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SERVICE BULLETIN MAINTENANCE OF WAY EQUIPMENT

DATE: 7-28-2005 **BULLETIN NO:** 05-010

TITLE: 203460 PLC MAIN MODULE w/ TRANSISTOR OUTPUTS GROUP

RATING