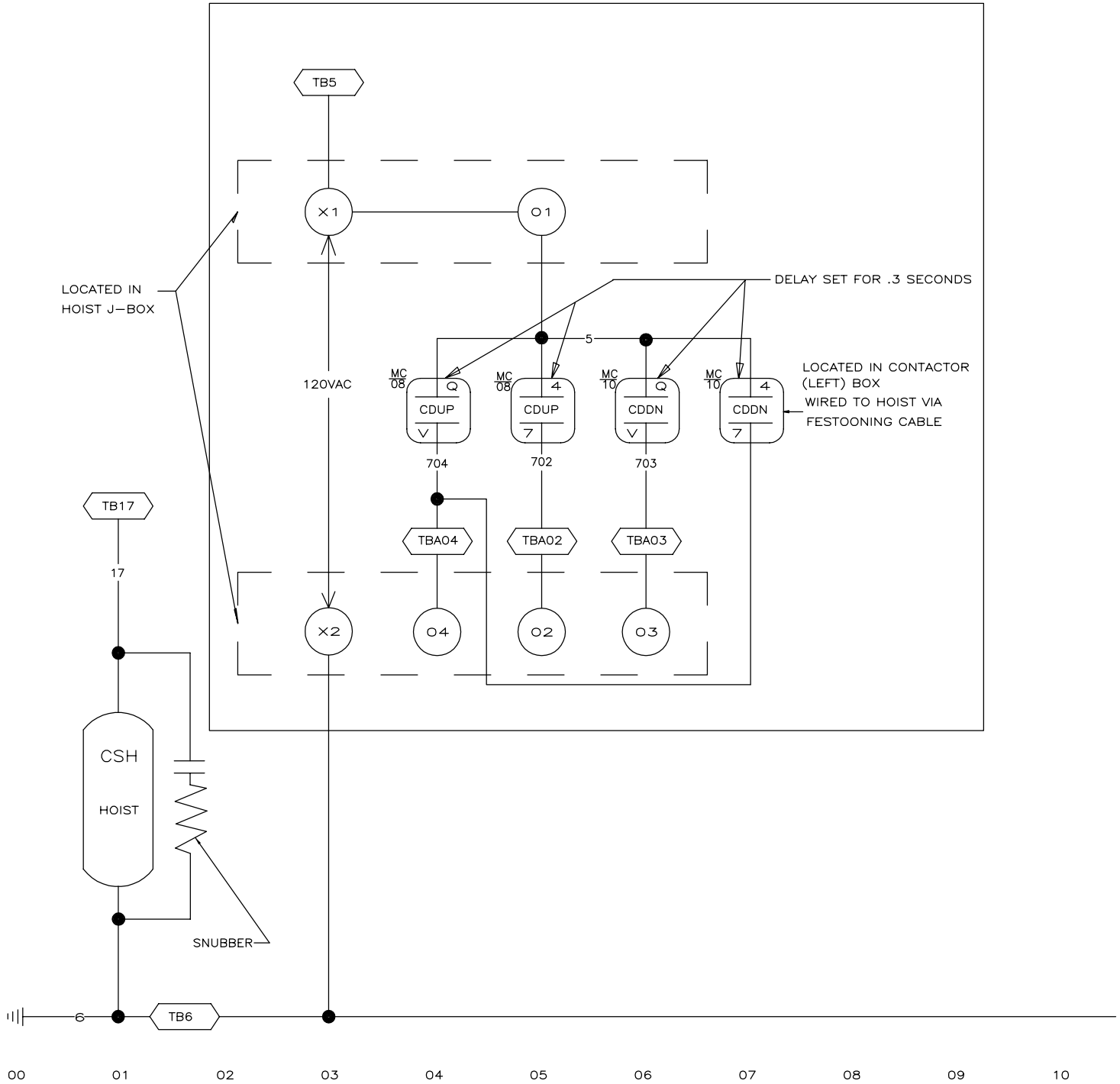
SCHEMATIC: OPTIONAL FLASHING LED SIGNAL LIGHTS

PELLERIN MILNOR CORPORATION

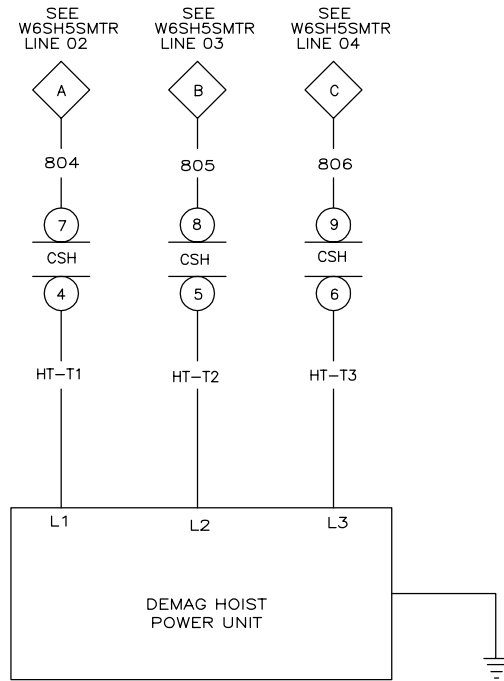
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2016452B

W6SH5SFS
2016452B

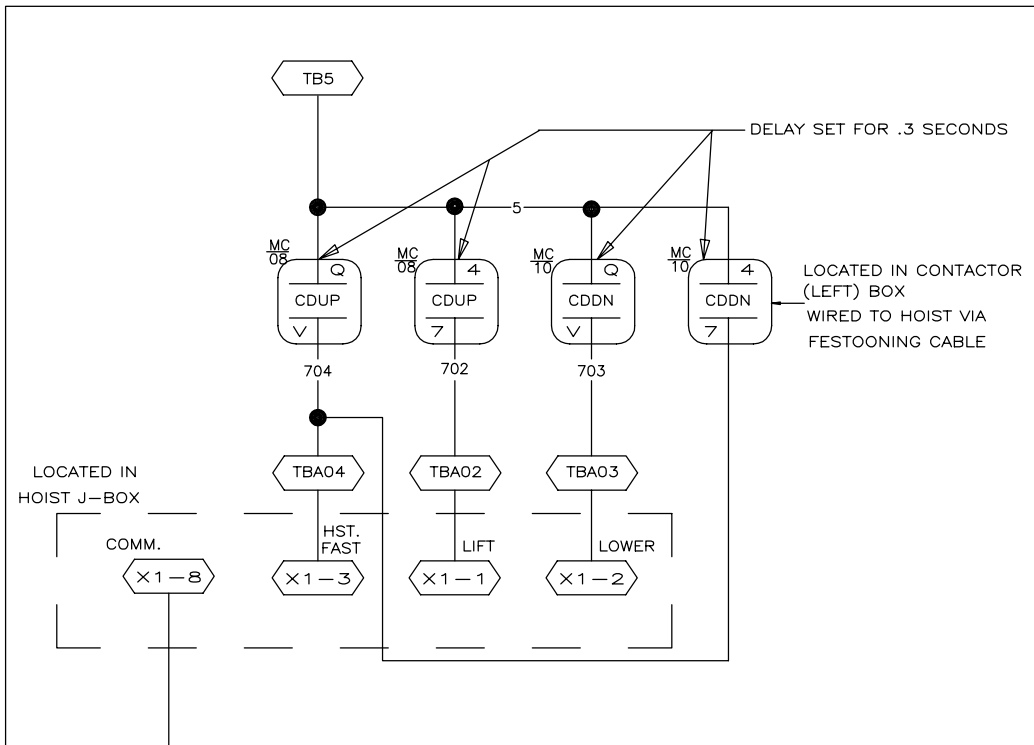
DEMAG HOIST CONTROL WIRING BEFORE SEPTEMBER 15, 2006



W6SH5SHS
2007223B

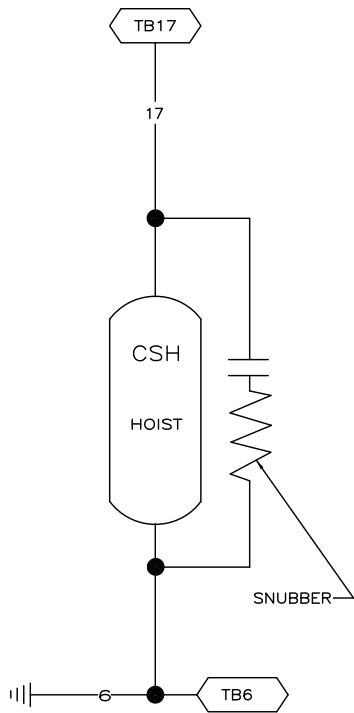


DEMAG HOIST CONTROL WIRING AFTER SEPTEMBER 15, 2006

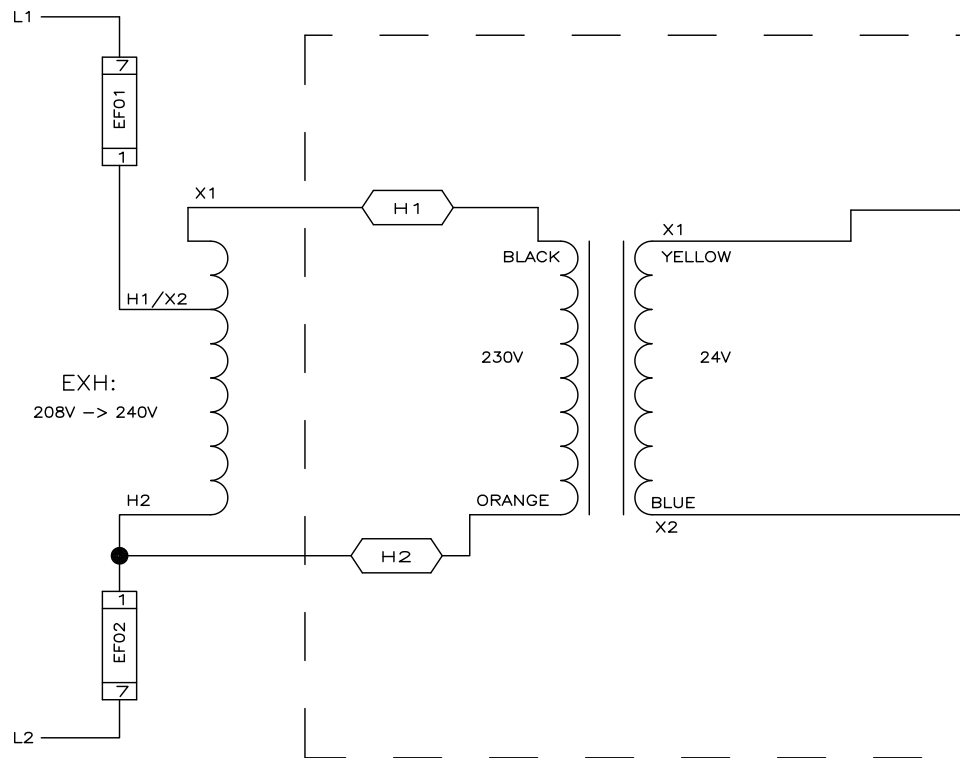


W6SH5SHS

MICRO 6 SYSTEMS MARK V
SCHEMATIC: DEMAG DC PRO HOIST CONTROLS
110V1P50HZ/120V1P60HZ
PELLERIN MILNOR CORPORATION

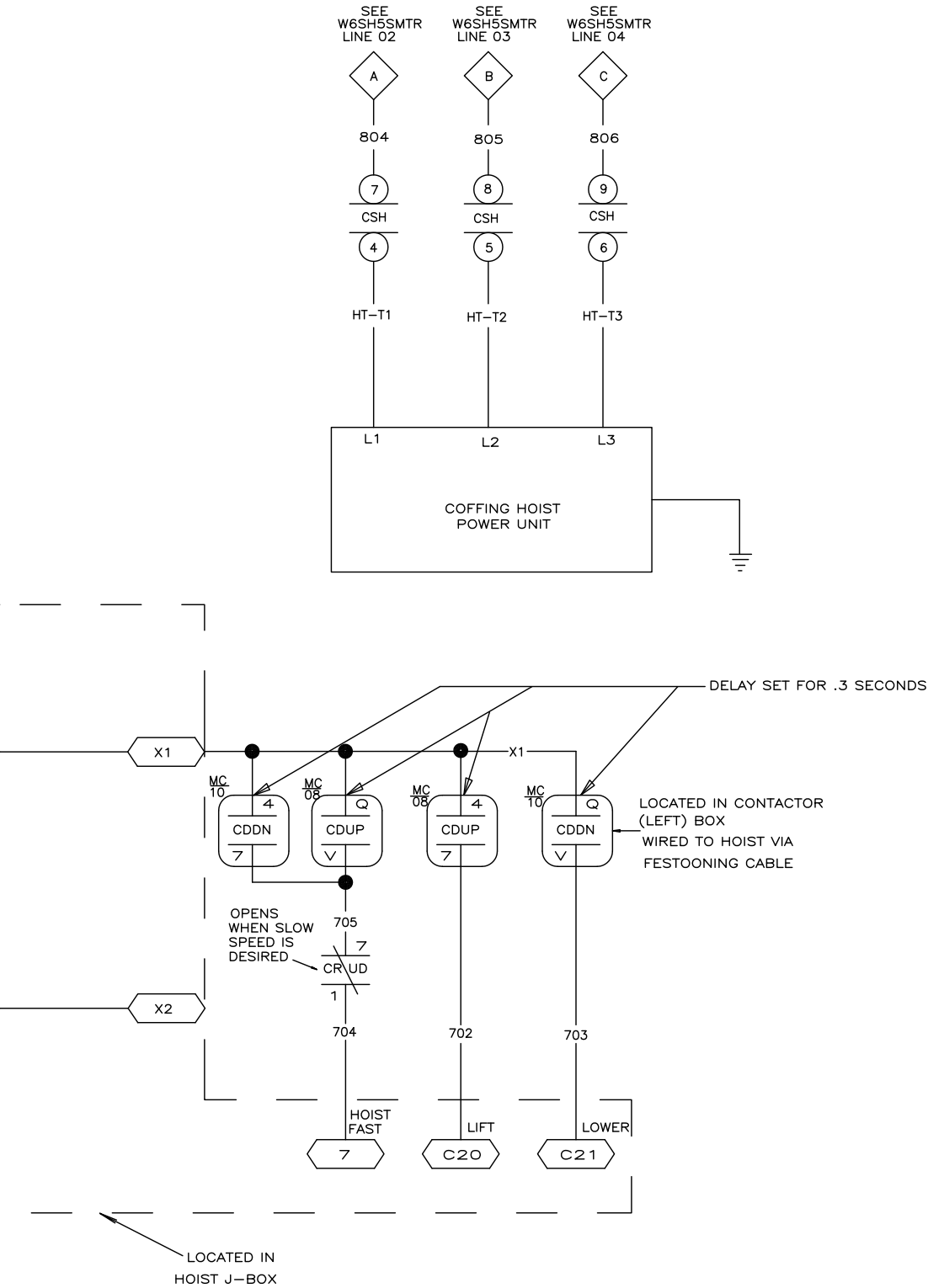


W6SH5SHSA
2017033B

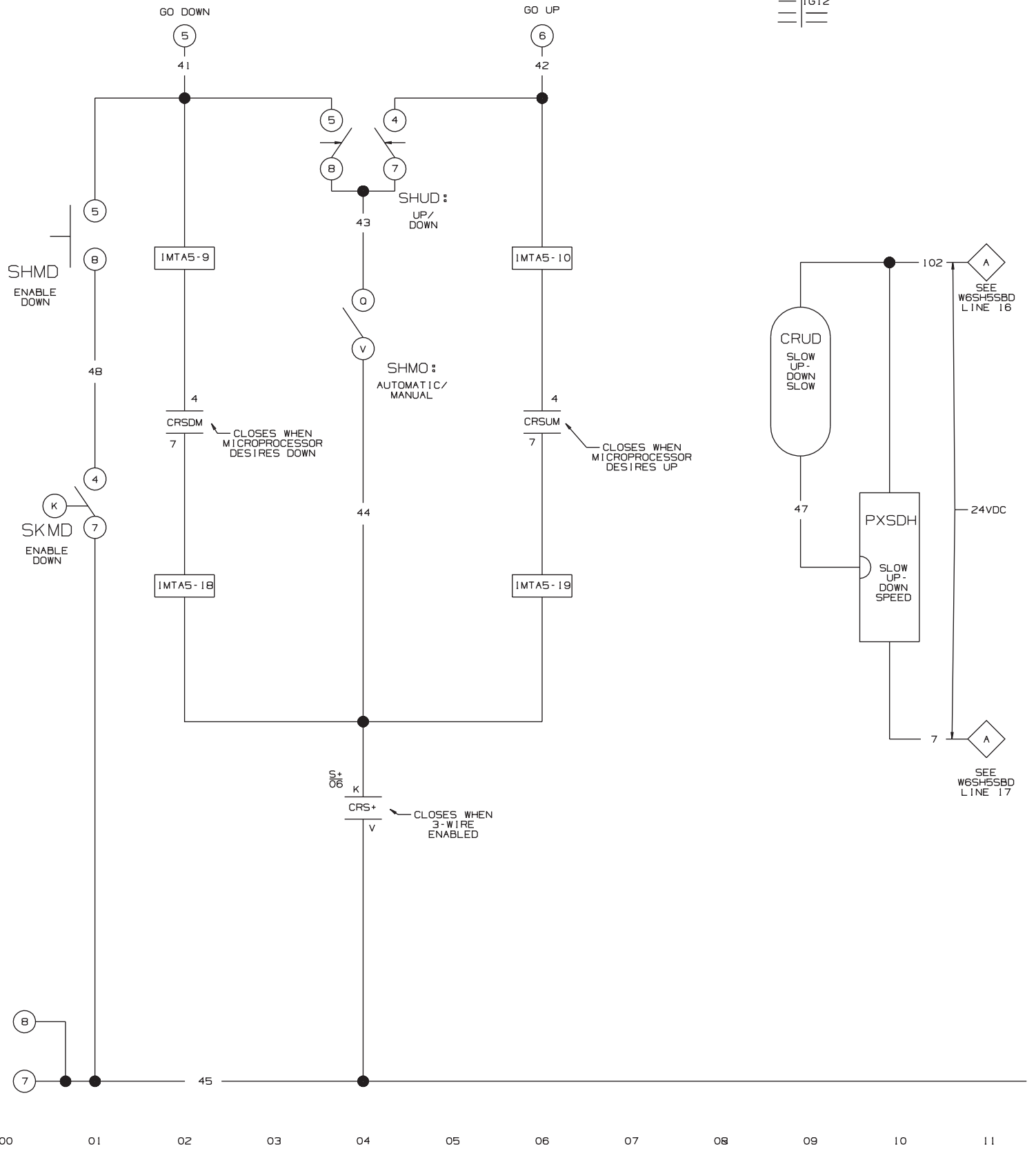


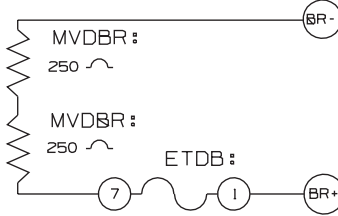
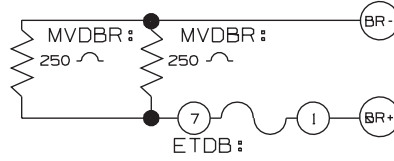
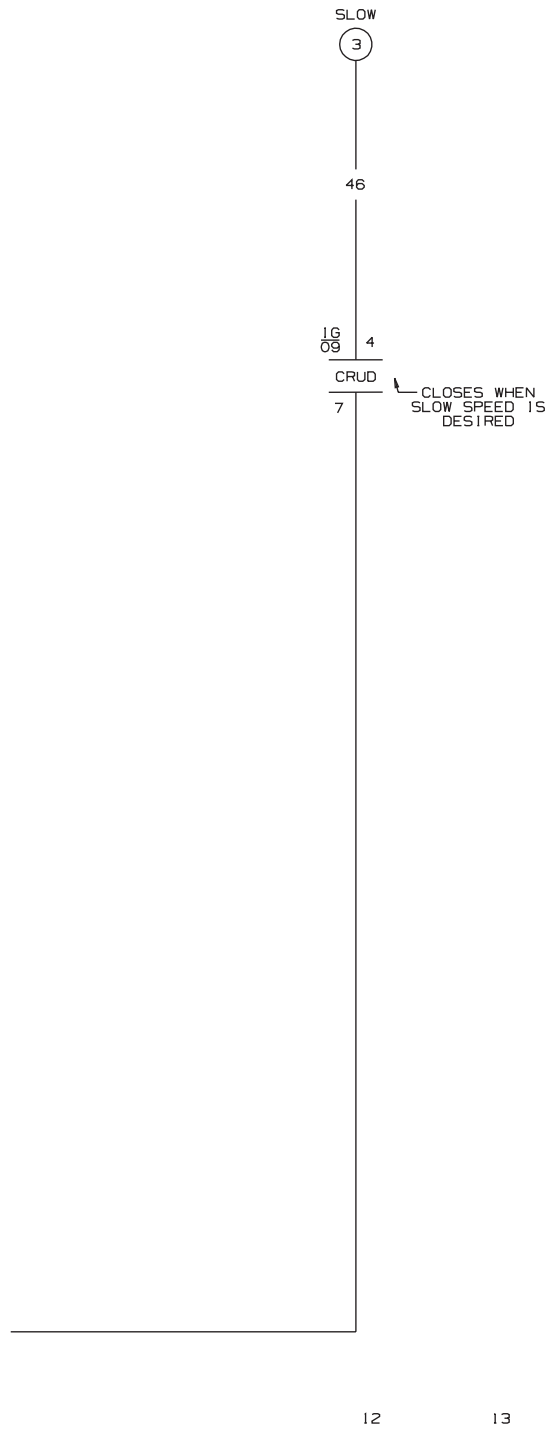
W6SH5SHSA

MICRO 6 SYSTEMS MARK V
SCHEMATIC: 208V COFFING HOIST CONTROLS
110V1P50HZ/120V1P60HZ
PELLERIN MILNOR CORPORATION



11 12 13 14 15 16 17 18 19





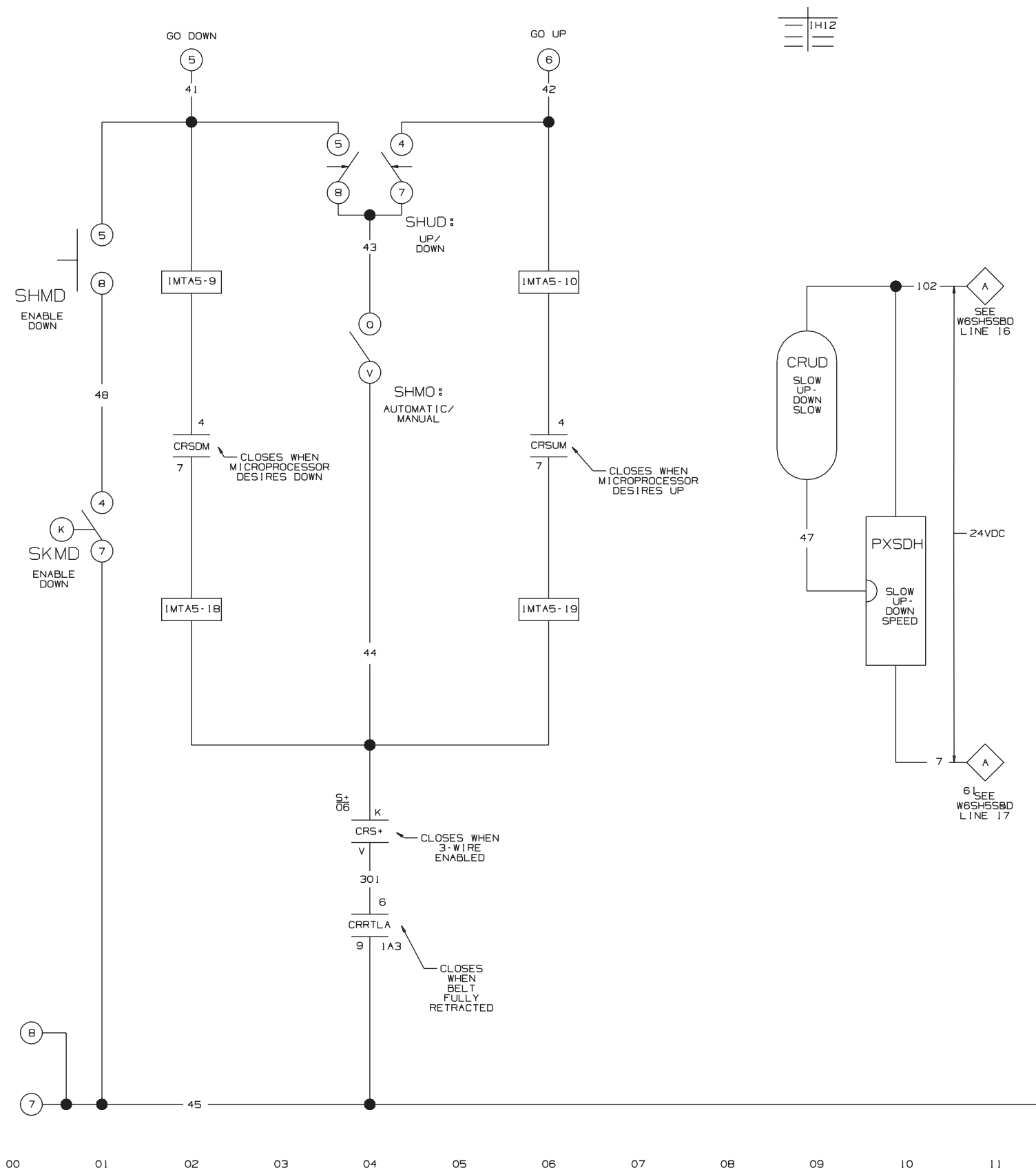
NOTE:
INVERTER TERMINAL POINTS - ○

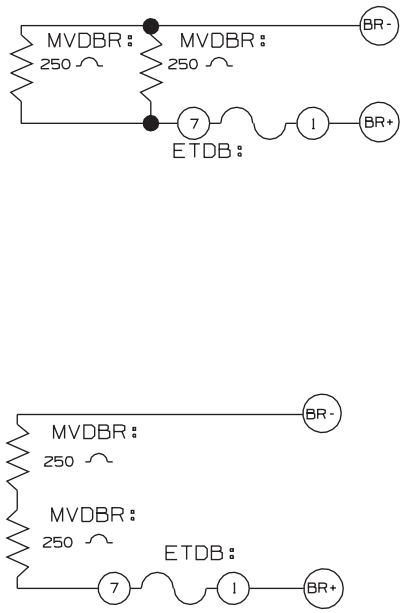
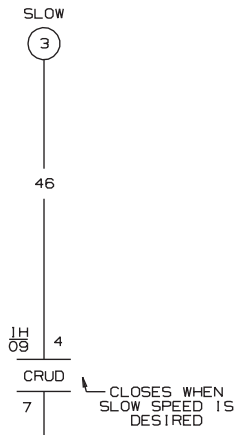
W6SH5S1G

MICRO 6 SYSTEMS MARK V CONTROLS SCHEMATIC: HOIST INVERTER CONTROLS FOR NON-EXTENDING SHUTTLES

PELLERIN MILNOR CORPORATION

W6SH5S1G
99342B



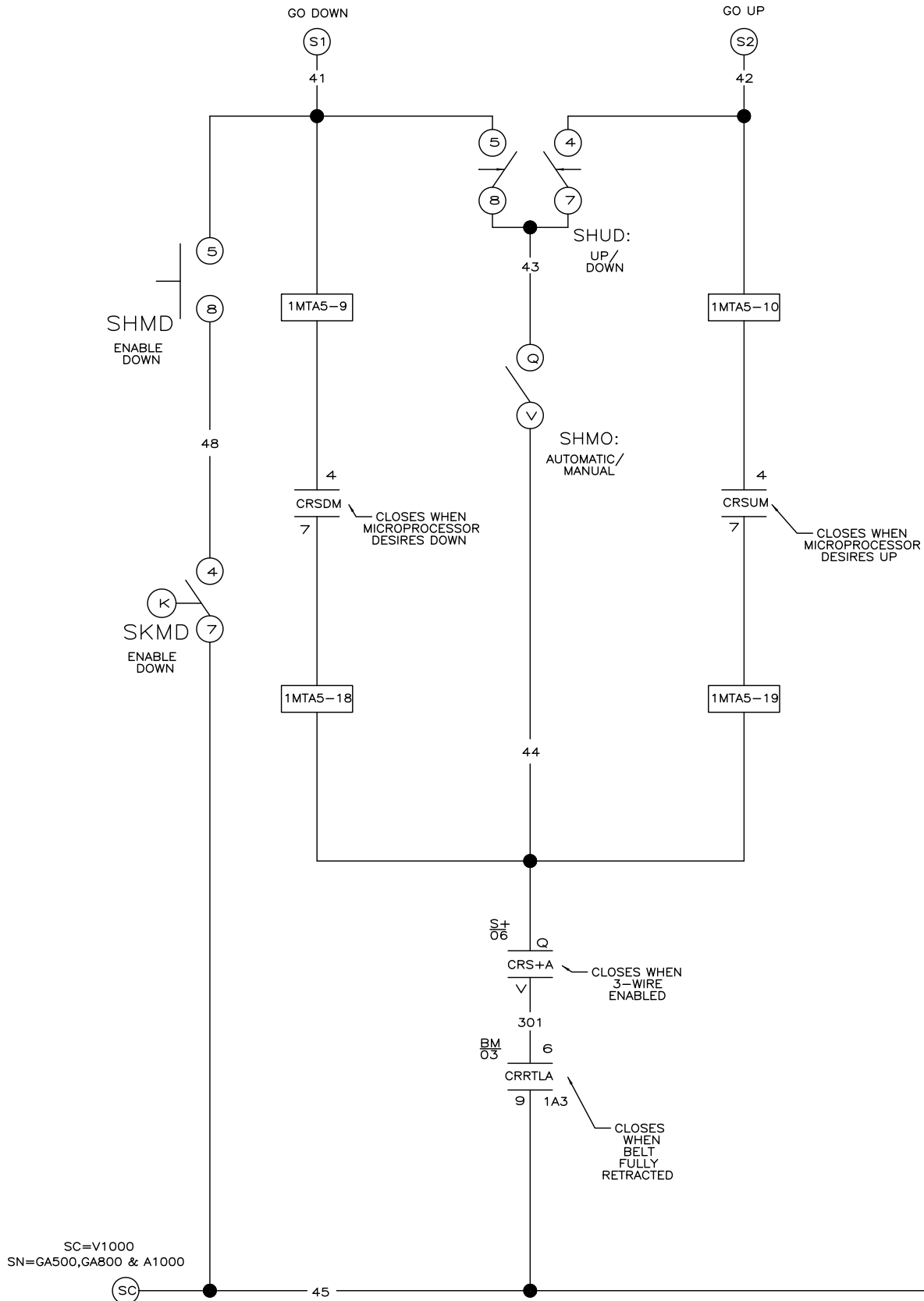


NOTE:
INVERTER TERMINAL POINTS - ○

W6SH551H

MICRO 6 SYSTEMS
SCHEMATIC: HOIST INVERTER CONTROLS
FOR EXTENDING SHUTTLES

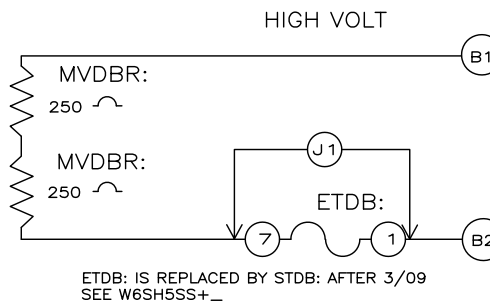
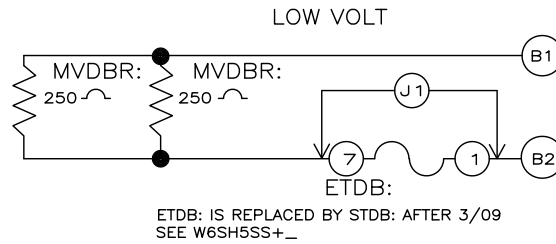
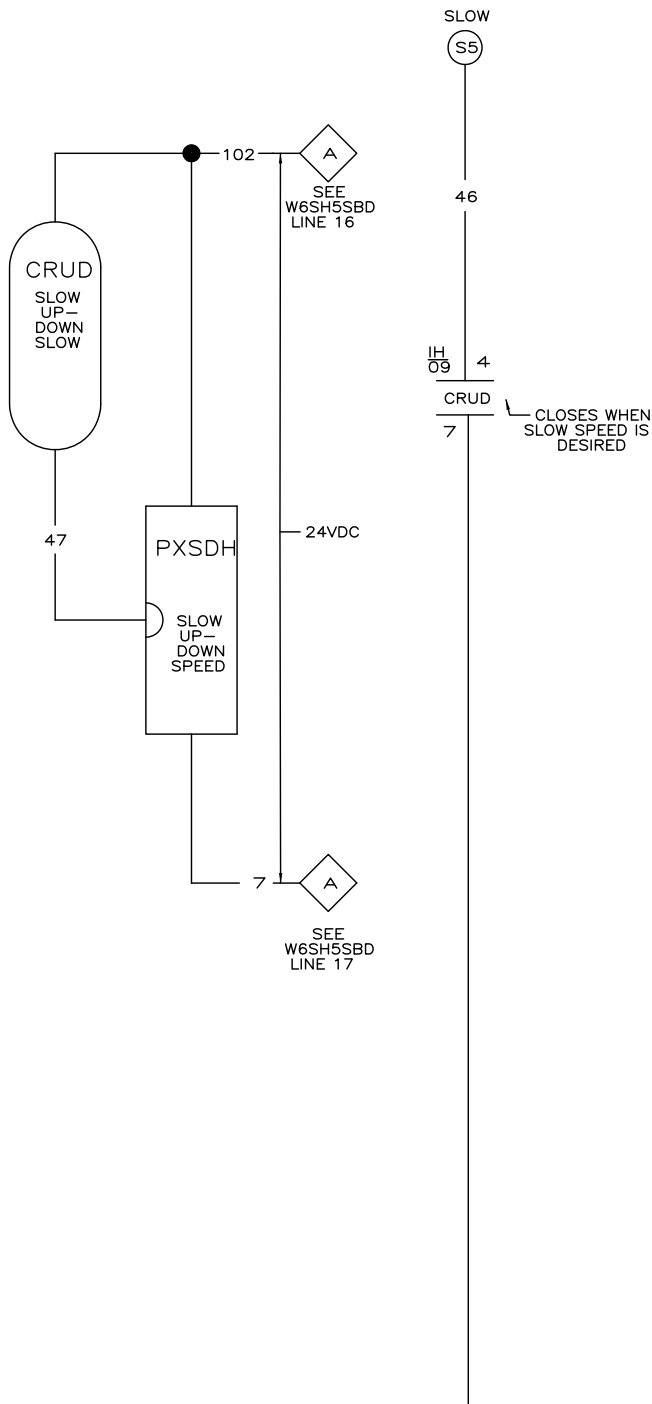
PELLERIN MILNOR CORPORATION



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W6SH5SIHA
2023195B



NOTE:
INVERTER TERMINAL POINTS



W6SH5SIHA

MICRO 6 SYSTEMS

SCHEMATIC: HOIST INVERTER CONTROLS

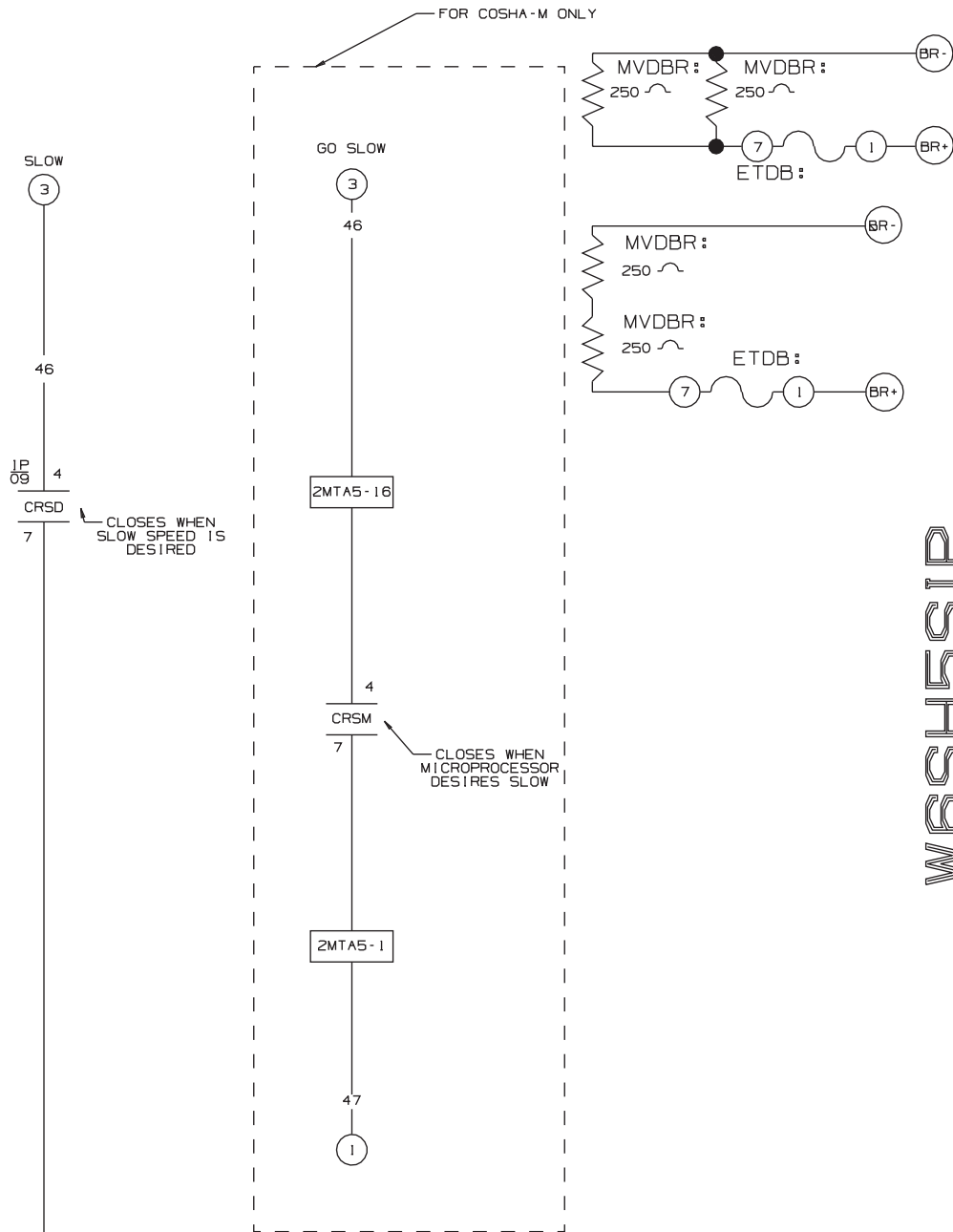
FOR EXTENDING SHUTTLES

PELLERIN MILNOR CORPORATION

09 10 11 12 13 14 15 16 17 18 19

W6SH5SIHA
2023195B





NOTE:
INVERTER TERMINAL POINTS - ○

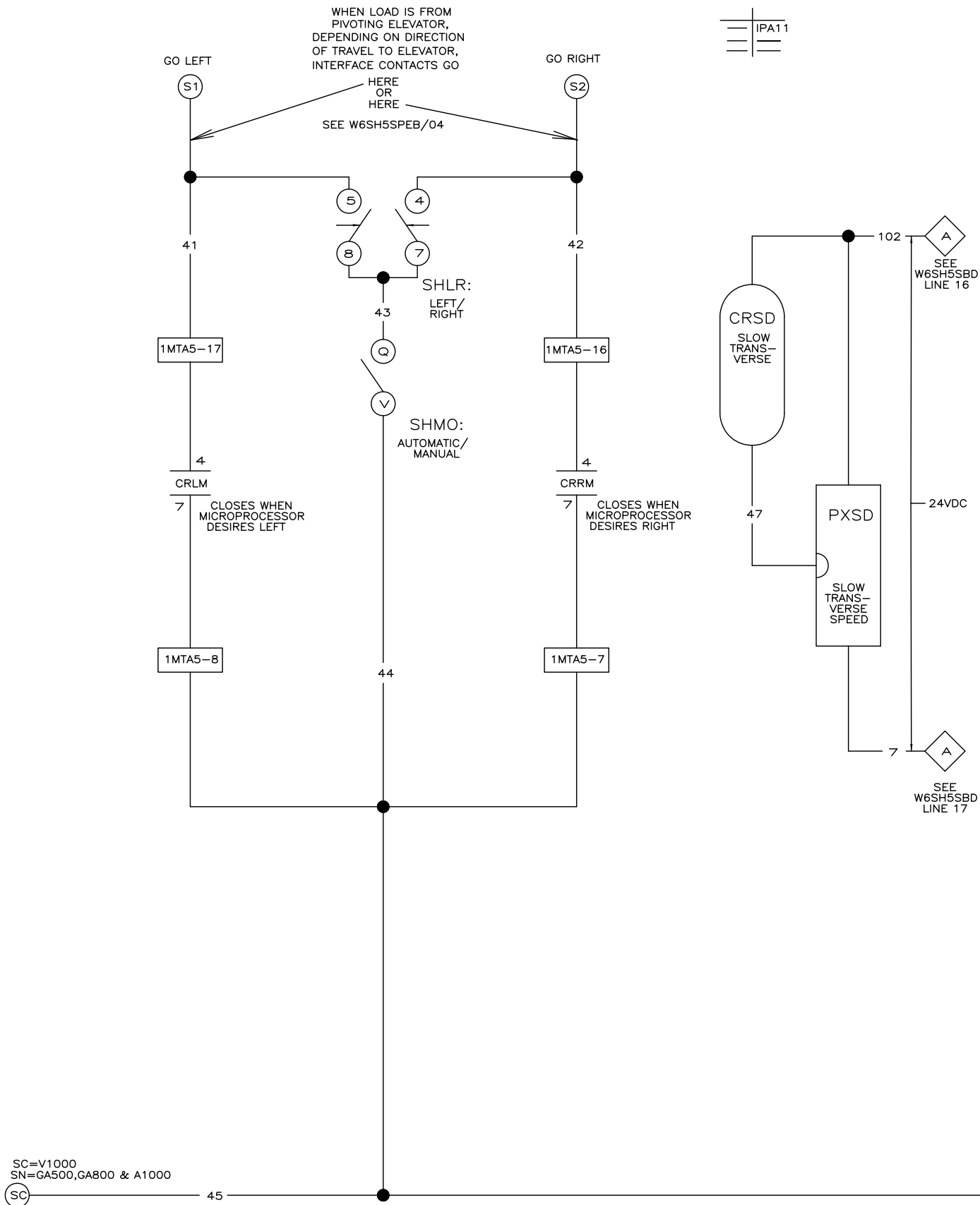
W6SH5SIP

MICRO 6 SYSTEMS MARK V

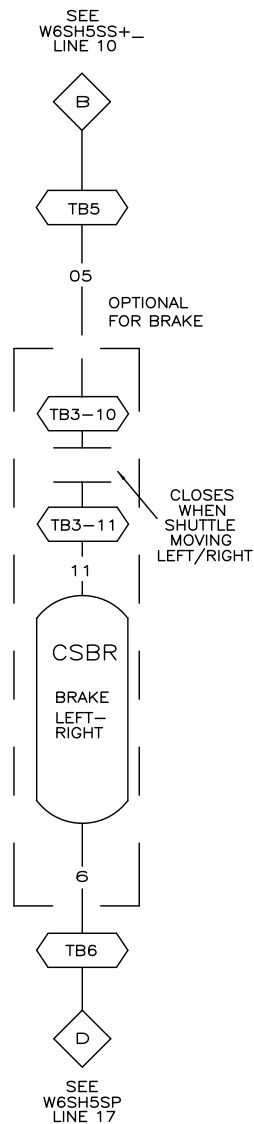
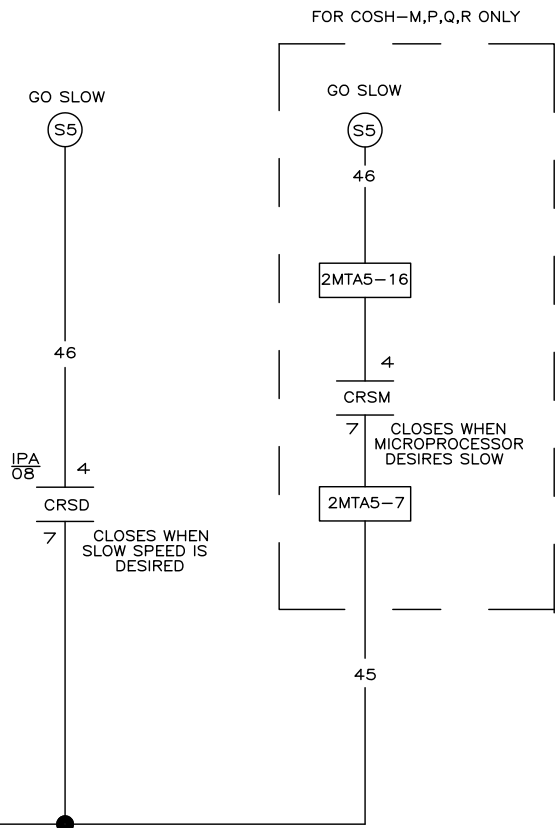
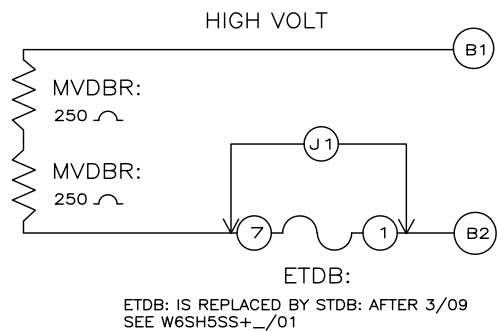
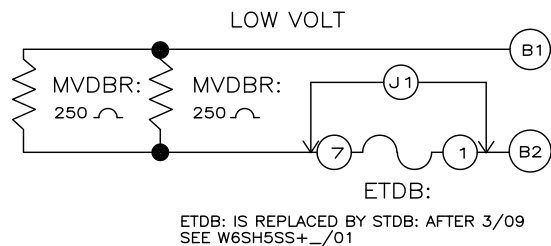
SCHEMATIC: TRANSVERSING INVERTER CONTROLS

FOR NON-EXTENDING SHUTTLES

PELLERIN MILNOR CORPORATION



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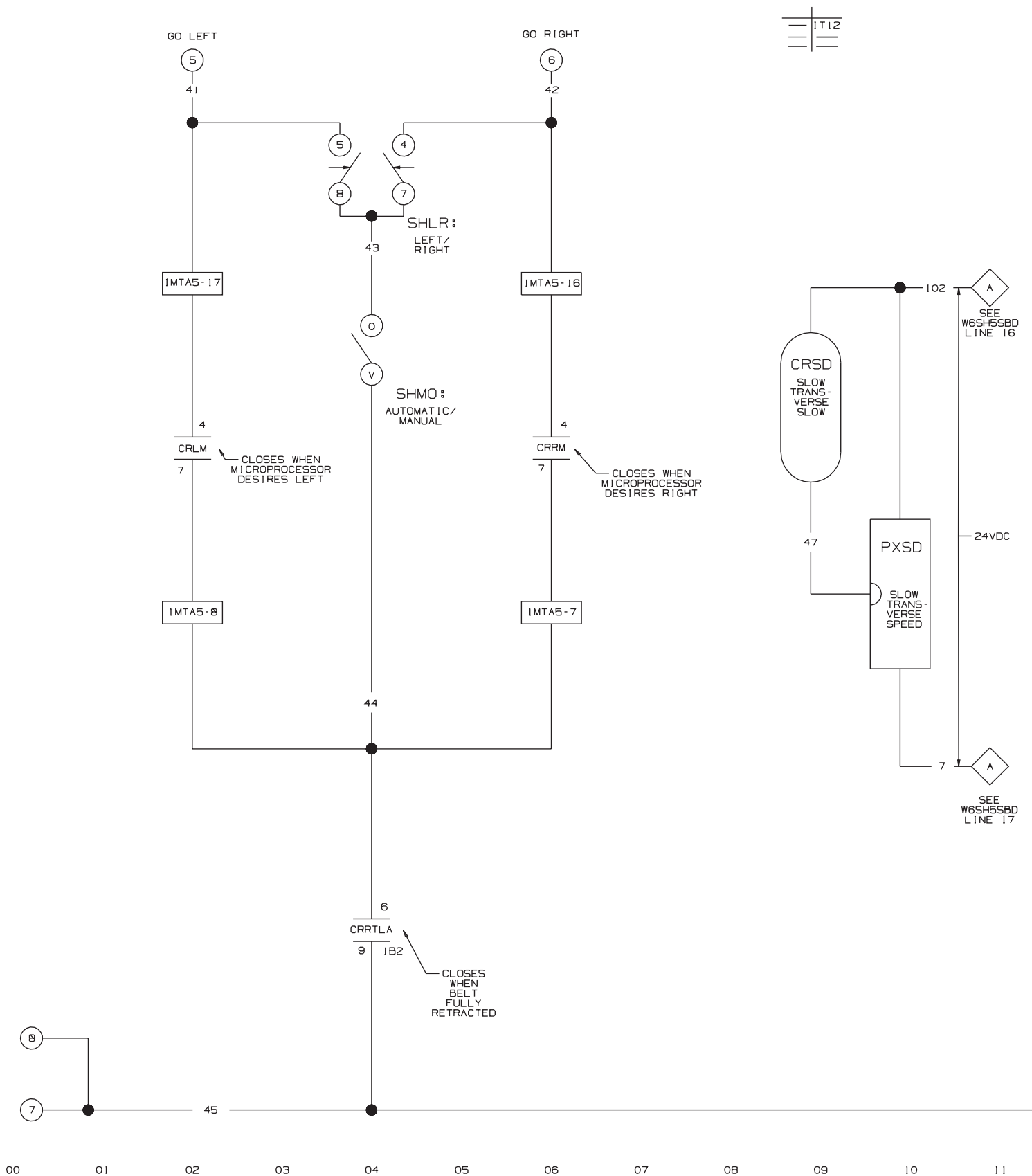


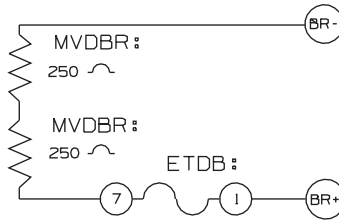
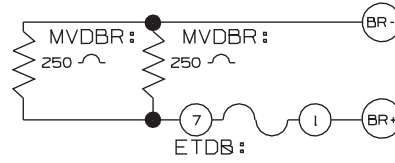
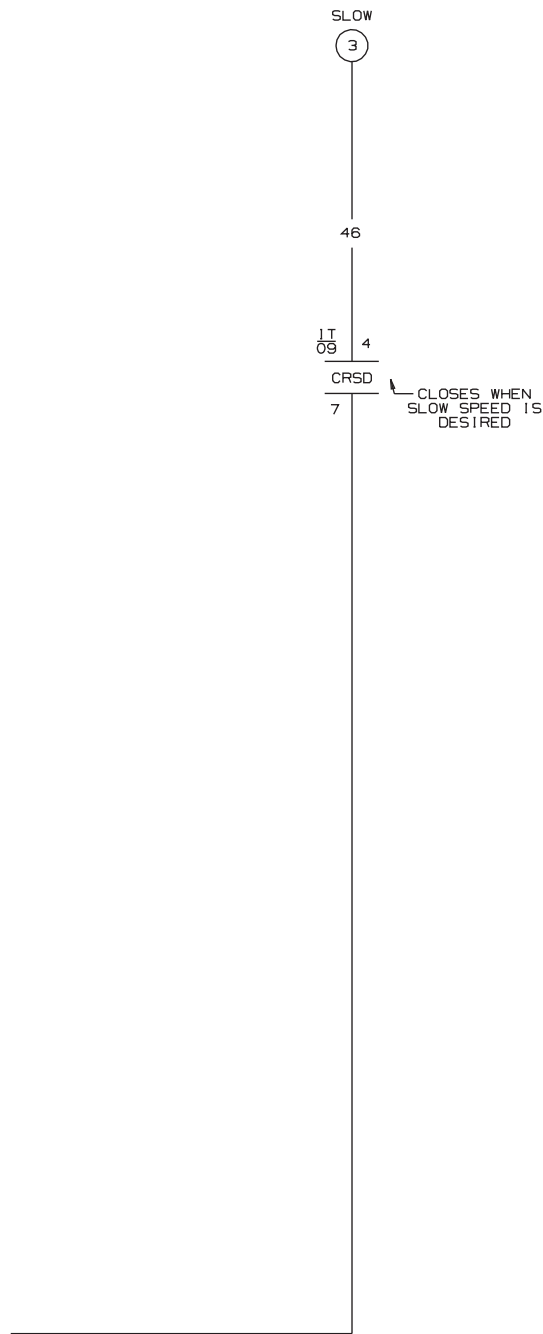
NOTE:
INVERTER TERMINAL POINTS

W6SH5SIPA

MICRO 6 SYSTEMS MARK V
SCHEMATIC: TRANSVERSING INVERTER
CONTROLS FOR NON-EXTENDING SHUTTLES

PELLERIN MILNOR CORPORATION





NOTE:
INVERTER TERMINAL POINTS - ○

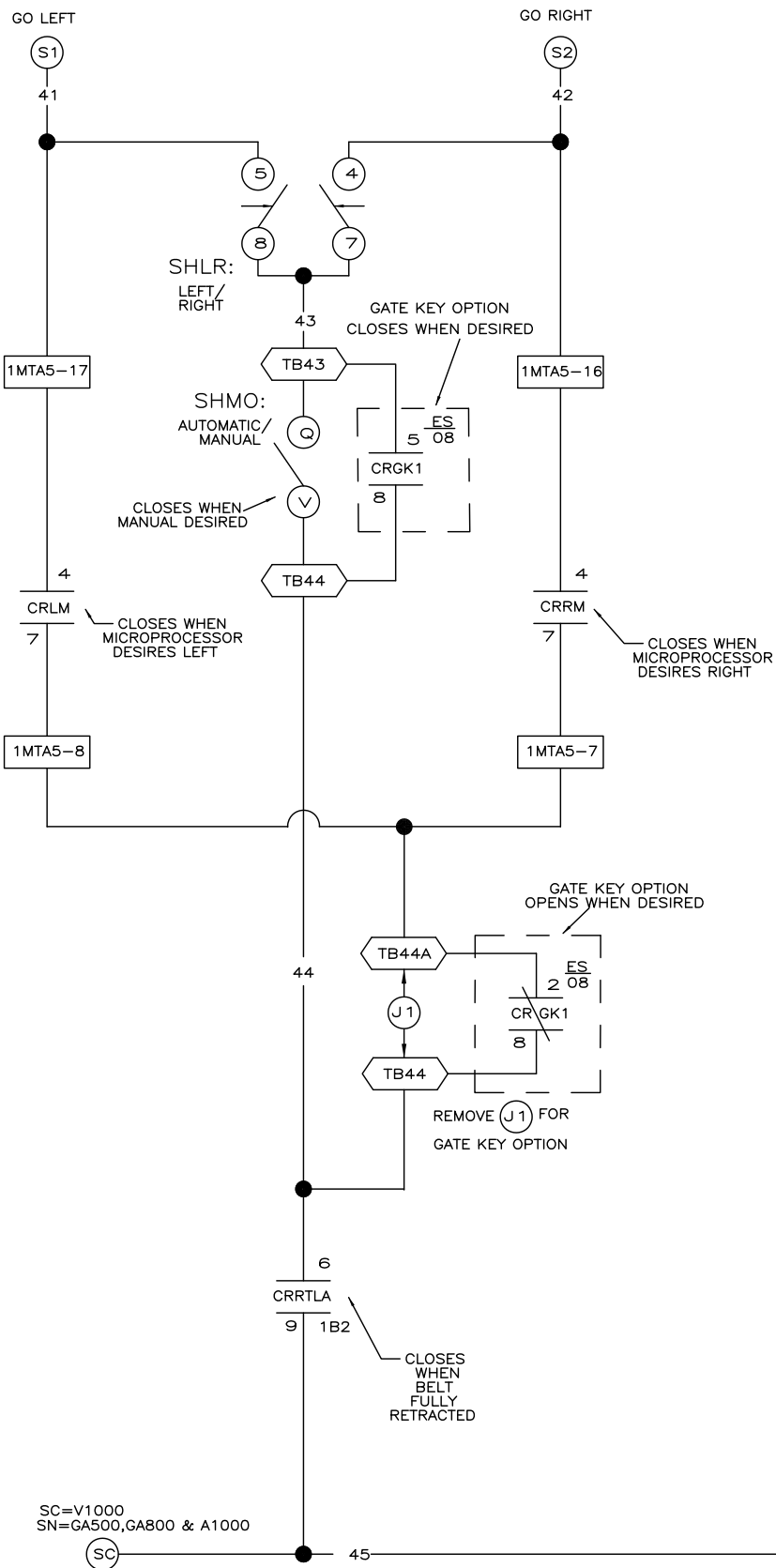
W6SH55IT

MICRO 6 SYSTEMS MARK V

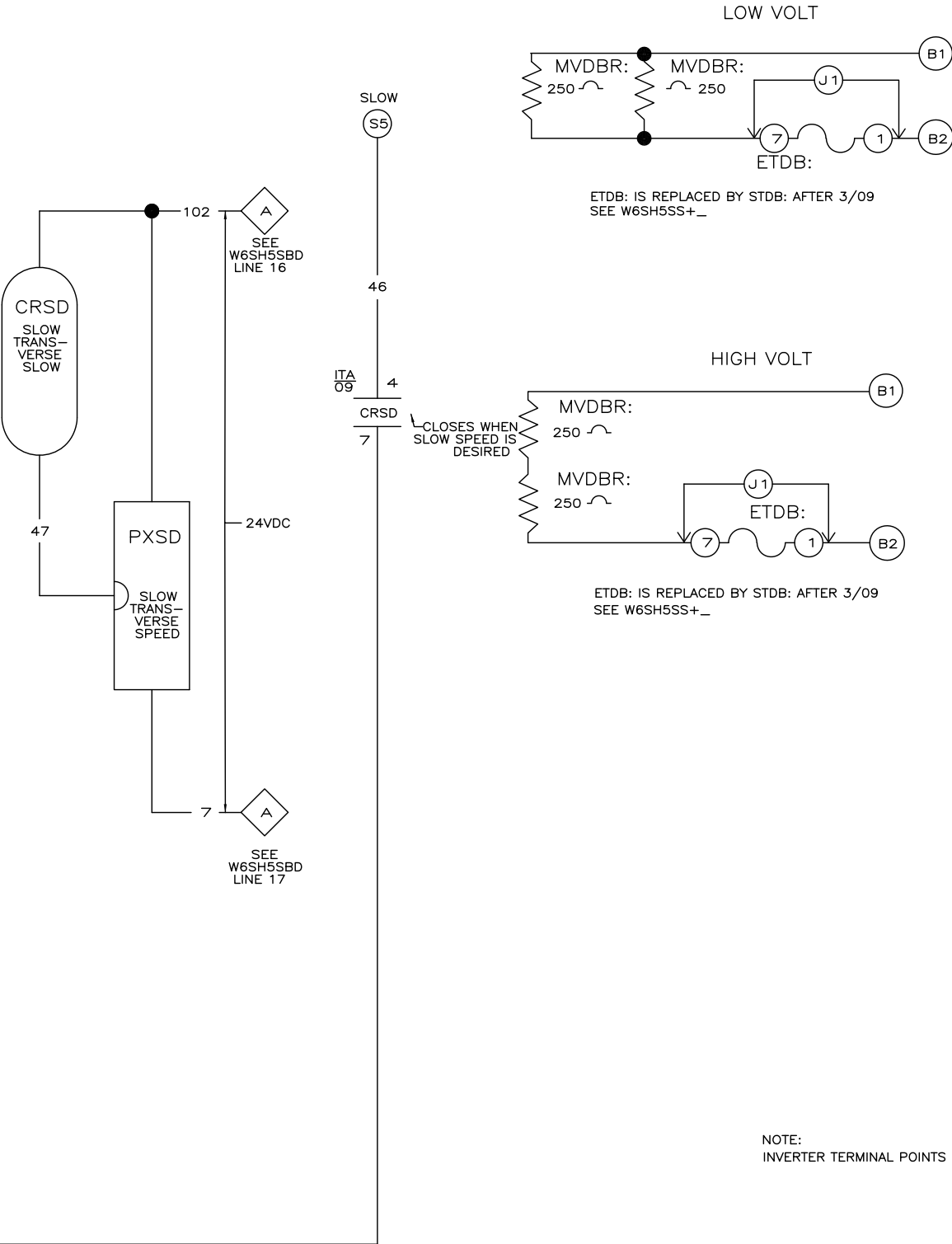
SCHEMATIC: TRANSVERSING INVERTER CONTROLS

FOR EXTENDING SHUTTLES

PELLERIN MILNOR CORPORATION



00 01 02 03 04 05 06 07 08



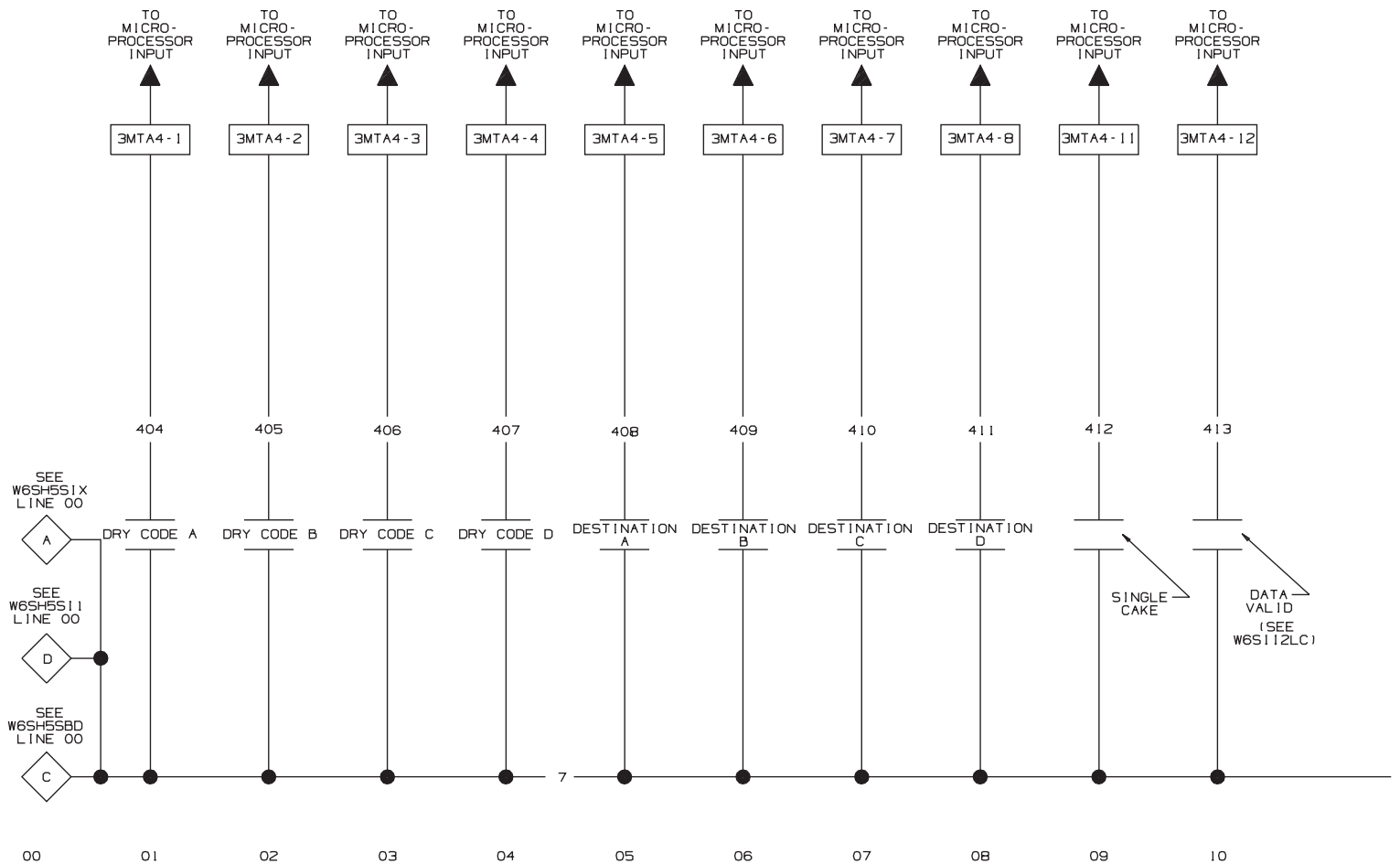
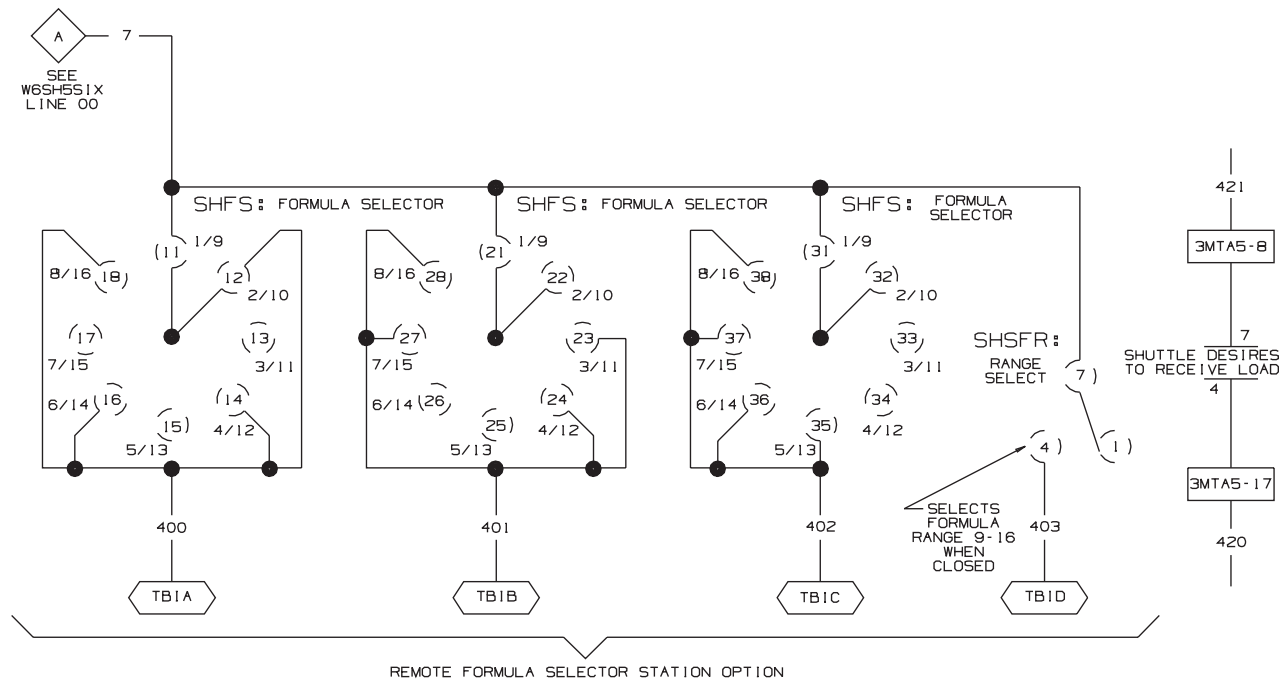
W6SH5SITA

MICRO 6 SYSTEMS MARK V

SCHEMATIC:TRANSVERSING INVERTER

CONTROLS FOR EXTENDING SHUTTLES

PELLERIN MILNOR CORPORATION

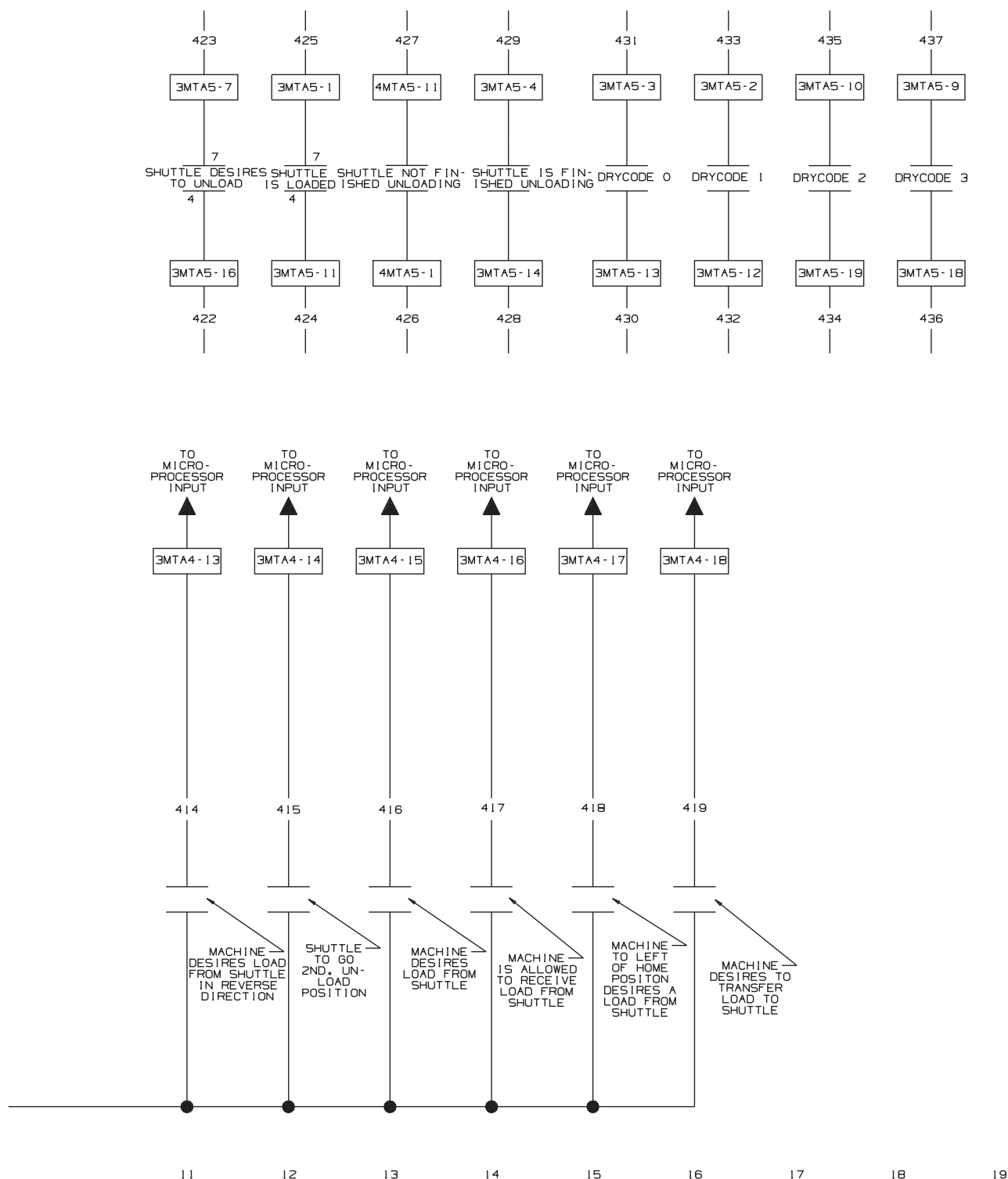


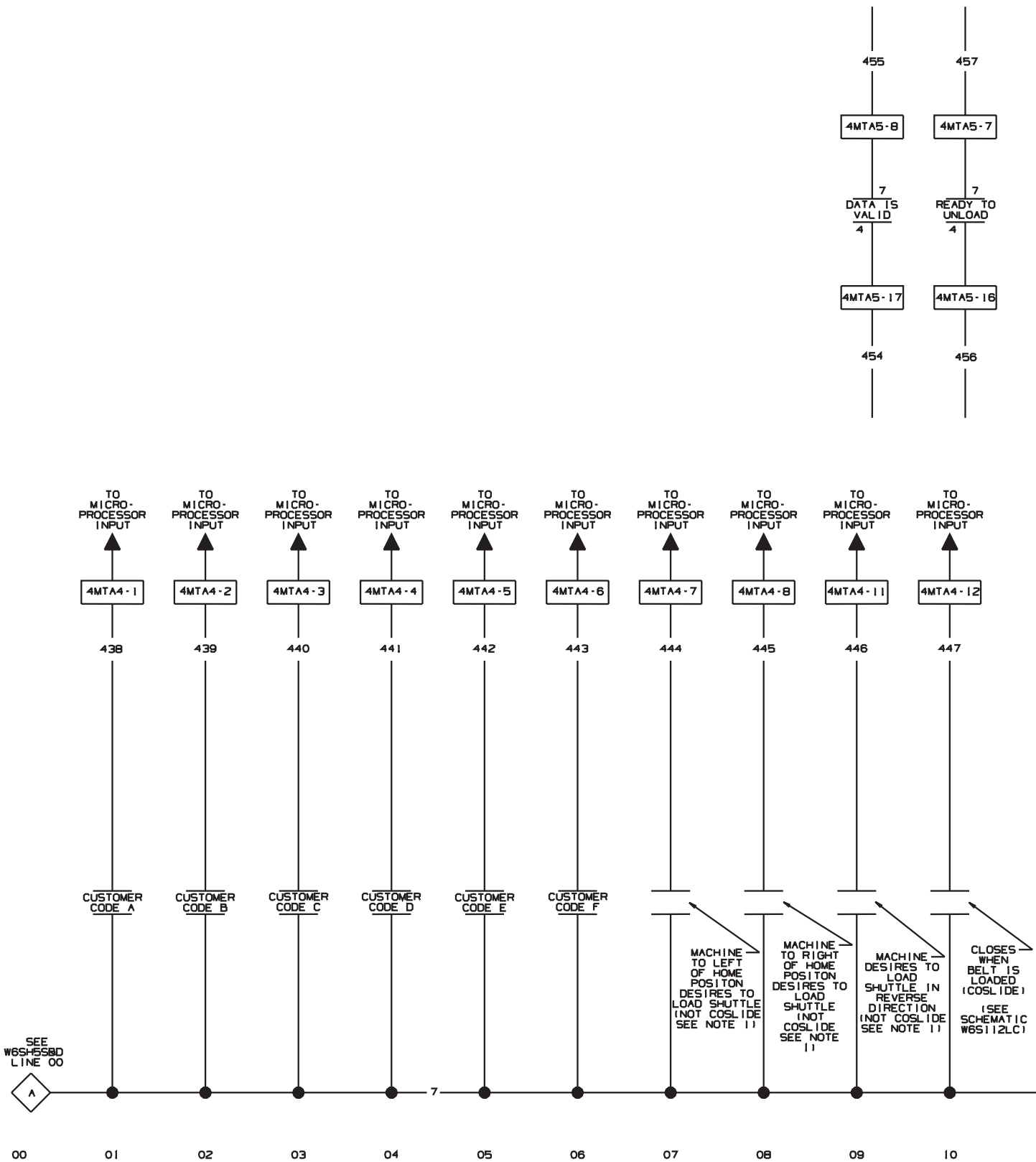
W6SH5S1X

MICRO 6 SYSTEMS MARK V

SCHEMATIC: ALLIED INPUTS + OUTPUTS

PELLERIN MILNOR CORPORATION



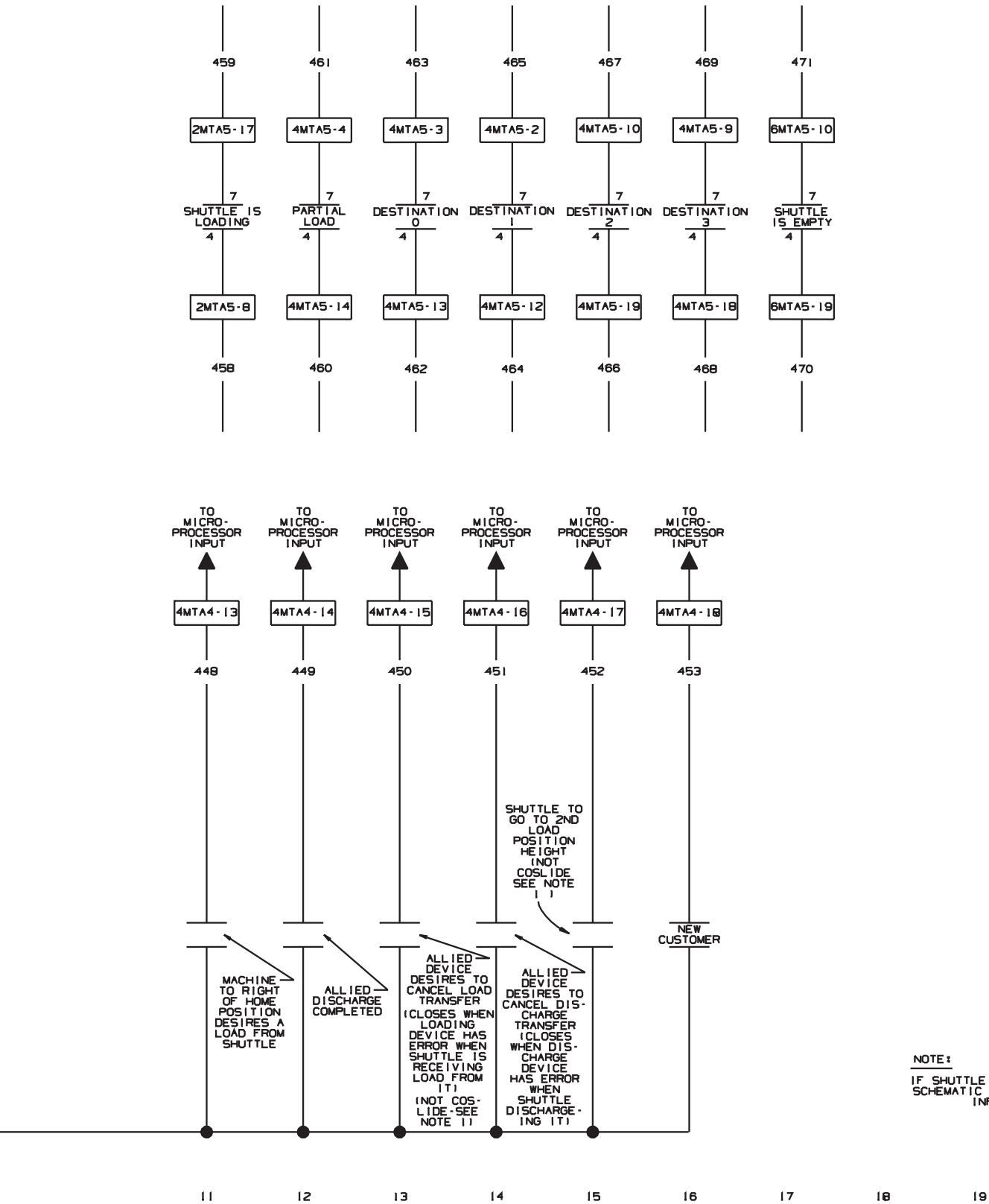


W6SH551Y

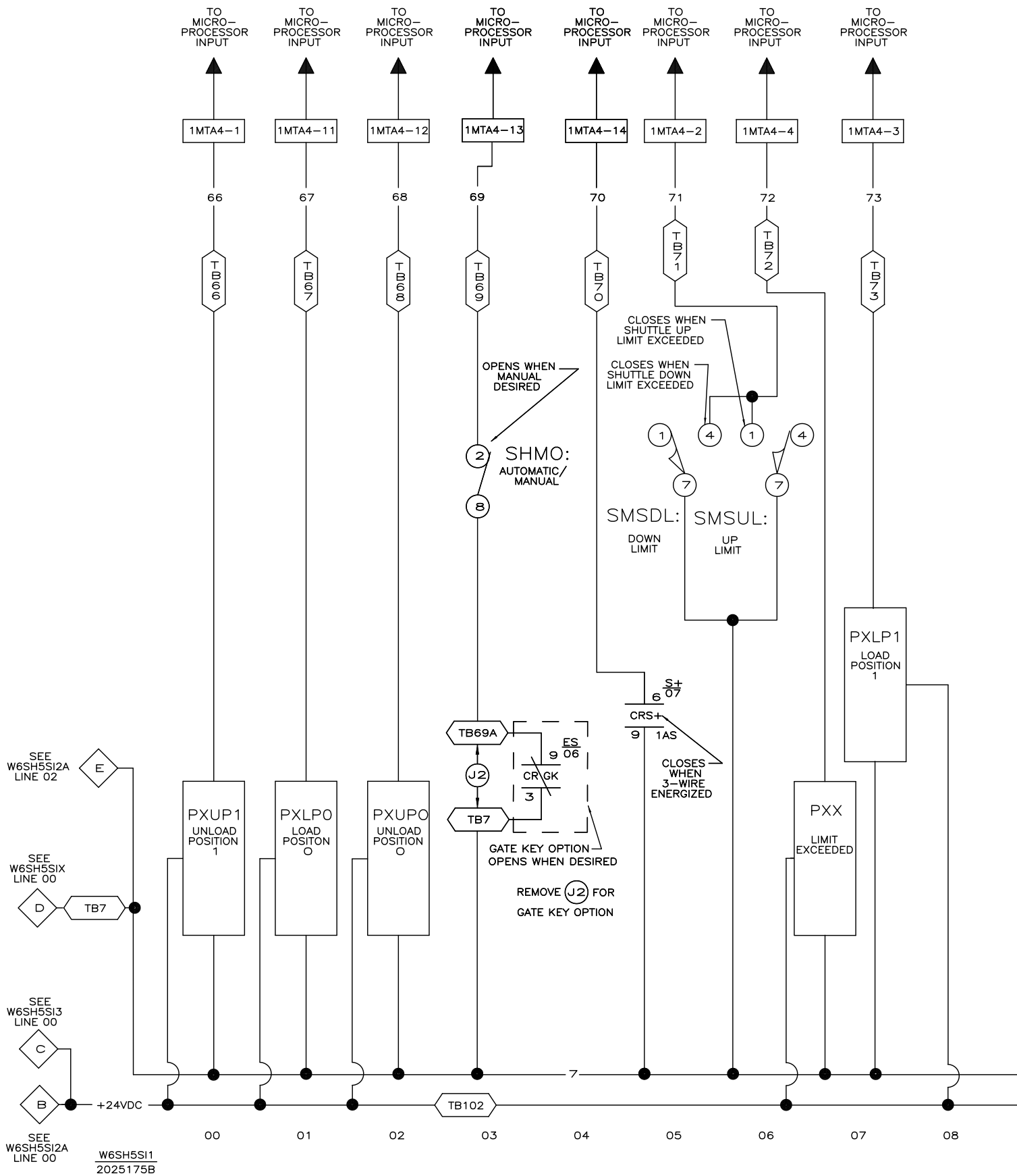
MICRO 6 SYSTEMS

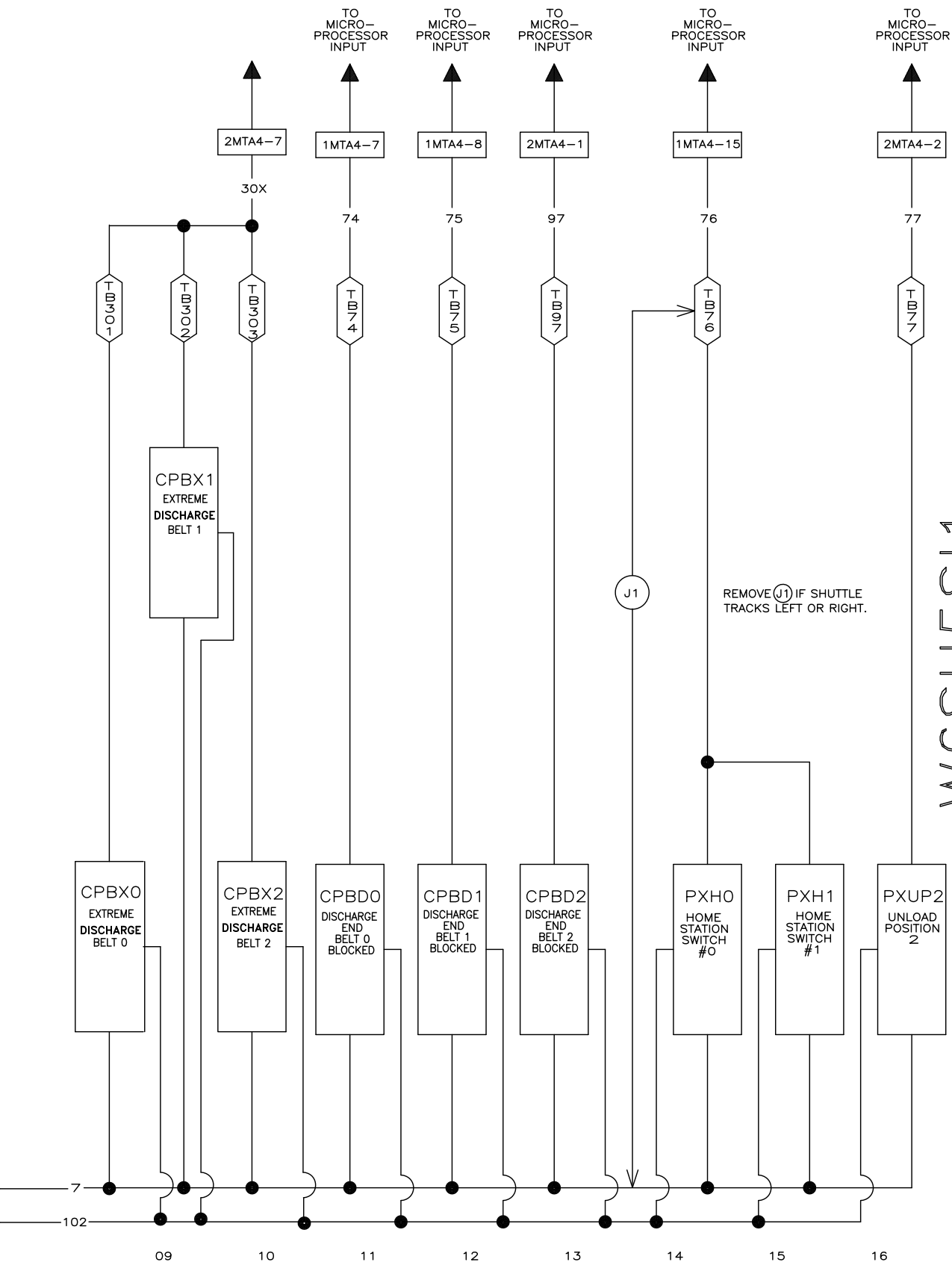
SCHEMATIC: ALLIED INPUTS + OUTPUTS

PELLERIN MILNOR CORPORATION



NOTE:
IF SHUTTLE IS A COSLIDE-SEE SCHEMATIC W6CSAF FOR INPUT INFORMATION



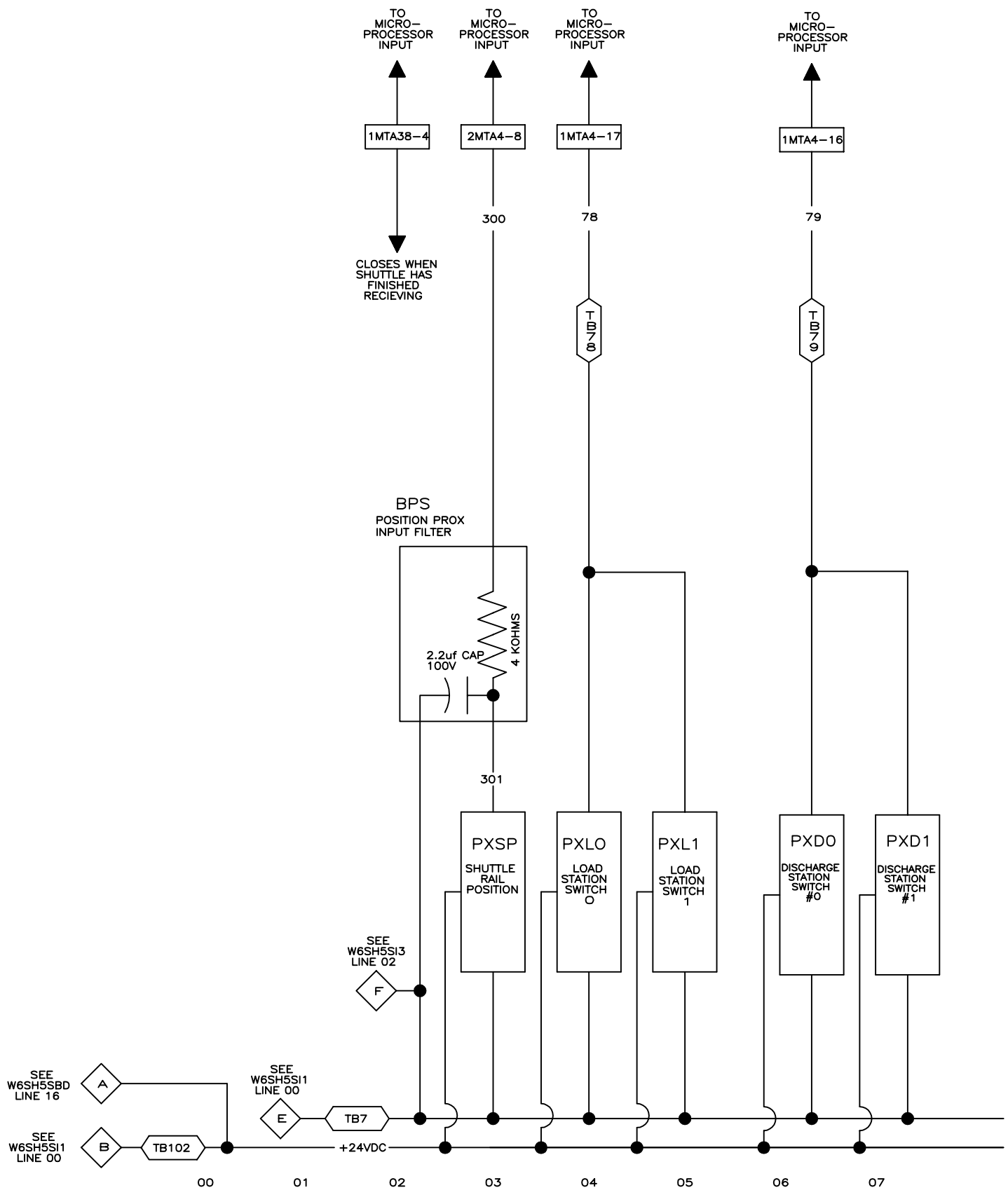


W6SH5S11

MICRO 6 SYSTEMS MARK V

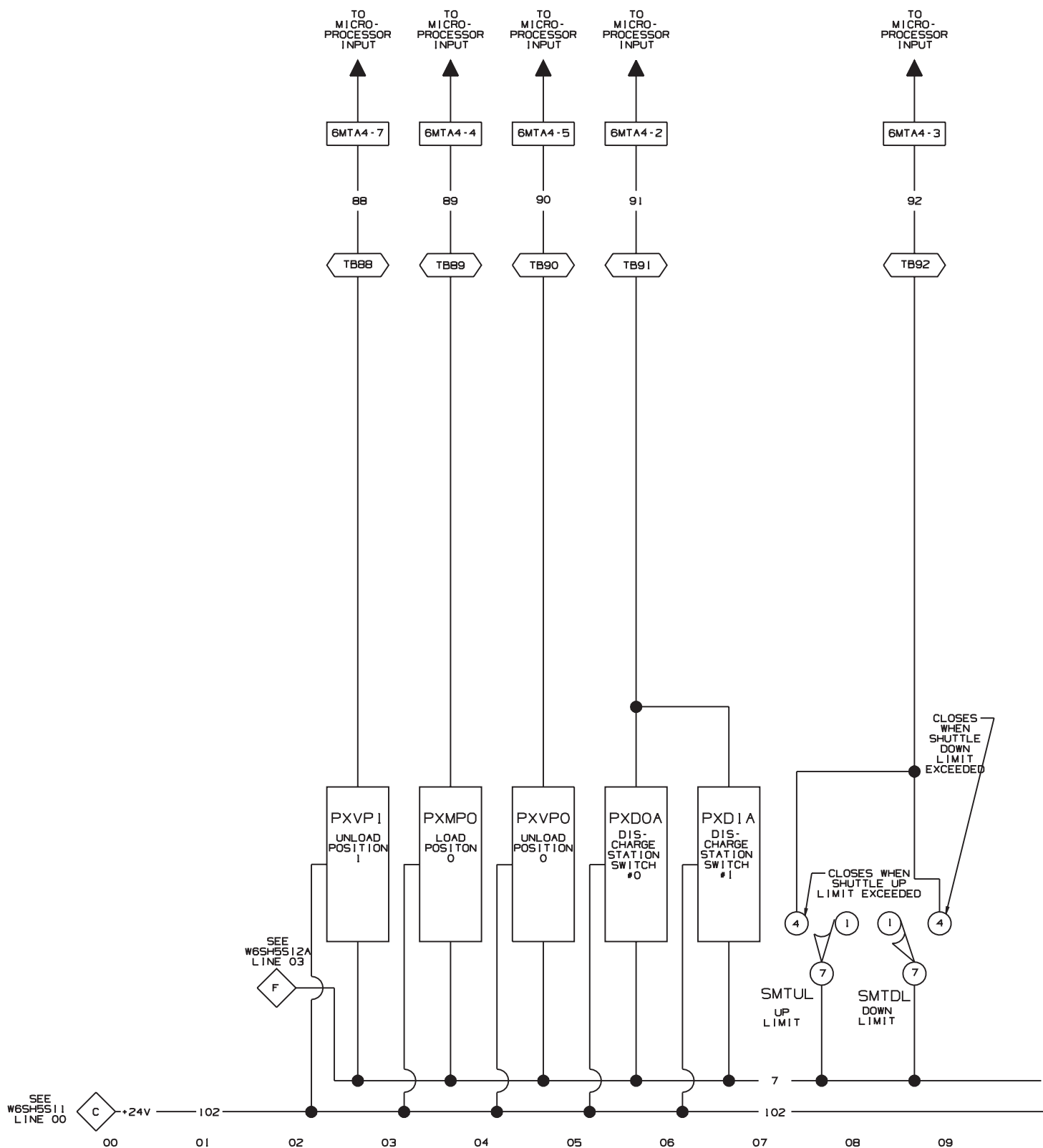
SCHEMATIC: INPUTS

PELLERIN MILNOR CORPORATION

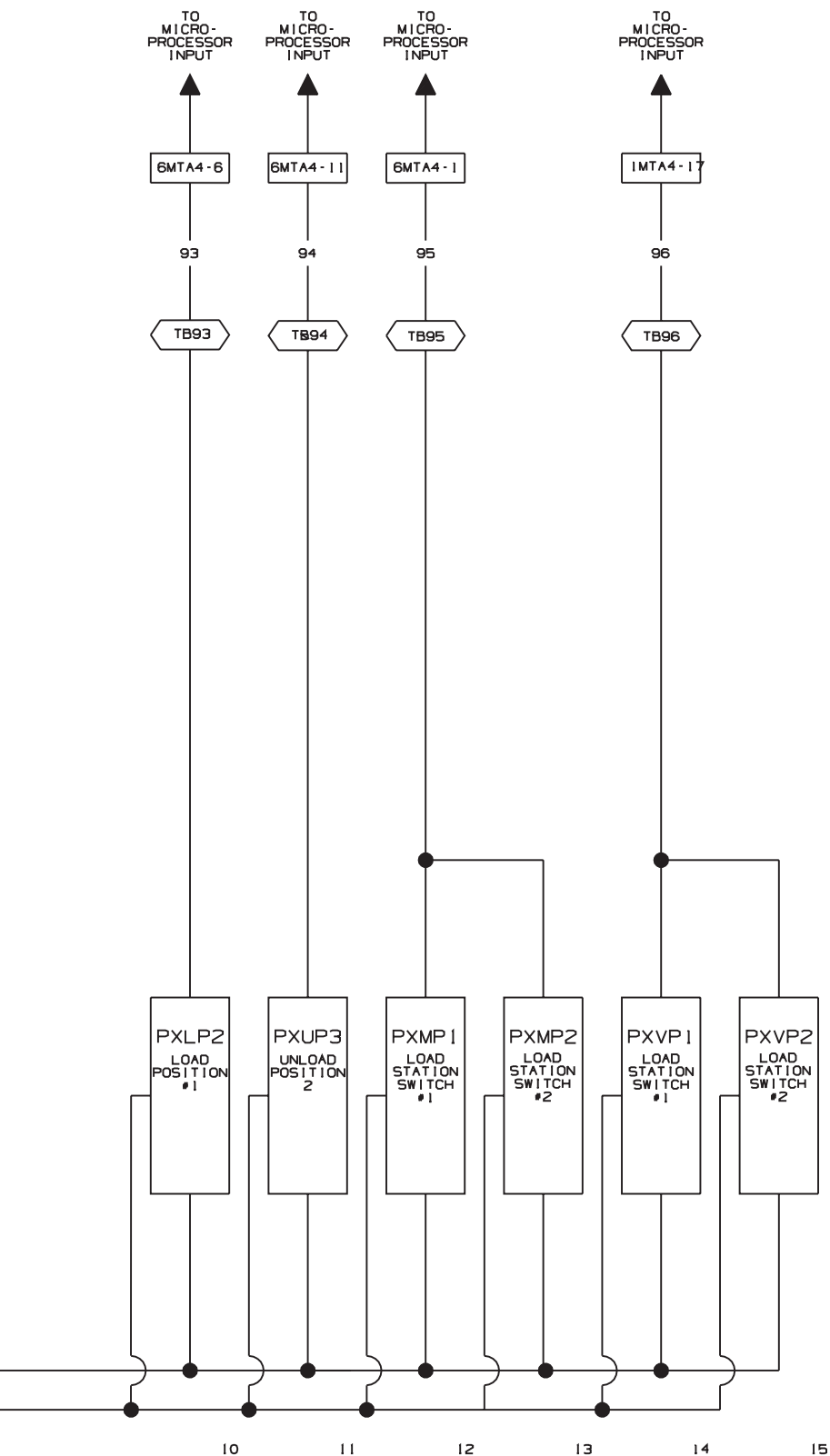


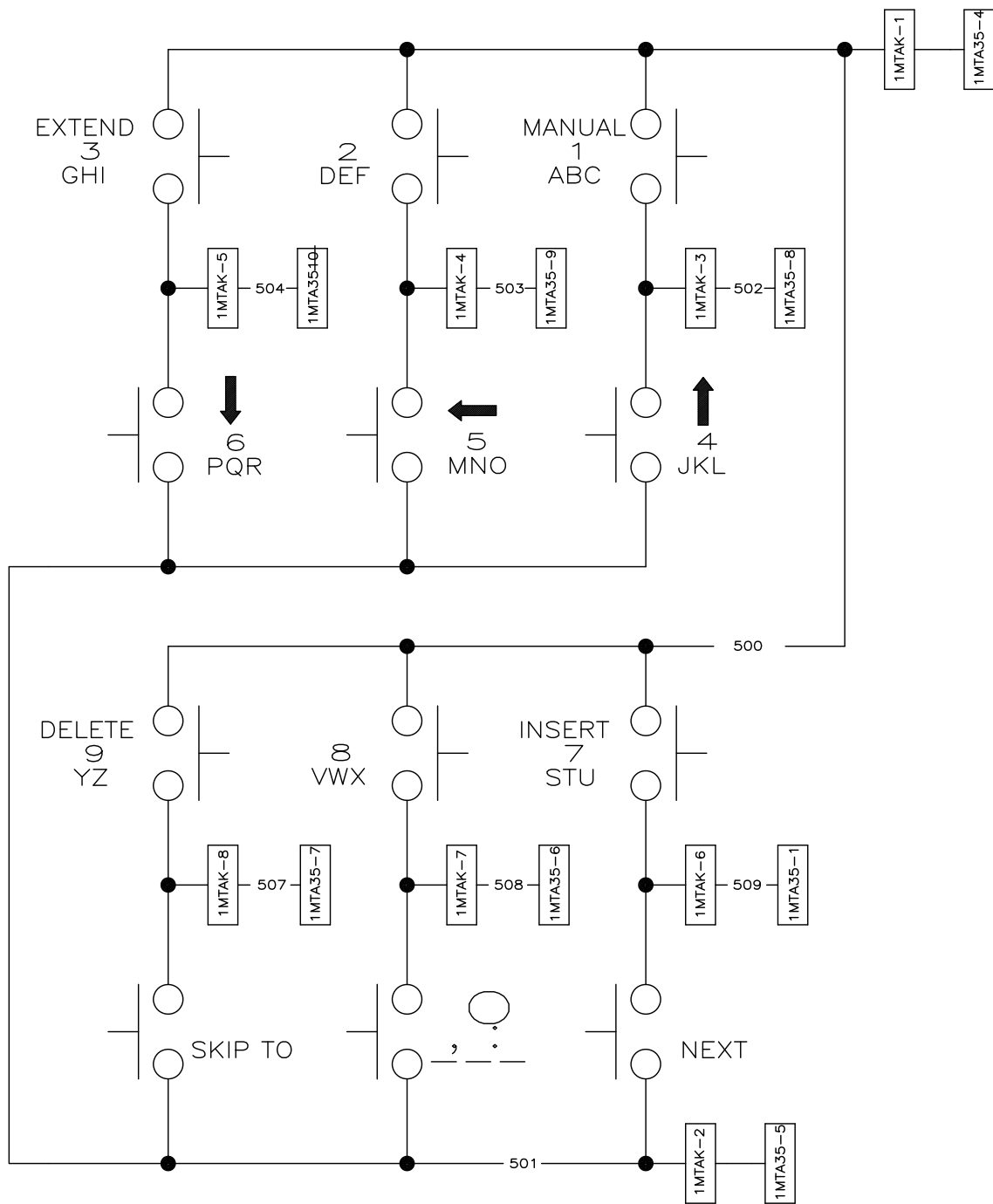


PELLERIN MILNOR CORPORATION



W6SH5S13
MICRO 6 SYSTEMS MARK V
SCHEMATIC: INPUTS-TWO WIDE SHUTTLE
PELLERIN MILNOR CORPORATION





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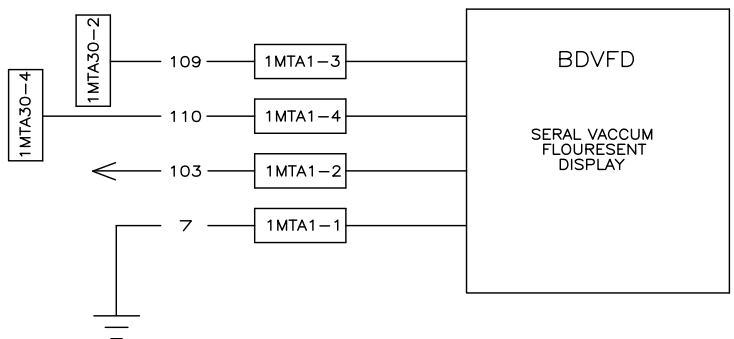
06

07

08

09

10



NOTE:

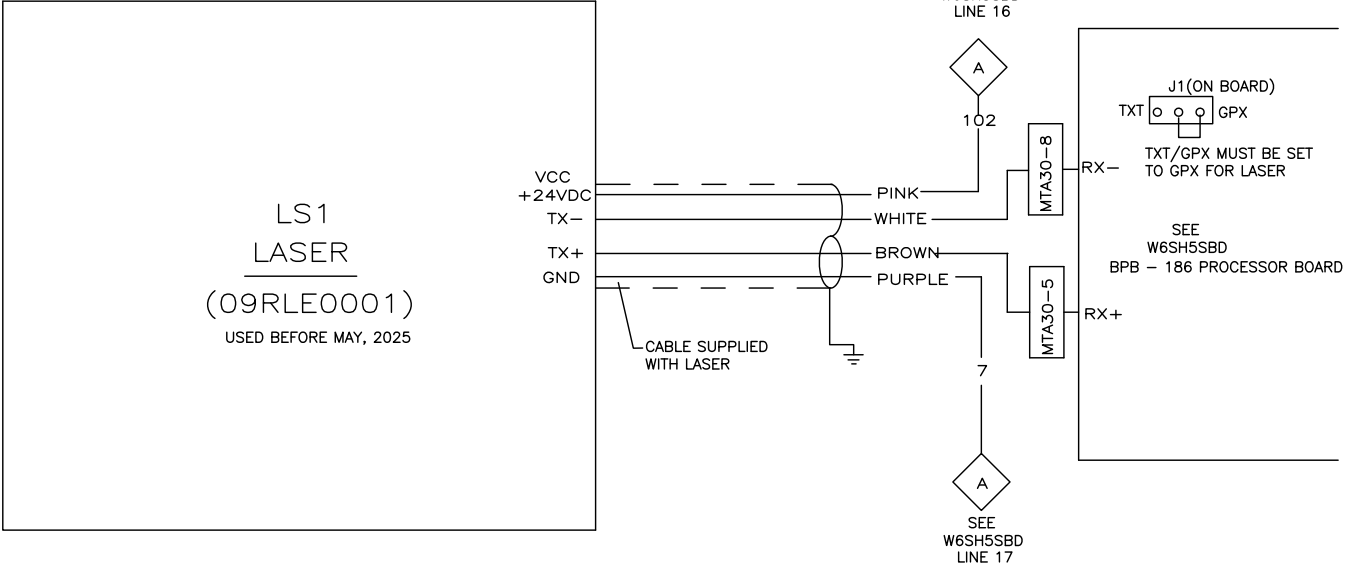
1. 1MTA30 IS LOCATED ON BPB (PROCESSOR BOARD).

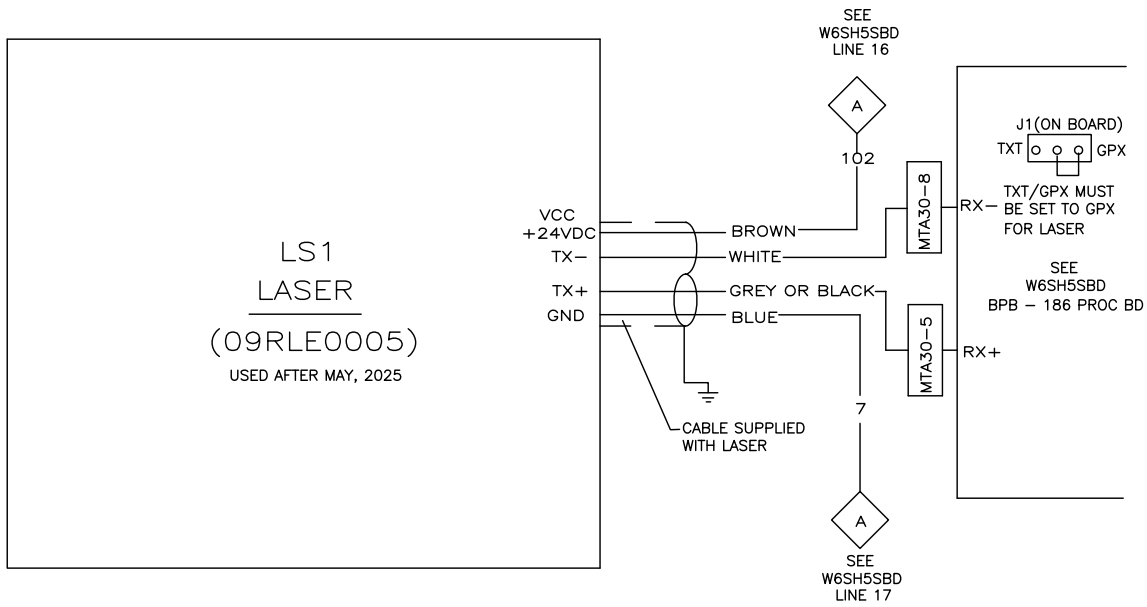
W6SH5SK+D

MICRO 6 SYSTEMS MARK V

SCHEMATIC: KEYPAD DISPLAY

PELLERIN MILNOR CORPORATION





W6SH5SLR

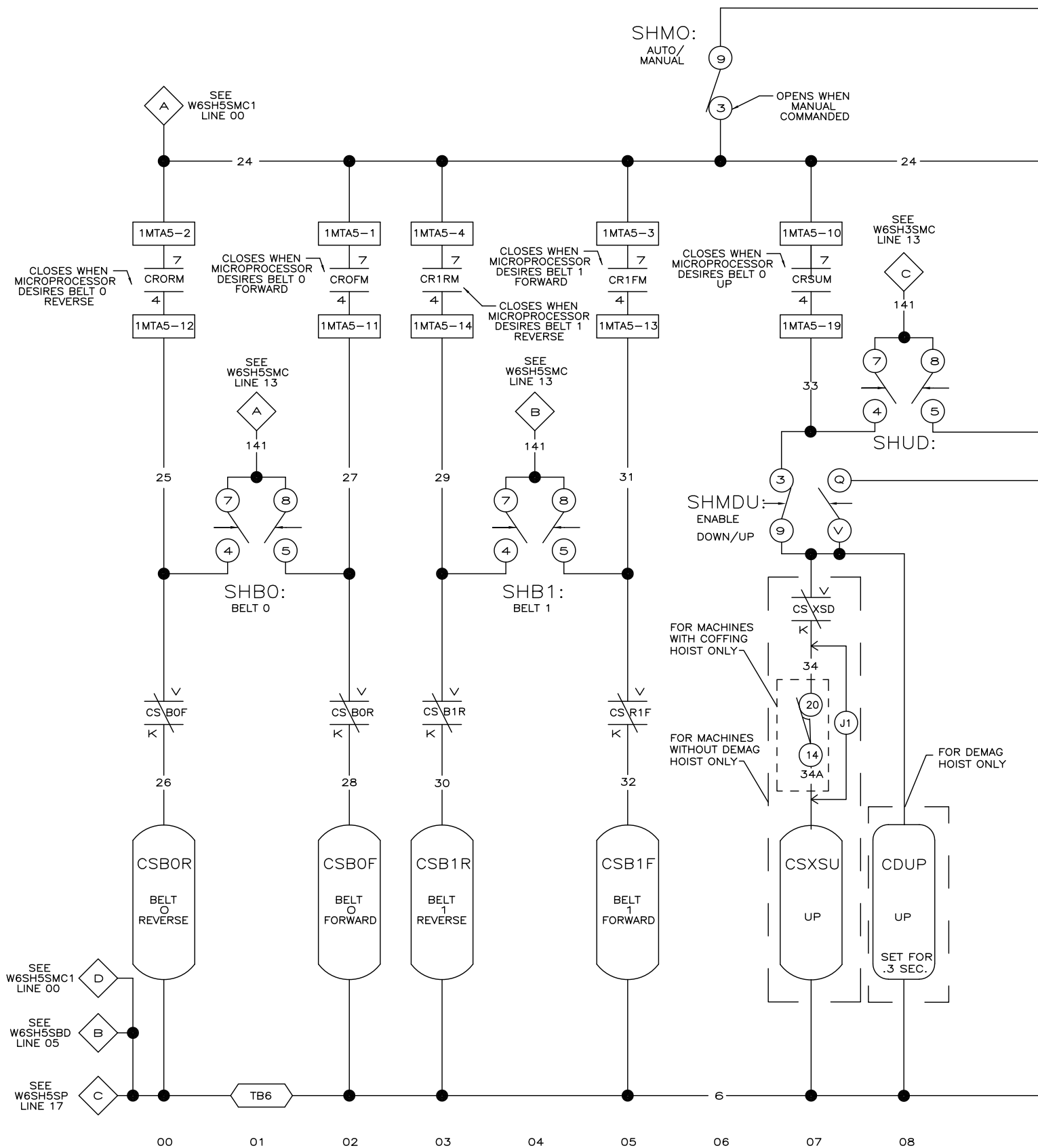
MICRO 6 SYSTEMS MARK V CONTROLS

SCHEMATIC; LASER WIRING

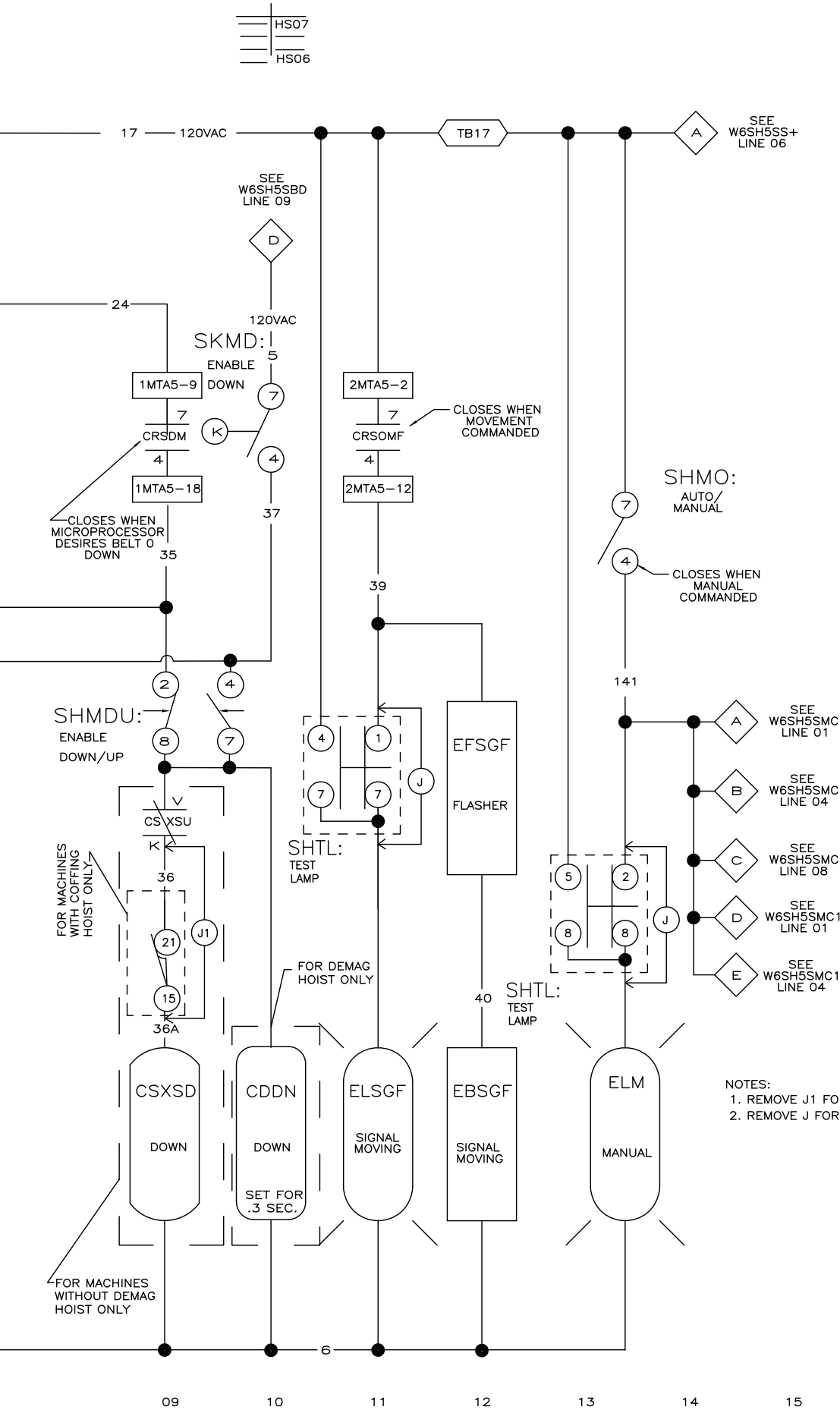
PELLERIN MILNOR CORPORATION

_____ HS05

 _____ HS04



W6SH5SMC
 2025243B



W6SH5SMC

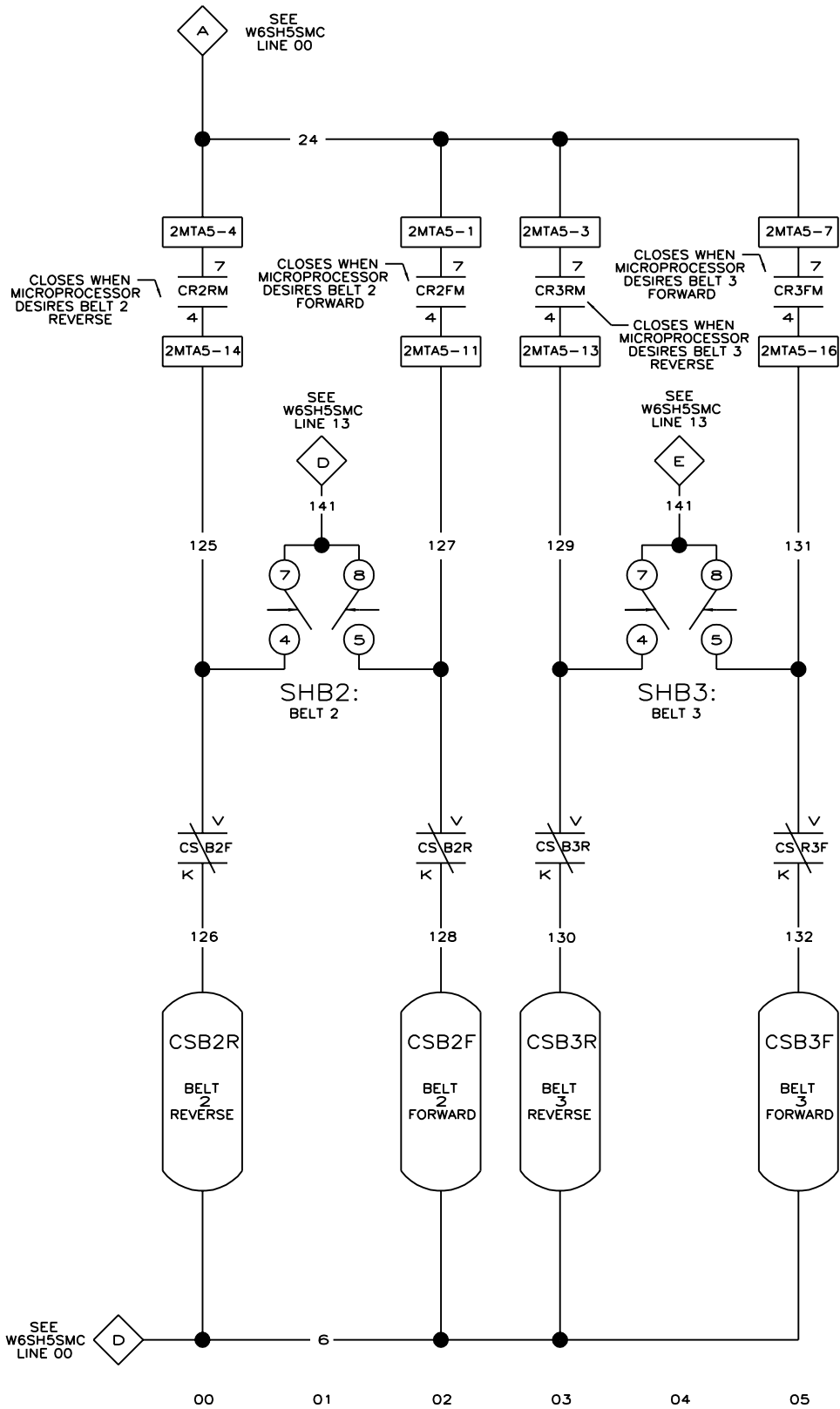
MICRO 6 SYSTEMS MARK V

SCHEMATIC: LOAD: NO EXTENSION

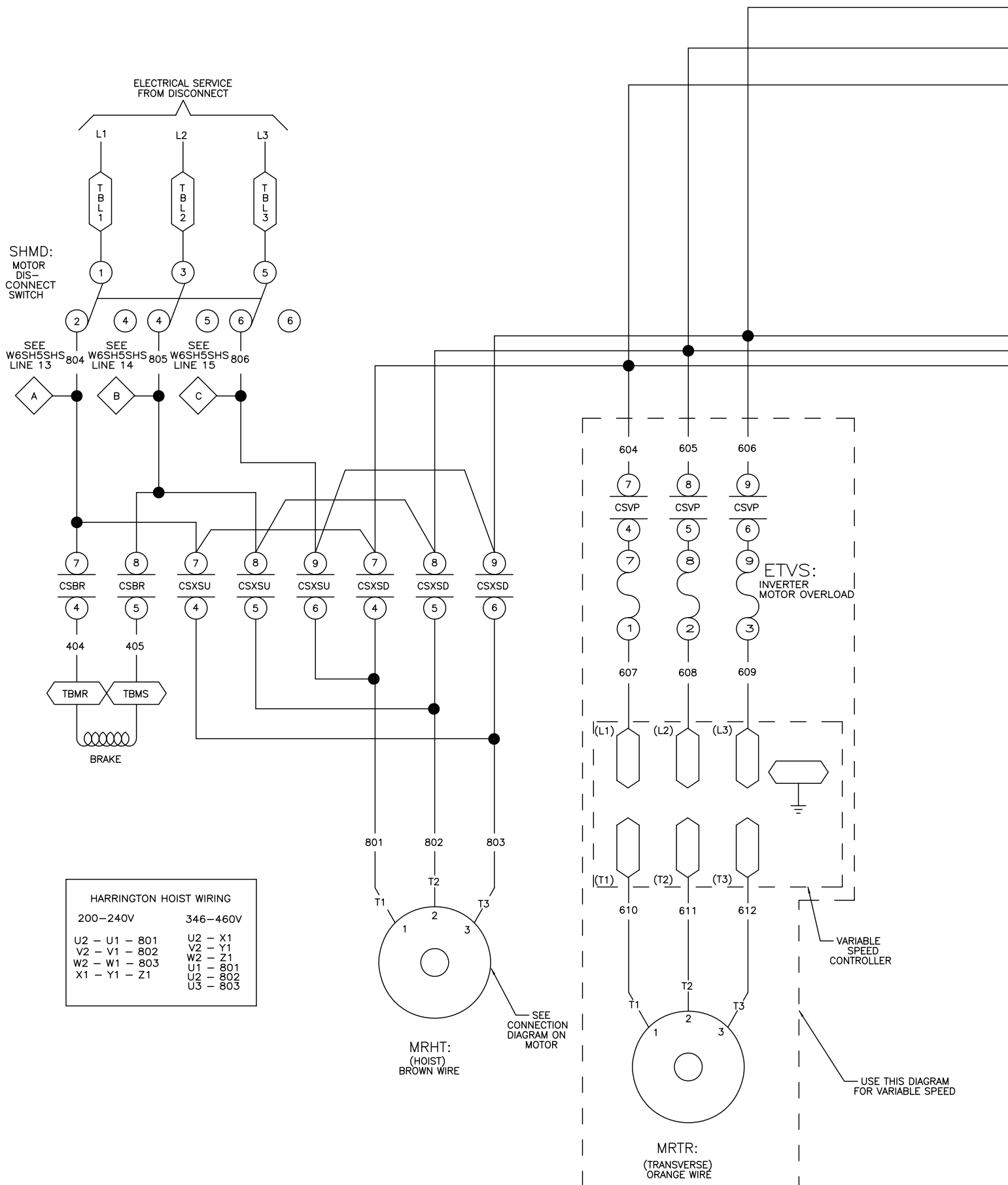
UNLOAD: NO EXTENSION

110V1P50HZ/120V1P60HZ

PELLERIN MILNOR CORPORATION



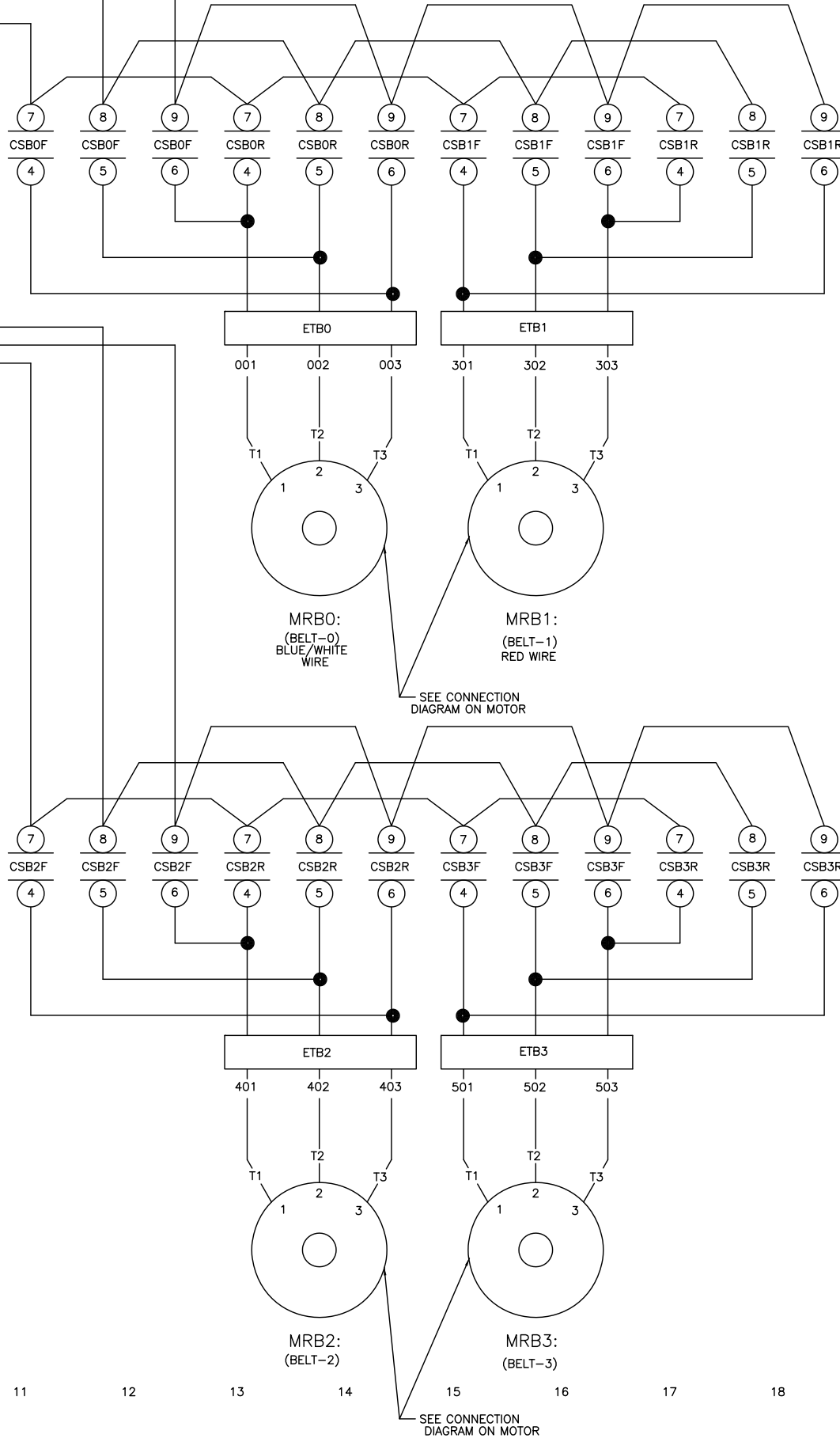
W6SH5SMC1
MICRO 6 SYSTEMS MARK V
SCHEMATIC: LOAD: NO EXTENSION
UNLOAD: NO EXTENSION BELTS 2 AND 3
110V1P50HZ/120V1P60HZ
PELLERIN MILNOR CORPORATION



HARRINGTON HOIST WIRING	
200-240V	346-460V
U2 - U1 - 801	U2 - X1
V2 - V1 - 802	V2 - Y1
W2 - W1 - 803	W2 - Z1
X1 - Y1 - Z1	U1 - 801
	U2 - 802
	U3 - 803

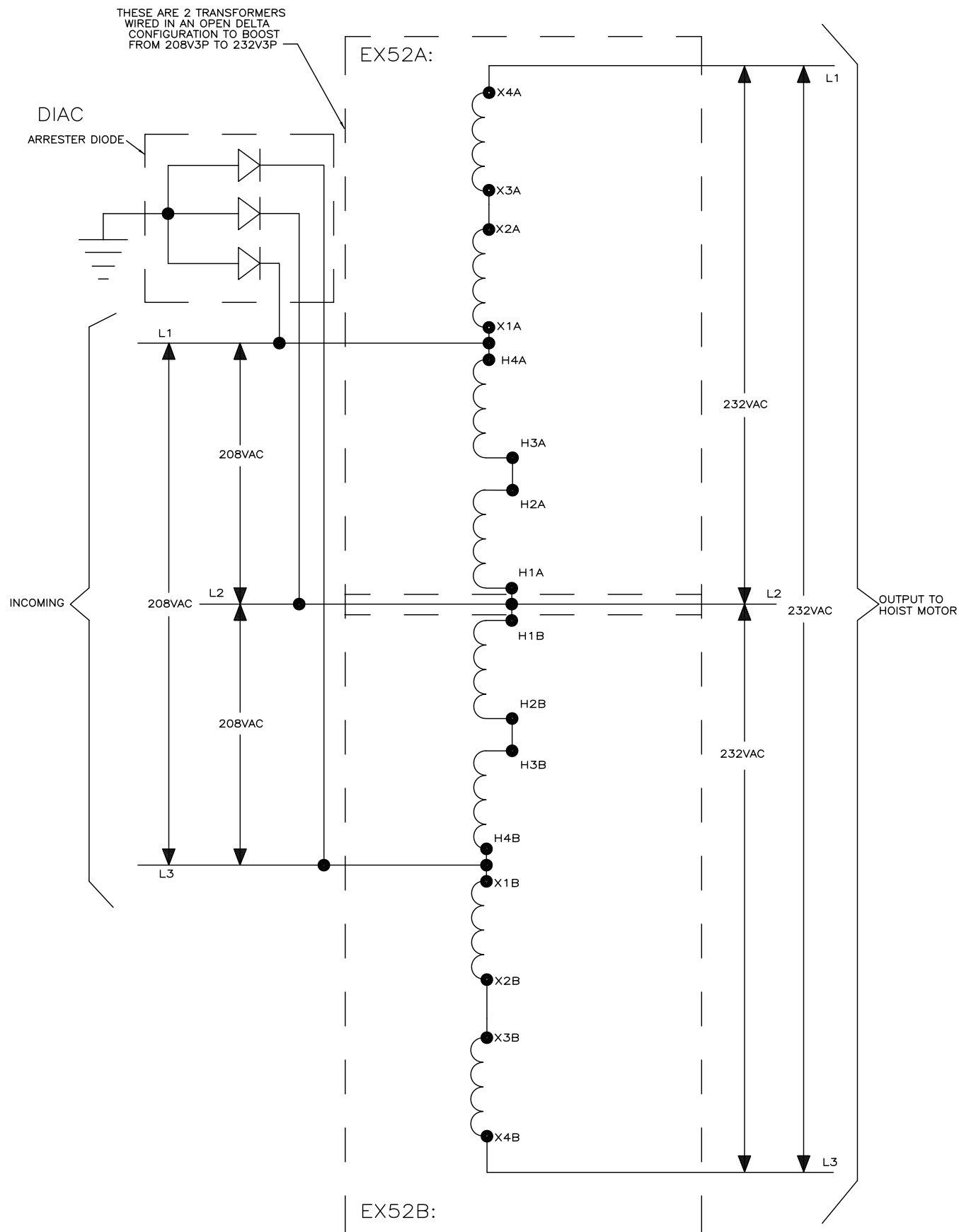
00 01 02 03 04 05 06 07 08 09 10

SEE W6SH5SMTRA FOR INVERTER DRIVEN BELTS



W6SH5SMTR

MICRO 6 SYSTEMS MARK V
SCHEMATIC: MOTORS + INCOMING VOLTAGE
110V1P50HZ/120V1P60HZ
PELLERIN MILNOR CORPORATION

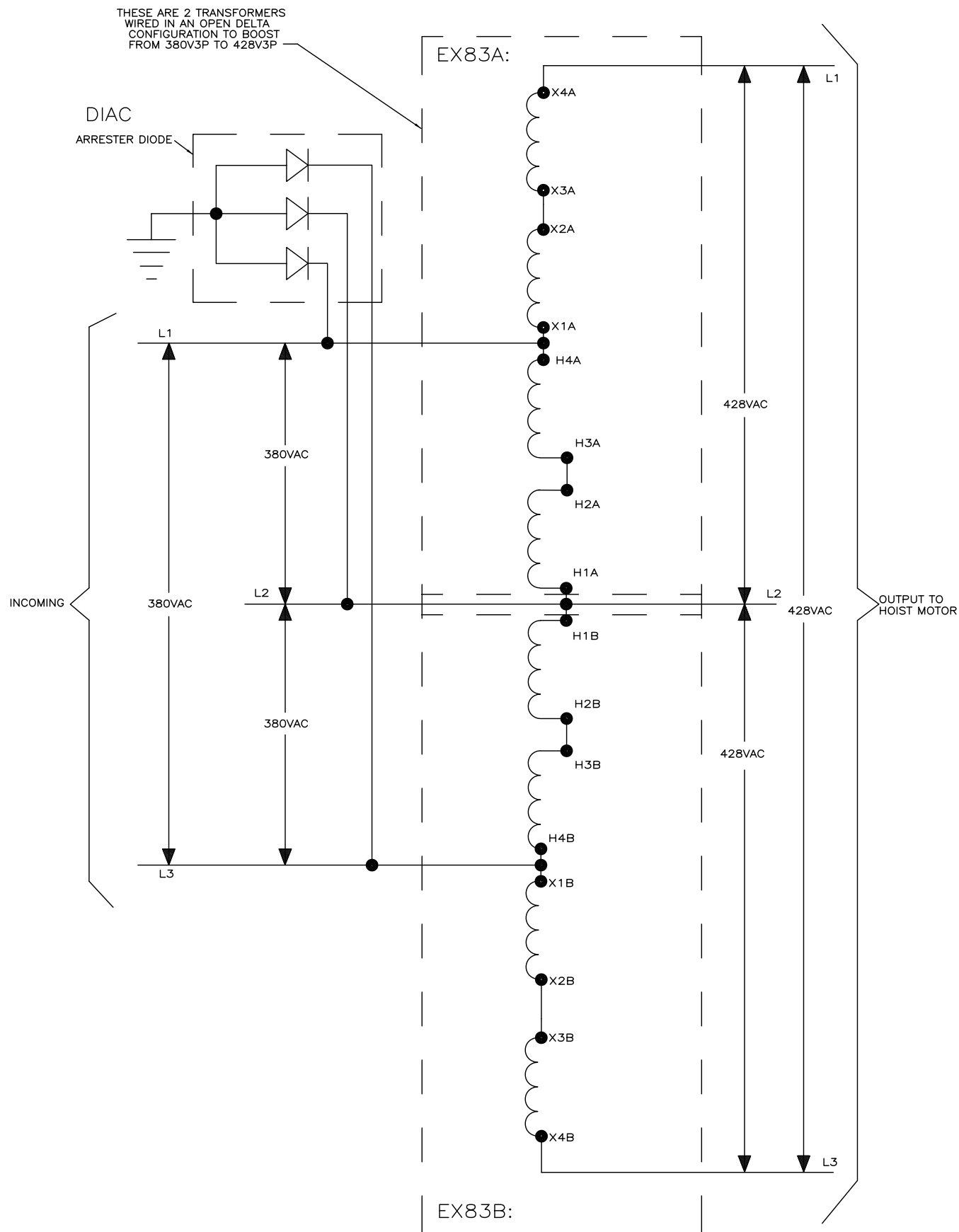


00 01 02 03 04 05 06 07 08 09 10

W6SH5SMT2
2016522B

INPUT (SUPPLY SYSTEM)	DESIRED OUTPUT CONNECTION	
DELTA 3 WIRE	WYE 3 OR 4 WIRE	DO NOT USE
OPEN DELTA 3 WIRE	WYE 3 OR 4 WIRE	DO NOT USE
WYE 3 OR 4 WIRE	CLOSED DELTA 3 WIRE	DO NOT USE
WYE 4 WIRE	WYE 3 OR 4 WIRE	OK
WYE 3 OR 4 WIRE	OPEN DELTA 3 WIRE	OK
CLOSED DELTA 3 WIRE	OPEN DELTA 3 WIRE	OK

W6SH5SMT2
MICRO 6 SYSTEMS
SCHEMATIC: 208V TO 232V3P BOOST TRANSFORMERS
PELLERIN MILNOR CORPORATION

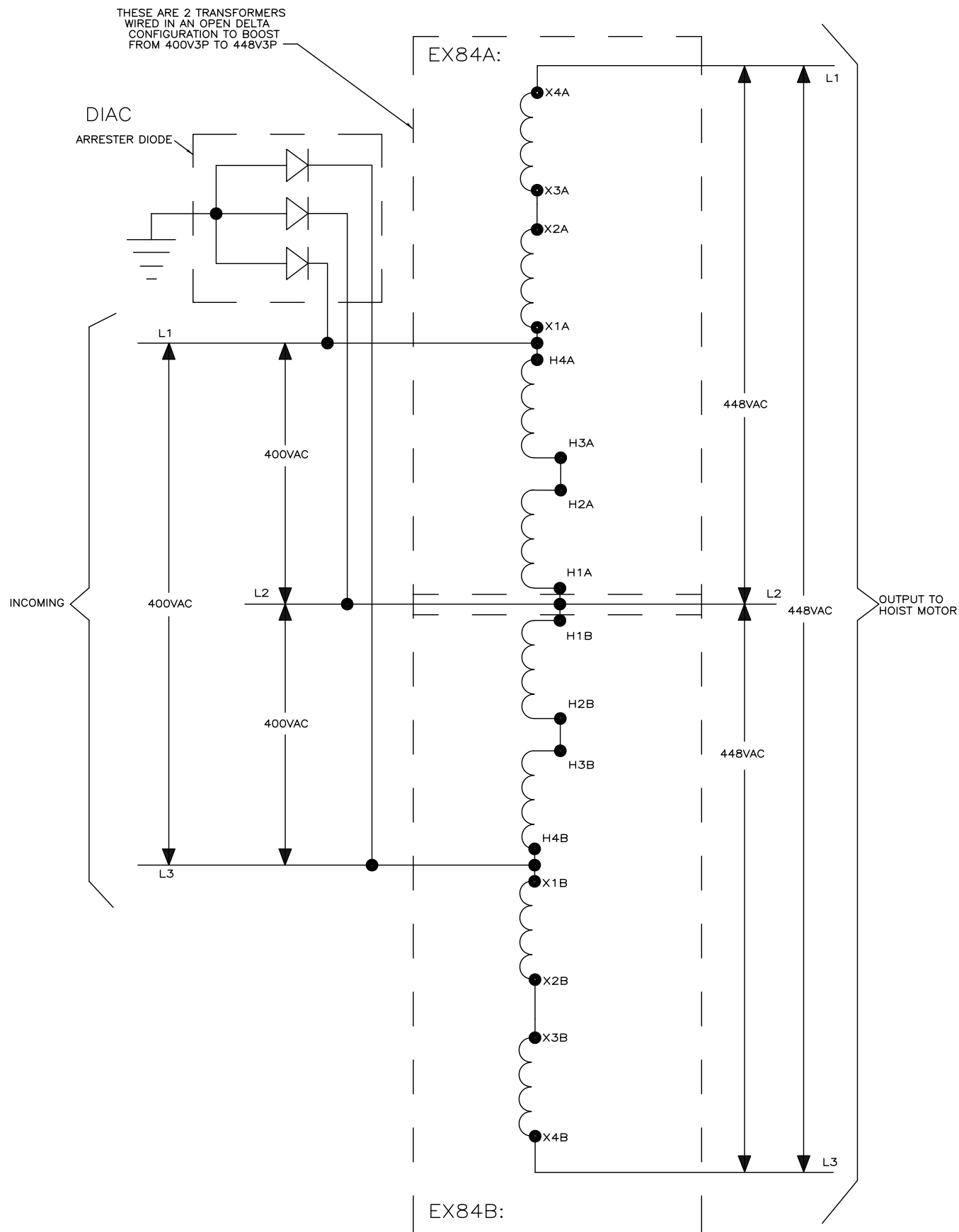


00 01 02 03 04 05 06 07 08 09 10

W6SH5SMT3
2016522B

INPUT (SUPPLY SYSTEM)	DESIRED OUTPUT CONNECTION	
DELTA 3 WIRE	WYE 3 OR 4 WIRE	DO NOT USE
OPEN DELTA 3 WIRE	WYE 3 OR 4 WIRE	DO NOT USE
WYE 3 OR 4 WIRE	CLOSED DELTA 3 WIRE	DO NOT USE
WYE 4 WIRE	WYE 3 OR 4 WIRE	OK
WYE 3 OR 4 WIRE	OPEN DELTA 3 WIRE	OK
CLOSED DELTA 3 WIRE	OPEN DELTA 3 WIRE	OK

W6SH5SMT3
MICRO 6 SYSTEMS
SCHEMATIC: 380V TO 428V3P BOOST TRANSFORMERS
PELLERIN MILNOR CORPORATION



00 01 02 03 04 05 06 07 08 09 10

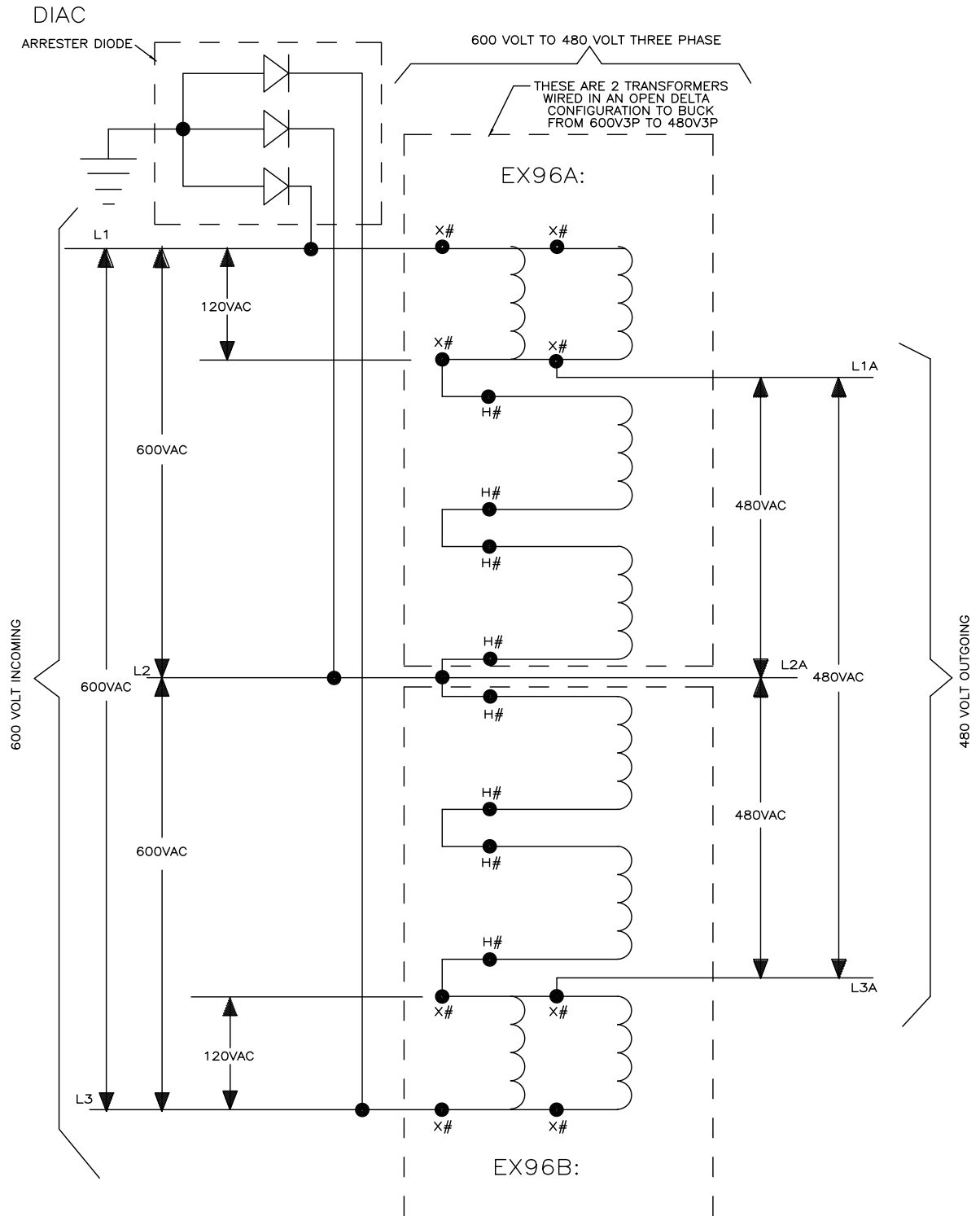
W6SH5SMT4
2016522B

INPUT (SUPPLY SYSTEM)	DESIRED OUTPUT CONNECTION	
DELTA 3 WIRE	WYE 3 OR 4 WIRE	DO NOT USE
OPEN DELTA 3 WIRE	WYE 3 OR 4 WIRE	DO NOT USE
WYE 3 OR 4 WIRE	CLOSED DELTA 3 WIRE	DO NOT USE
WYE 4 WIRE	WYE 3 OR 4 WIRE	OK
WYE 3 OR 4 WIRE	OPEN DELTA 3 WIRE	OK
CLOSED DELTA 3 WIRE	OPEN DELTA 3 WIRE	OK

W6SH5SMT4
MICRO 6 SYSTEMS
SCHEMATIC: 400V TO 448V3P BOOST TRANSFORMERS
PELLERIN MILNOR CORPORATION

INPUT (SUPPLY SYSTEM)	DESIRED OUTPUT CONNECTION	
DELTA 3 WIRE	WYE 3 OR 4 WIRE	DO NOT USE
OPEN DELTA 3 WIRE	WYE 3 OR 4 WIRE	DO NOT USE
WYE 3 OR 4 WIRE	CLOSED DELTA 3 WIRE	DO NOT USE
WYE 4 WIRE	WYE 3 OR 4 WIRE	OK
WYE 3 OR 4 WIRE	OPEN DELTA 3 WIRE	OK
CLOSED DELTA 3 WIRE	OPEN DELTA 3 WIRE	OK

W6SH5SMT5
MICRO 6 SYSTEMS
SCHEMATIC: 415V TO 439V3P BOOST TRANSFORMERS
PELLERIN MILNOR CORPORATION



REFER TO TRANSFORMER WIRING DIAGRAM FOR APPROPRIATE WIRE NUMBERS.

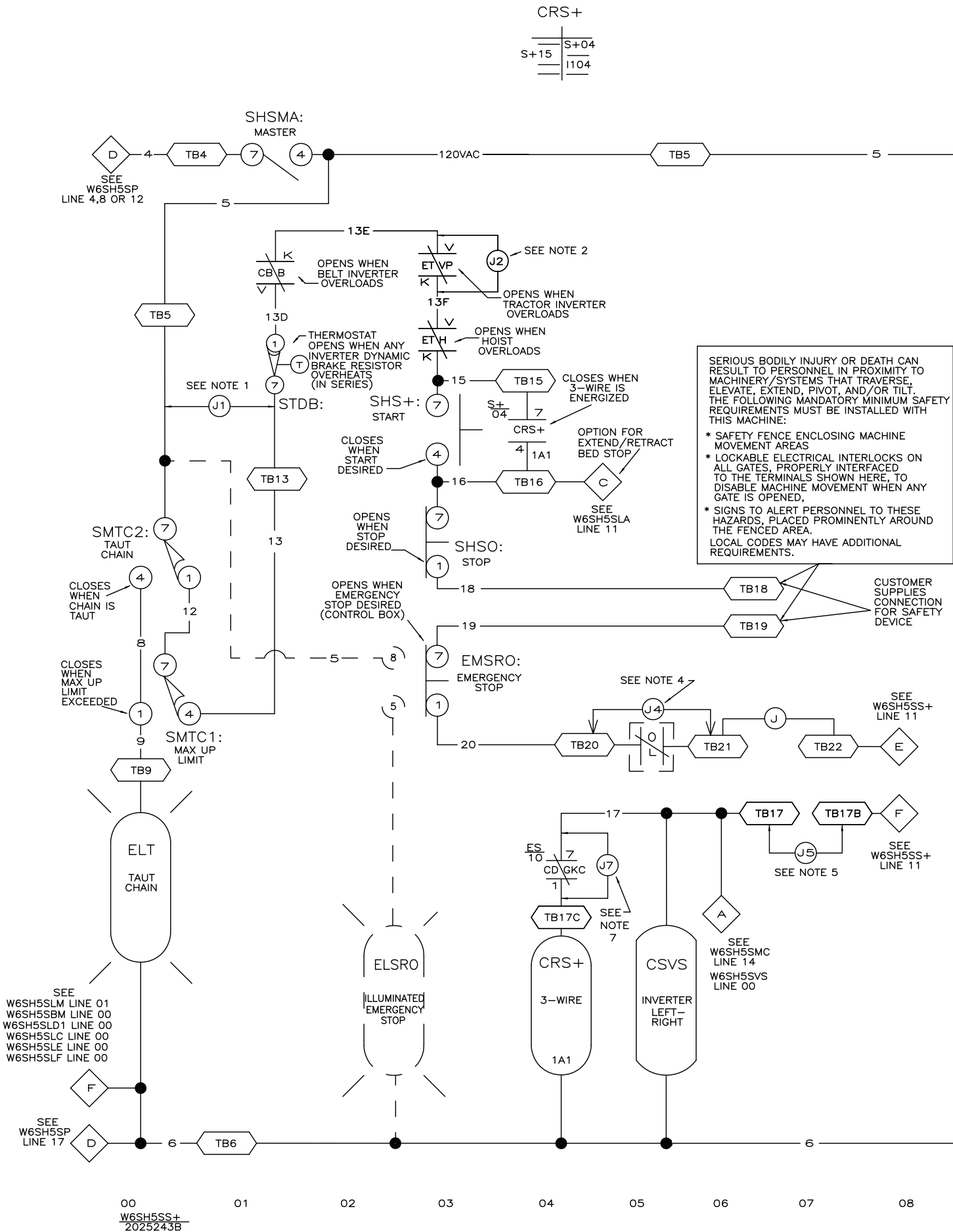
THE PRIMARY OF EACH TRANSFORMER NOTED BY H# MUST BE WIRED FOR 480 VOLTS. THE SECONDARY OF EACH TRANSFORMER NOTED BY X# MUST BE WIRED FOR 120 VOLTS.

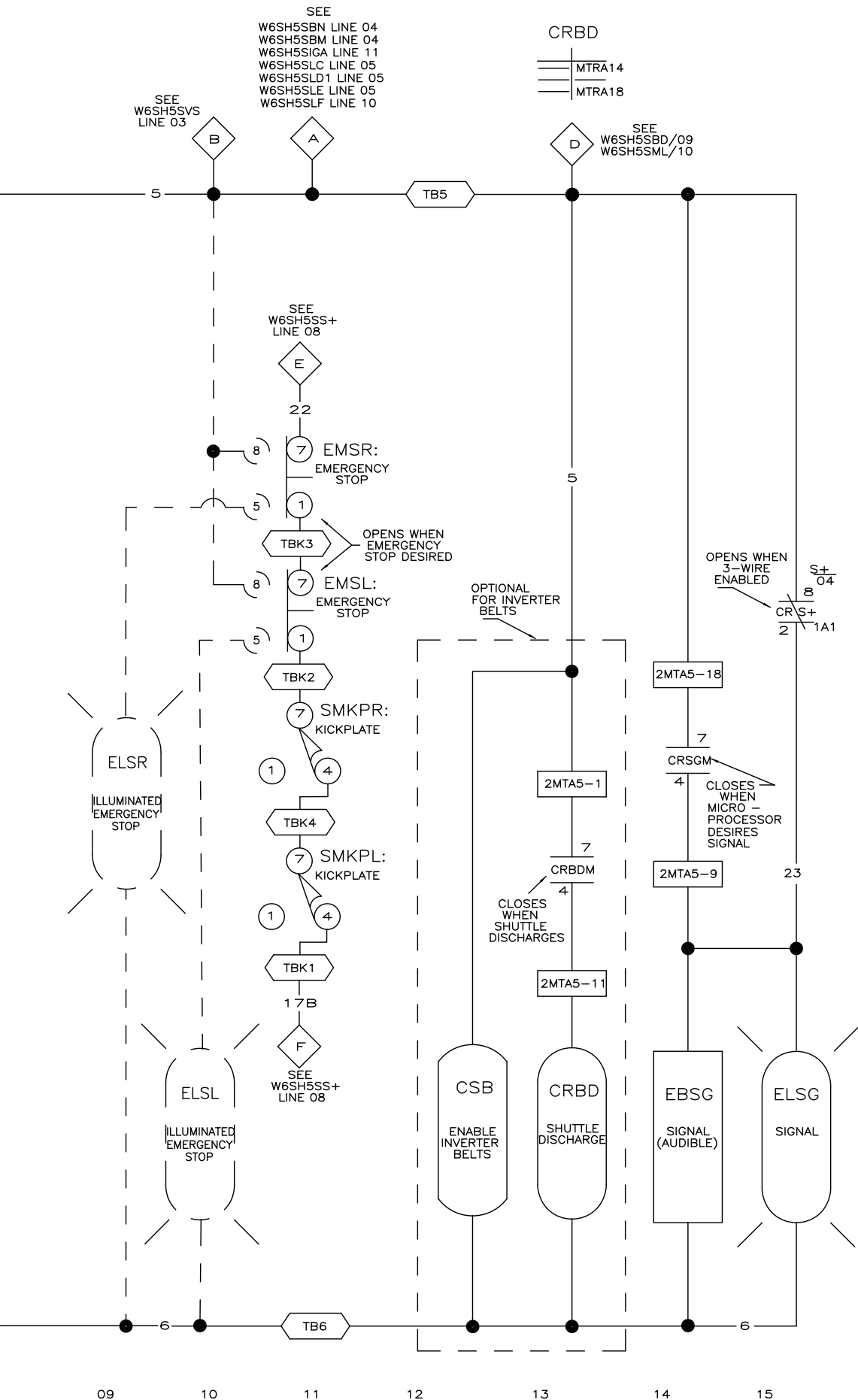
INPUT (SUPPLY SYSTEM)	DESIRED OUTPUT CONNECTION	
DELTA 3 WIRE	WYE 3 OR 4 WIRE	DO NOT USE
OPEN DELTA 3 WIRE	WYE 3 OR 4 WIRE	DO NOT USE
WYE 3 OR 4 WIRE	CLOSED DELTA 3 WIRE	DO NOT USE
WYE 4 WIRE	WYE 3 OR 4 WIRE	OK
WYE 3 OR 4 WIRE	OPEN DELTA 3 WIRE	OK
CLOSED DELTA 3 WIRE	OPEN DELTA 3 WIRE	OK

W6SH5SMT6
2023404B

W6SH5SMT6

MICRO 6 SYSTEMS MARK V
SCHEMATIC: 600V VARIABLE SPEED SHUTTLE
PELLERIN MILNOR CORPORATION





W6SH5SS+

MICRO 6 SYSTEMS MARK V

SCHEMATIC 3-WIRE CIRCUIT

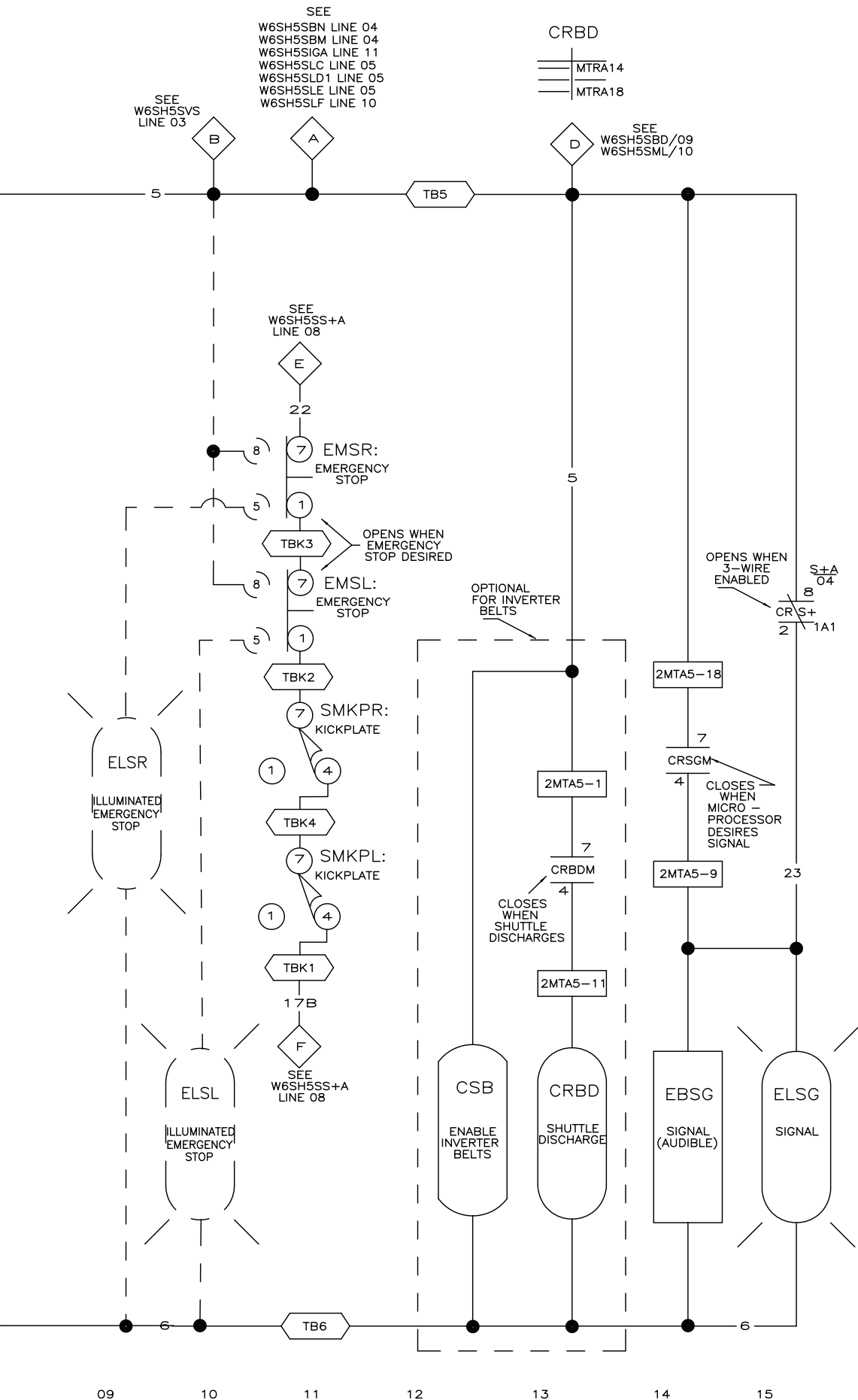
110V50HZ/120V60HZ

PELLERIN MILNOR CORPORATION

NOTES:

1. REMOVE (J1) FOR SHUTTLES WITH HOIST EXCEPT COSHM,P,Q,R.
2. REMOVE (J2) FOR SHUTTLES THAT TRACK LEFT/RIGHT.
3. REMOVE (J3) FOR SHUTTLES WITH "MILNOR HOIST" MOTOR WITH INTERNAL OVERLOAD
4. REMOVE (J4) FOR SHUTTLES WITH "MILNOR HOIST" MOTOR WITH INTERNAL OVERLOAD
5. REMOVE (J5) IF BED STOP OPTION SEE PAGE W6SH5SLA, LINE 08
6. LOCATED ON MOTOR CONTACTOR PAGE FOR SECTION BEING USED
7. REMOVE (J7) FOR GATE KEY OPTION

W6SH5SS+
2025243B



W6SH5SS+A

MICRO 6 SYSTEMS MARK V

SCHEMATIC 3-WIRE CIRCUIT

TAUT CHAIN PROXIMITY SWITCH

110V50HZ/120V60HZ

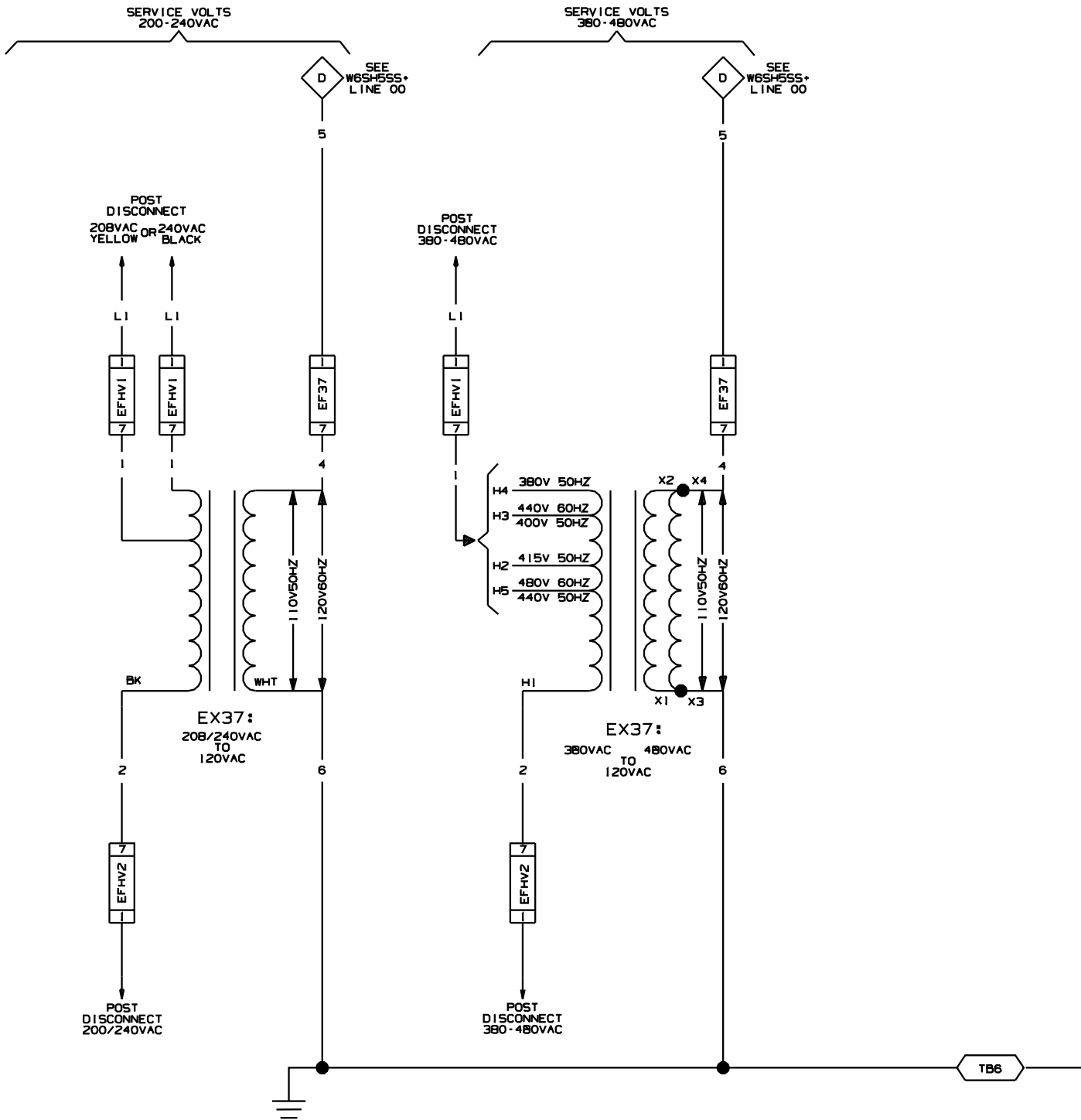
PELLERIN MILNOR CORPORATION

W6SH5SS+A
2025243B

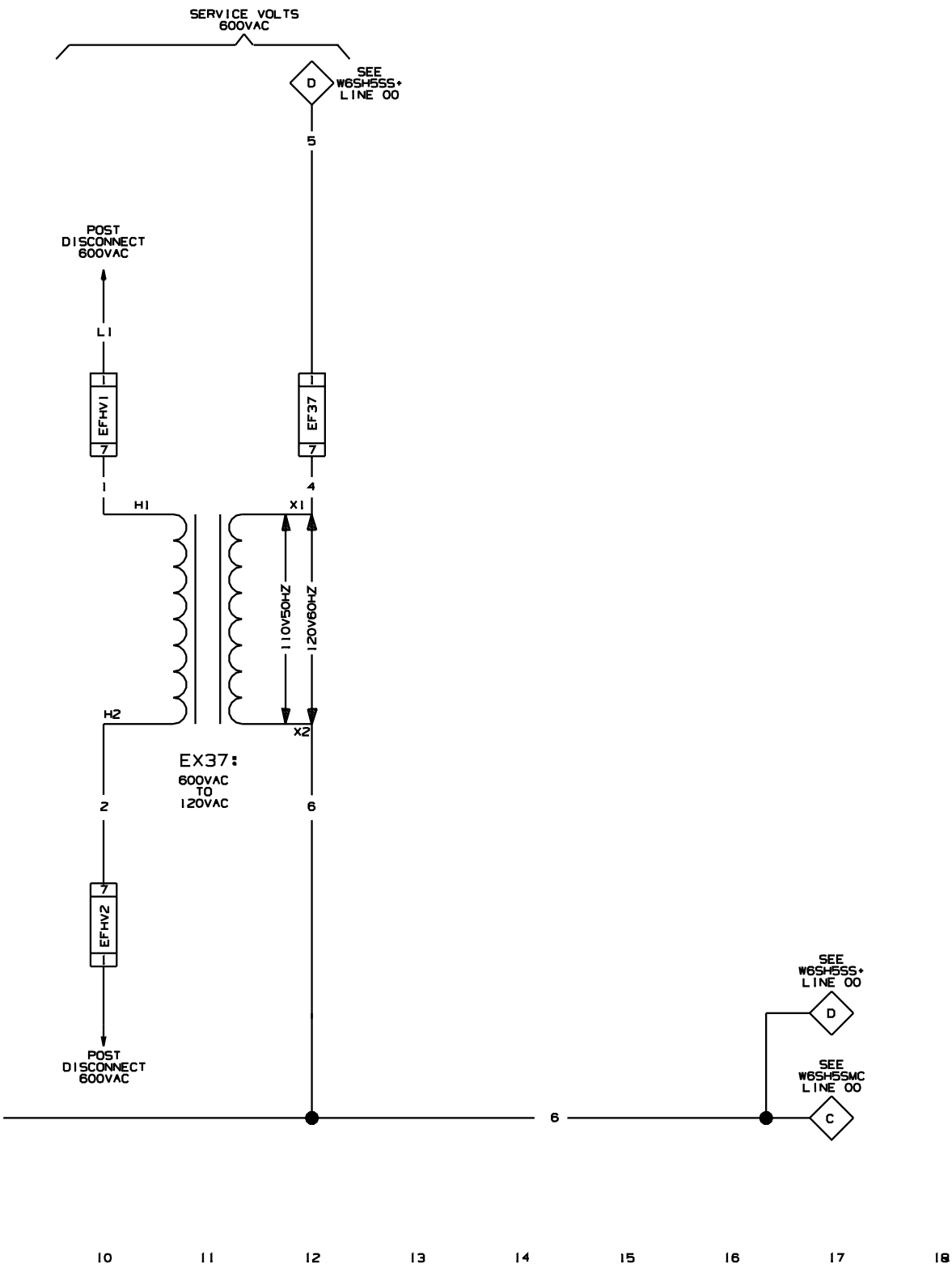
NOTES:

1. REMOVE (J1) FOR SHUTTLES WITH HOIST EXCEPT COSHM,P,Q,R.
2. REMOVE (J2) FOR SHUTTLES THAT TRACK LEFT/RIGHT.
3. REMOVE (J3) FOR SHUTTLES WITH "MILNOR HOIST" MOTOR WITH INTERNAL OVERLOAD
4. REMOVE (J4) FOR SHUTTLES WITH "MILNOR HOIST" MOTOR WITH INTERNAL OVERLOAD
5. REMOVE (J5) IF BED STOP OPTION SEE PAGE W6SH5SLA, LINE 08
6. LOCATED ON MOTOR CONTACTOR PAGE FOR SECTION BEING USED
7. REMOVE (J7) FOR GATE KEY OPTION

W6SH5SS+A
2025243B

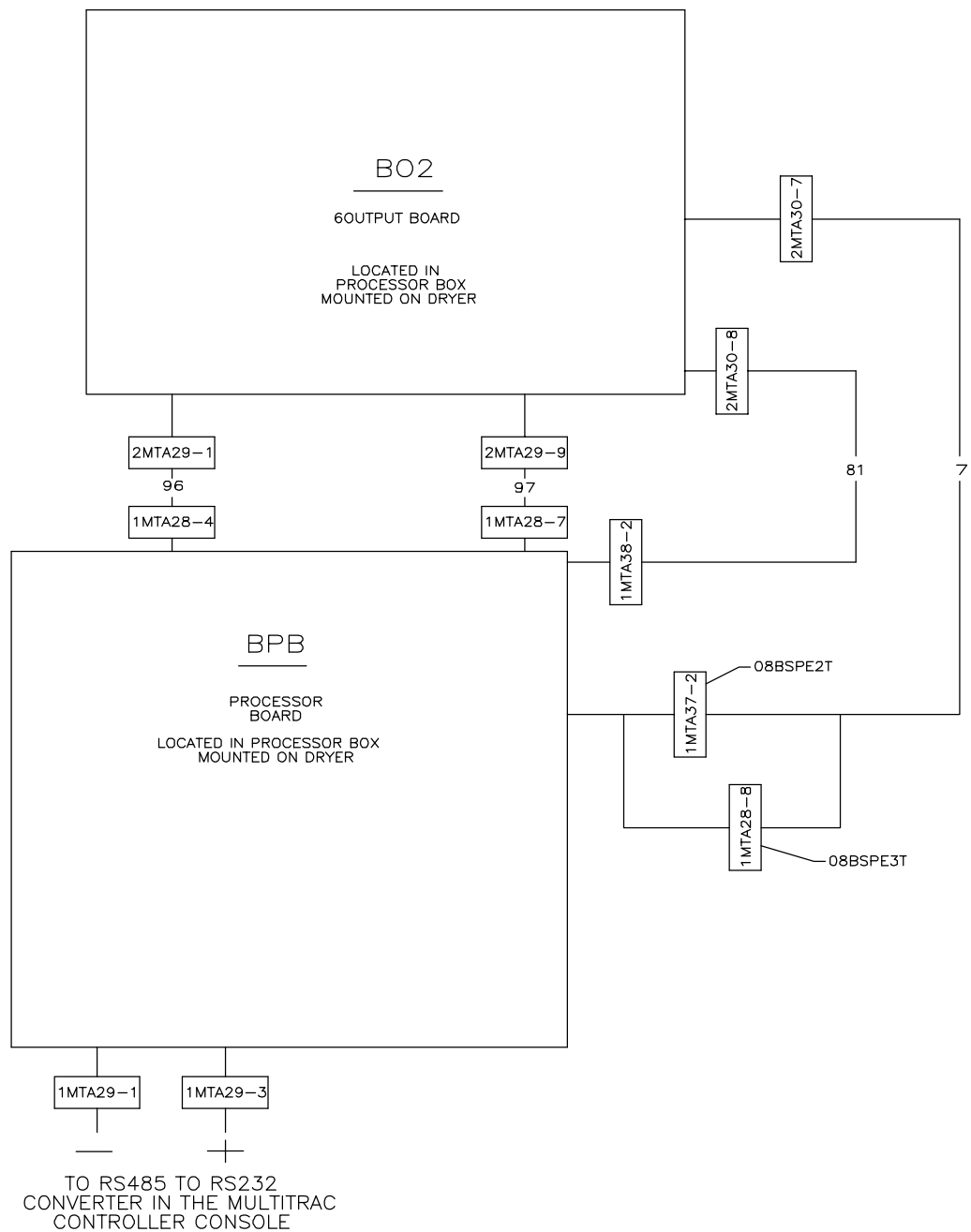


00 01 02 03 04 05 06 07 08 09



W6SH5SP

MICRO 6 SYSTEMS MARK V
SCHEMATIC: SOURCE 110V50HZ/120V60HZ
CONTROL CIRCUIT POWER
PELLERIN MILNOR CORPORATION



NOTE:

WHEN A SHUTTLE IS CONTROLLED BY A
MULTITRAC CONTROLLER RATHER THAN AN INDIVIDUAL
SHUTTLE CONTROLLER, THIS SCHEMATIC REPLACES
W6SH5SK+D AND THE DIRECT INPUT FOR THE PROGRAM
KEY AS SHOWN ON W6SH5SI2A.

W6SH5STR
MICRO 6 SYSTEMS MARK V CONTROLS
SCHEMATIC; BOARD WIRING FOR INTERFACE WITH
MULTITRAC CONTROLLER
PELLERIN MILNOR CORPORATION

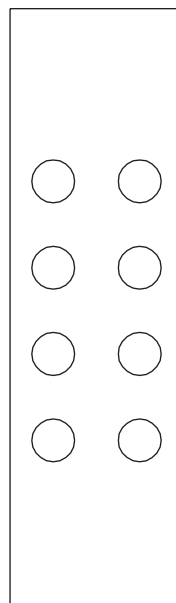
W6SH5STR
2017324B

* TRACK 5 -- L/R LIMIT

TRACK 4 -- HOME

TRACK 3 -- LOAD

TRACK 2 -- DASH



AS VIEWED FROM LOAD END
(PROX SWITCHES FACING DISCHARGE END)

*NOTE

SLOW DOWN PROX SWITCH WILL BE
MOUNTED ON TRACK 2 WHEN LOAD
SWITCHES ARE NOT REQUIRED.

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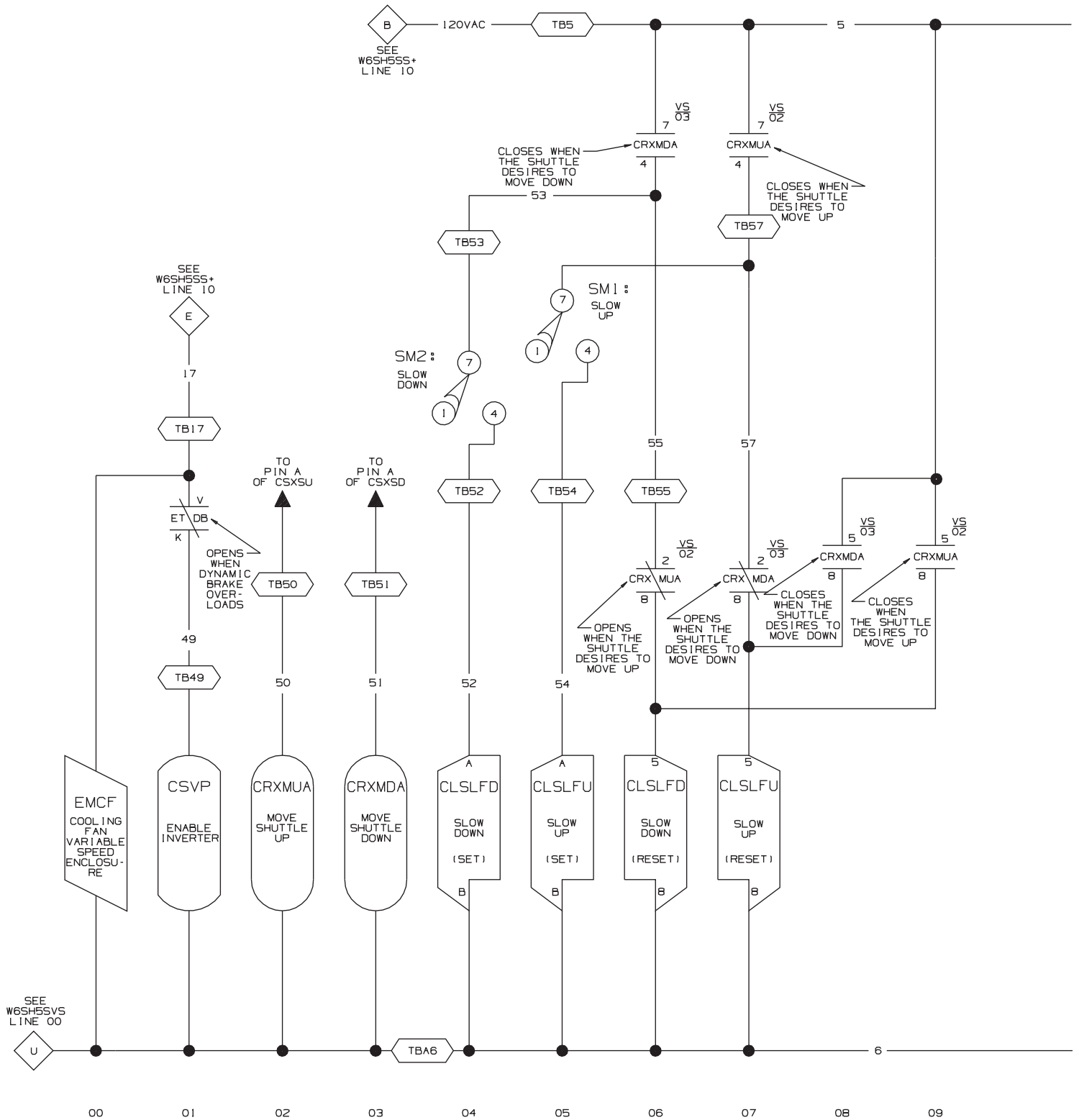
06

07

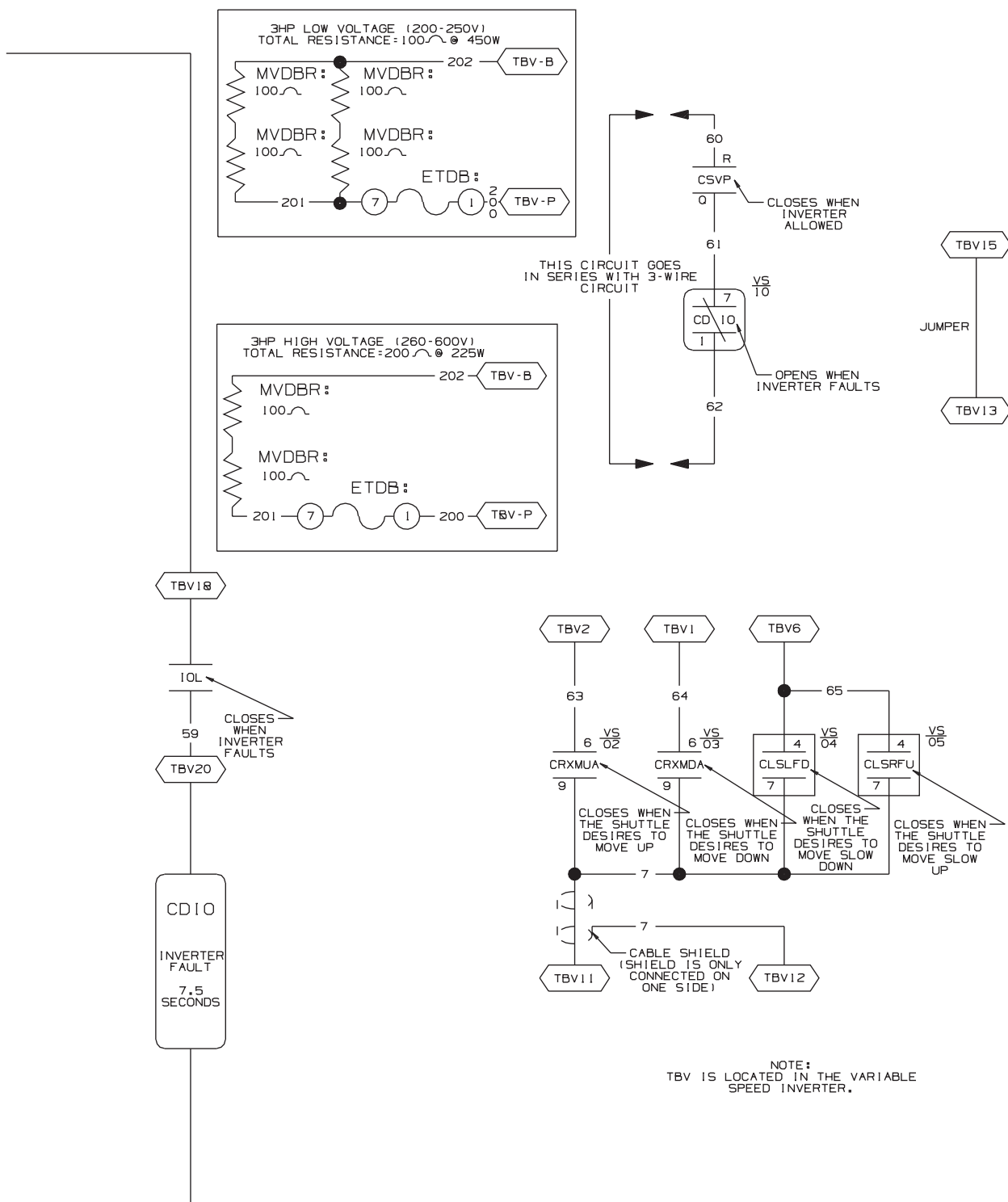
W6SH5SVRA

MICRO 6 SYSTEMS MARK V
SCHEMATIC: STANDARD LOCATIONS FOR TARGETS
MODIFIED FOR 3.8" TALL RAIL
PELLERIN MILNOR CORPORATION

VS06	VS07	VS06	VS16	VS17
VS08	VS09	VS07		
VS14	VS15			



VS15



W6SH5SVS

MICRO 6 SYSTEMS MARK V

SCHEMATIC: VARIABLE SPEED OPTION

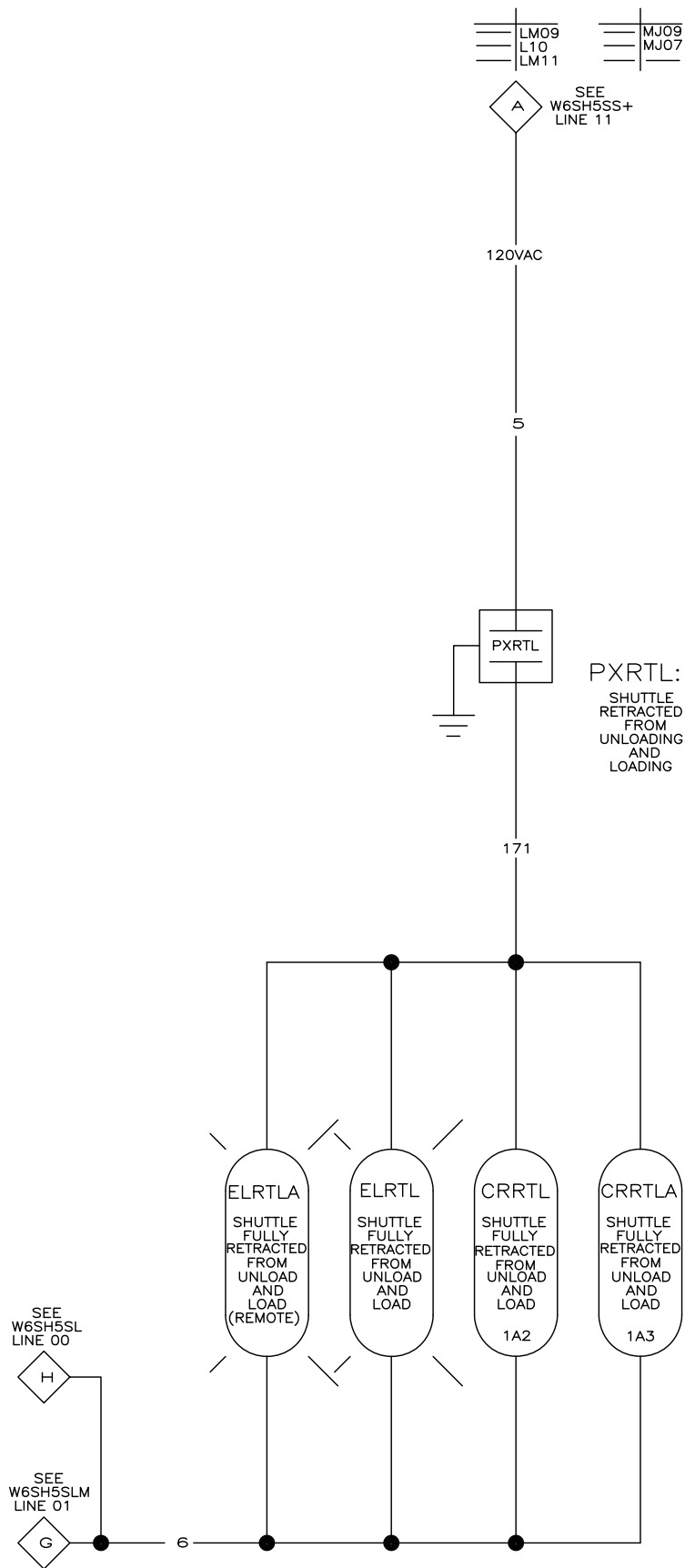
UP-DOWN

PELLERIN MILNOR CORPORATION

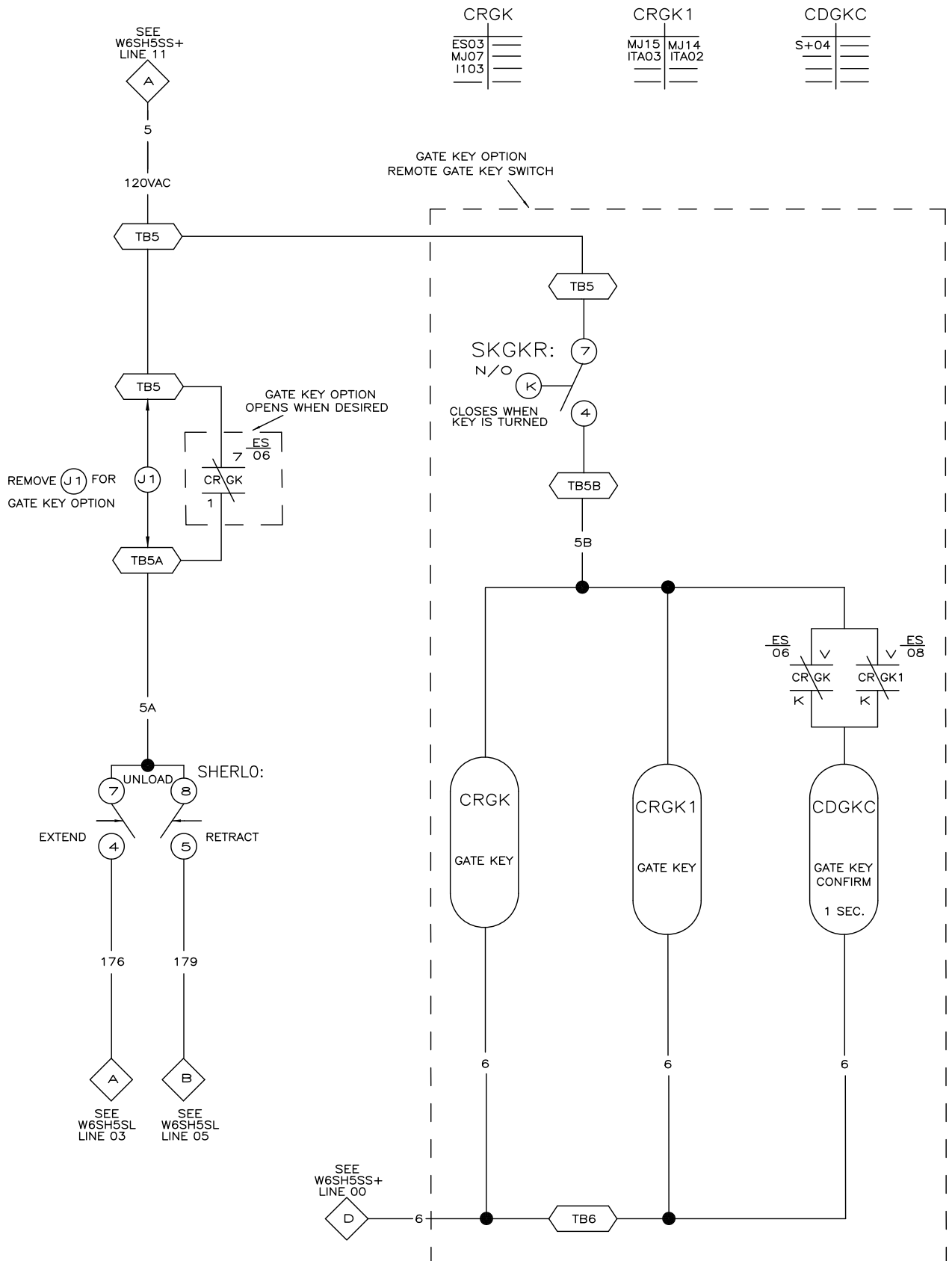
10 11 12 13 14 15 16 17 18

Load=Extend Manual,
Unload=Extend Automatic

2



W6SH5SBN
MICRO 6 SYSTEMS MARK V
SCHEMATIC: LOAD: EXTEND—MANUAL ONLY
UNLOAD: EXTEND—AUTOMATIC
PELLERIN MILNOR CORPORATION



00 01 02 03 04 05 06 07 08 09 10

W6SH5SES
MICRO 6 SYSTEMS MARK V
SCHEMATIC: LOAD EXTEND—MANUAL ONLY
UNLOAD: EXTEND—AUTOMATIC
PELLERIN MILNOR CORPORATION

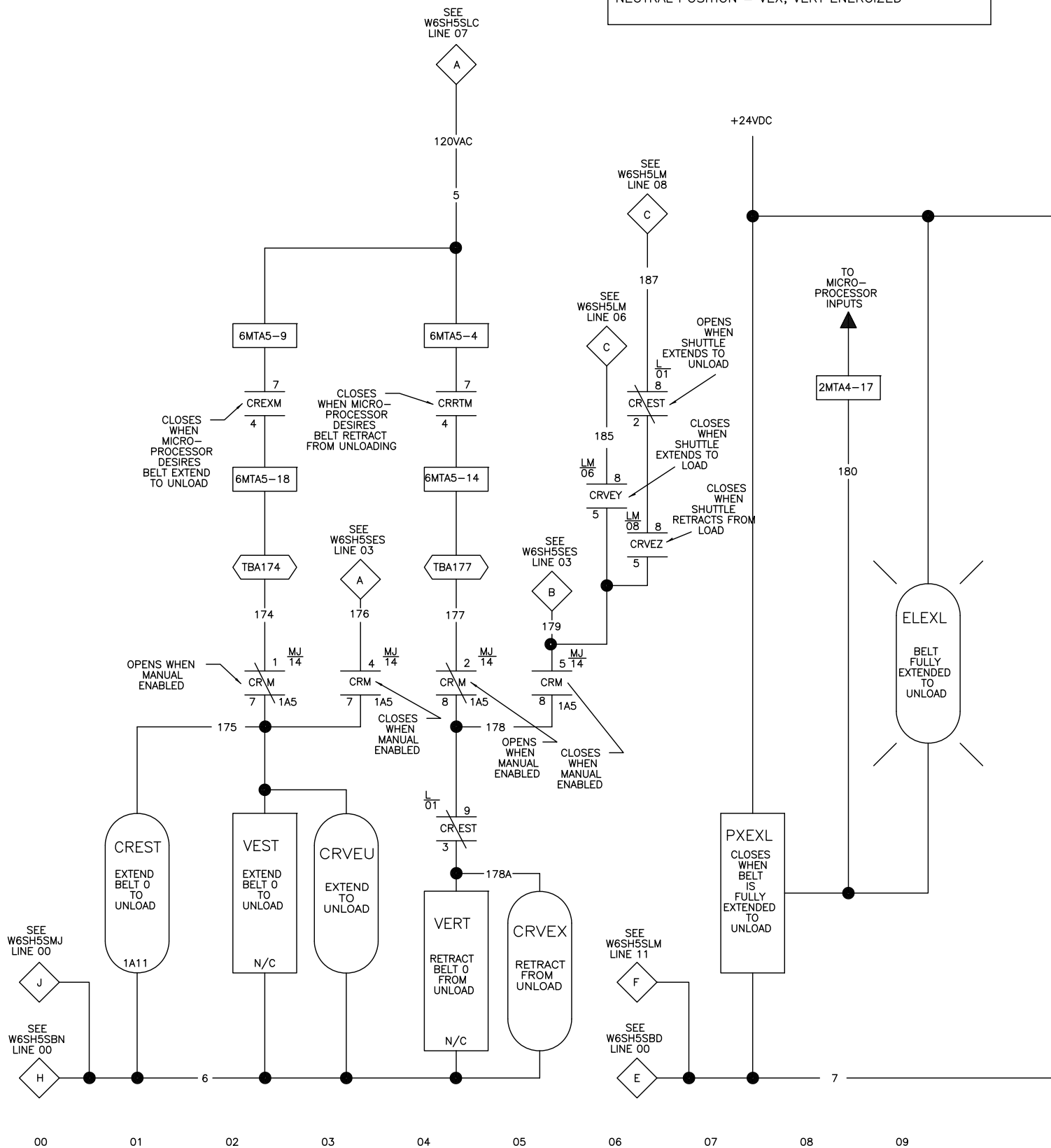
LM09
L06
L04

S+11

S+10
LM09

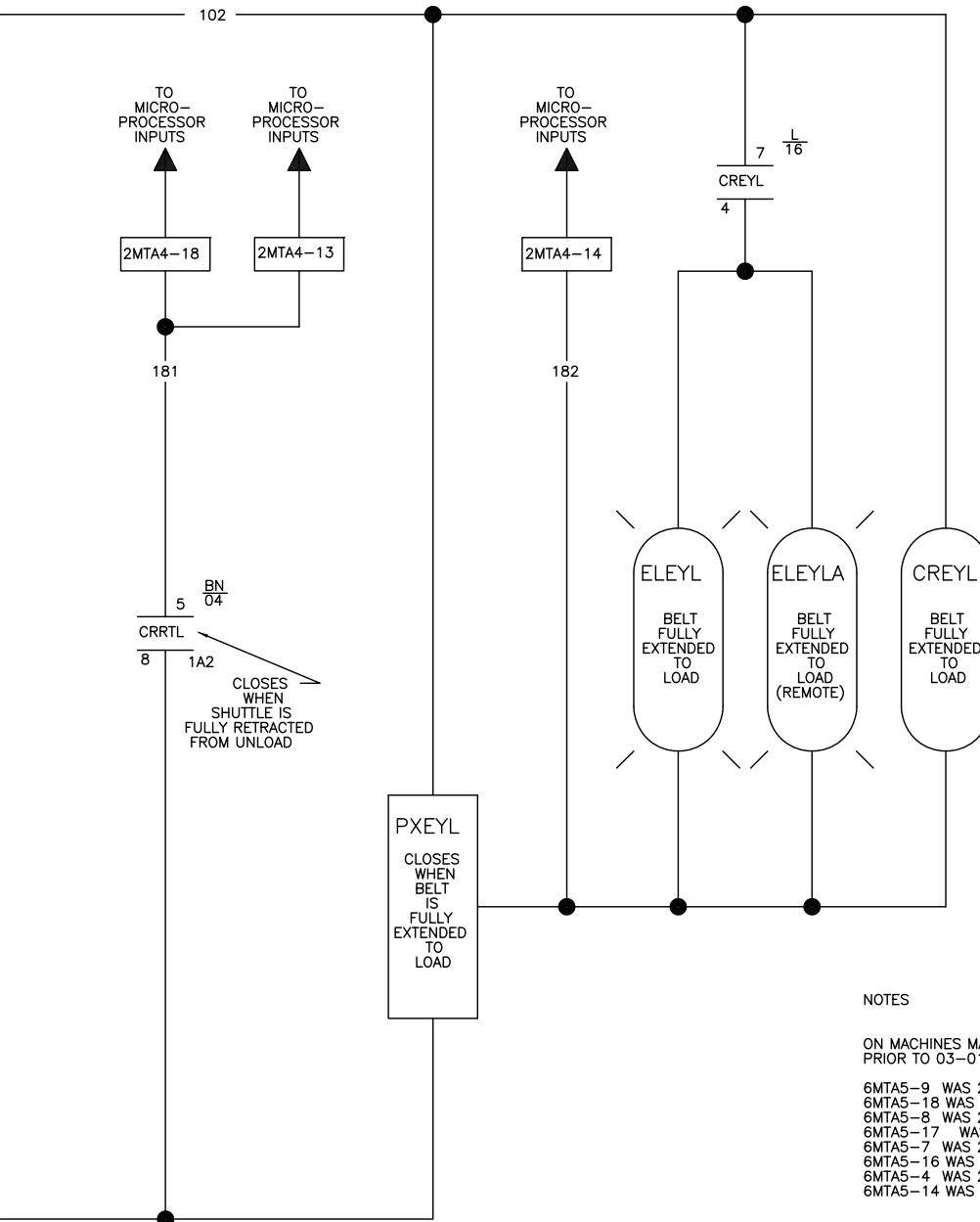
OPERATION OF SLIDING BELT

EXTEND TO LOAD = VERT, VEY ENERGIZED
EXTEND TO UNLOAD = VEX, VEST ENERGIZED
NEUTRAL POSITION = VEX, VERT ENERGIZED



W6SH5SL
2024502B

L14



NOTES

ON MACHINES MANUFACTURED
PRIOR TO 03-01-2000

6MTA5-9 WAS 2MTA5-7
6MTA5-18 WAS 2MTA5-16
6MTA5-8 WAS 2MTA5-14
6MTA5-17 WAS 2MTA5-4
6MTA5-7 WAS 2MTA5-3
6MTA5-16 WAS 2MTA5-13
6MTA5-4 WAS 2MTA5-1
6MTA5-14 WAS 2MTA5-11

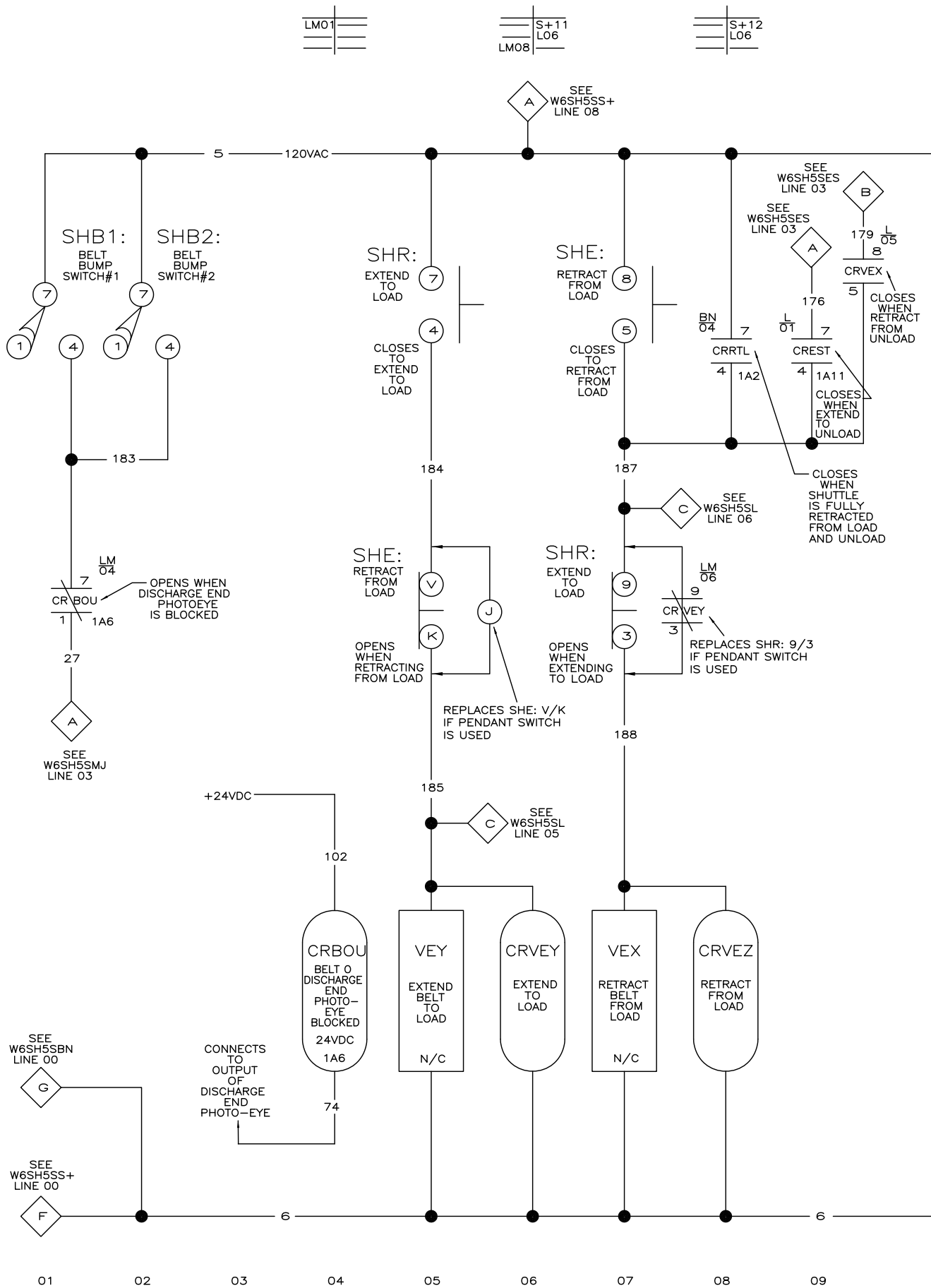
W6SH5SL

MICRO 6 SYSTEMS MARK V

SCHEMATIC: LOAD:EXTEND-MANUAL ONLY

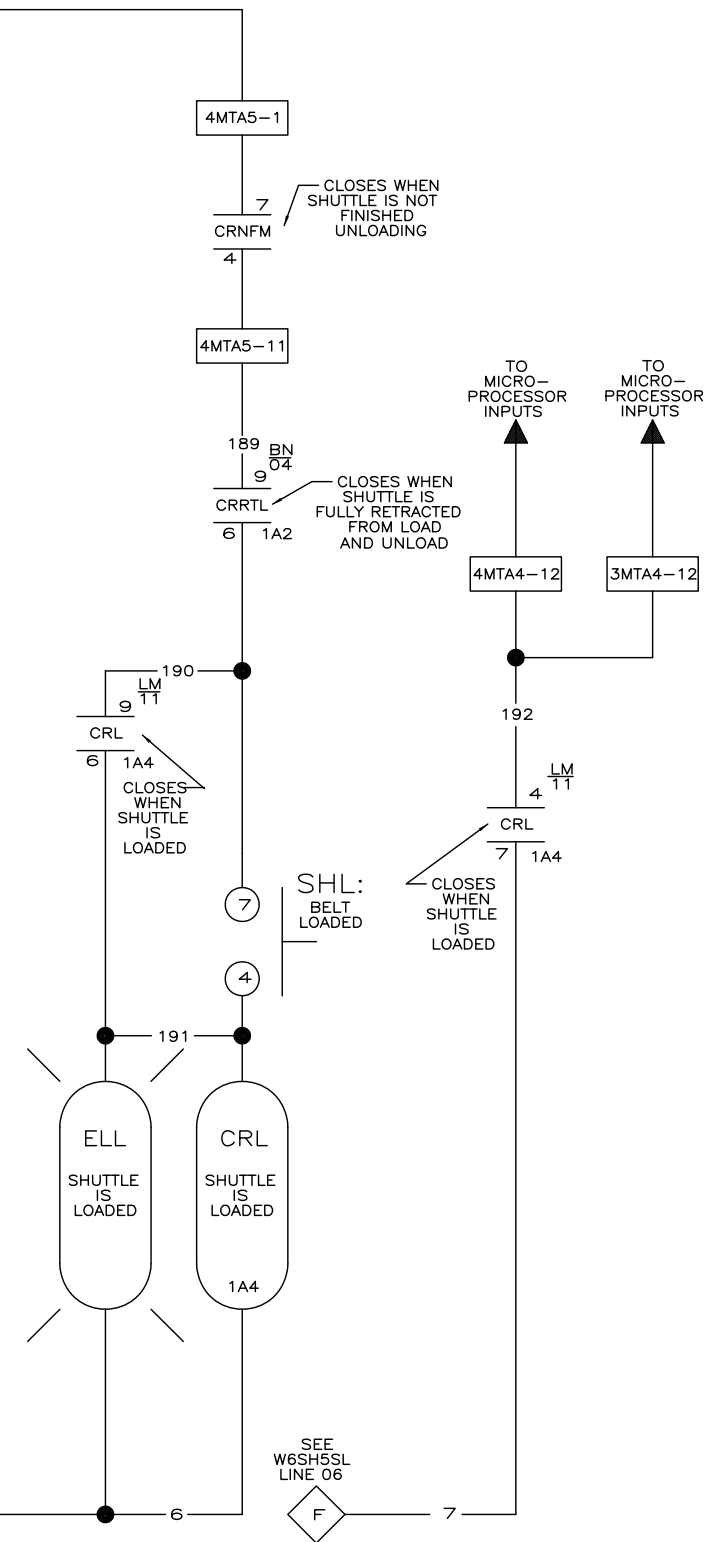
UNLOAD: EXTEND-AUTOMATIC

PELLERIN MILNOR CORPORATION



LM13
LM10

W6SH5SLM
2024502B



W6SH5SLM

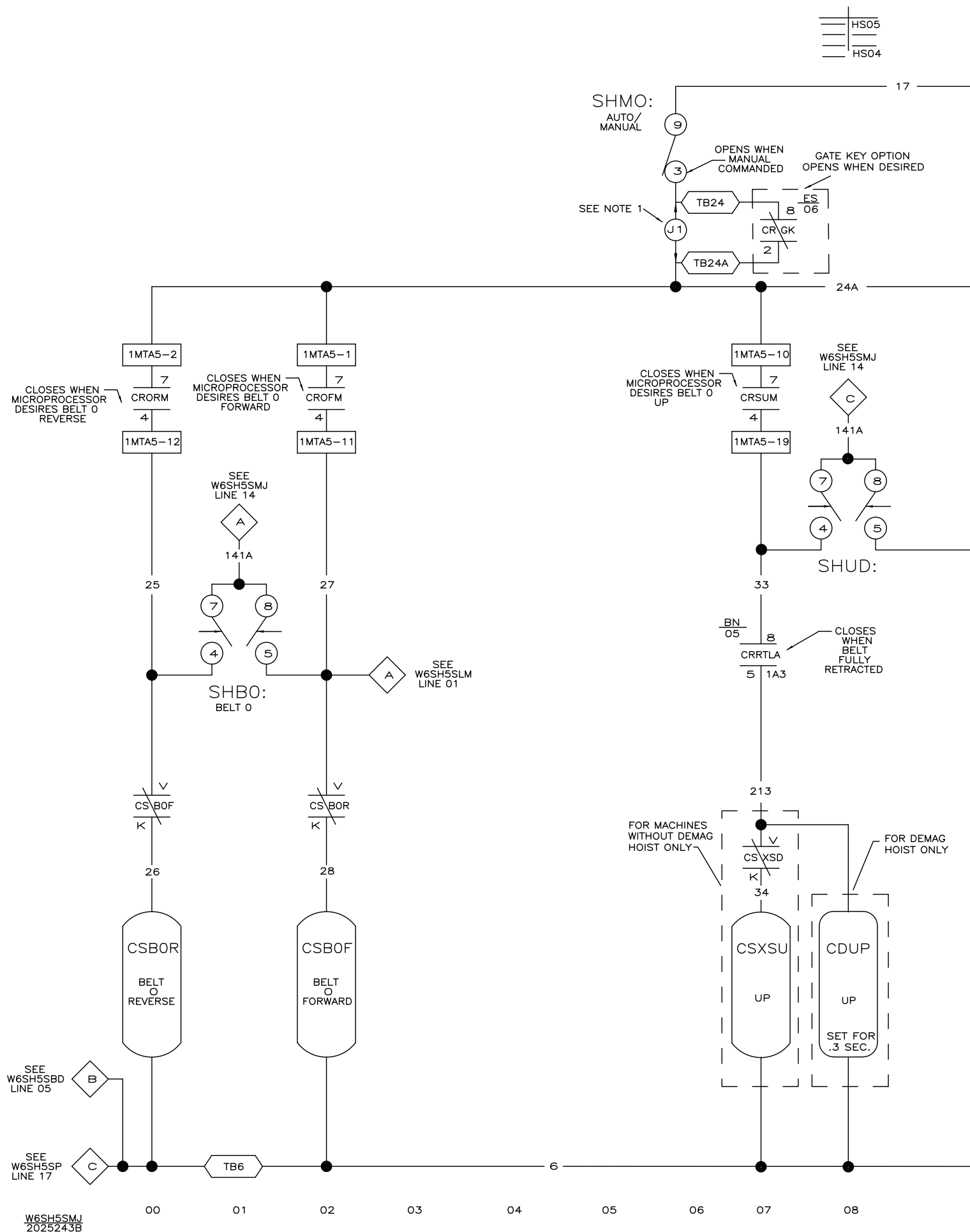
MICRO 6 SYSTEMS MARK V

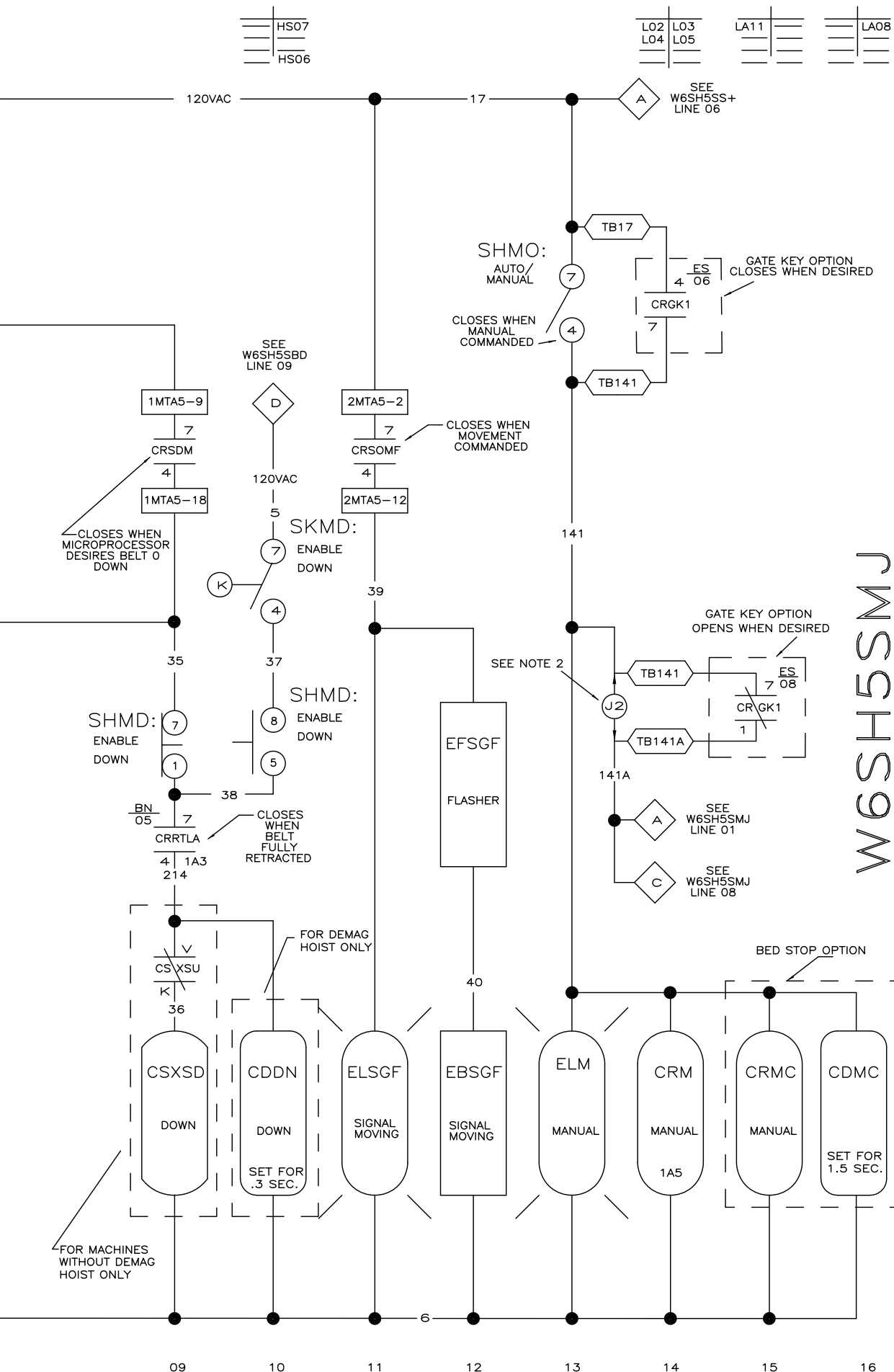
SCHEMATIC: LOAD: EXTEND—MANUAL ONLY

UNLOAD: EXTEND—AUTOMATIC

PELLERIN MILNOR CORPORATION

W6SH5SLM
2024502B





W6SH5SMJ

MICRO 6 SYSTEMS MARK V

SCHEMATIC: MOTOR CONTACTORS

LOAD: EXTEND-MANUAL ONLY

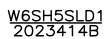
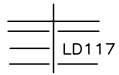
UNLOAD = EXTEND AUTOMATIC

110V1P50HZ/120V1P60HZ
PELLERIN MILNOR CORPORATION

W6SH5SMJ
2025243B

W6SH5SMJ
2025243B

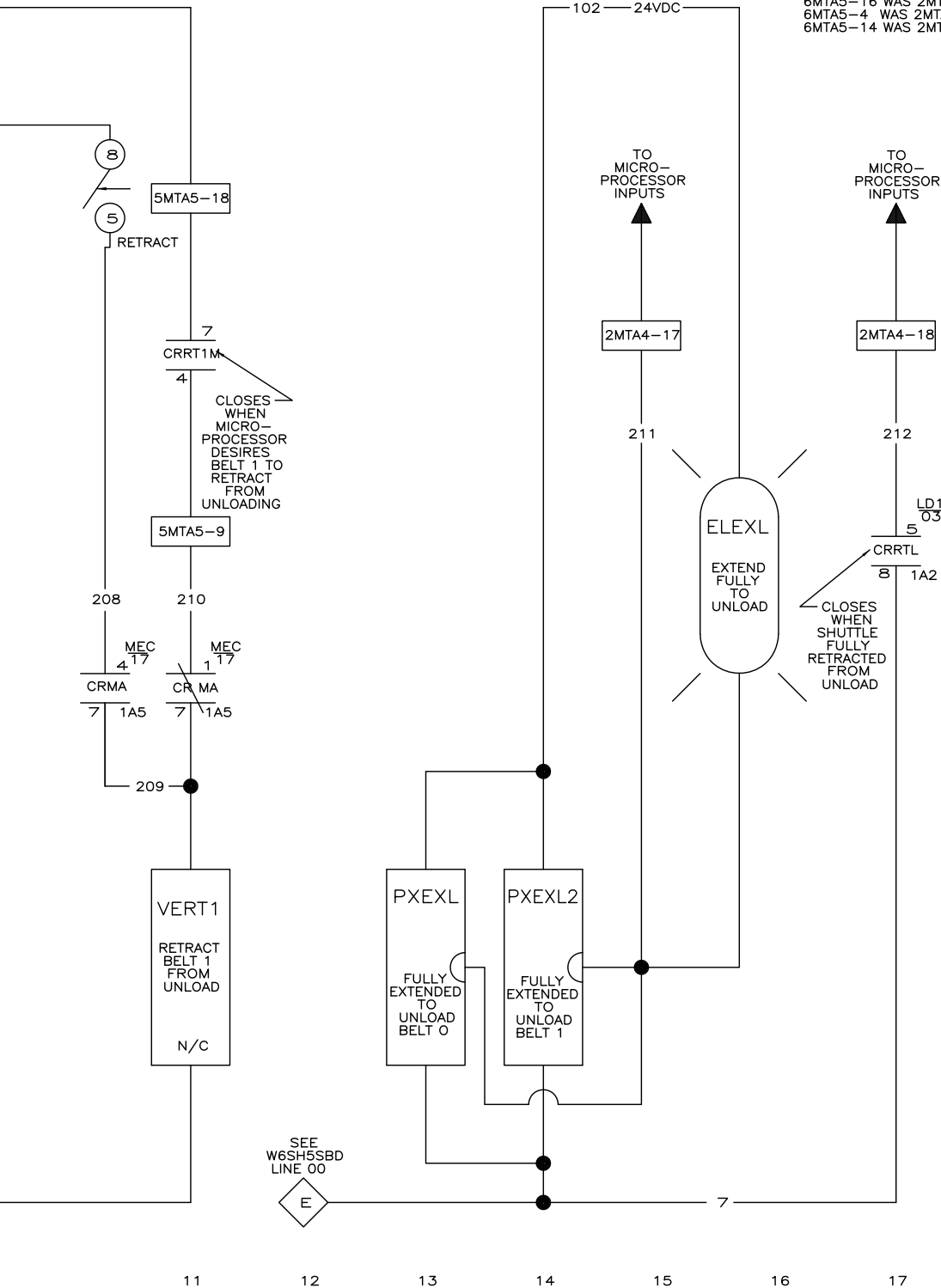
Load=No Extension or Same
Direction Automatic,
Unload=Extend Automatic



NOTE:
1) PXEXL2 VEX1 AND VERT1 ARE
REMOVED IF ONLY 1 BELT

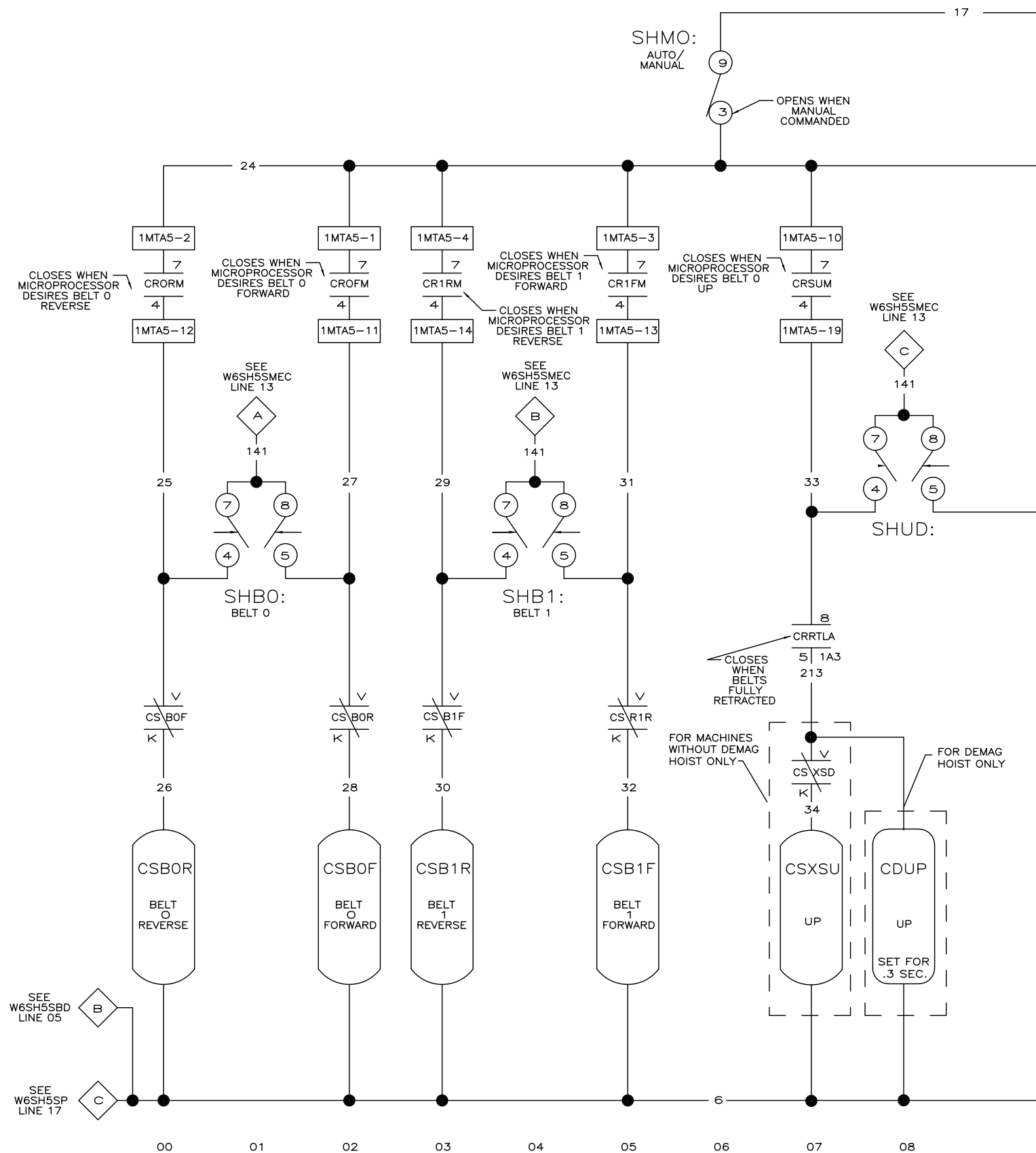
ON MACHINES MANUFACTURED
PRIOR TO 03-01-2000

6MTA5-9 WAS 2MTA5-7
6MTA5-18 WAS 2MTA5-16
6MTA5-8 WAS 2MTA5-14
6MTA5-17 WAS 2MTA5-4
6MTA5-7 WAS 2MTA5-3
6MTA5-16 WAS 2MTA5-13
6MTA5-4 WAS 2MTA5-1
6MTA5-14 WAS 2MTA5-11



W6SH5SLD1
MICRO 6 SYSTEMS MARK V
SCHEMATIC: LOAD=EXTEND-AUTO-UNLOAD: EXTEND-AUTO
(SAME DIRECTION AS LOAD)
(TWO BELTS SHOWN)
PELLERIN MILNOR CORPORATION

HS05
HS04

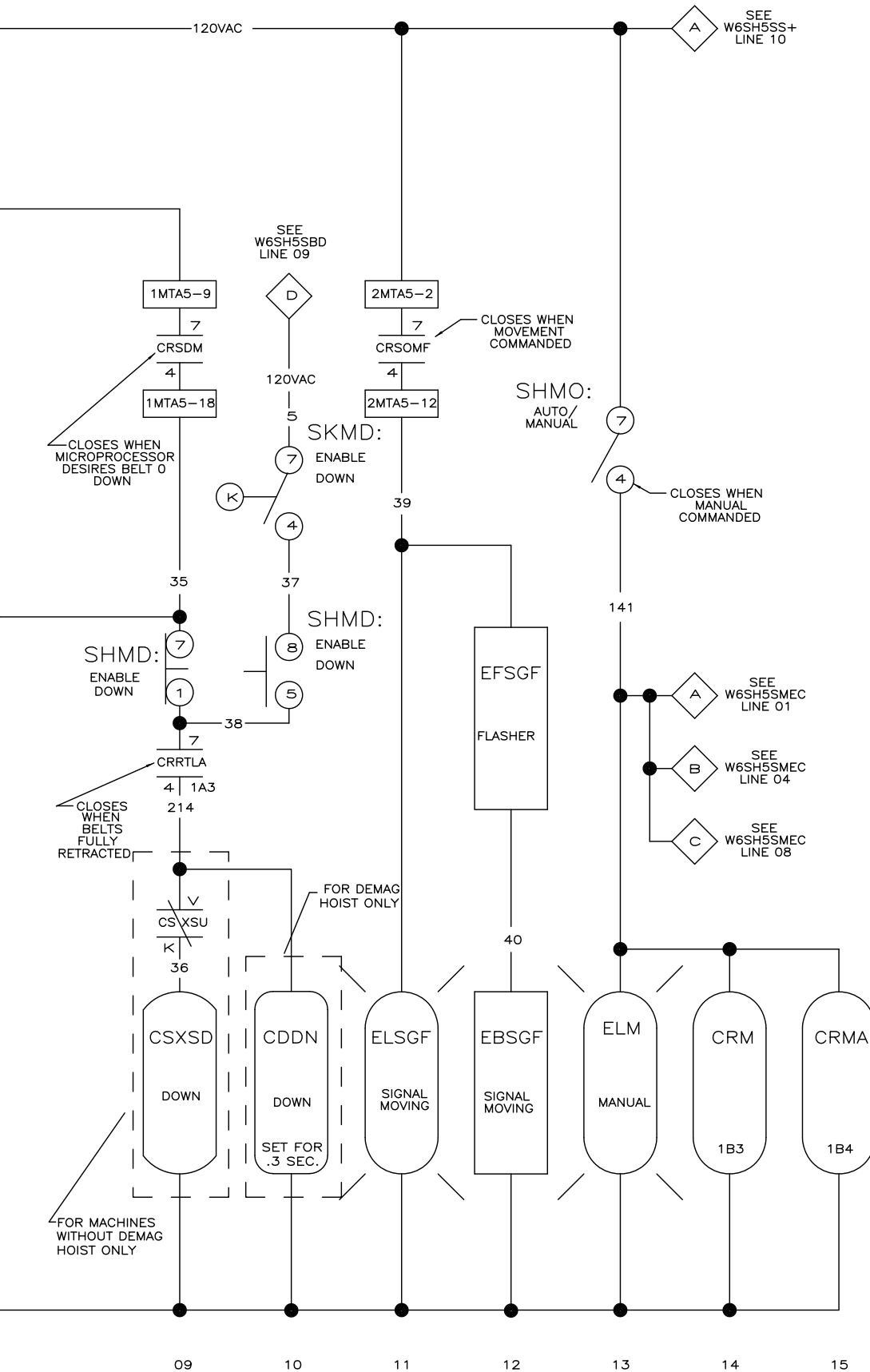


W6SH5SMEC
2023414B

HS07
HS06

LD109	LD108	LD111	LD111
LD107	LD108	LD106	LD106

W6SH5SMEC
2023414B



W6SH5SMEC

MICRO 6 SYSTEMS MARK V

SCHEMATIC: LOAD = EXTEND AUTOMATIC

UNLOAD = EXTEND AUTOMATIC

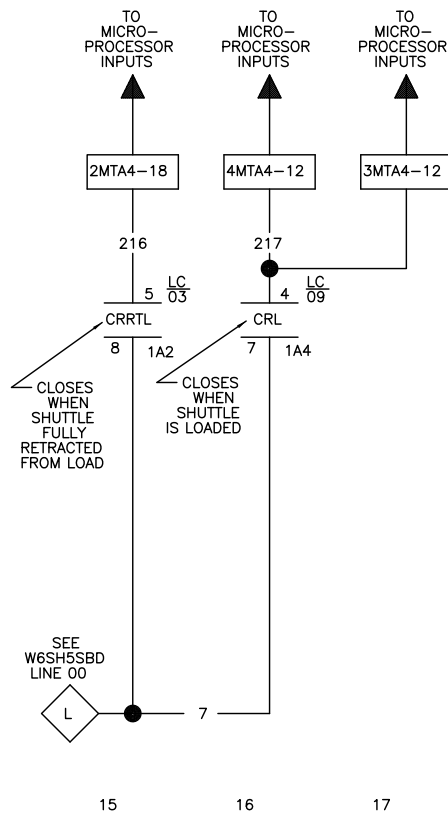
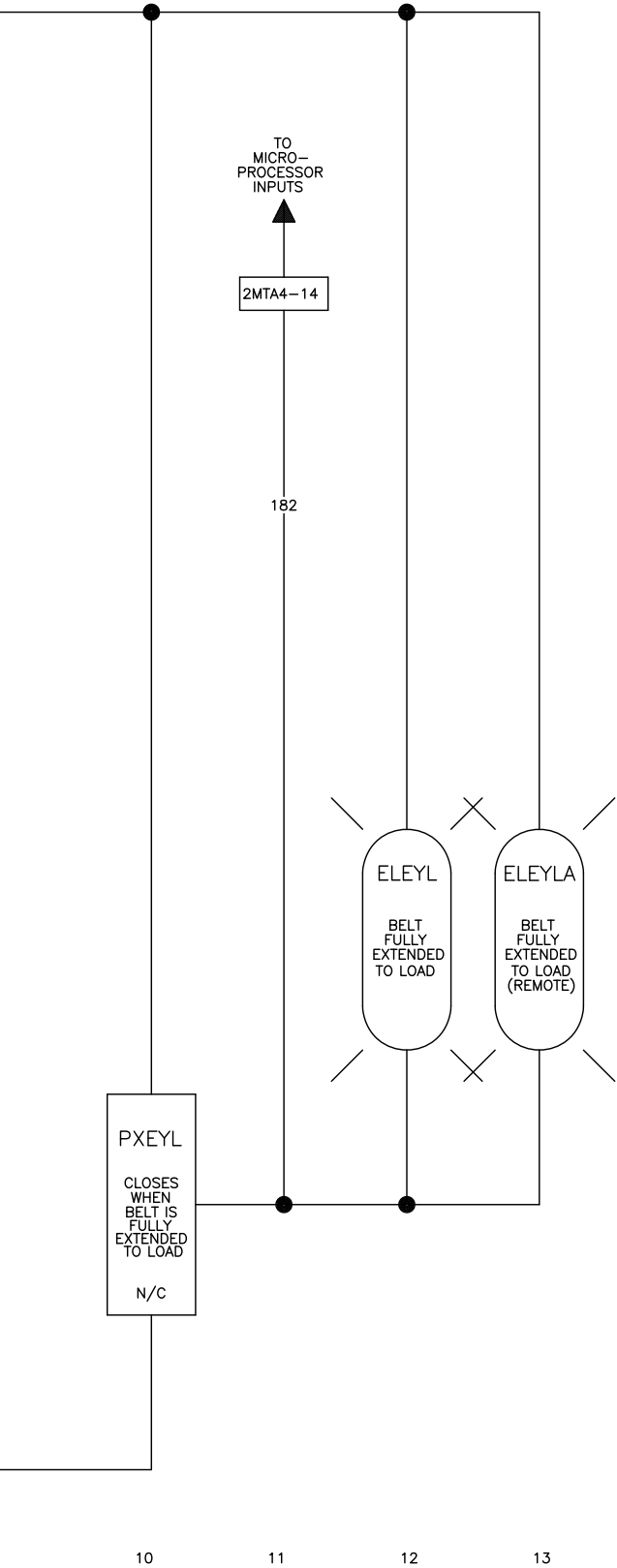
(SAME DIRECTION)

110V1P50HZ/120V1P60HZ

PELLERIN MILNOR CORPORATION

W6SH5SMEC
2023414B

Load=Extend Manual,
Unload=No Extension



W6SH5SLC

MICRO 6 SYSTEMS MARK V

SCHEMATIC: LOAD=EXTEND—MANUAL ONLY

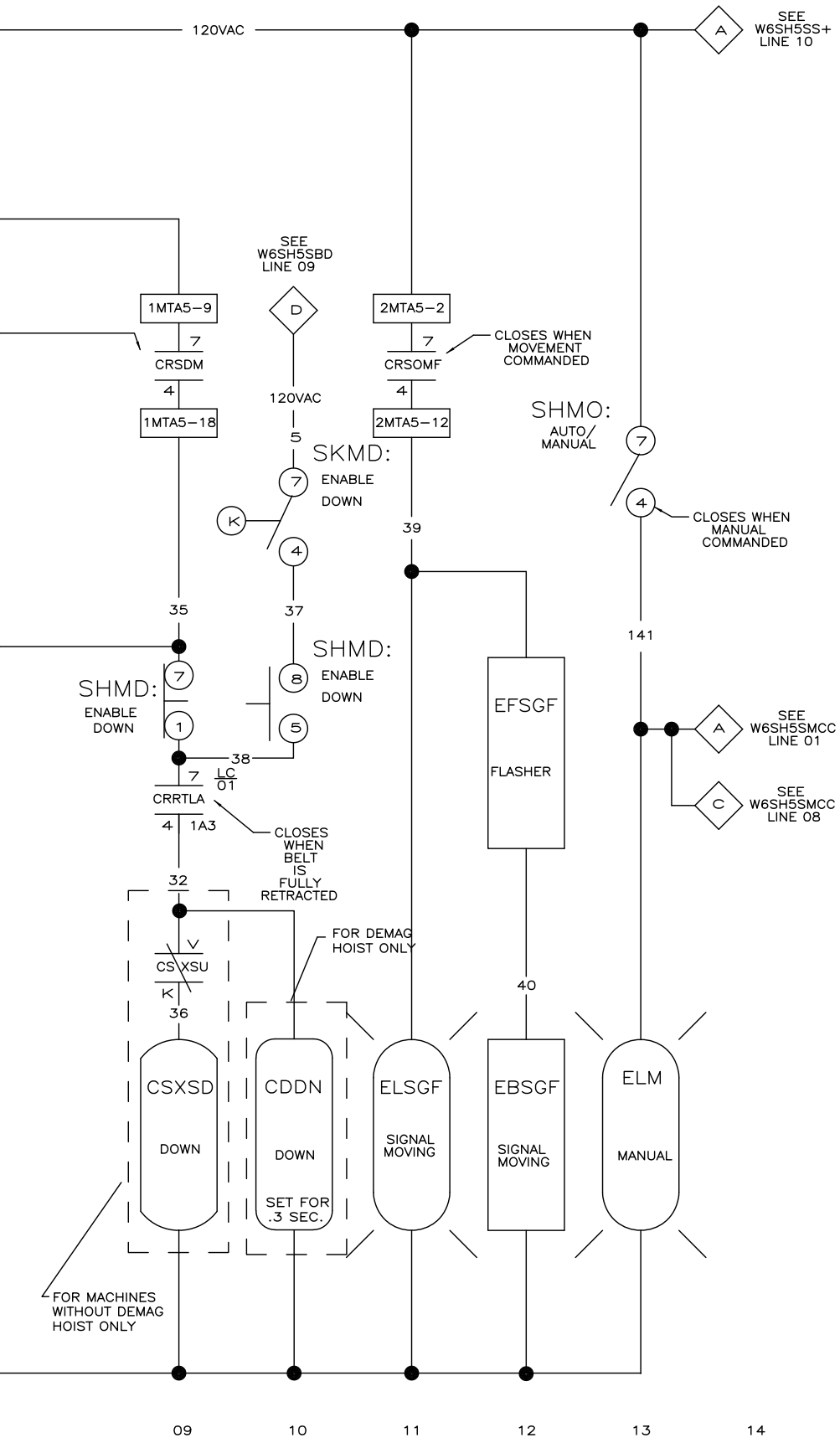
UNLOAD=NO EXTENSION

PELLERIN MILNOR CORPORATION



HS07,15
HS06,16

W6SH5SMCC
2023414B



W6SH5SMCC

MICRO 6 SYSTEMS MARK V

SCHEMATIC: MOTOR CONTACTORS

LOAD = EXTEND - MANUAL ONLY

UNLOAD = NO EXTENSION

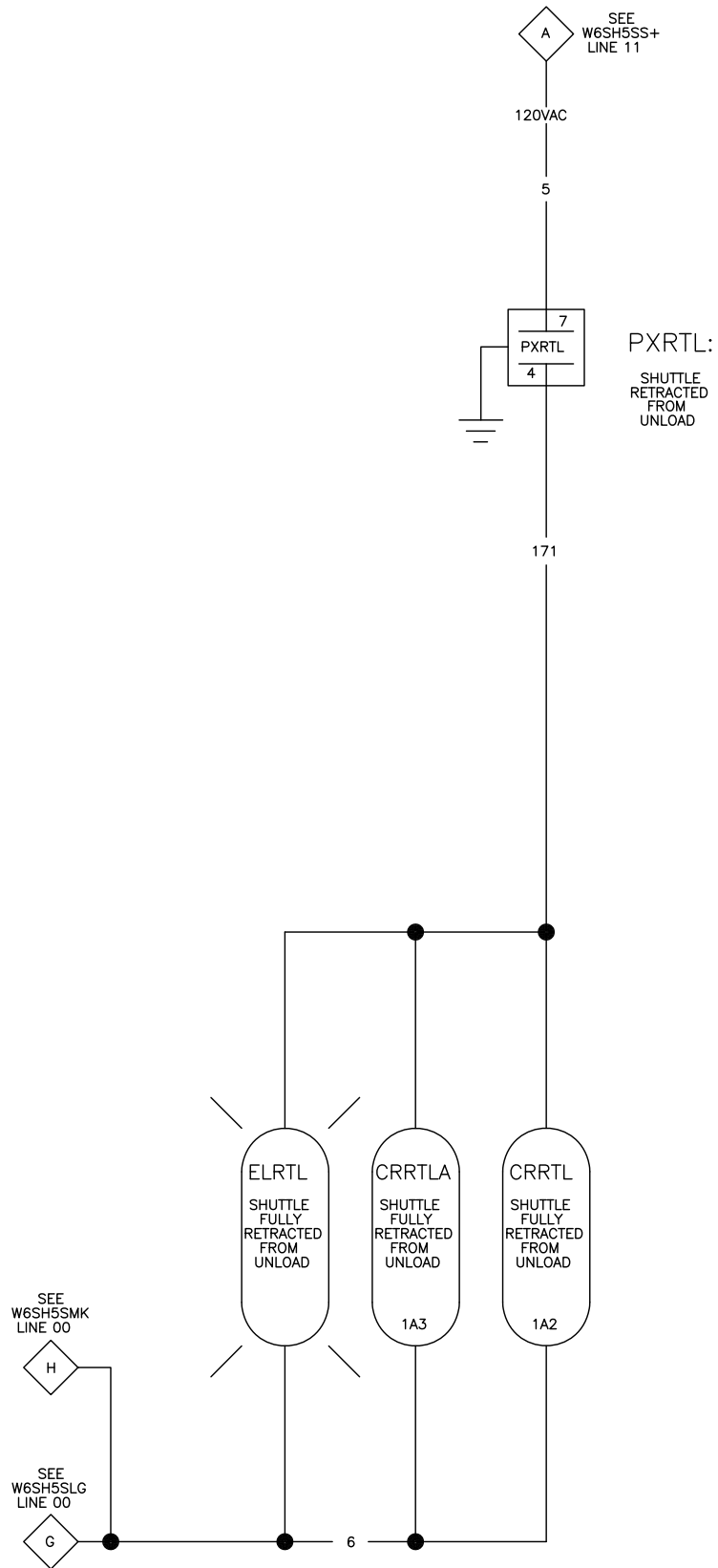
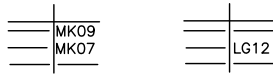
110V1P50HZ/120V1P60HZ

PELLERIN MILNOR CORPORATION

W6SH5SMCC
2023414B

Load=No Extension,
Unload=Extend Automatic

5



W6SH5SBP
2023422B

00

01

02

03

04

05

06

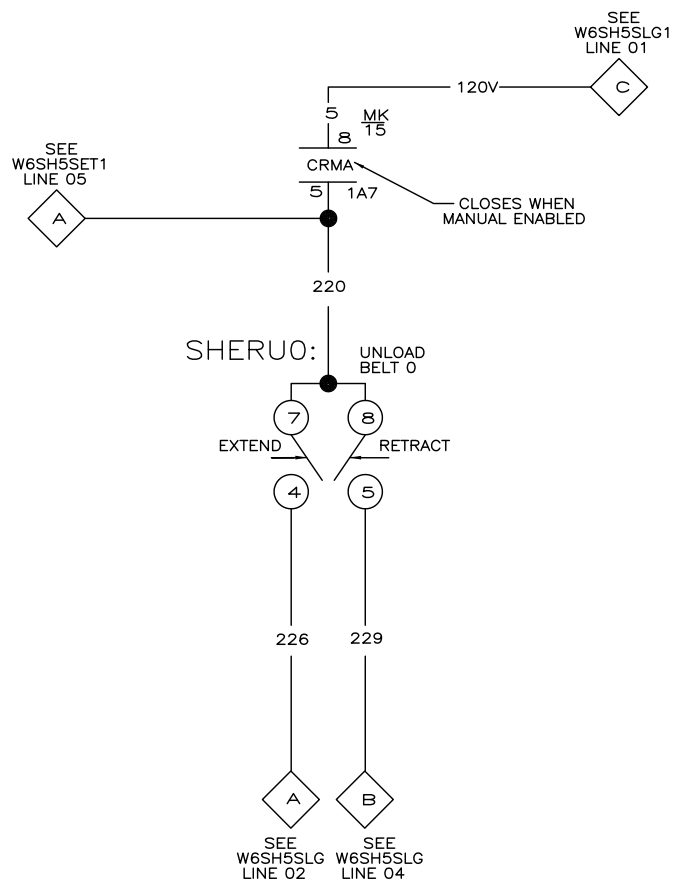
07

08

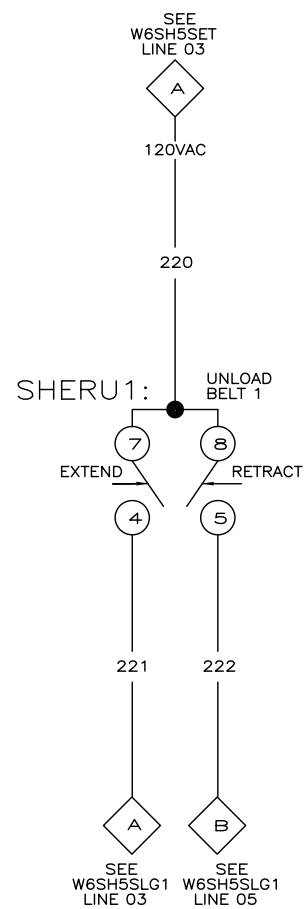
09

10

W6SH5SBP
MICRO 6 SYSTEMS MARK V
SCHEMATIC: LOAD: NO EXTENSION
UNLOAD: EXTEND—AUTOMATIC
PELLERIN MILNOR CORPORATION



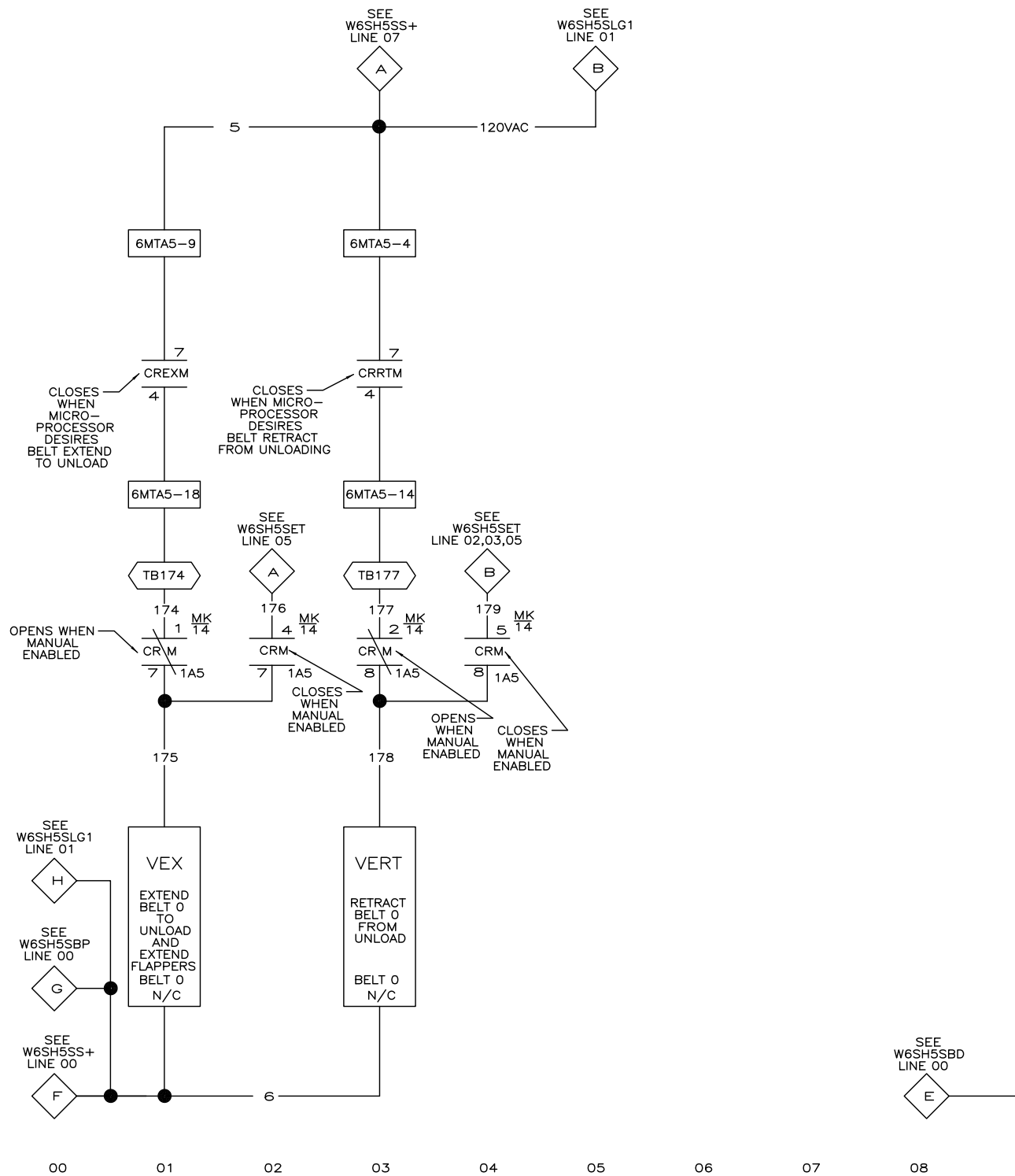
W6SH5SET
MICRO 6 SYSTEMS MARK V
SCHEMATIC: LOAD NO EXTENSION
UNLOAD: EXTEND—AUTOMATIC
PELLERIN MILNOR CORPORATION



NOTES: THESE CIRCUITS ARE
LOCATED IN THE
SHUTTLE

W6SH5SET1
MICRO 6 SYSTEMS MARK V
SCHEMATIC: LOAD NO EXTENSION
UNLOAD: EXTEND—AUTOMATIC FOR 2ND BELT
PELLERIN MILNOR CORPORATION

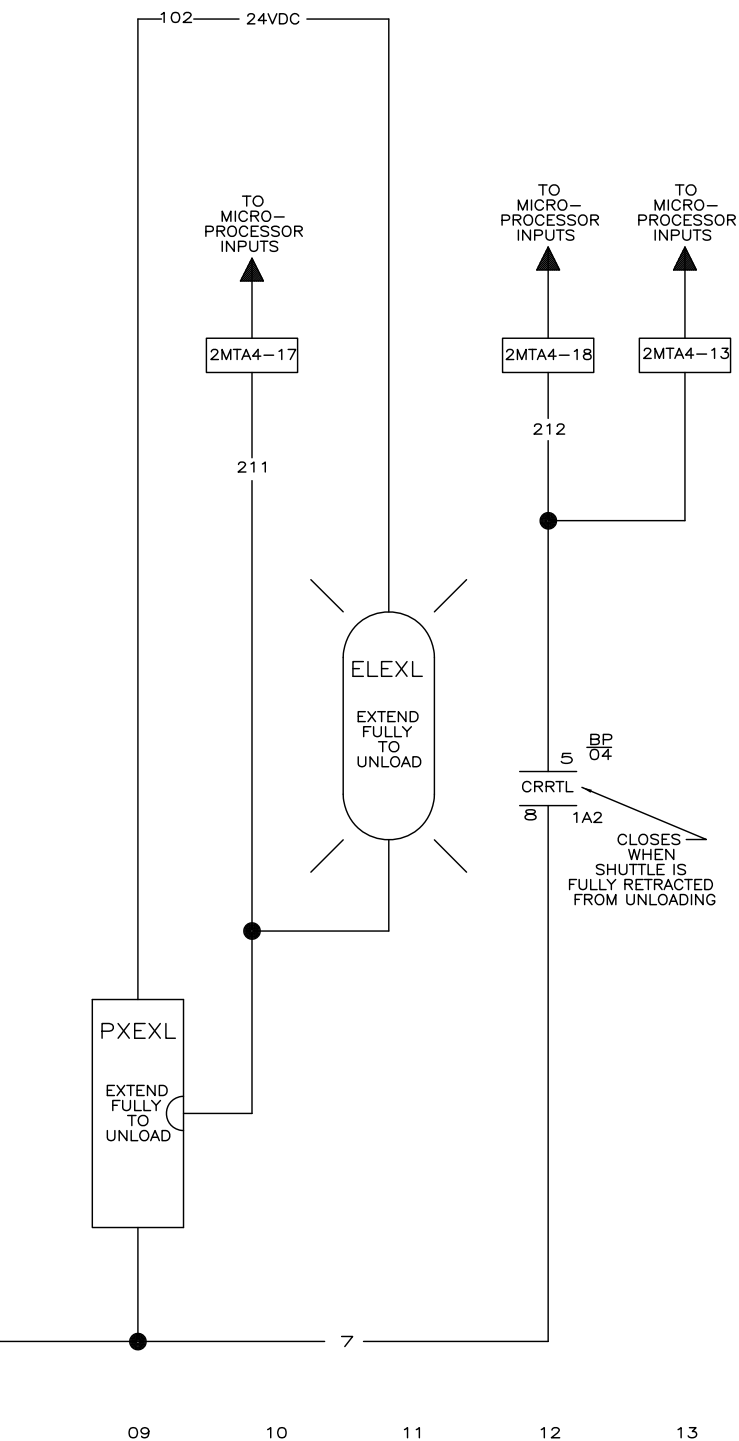
OPERATION OF SLIDING BELT
 EXTEND TO UNLOAD = VEX ENERGIZED
 RETRACT FROM UNLOAD = VERT ENERGIZED
 NEUTRAL POSITION = VERT ENERGIZED



REFER TO
W6SH5SBP
W6SH5SMK
W6SH5SET

W6SH5SLG

MICRO 6 SYSTEMS MARK V
SCHEMATIC: LOAD: NO EXTENSION
UNLOAD: EXTEND-AUTOMATIC
PELLERIN MILNOR CORPORATION

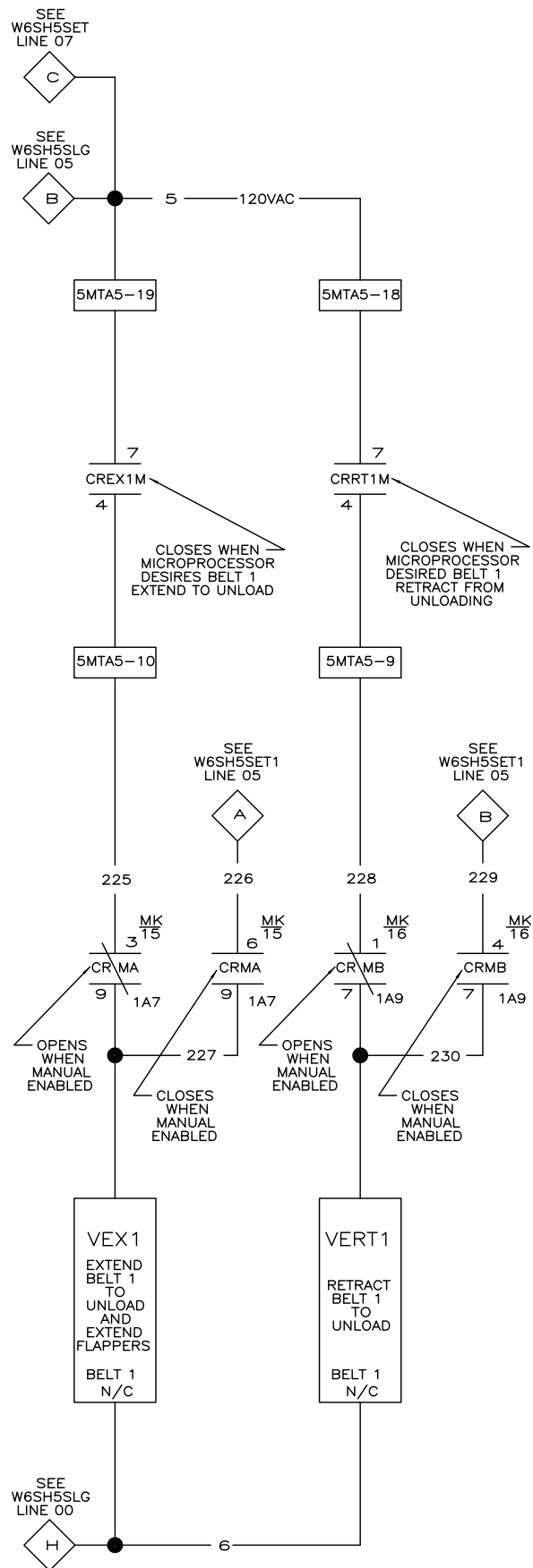


ON MACHINES MANUFACTURED
PRIOR TO 03-01-2000

6MTA5-9 WAS 2MTA5-7
6MTA5-18 WAS 2MTA5-16
6MTA5-8 WAS 2MTA5-14
6MTA5-17 WAS 2MTA5-4
6MTA5-7 WAS 2MTA5-3
6MTA5-16 WAS 2MTA5-13
6MTA5-4 WAS 2MTA5-1
6MTA5-14 WAS 2MTA5-11

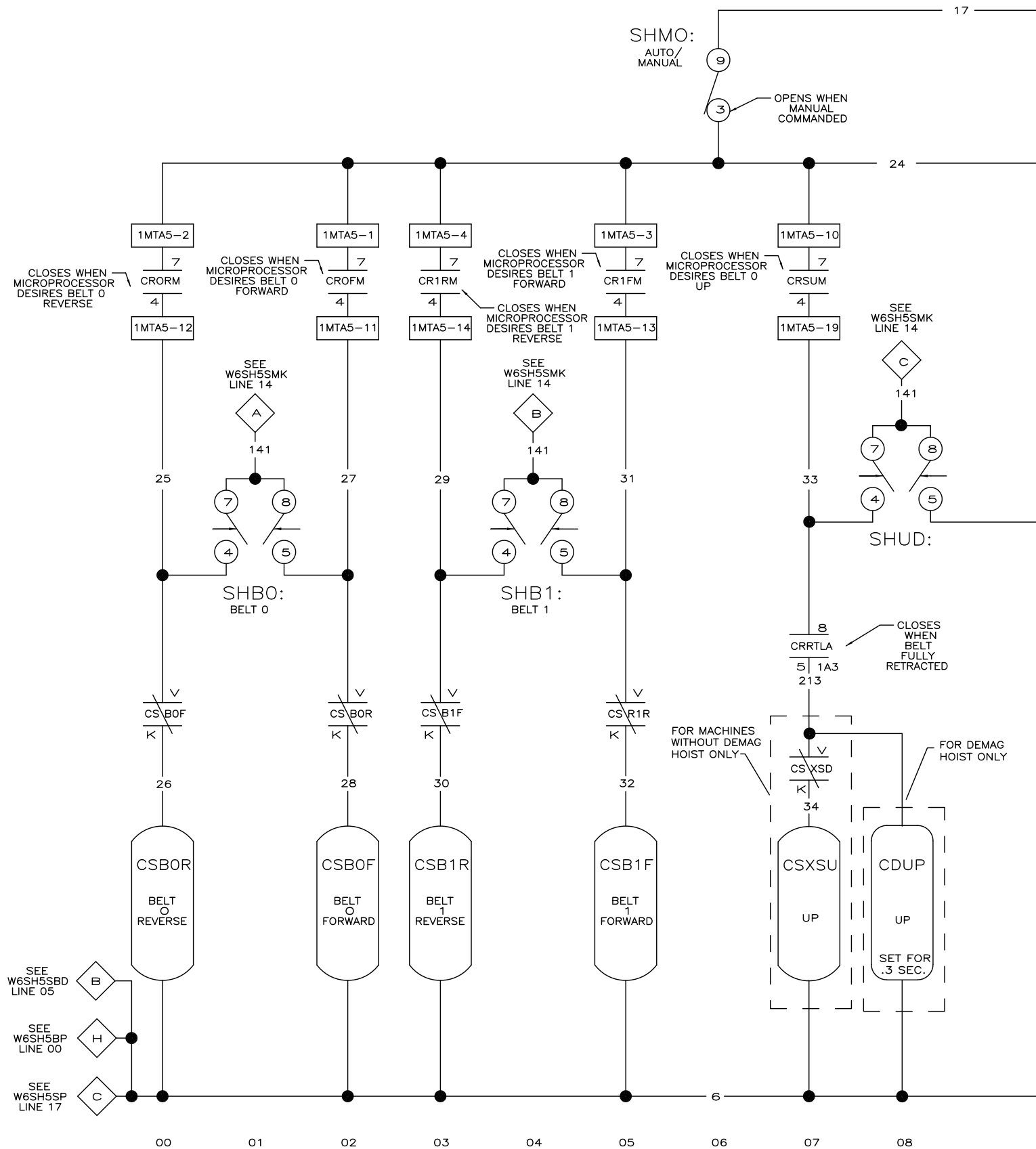
NOTES:

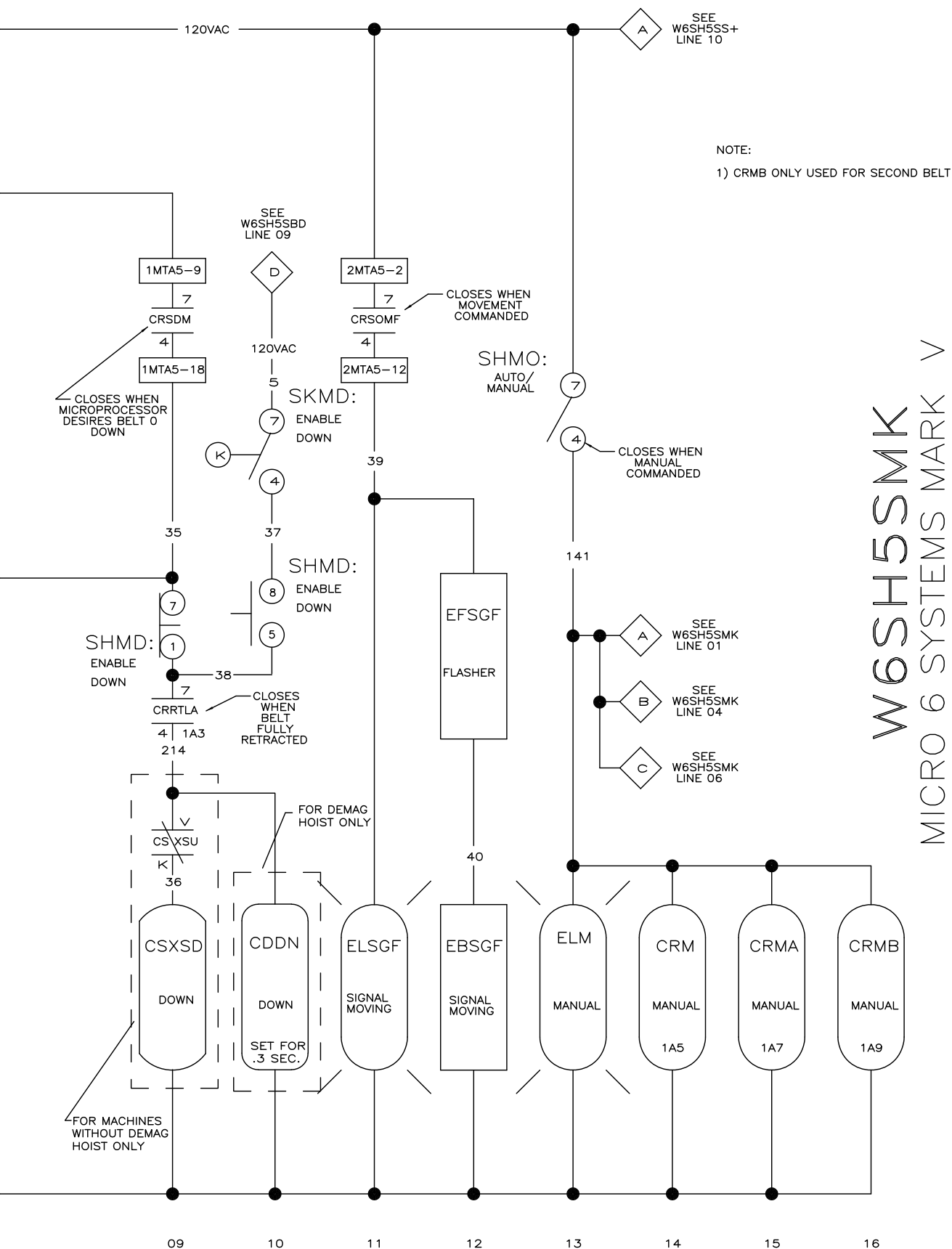
1. REMOVE (J1) FOR WINGS



W6SH5SLG1
MICRO 6 SYSTEMS MARK V
SCHEMATIC: LOAD: NO EXTENSION
UNLOAD: EXTEND –AUTOMATIC
(SECOND BELT)
PELLERIN MILNOR CORPORATION

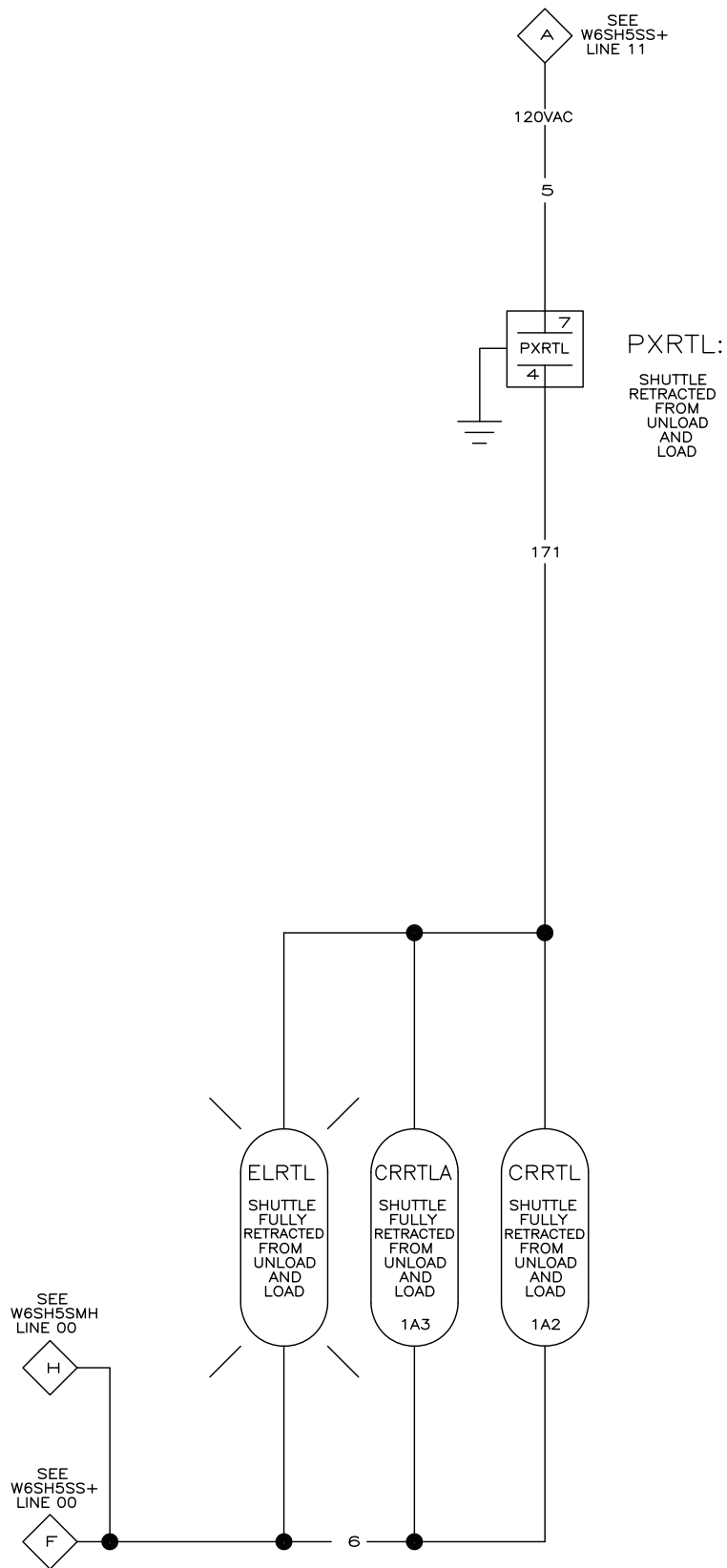
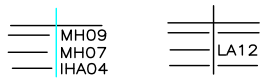
HS05
HS04





W6SH5SMK
MICRO 6 SYSTEMS MARK V
SCHEMATIC: MOTOR CONTACTORS
LOAD = NO EXTENSION
UNLOAD = EXTEND AUTOMATIC
110V1P50HZ/120V1P60HZ
PELLERIN MILNOR CORPORATION

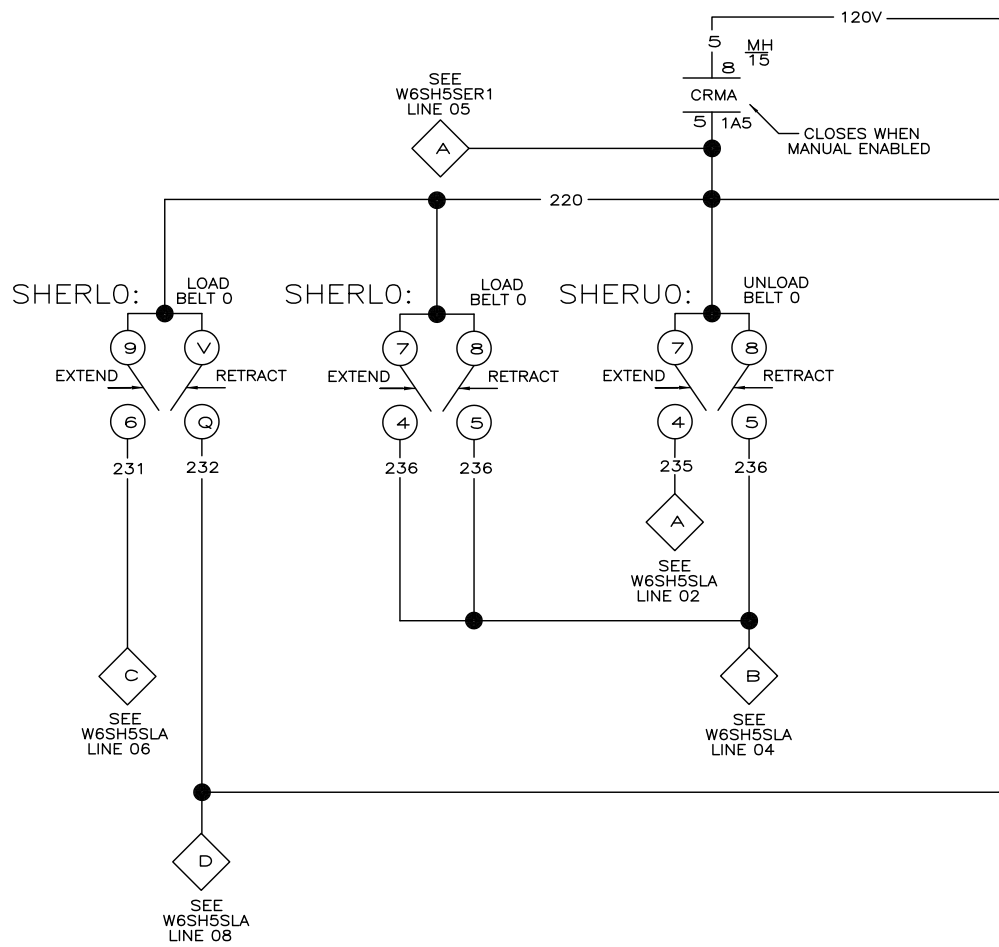
Load=Extend Automatic,
Unload=Extend Automatic

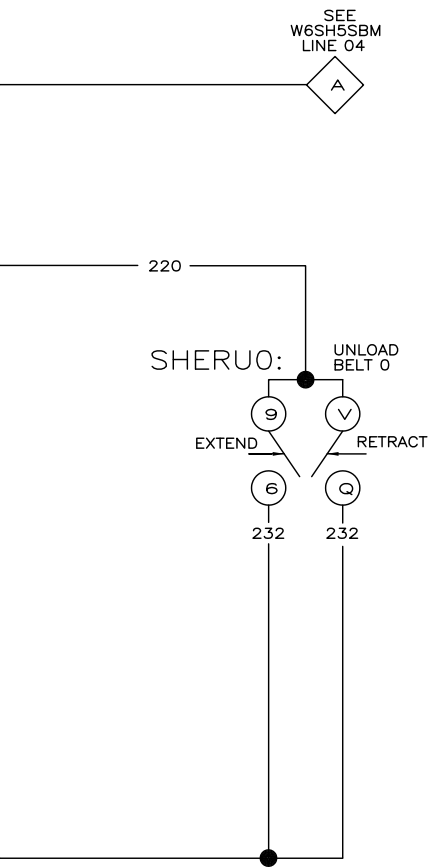


W6SH5SBM
2024152B

00 01 02 03 04 05 06 07 08 09 10

W6SH5SBM
MICRO 6 SYSTEMS MARK V
SCHEMATIC: LOAD: EXTEND—AUTOMATIC
UNLOAD: EXTEND—AUTOMATIC
PELLERIN MILNOR CORPORATION

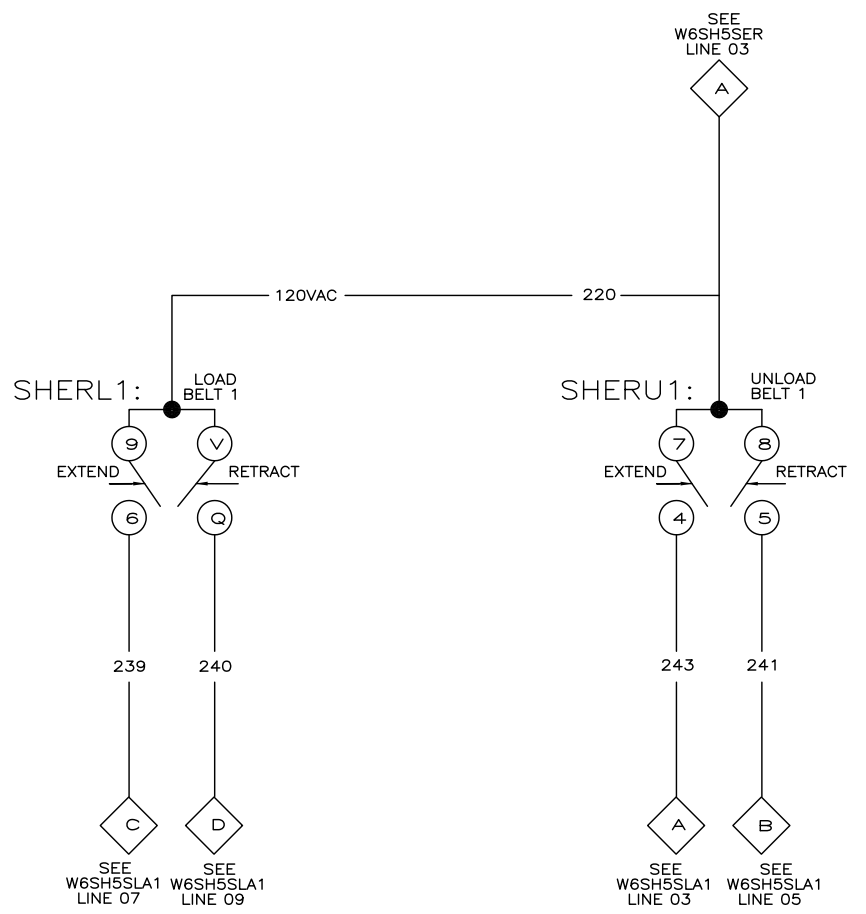




W6SH5SER

MICRO 6 SYSTEMS MARK V
 SCHEMATIC: LOAD EXTEND—AUTOMATIC
 UNLOAD: EXTEND—AUTOMATIC
 PELLERIN MILNOR CORPORATION

W6SH5SER
 2024425B



NOTES:
THESE CIRCUITS ARE
LOCATED IN THE
SHUTTLE

W6SH5SER1
MICRO 6 SYSTEMS MARK V
SCHEMATIC: LOAD EXTEND—AUTOMATIC
UNLOAD: EXTEND—AUTOMATIC FOR 2ND BELT
PELLERIN MILNOR CORPORATION

CRVEU



CRVEX



CRVEY

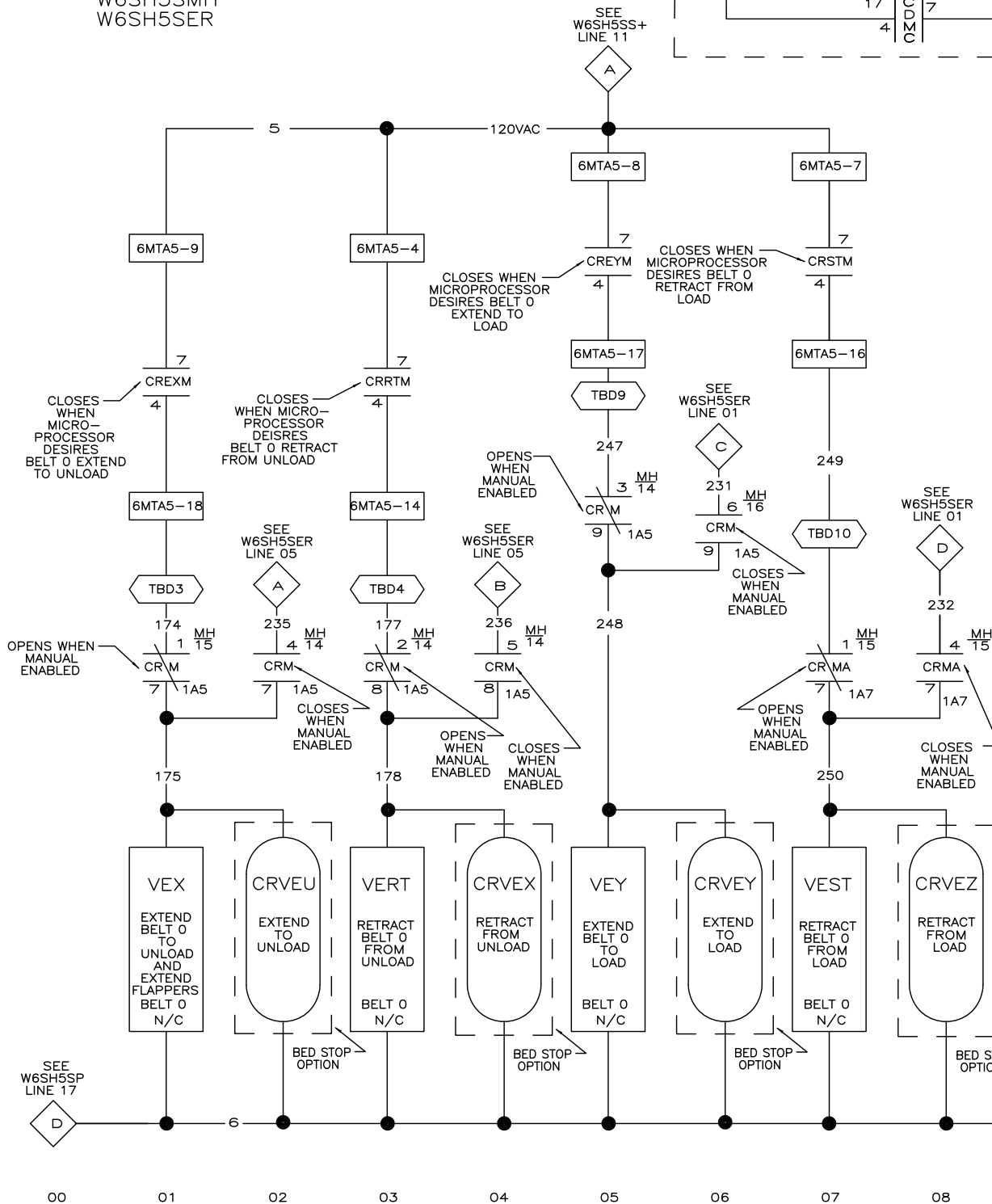
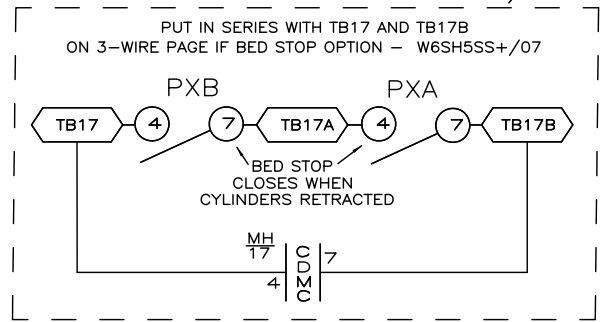


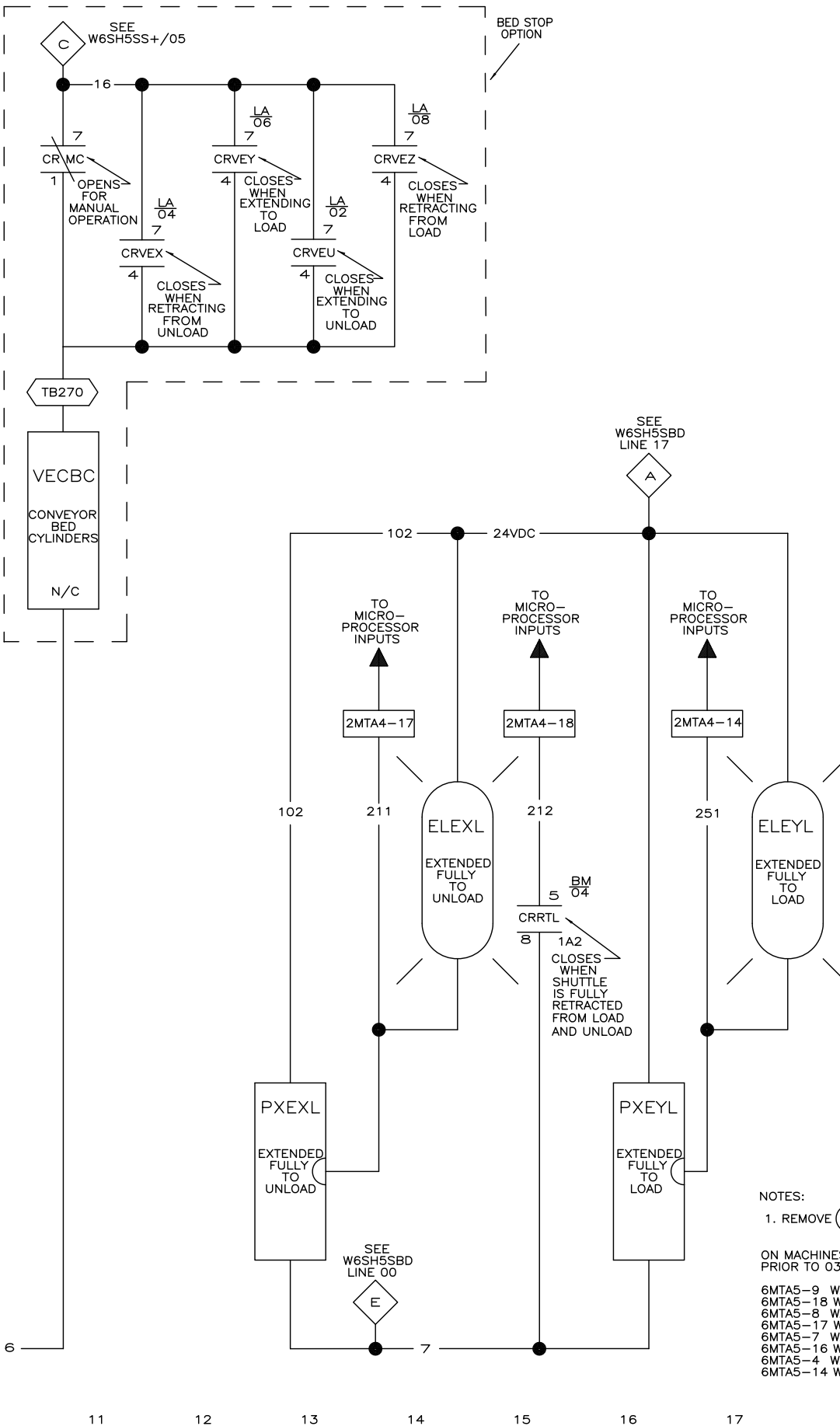
CRVEZ

BED STOP
OPTION

OPERATION OF SLIDING BELT
 EXTEND TO LOAD = VERT, VEY ENERGIZED
 EXTEND TO UNLOAD = VEX, VEST ENERGIZED
 NEUTRAL POSITION = VERT, VEST ENERGIZED

REFER TO
 W6SH5SBM
 W6SH5SMH
 W6SH5SER





W6SH5SLA

MICRO 6 SYSTEMS MARK V

SCHEMATIC: LOAD: EXTEND-AUTOMATIC

UNLOAD: EXTEND-AUTOMATIC

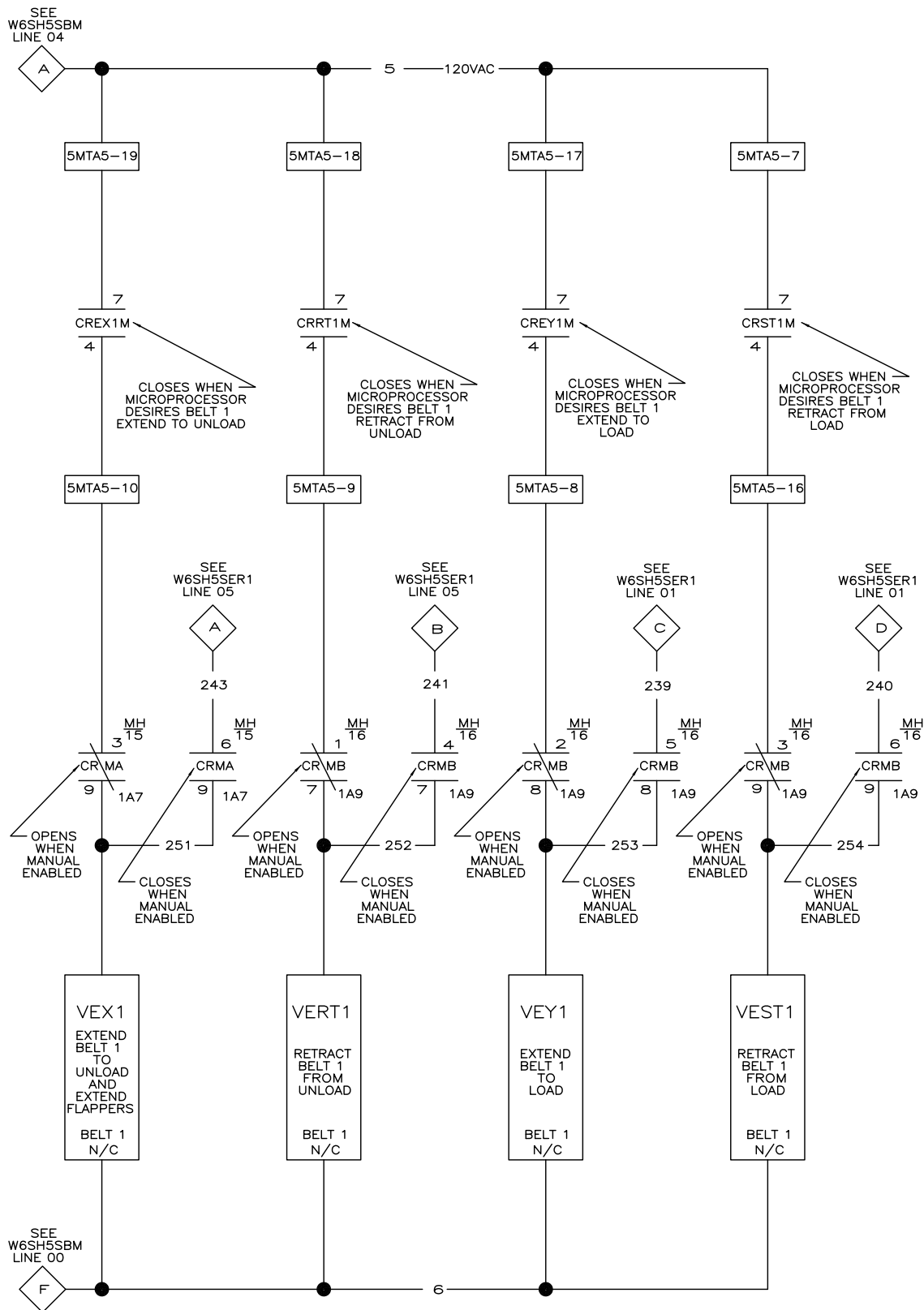
PELLERIN MILNOR CORPORATION

NOTES:

1. REMOVE (J1) FOR WINGS

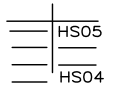
ON MACHINES MANUFACTURED PRIOR TO 03-01-2000

6MTA5-9 WAS 2MTA5-7
6MTA5-18 WAS 2MTA5-16
6MTA5-8 WAS 2MTA5-14
6MTA5-17 WAS 2M TA5-4
6MTA5-7 WAS 2MTA5-3
6MTA5-16 WAS 2MTA5-13
6MTA5-4 WAS 2MTA5-1
6MTA5-14 WAS 2MTA5-11



W6SH5SLA1
MICRO 6 SYSTEMS MARK V
SCHEMATIC: LOAD: EXTEND –AUTOMATIC
UNLOAD: EXTEND –AUTOMATIC
(SECOND BELT)
PELLERIN MILNOR CORPORATION

CDUP



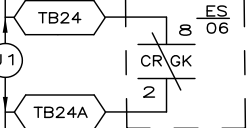
SHMO:
AUTO/
MANUAL

17

OPENS WHEN
MANUAL
COMMANDED

GATE KEY OPTION
OPENS WHEN DESIRED

SEE NOTE 1



24

CLOSES WHEN
MICROPROCESSOR
DESIRES BELT 0
REVERSE

CLOSES WHEN
MICROPROCESSOR
DESIRES BELT 0
FORWARD

CLOSES WHEN
MICROPROCESSOR
DESIRES BELT 1
FORWARD

CLOSES WHEN
MICROPROCESSOR
DESIRES BELT 0
UP

SEE
W6SH5SMH
LINE 14

1MTA5-2

1MTA5-1

1MTA5-4

1MTA5-3

1MTA5-10

CRORM

CROFM

CR1RM

CR1FM

CRSUM

1MTA5-12

1MTA5-11

1MTA5-14

1MTA5-13

1MTA5-19

25

27

29

31

33

SEE
W6SH5SMH
LINE 14

SEE
W6SH5SMH
LINE 14

SHUD:
BED
UP/DOWN

SHB0:
BELT 0

SHB1:
BELT 1

BM
03

CLOSES
WHEN
BELT
FULLY
RETRACTED

CSB0R

CSB0F

CSB1R

CSB1F

CRRTLA

26

28

30

32

213

FOR MACHINES
WITHOUT DEMAG
HOIST ONLY

FOR DEMAG
HOIST ONLY

BELT 0
REVERSE

BELT 0
FORWARD

BELT 1
REVERSE

BELT 1
FORWARD

UP

UP

SET FOR
.3 SEC.

SEE
W6SH5SP
LINE 17

TB6

W6SH5SMH
2025243B

00

01

02

03

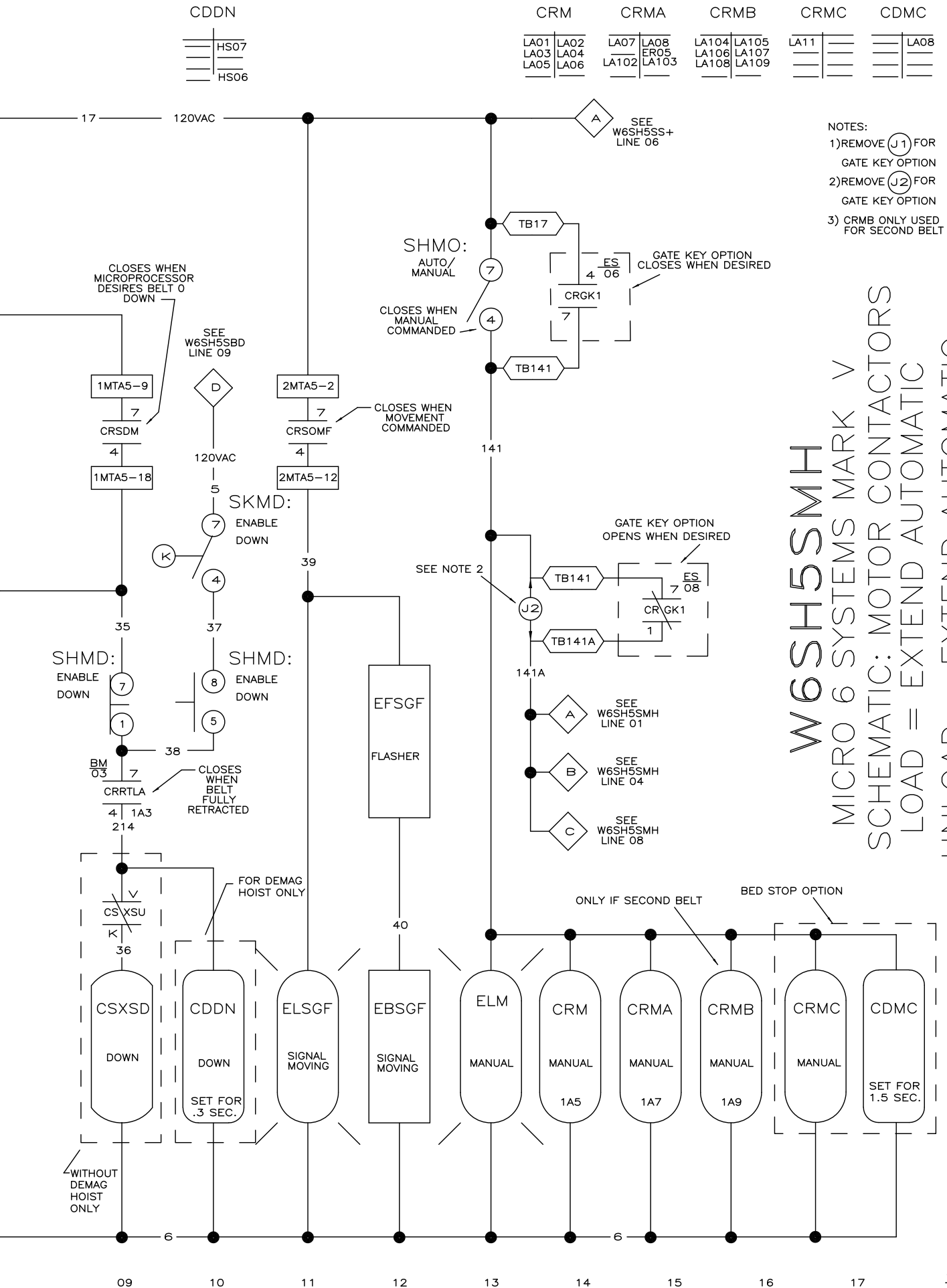
04

05

06

07

08



W6SH5SMH
2025243B

110V1P50HZ/120V1P60HZ
PELLERIN MILNOR CORPORATION

W6SH5SMH
2025243B

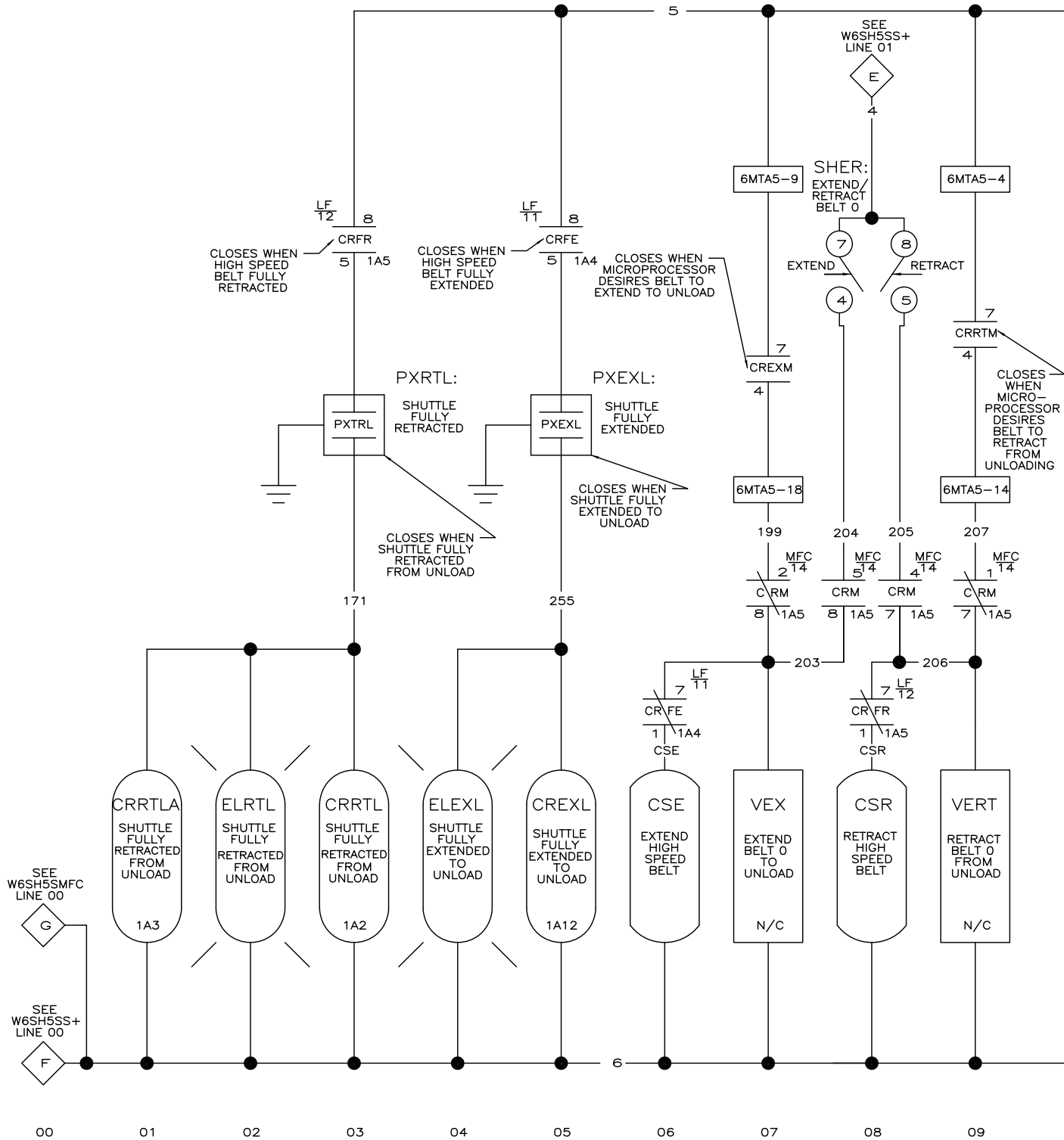
Load=No Extension,
Unload=Extend Automatic with
High Speed Belt

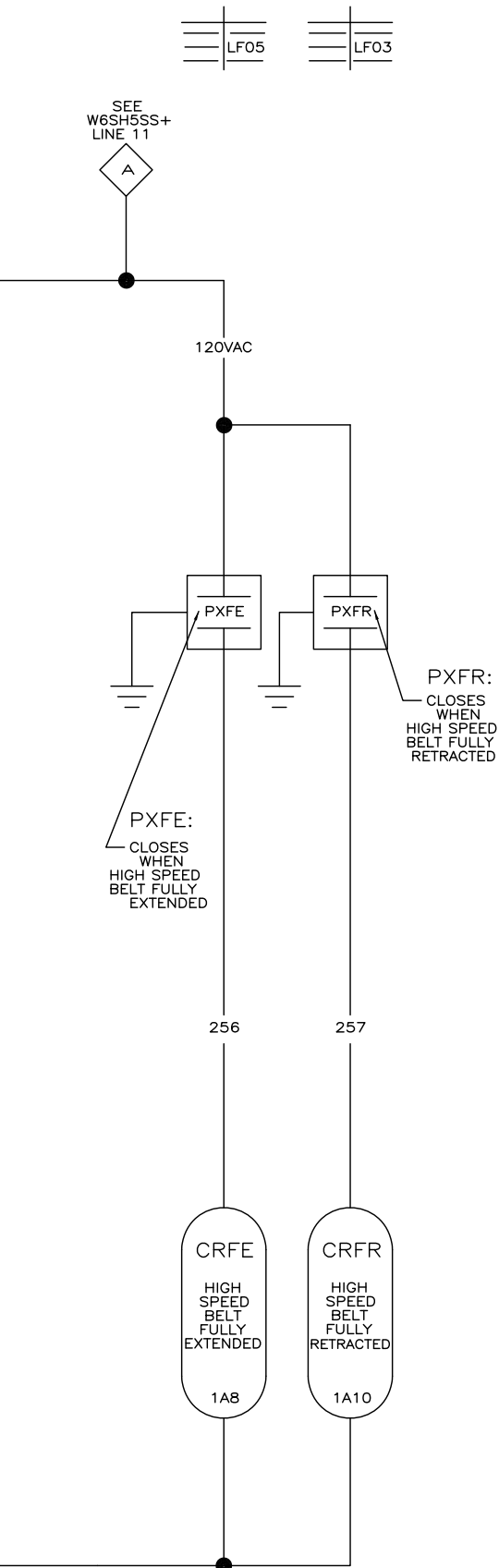
7

MFC09
MFC07

LF16

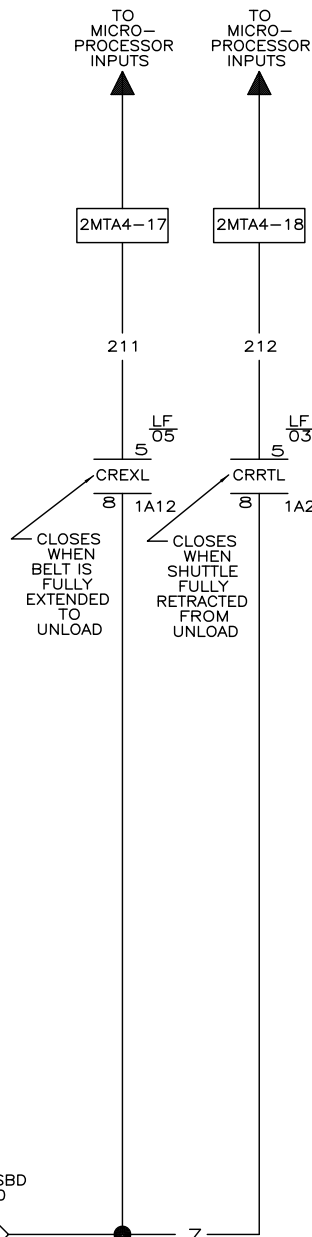
LF15





ON MACHINES MANUFACTURED PRIOR TO 03-01-2000

6MTA5-9 WAS 2MTA5-7
 6MTA5-18 WAS 2MTA5-16
 6MTA5-8 WAS 2MTA5-14
 6MTA5-17 WAS 2M TA5-4
 6MTA5-7 WAS 2MTA5-3
 6MTA5-16 WAS 2MTA5-13
 6MTA5-4 WAS 2MTA5-1
 6MTA5-14 WAS 2MTA5-11



REFER TO W6SH5SMFC

W6SH5SLF

MICRO 6 SYSTEMS MARK V

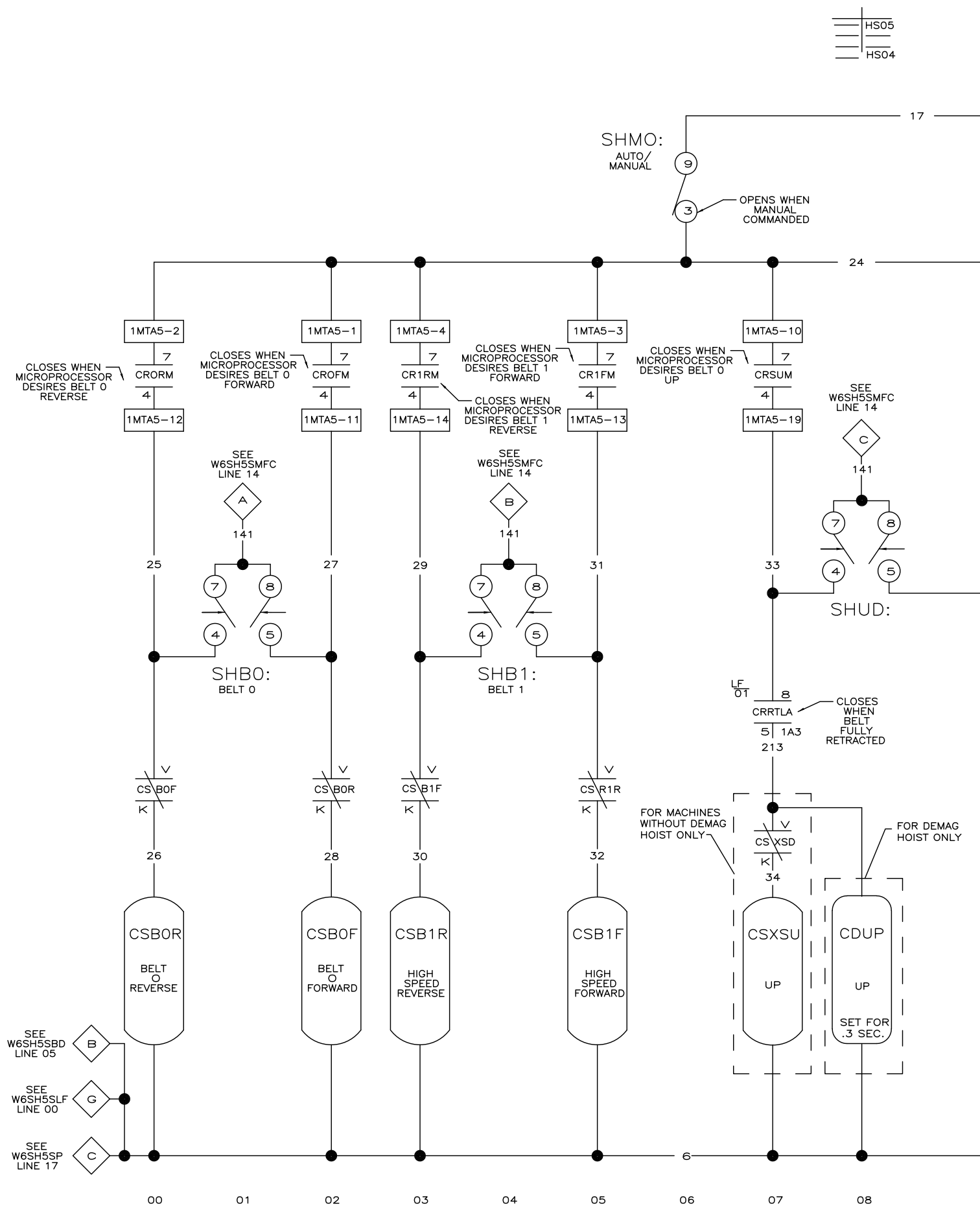
SCHEMATIC: LOAD: NO EXTENSION-UNLOAD

EXTEND- AUTO WITH ADDITIONAL HIGH SPEED BELT

PELLERIN MILNOR CORPORATION

W6SH5SLF
 2023423B

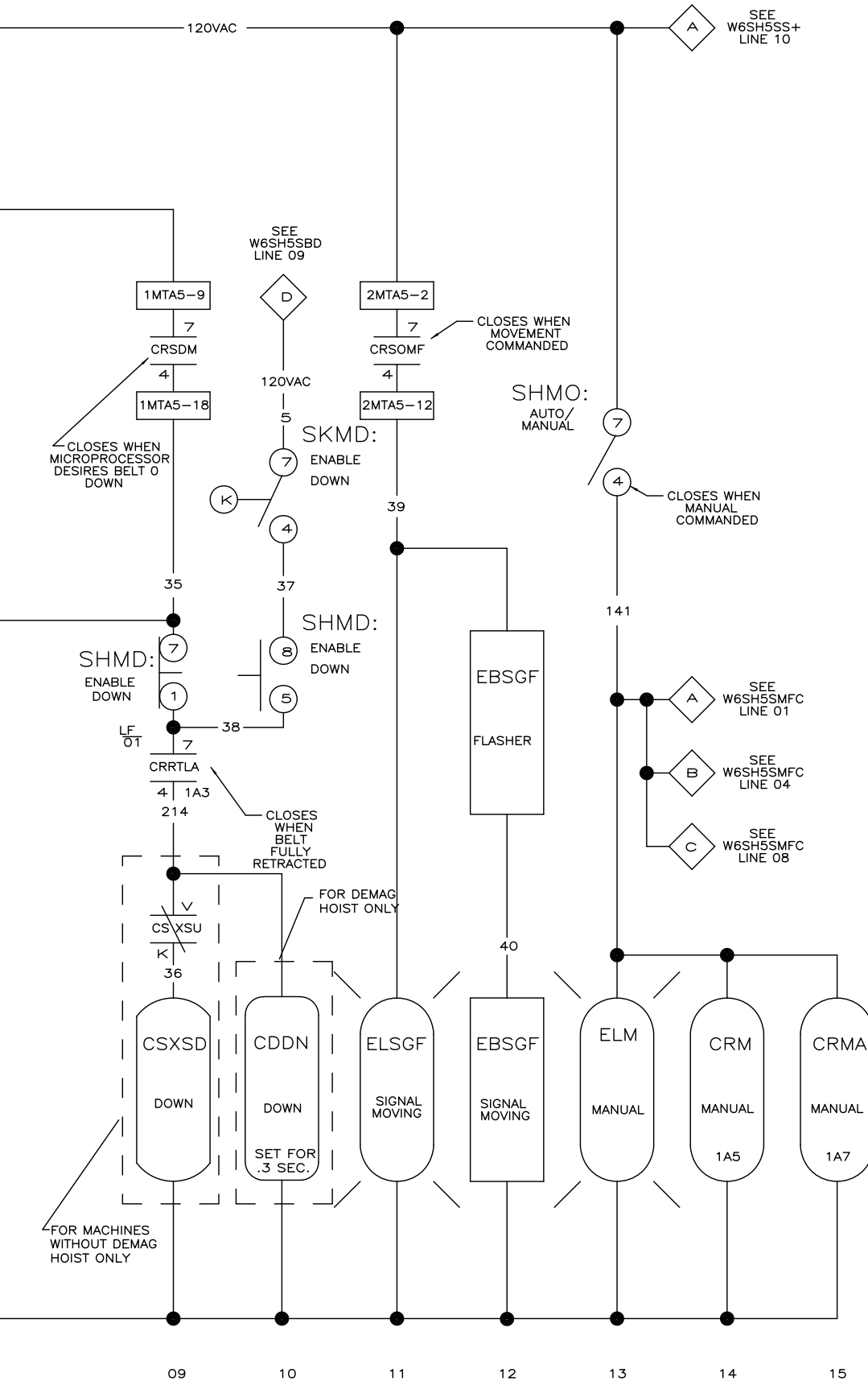
W6SH5SLF
 2023423B



HS07
HS06

LF09	LF08
LF07	LF08

W6SH5SMFC
2023423B



W6SH5SMFC

MICRO 6 SYSTEMS MARK V

SCHEMATIC: LOAD = NO EXTENSION

UNLOAD = EXTEND - AUTO WITH ADDITIONAL

HIGH SPEED BELT

110V1P50HZ/120V1P60HZ

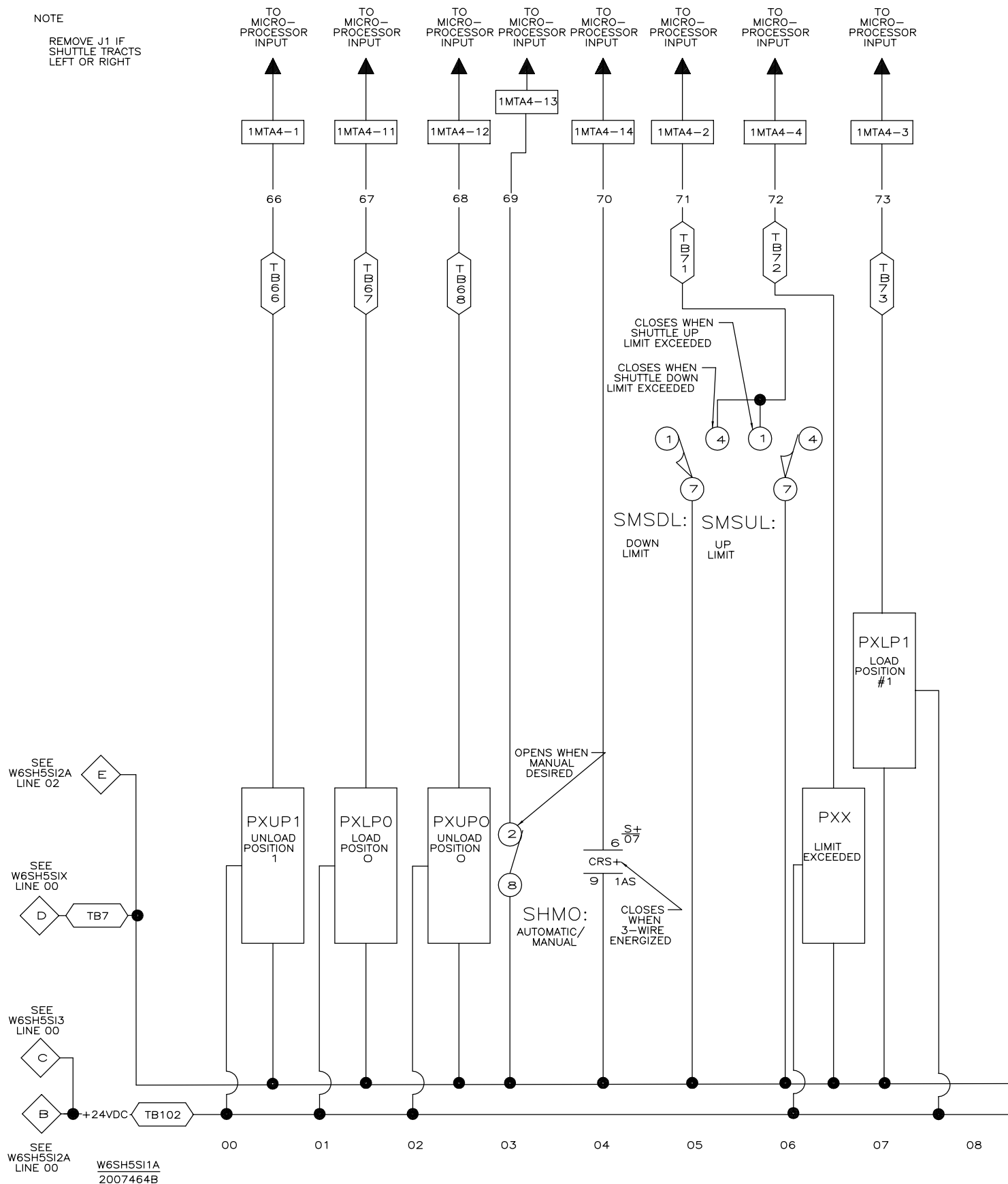
PELLERIN MILNOR CORPORATION

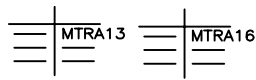
W6SH5SMFC
2023423B

Visa Modifications-Load & Unload=No Extensions

8

NOTE
REMOVE J1 IF
SHUTTLE TRACTS
LEFT OR RIGHT

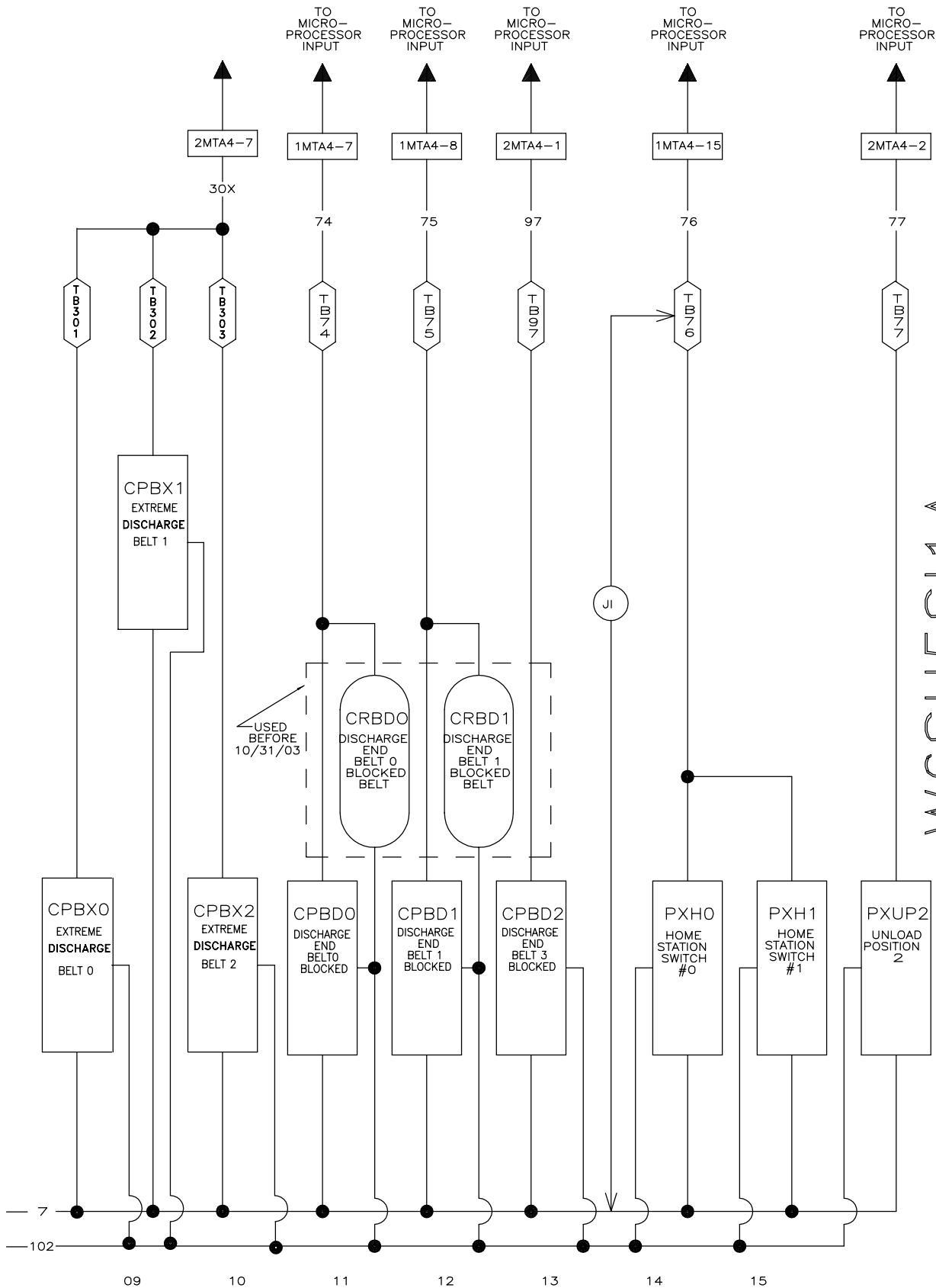




NOTES:

1. (JI) REMOVE IF SHUTTLE TRACTS LEFT OR RIGHT.

W6SH5S11A
2007464B



W6SH5S11A

MICRO 6 SYSTEMS MARK V
SCHEMATIC: INPUTS
VISA MODIFICATIONS
PELLERIN MILNOR CORPORATION

W6SH5S11A
2007464B

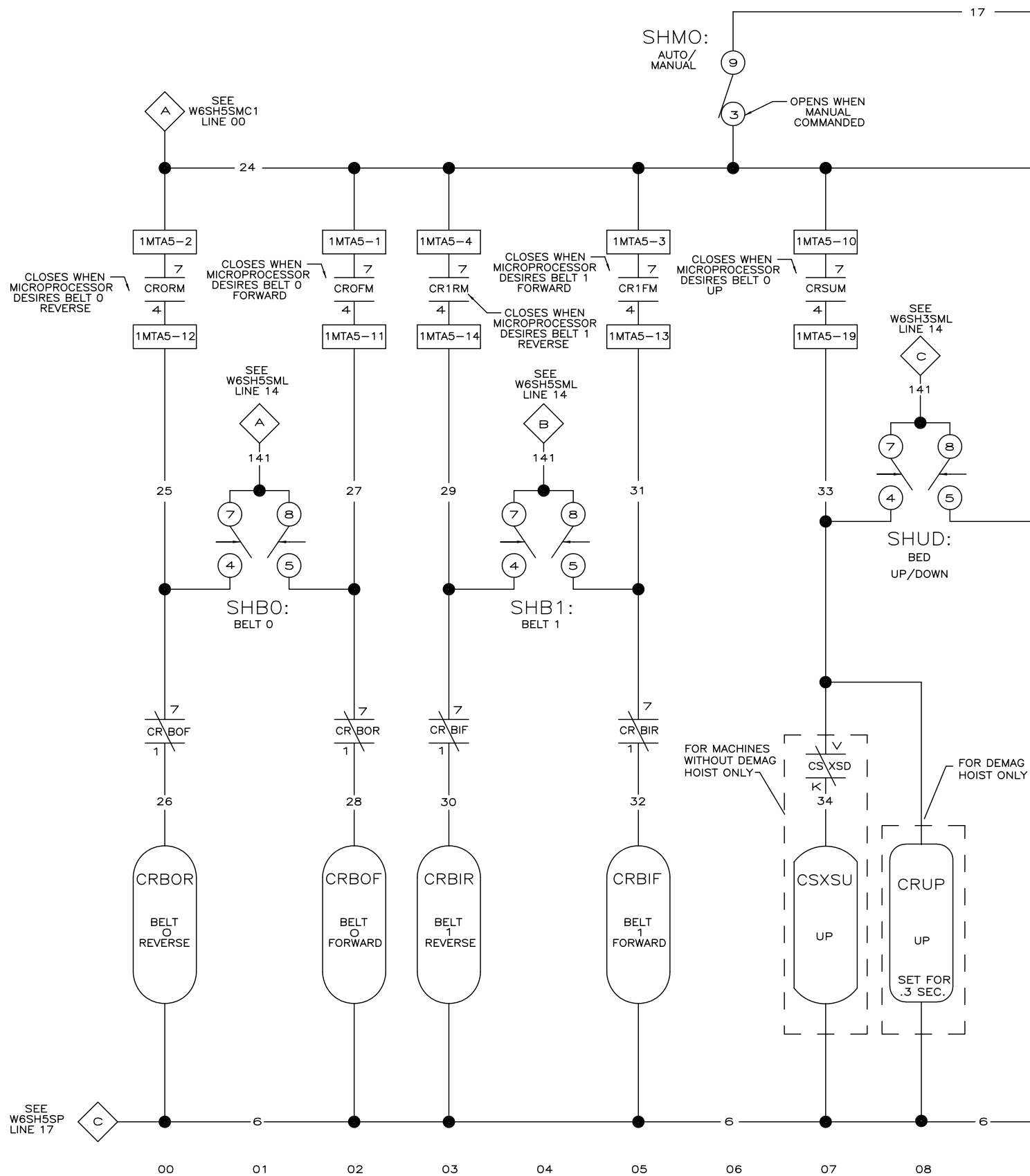
ML02
MTRA11

ML00
MTRA11

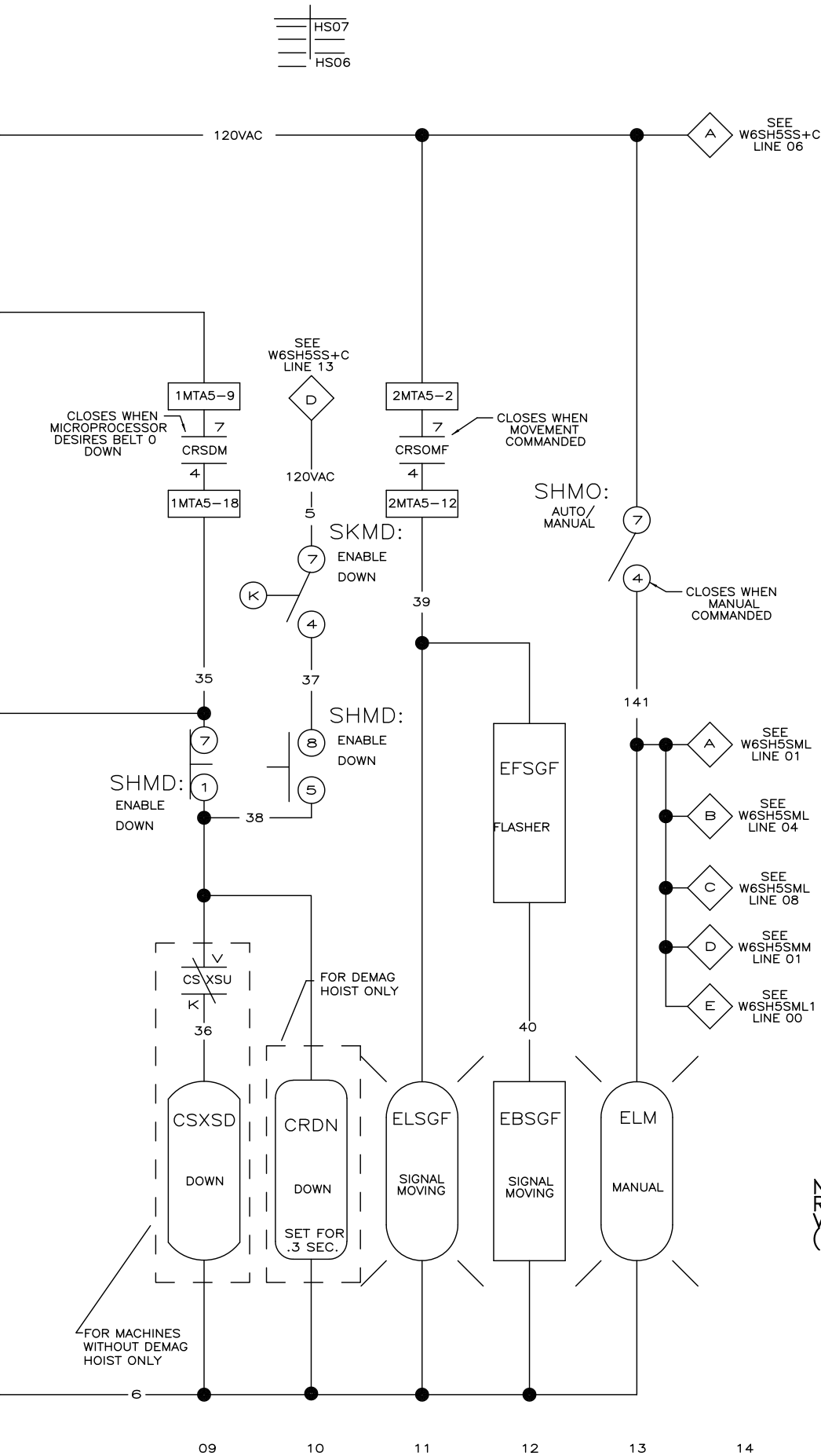
ML05
MTRA16

ML03
MTRA15

HS05
HS04



W6SH5SML
2025243B



W6SH5SML

MICRO 6 SYSTEMS MARK V

SCHEMATIC: LOAD: NO EXTENSION

UNLOAD: NO EXTENSION

VISA SHUTTLE MODS

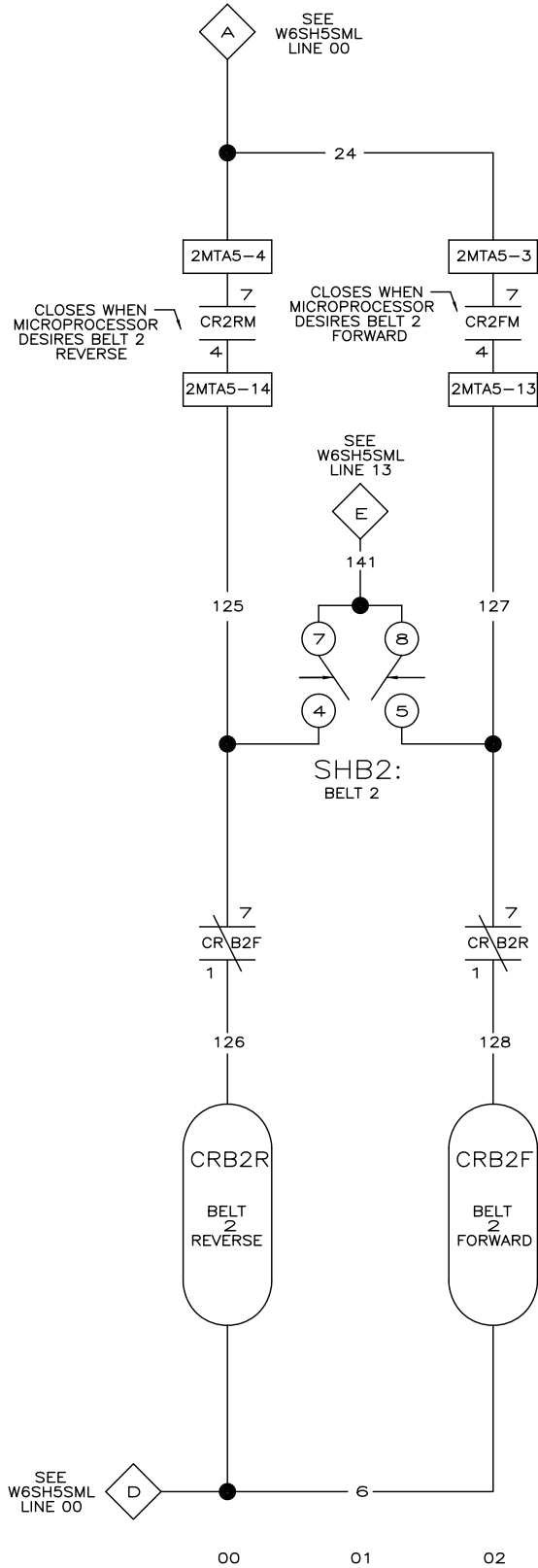
110V1P50HZ/120V1P60HZ

PELLERIN MILNOR CORPORATION

NOTE:
REPLACES W6SH5SMC FOR
VISA MODIFICATIONS
(UP TO 3 VARISPEED BELTS)

L102
RA16

L100
RA17



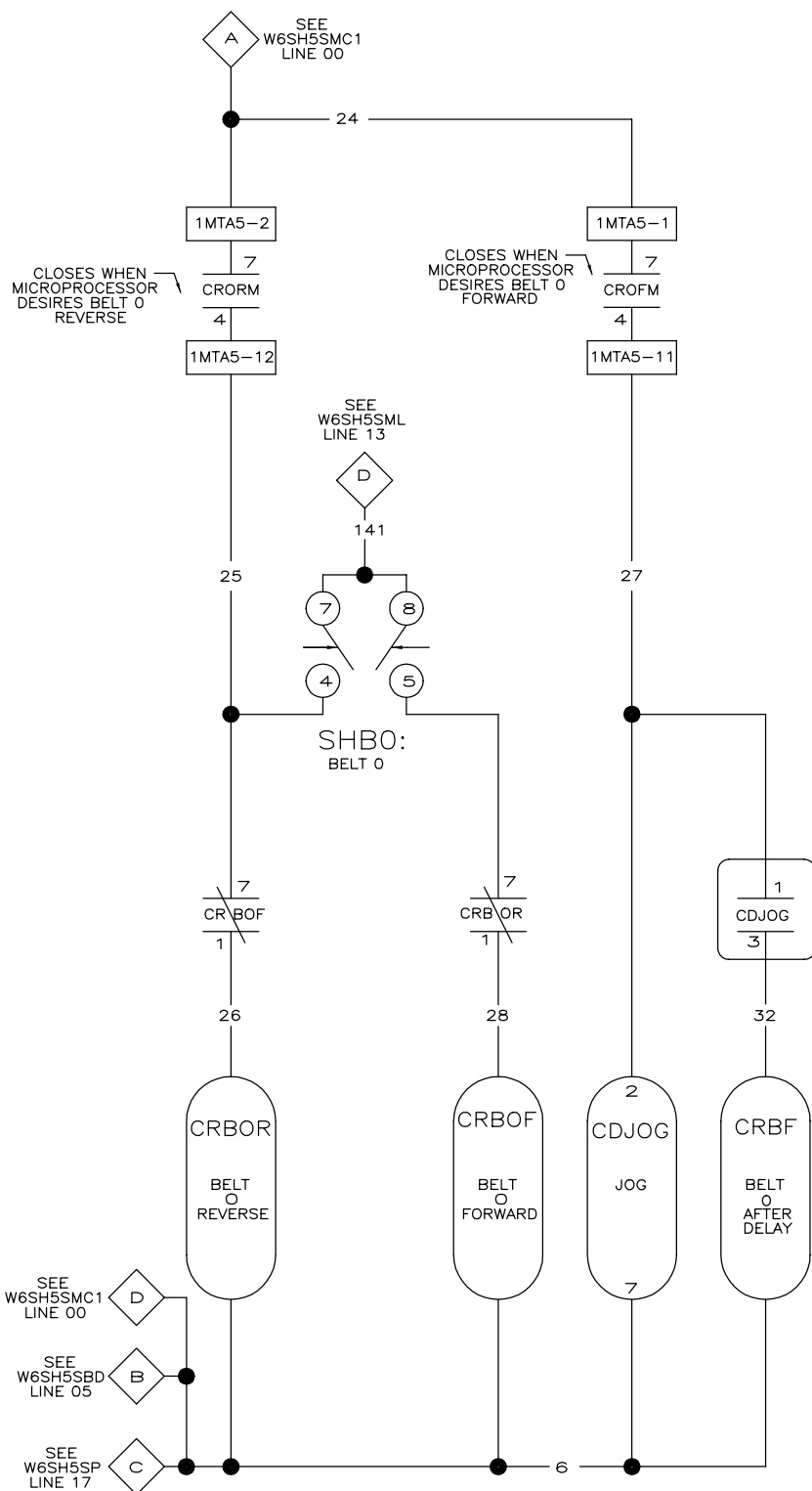
W6SH5SMC1
2025163B

W6SH5SML1
MICRO 6 SYSTEMS MARK V
SCHEMATIC: LOAD: NO EXTENSION
UNLOAD: NO EXTENSION BELTS 2
110V1P50HZ/120V1P60HZ
PELLERIN MILNOR CORPORATION

MLO2
MTRA11

MLO0
MTRA11

MLO5
MTRA16



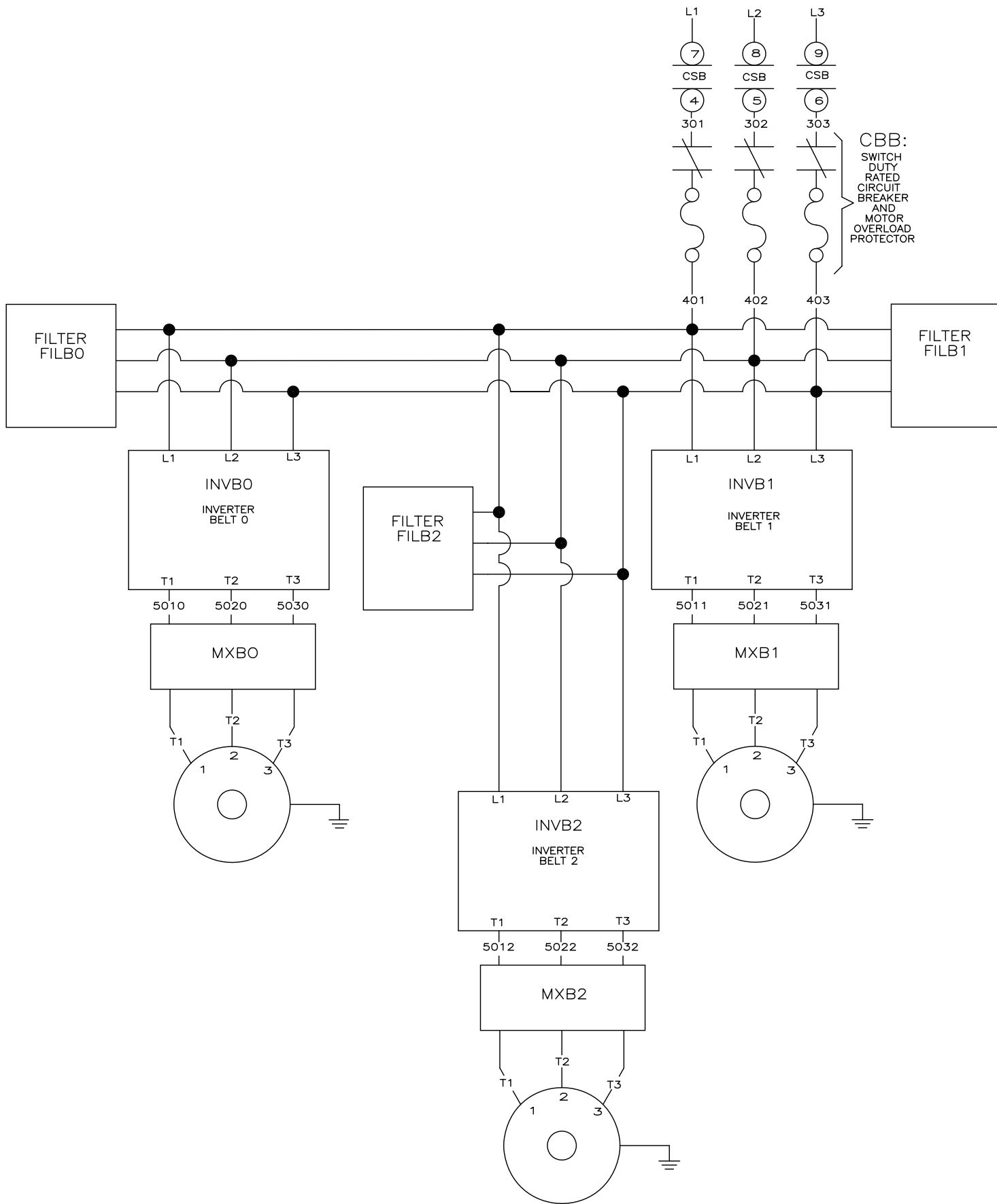
W6SH5SMM
2002123B

W6SH5SMM

MICRO 6 SYSTEMS MARK V
SCHEMATIC: LOAD: NO EXTENSION
UNLOAD: NO EXTENSION
VISA 60 WIDE SHUTTLE MODS
110V1P50HZ/120V1P60HZ
PELLERIN MILNOR CORPORATION

NOTE:
REPLACES W6SH5SMC FOR
ON 60" WIDE SHUTTLES
(2 VARISPEED BELTS)

W6SH5SMM
2002123B



00

01

02

03

04

05

06

07

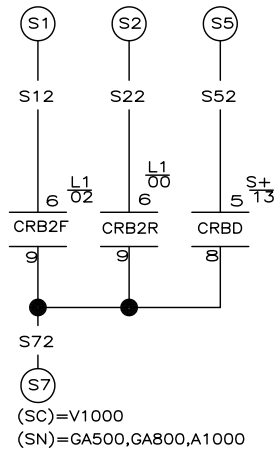
08

09

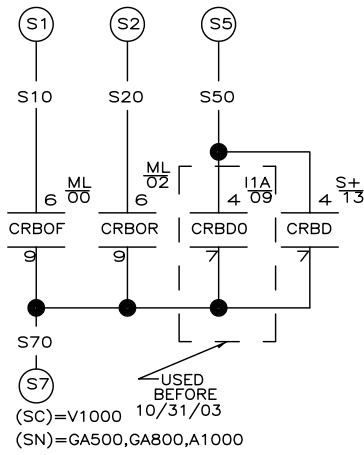
10

W6SH5SMTRA
2025243B

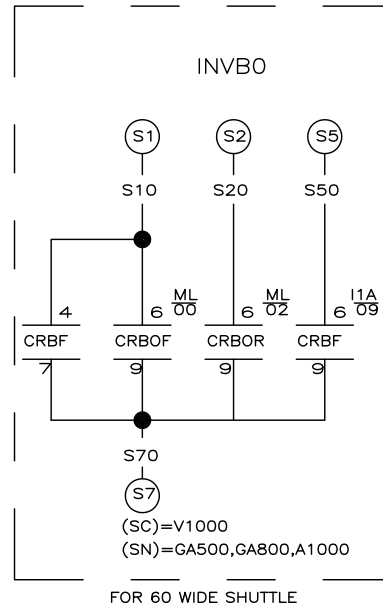
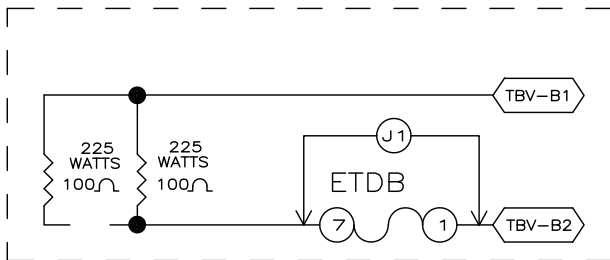
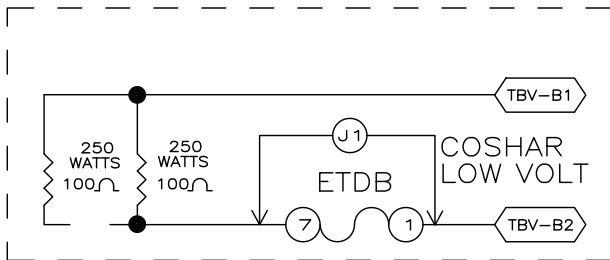
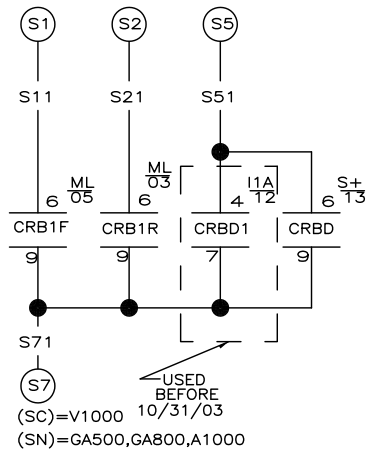
INVB2



INVB0



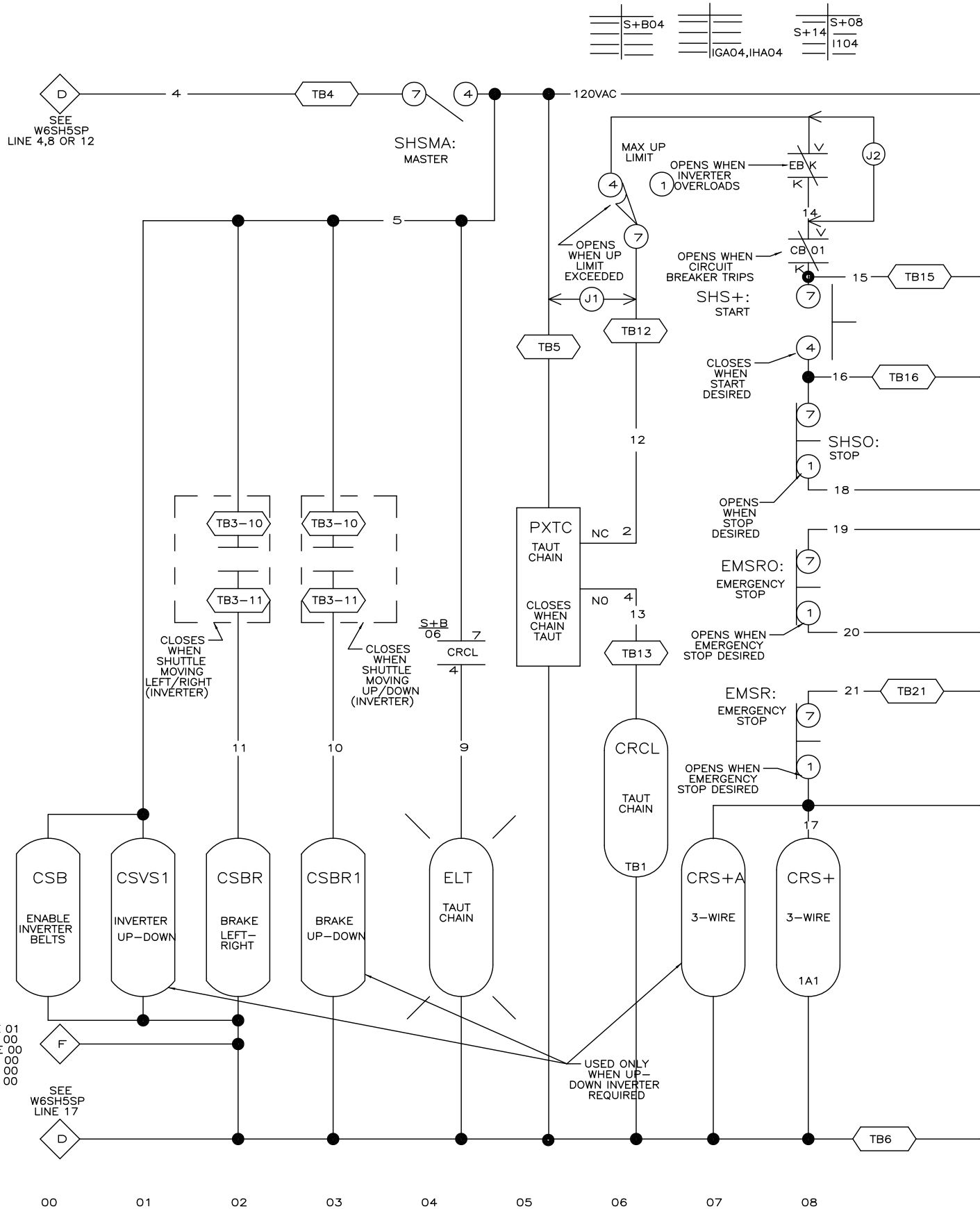
INVB1

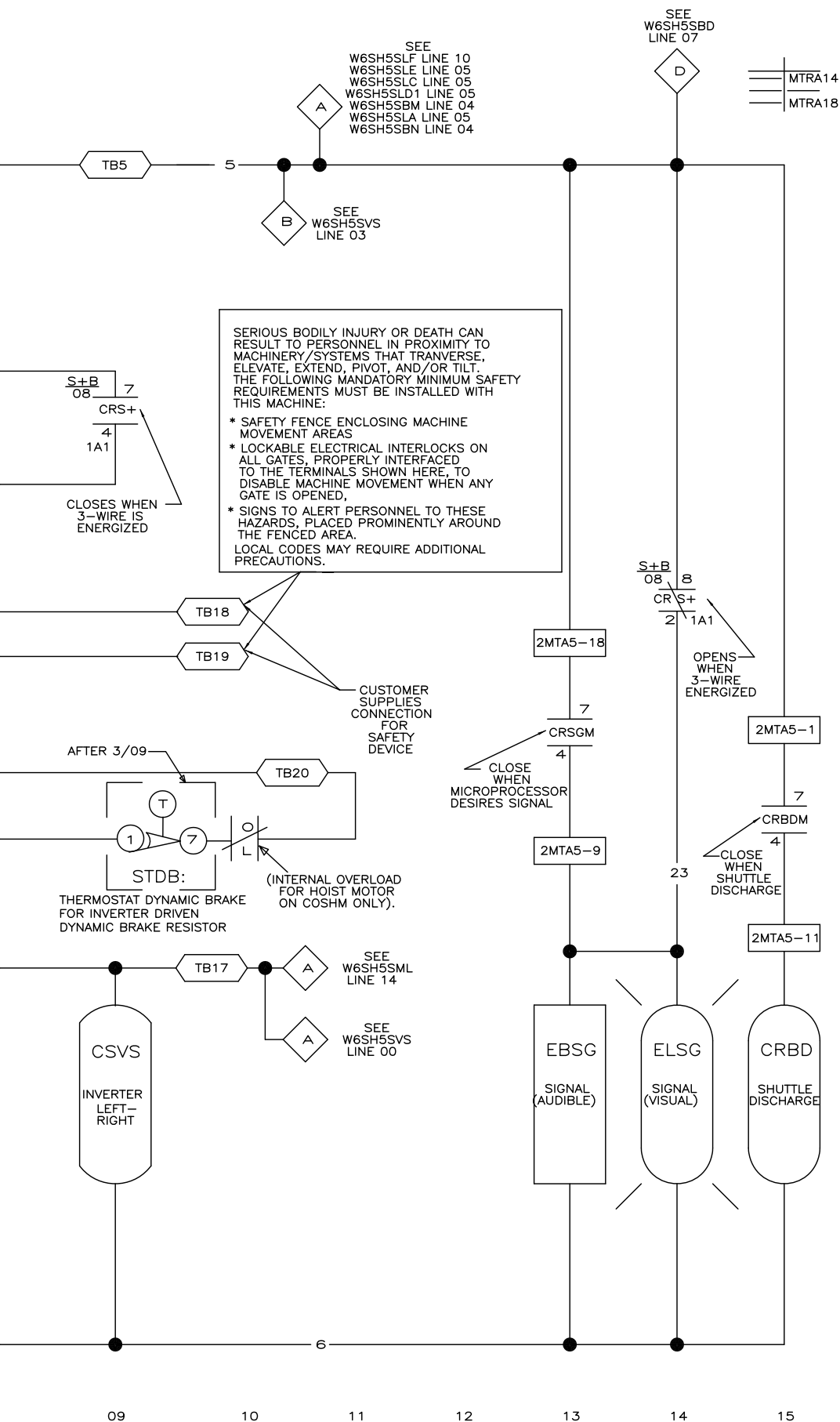


W6SH5SMTRA

MICRO 6 SYSTEMS MARK V
SCHEMATIC: MOTORS + INCOMING VOLTAGE
110V1P50HZ/120V1P60HZ
PELLERIN MILNOR CORPORATION

11 12 13 14 15 16 17 18 19





W6SH5SS+B

MICRO 6 SYSTEMS MARK V

SCHEMATIC: 3-WIRE CIRCUIT

MODIFIED FOR VISA SHUTTLE

110V50HZ/120V60HZ

PELLERIN MILNOR CORPORATION

NOTES:

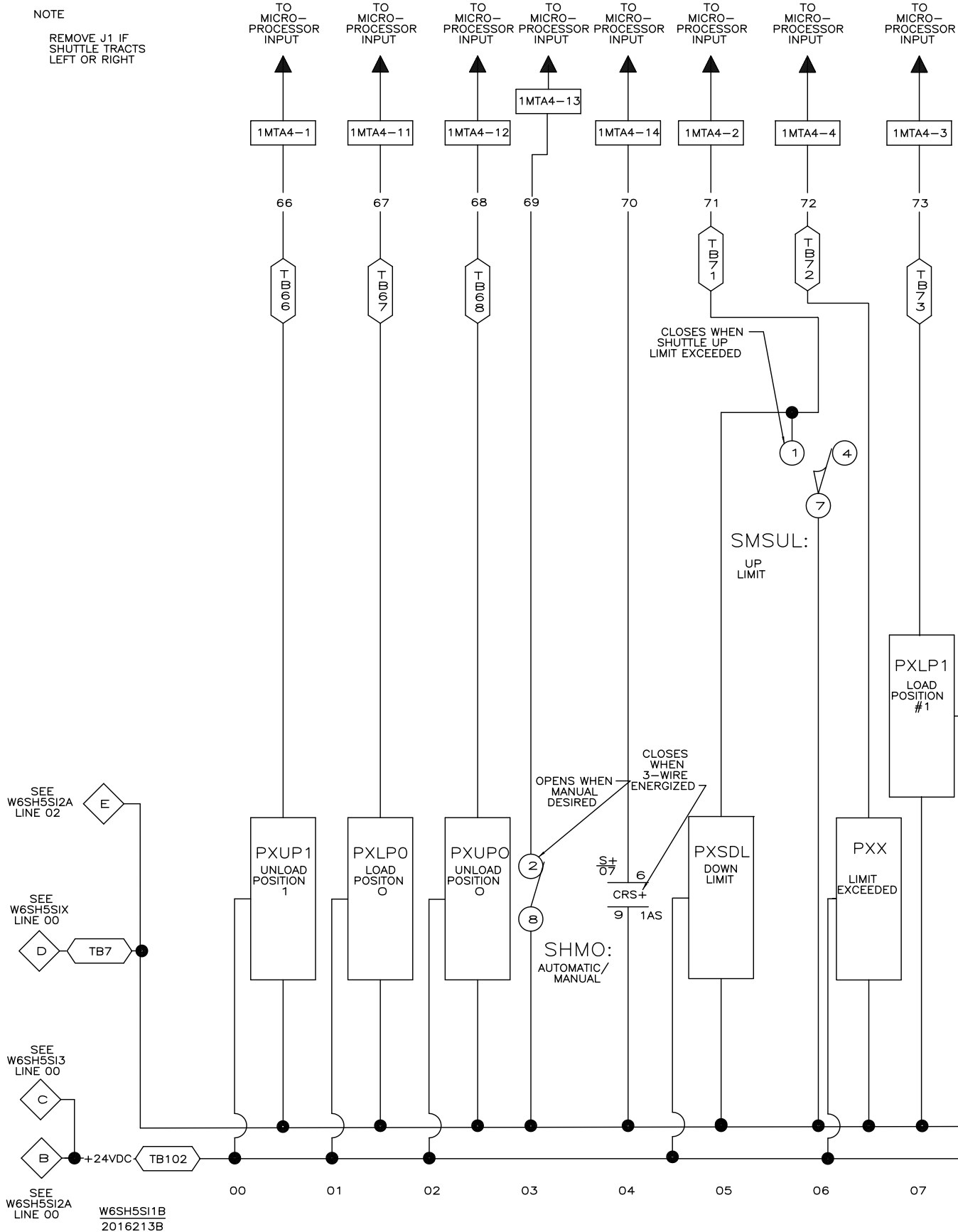
1. REMOVE J1 FOR SHUTTLE
WITH HOIST EXCEPT COSHM.
2. REMOVE J2 FOR SHUTTLE
THAT TRACK LEFT/RIGHT
3. REPLACES W6SH5SS+A FOR
VISA MODIFICATIONS
(2 VARISPEED BELTS)

W6SH5SS+B
2023195B

W6SH5SS+B
2023195B

Low Profile Modifications

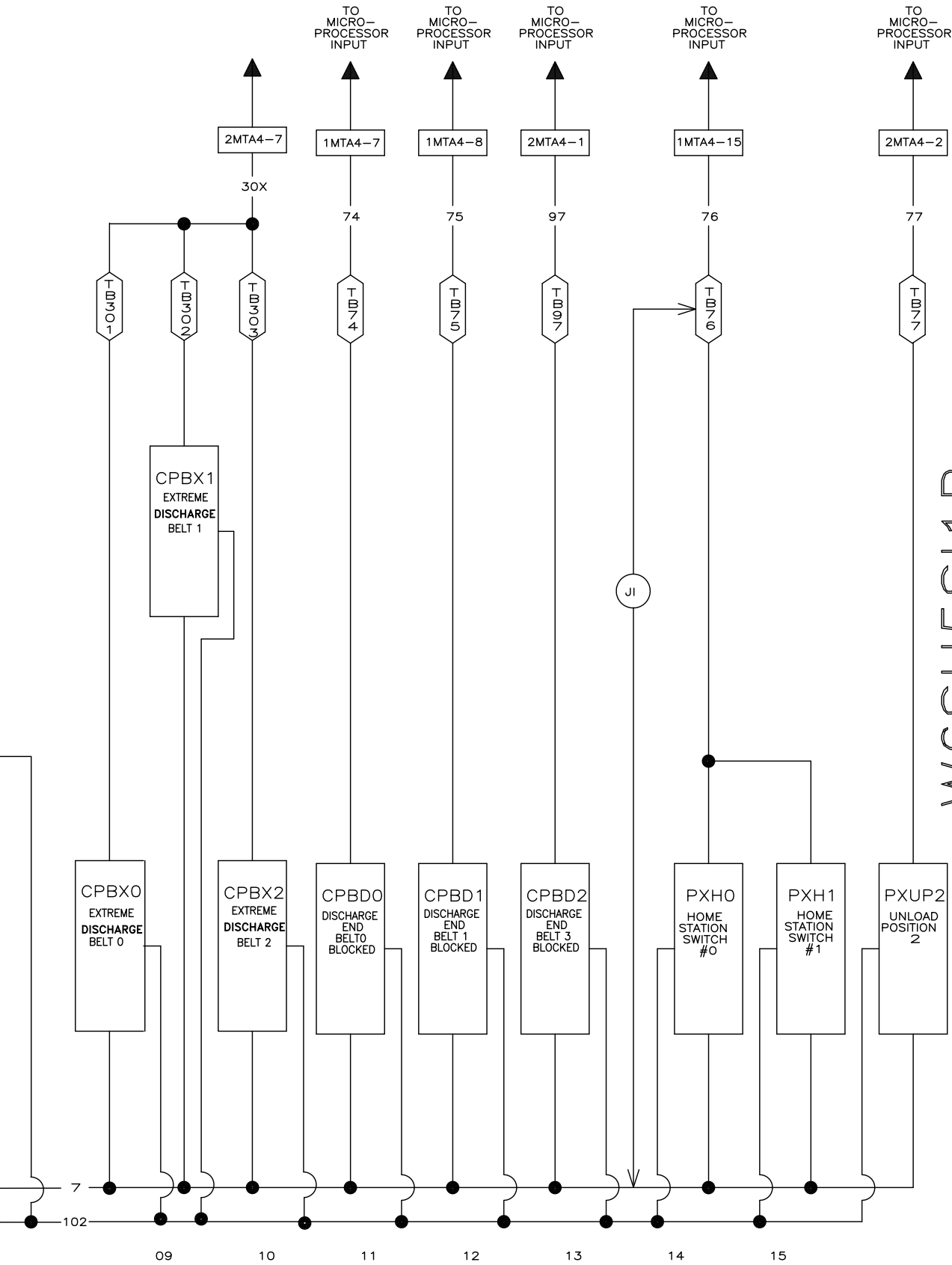
9



NOTES:

- .1. (JI) REMOVE IF SHUTTLE
TRACTS LEFT OR RIGHT.

W6SH5S11B
2016213B



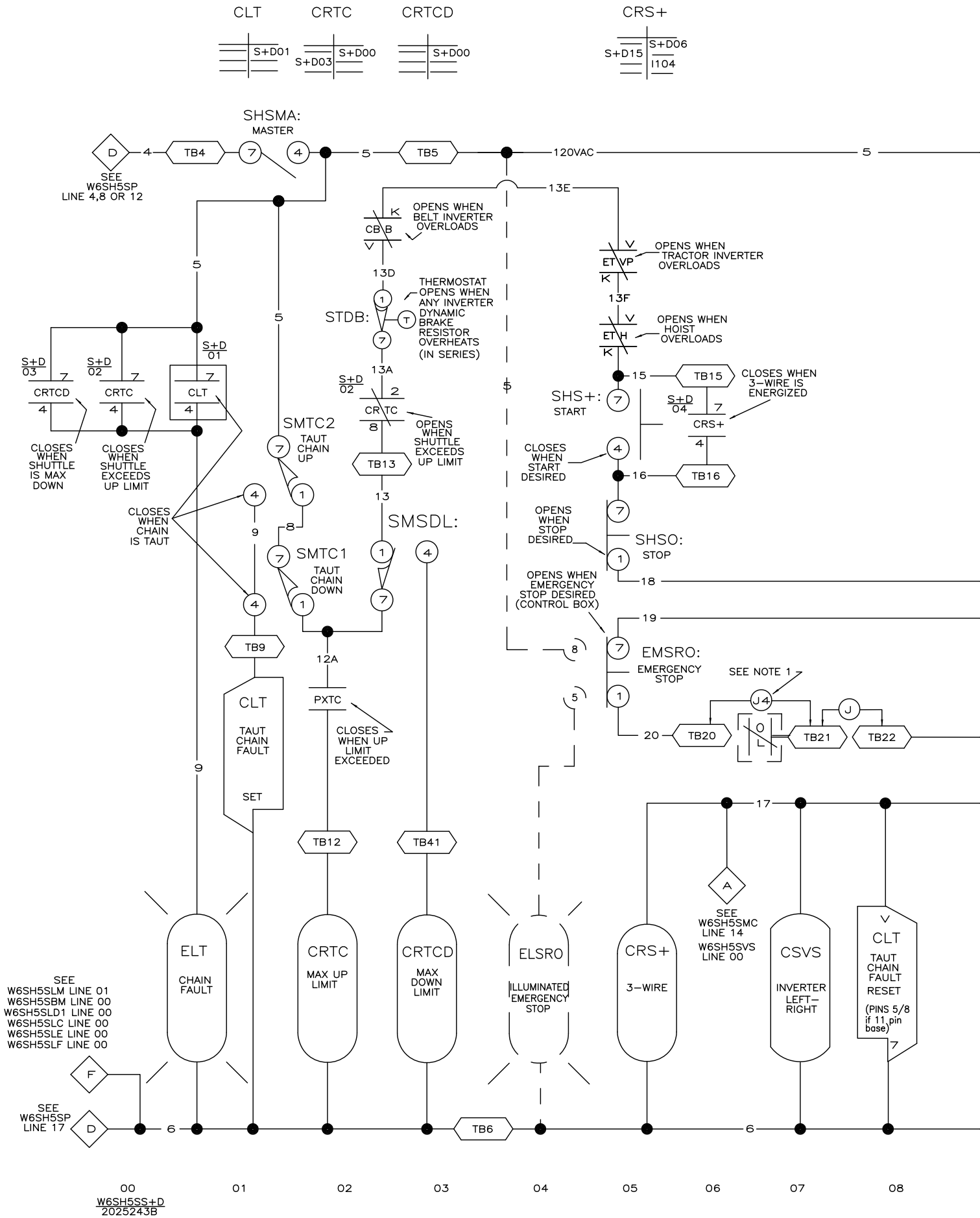
W6SH5S11B

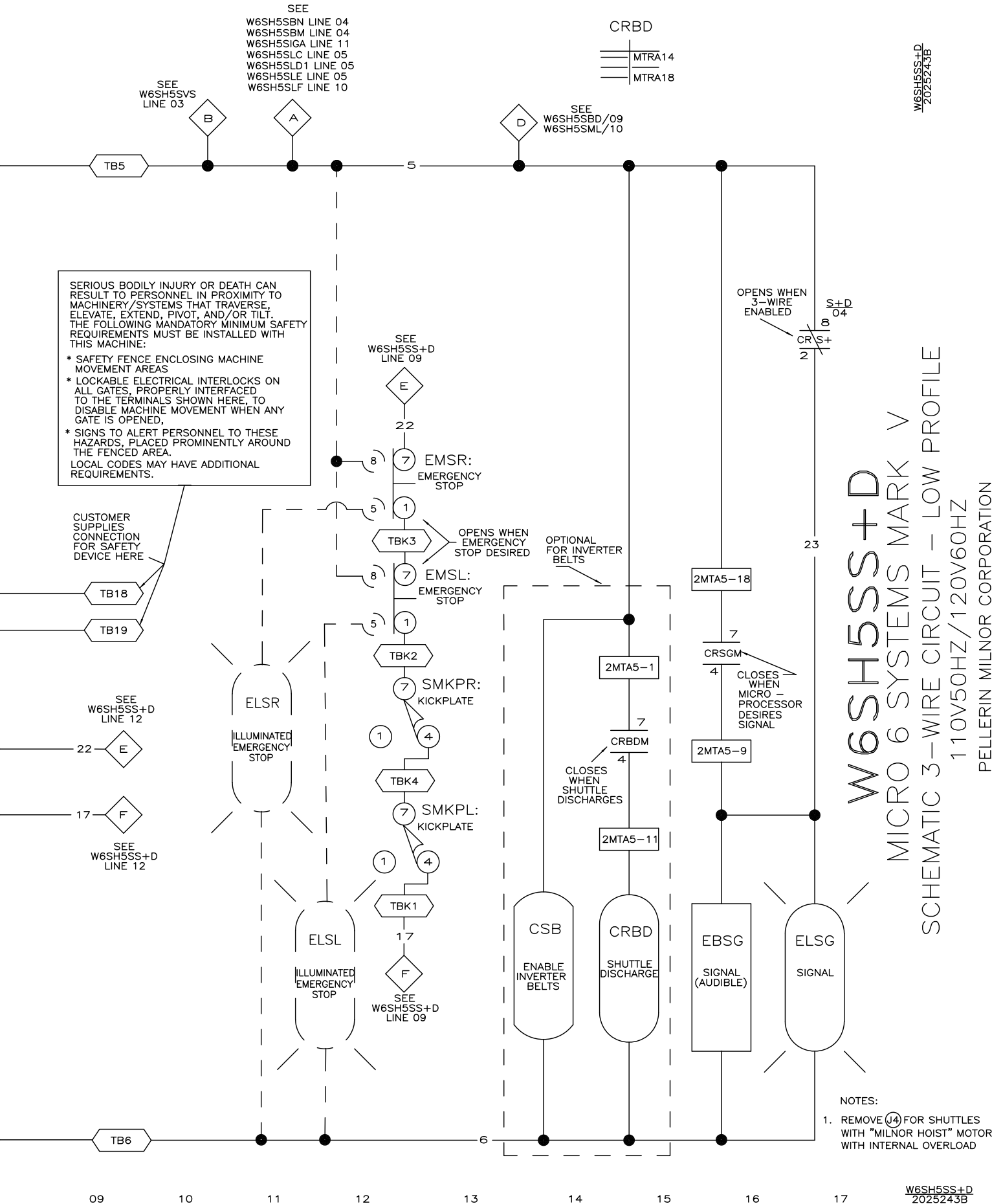
MICRO 6 SYSTEMS MARK V

SCHEMATIC: INPUTS

MODIFIED FOR TAUT CHAIN UP/DOWN SW.
PELLERIN MILNOR CORPORATION

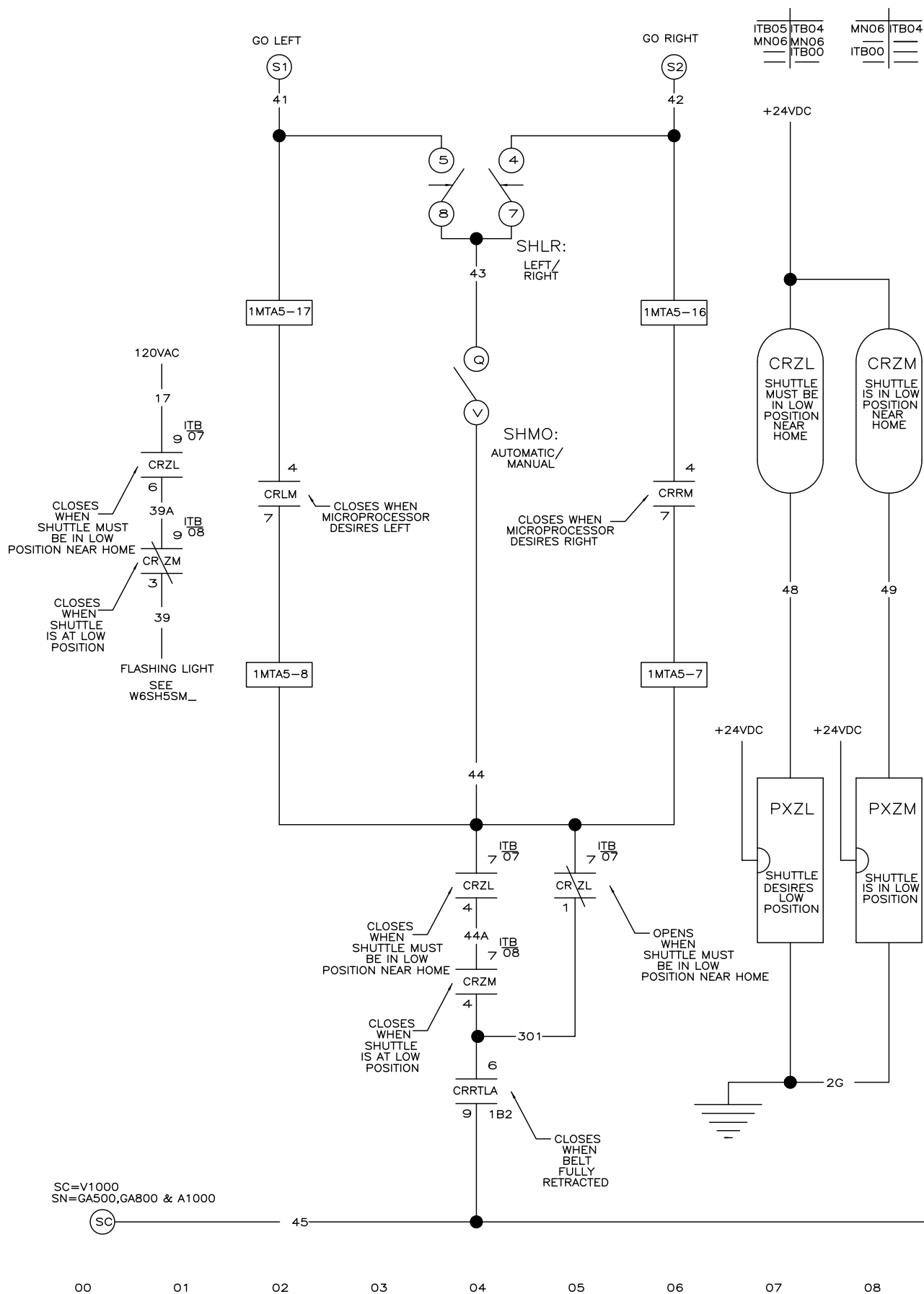
W6SH5S11B
2016213B

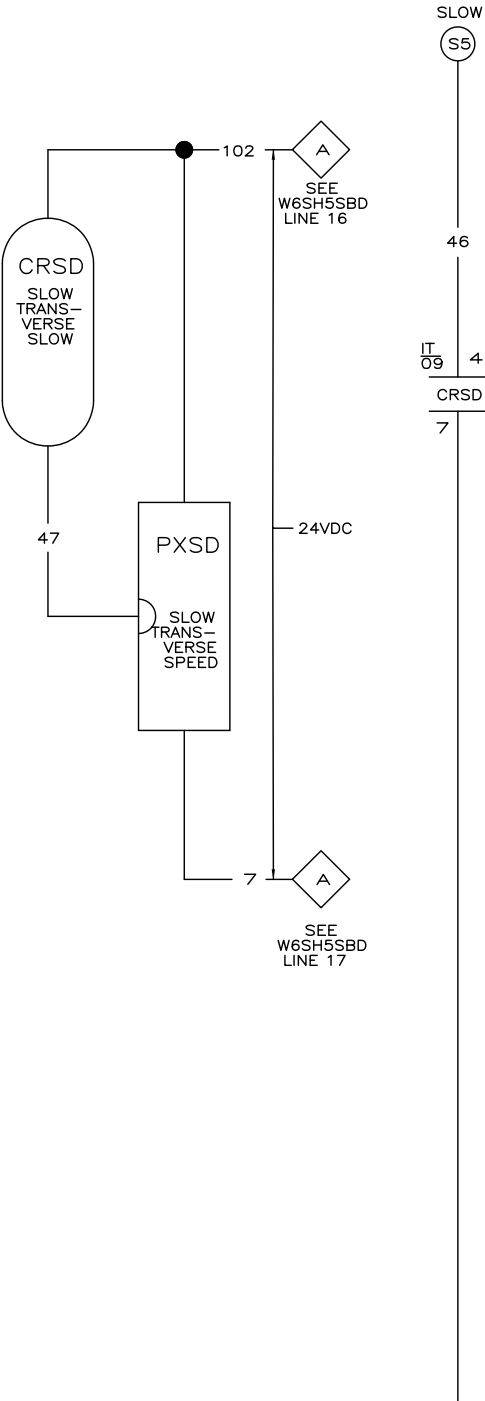




Extending Shuttle Low at Home

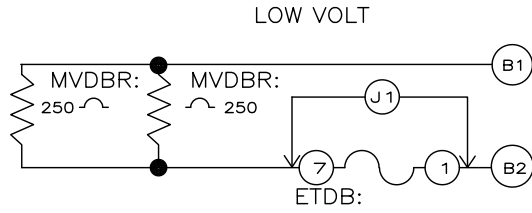
10



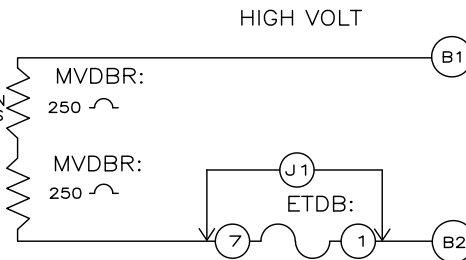


SLOW
S5
46
IT 09 4
CRSD
7

CLOSING WHEN
SLOW SPEED IS
DESIRED



ETDB: IS REPLACED BY STDB: AFTER 3/09
SEE W6SH5SS+_-



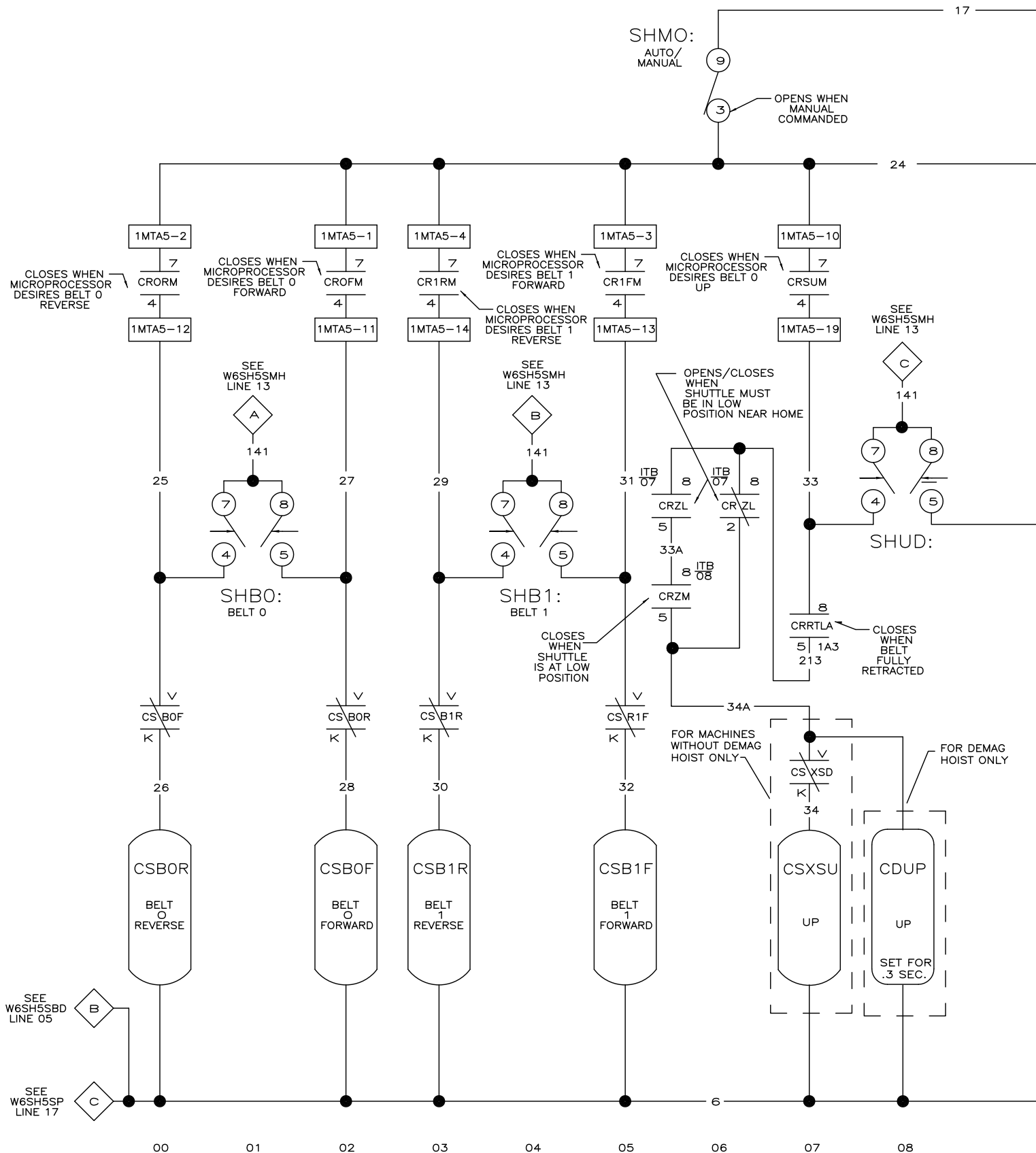
ETDB: IS REPLACED BY STDB: AFTER 3/09
SEE W6SH5SS+_-

NOTE:
INVERTER TERMINAL POINTS

W6SH5SITB

MICRO 6 SYSTEMS MARK V
SCHEMATIC:TRANSVERSING INVERTER LOW AT HOME
CONTROLS FOR EXTENDING SHUTTLES
PELLERIN MILNOR CORPORATION

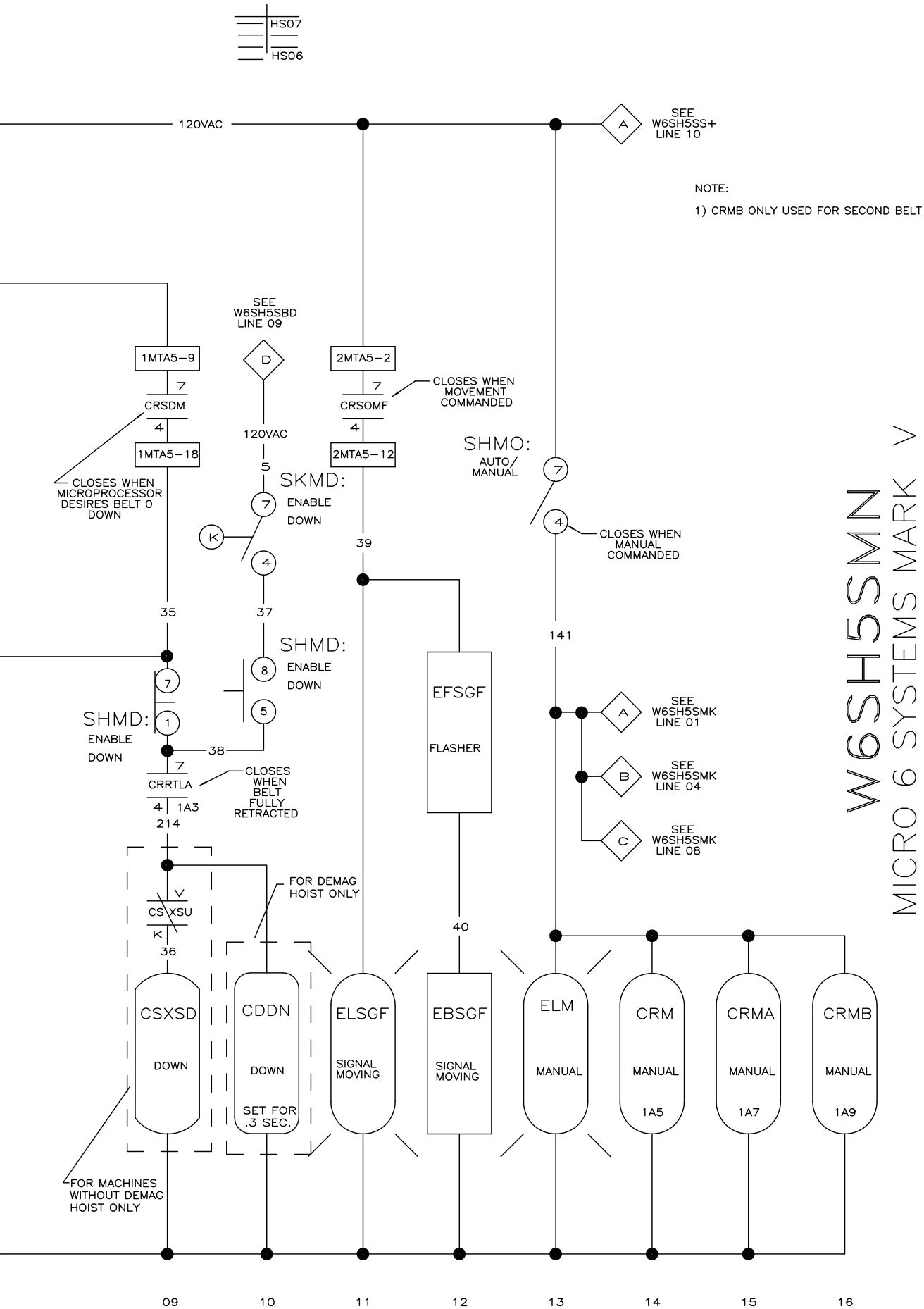
HS05
HS04



SEE
W6SH5SBD
LINE 05

SEE
W6SH5SP
LINE 17

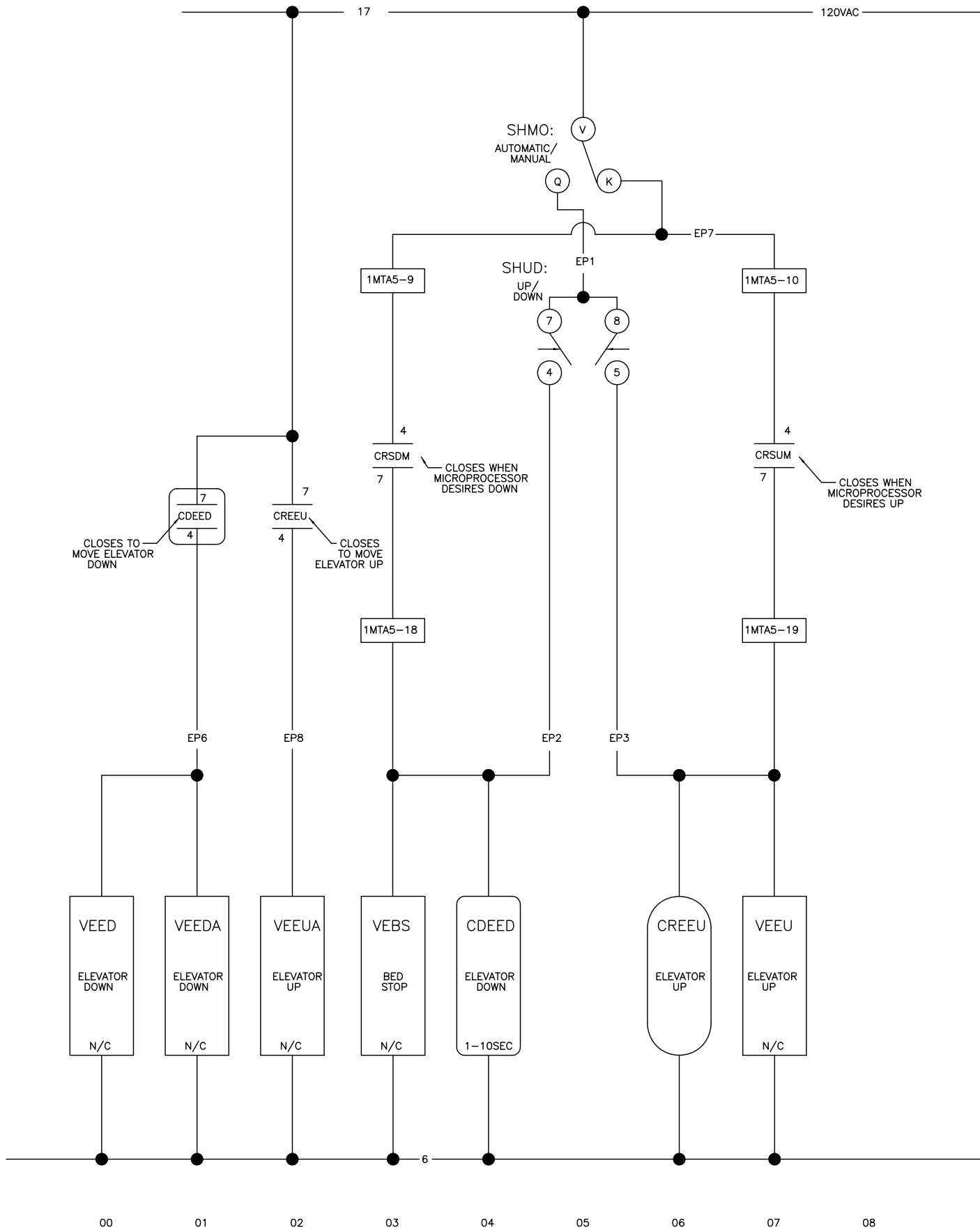
W6SH5SMN
2016504B

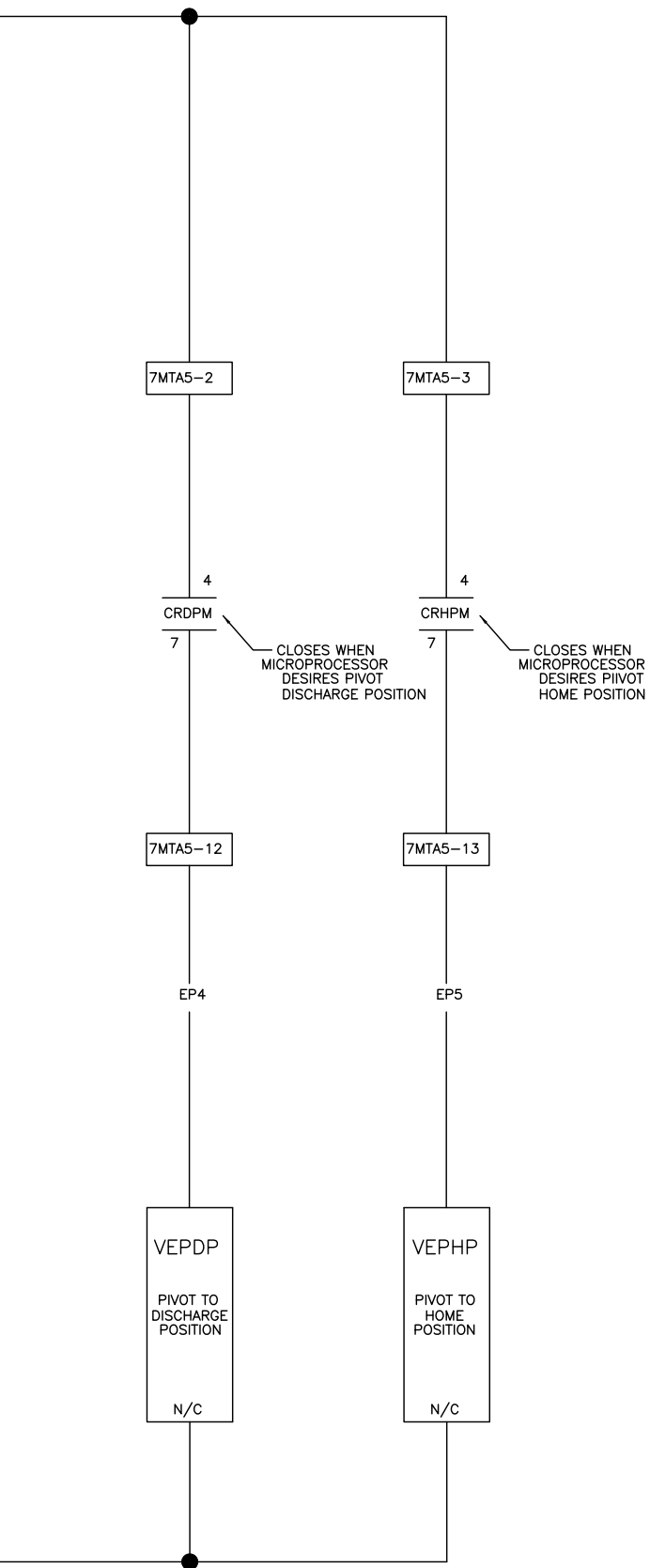


W6SH5SMN
MICRO 6 SYSTEMS MARK V
SCHEMATIC: MOTOR CONTACTORS LOW AT HOME
LOAD = NO EXTENSION
UNLOAD = EXTEND AUTOMATIC
110V1P50HZ/120V1P60HZ
PELLERIN MILNOR CORPORATION

Pivoting Elevator

11





09

10

11

12

13

14

15

16

17

18

W6SH5SPEA

MICRO 6 SYSTEMS MARK V CONTROLS

SCHEMATIC: PIVOTING ELEVATOR VALVES

110V1P50HZ/120V1P60HZ

PELLERIN MILNOR CORPORATION

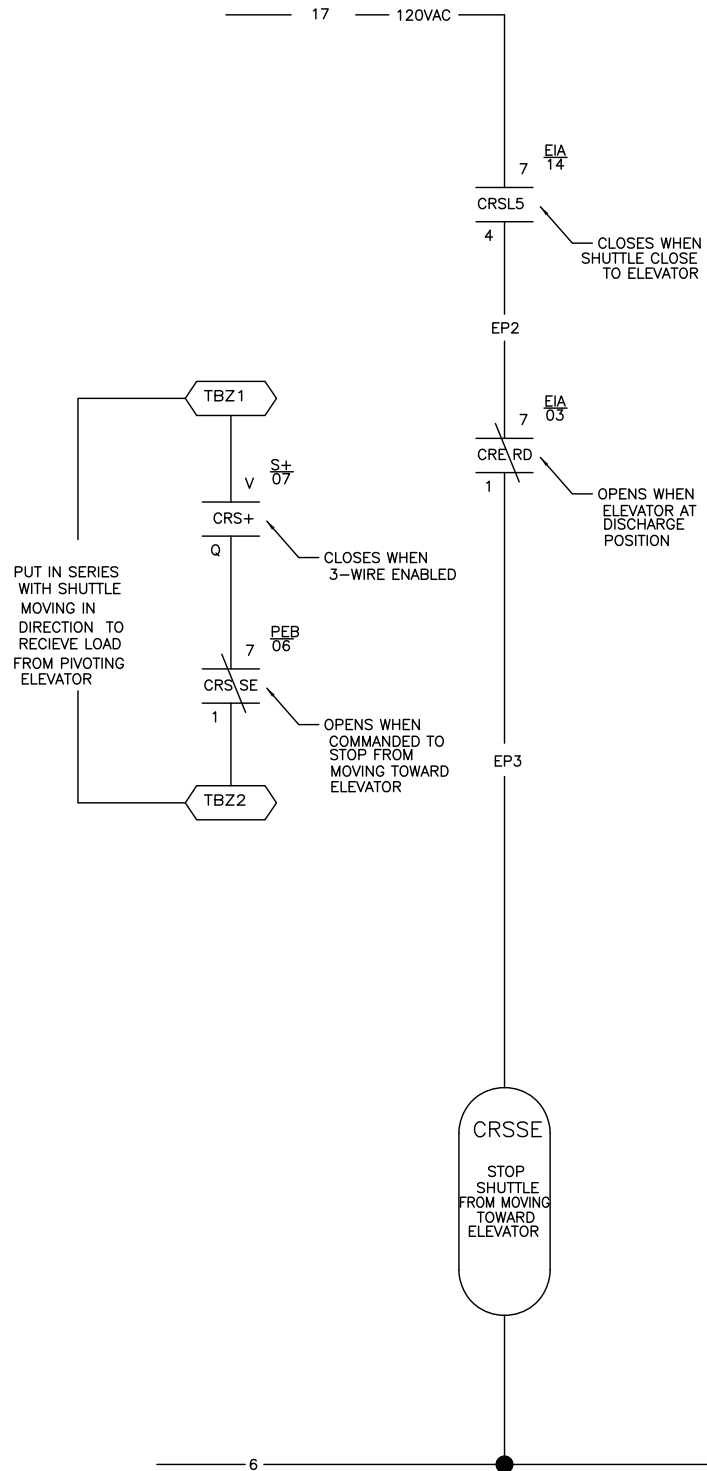
W6SH5SPEA
2019306B

W6SH5SPEA
2019306B

PEB04

24

120VAC



00

01

02

03

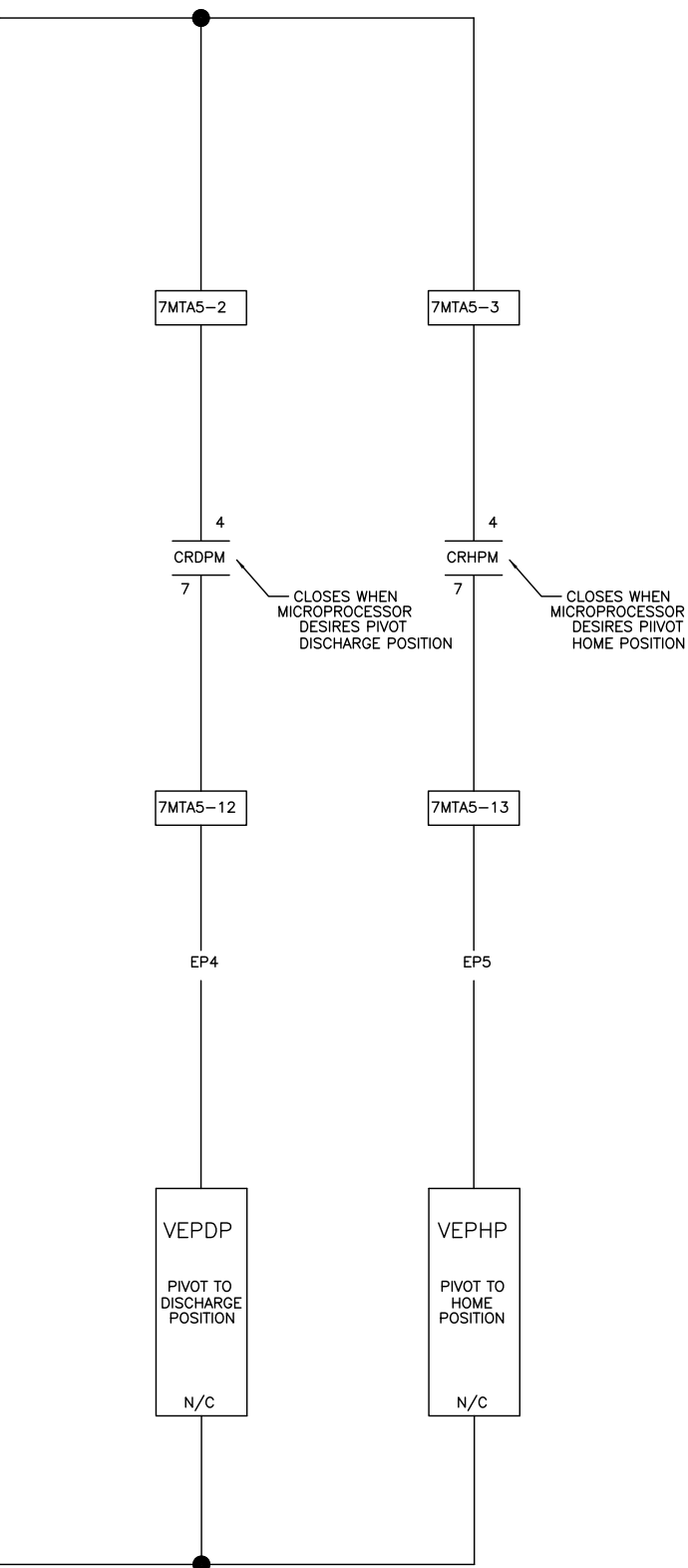
04

05

06

07

08

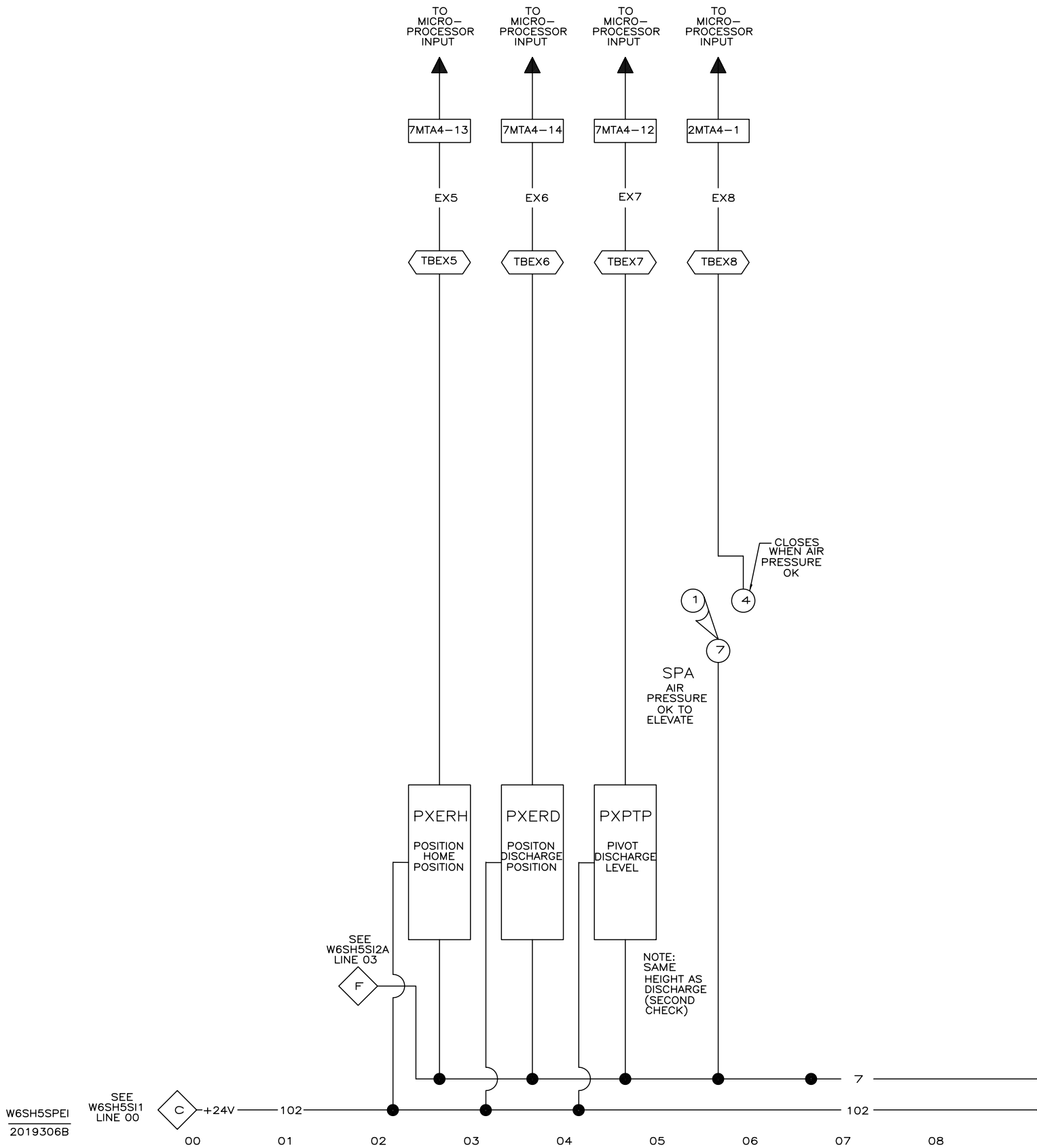


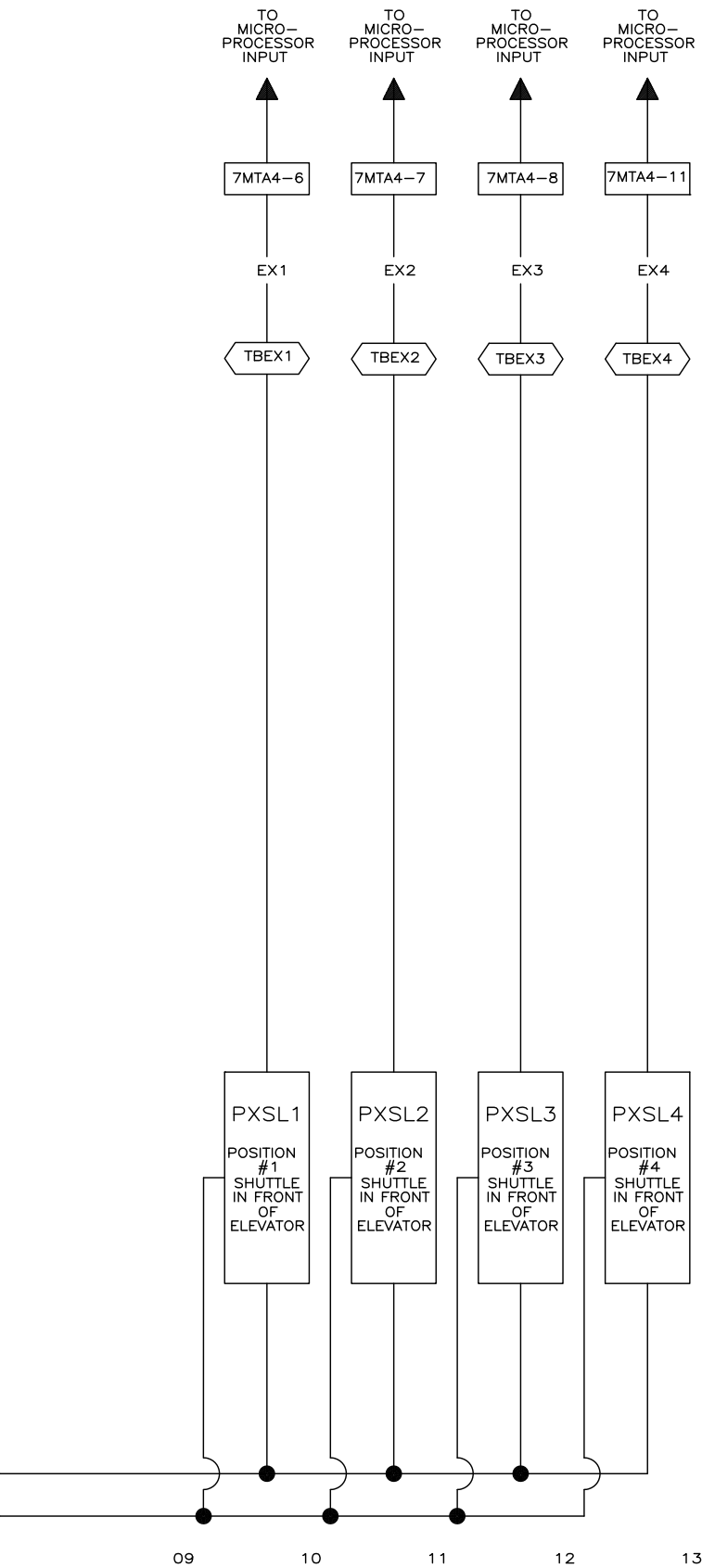
W6SH5SP5B

MICRO 6 SYSTEMS MARK V CONTROLS
SCHEMATIC: PIVOTING ELEVATOR HOIST
110V1P50HZ/120V1P60HZ
PELLERIN MILNOR CORPORATION

W6SH5SP5B
2019445B

W6SH5SP5B
2019445B





W6SH5SPEI

MICRO 6 SYSTEMS MARK V

SCHMATIC: PIVOTING ELEVATOR

PELLERIN MILNOR CORPORATION

W6SH5SPEI
2019306B

W6SH5SPEI
2019306B

PEB06
PEI04

TO MICRO-PROCESSOR INPUT
TO MICRO-PROCESSOR INPUT
TO MICRO-PROCESSOR INPUT
TO MICRO-PROCESSOR INPUT

7MTA4-13 7MTA4-14 7MTA4-12 2MTA4-1

EX5 EX6 EX7 EX8

TBEX5 TBEX7 TBEX8

EIA
9 03
CRERD
6

CRERD
POSITON
DISCHARGE
POSITION

24VDC

TBEX0

EX0

PXERH
POSITION
HOME
POSITION

PXERD
POSITON
DISCHARGE
POSITION

PXPTP
PIVOT
DISCHARGE
LEVEL

SEE
W6SH5SI2A
LINE 03

F

CLOSES
WHEN AIR
PRESSURE
OK

1 4 7

SPA
AIR
PRESSURE
OK TO
ROTATE

NOTE:
SAME
HEIGHT AS
DISCHARGE
(SECOND
CHECK)

W6SH5SPEIA
2019396B

SEE
W6SH5SI1
LINE 00

C +24V

102

02

03

04

05

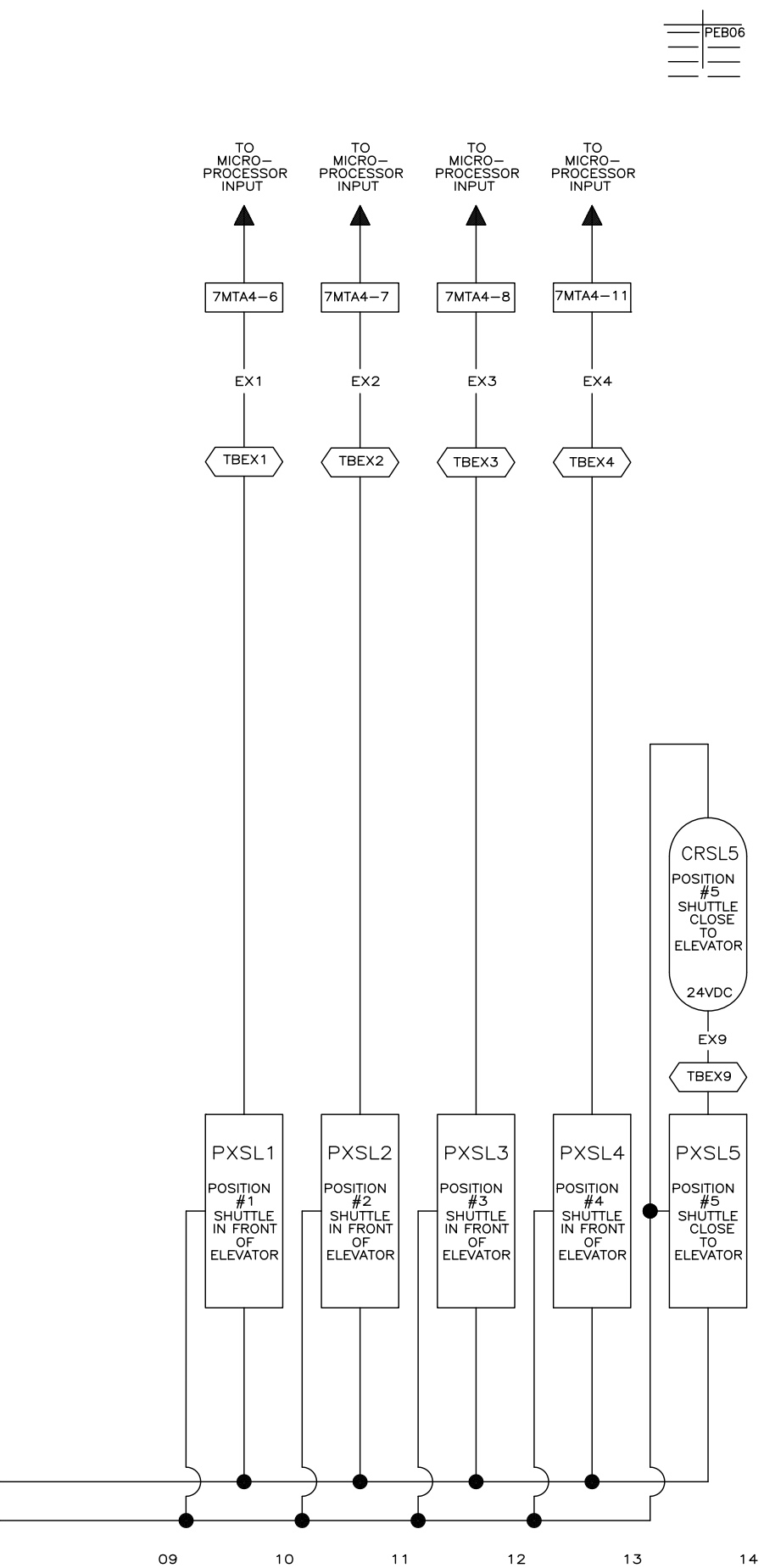
06

07

08

7

102



W6SH5SPEIA
2019396B

W6SH5SPEIA
MICRO 6 SYSTEMS MARK V
SCHEMATIC: PIVOTING ELEVATOR

PELLERIN MILNOR CORPORATION

W6SH5SPEIA
2019396B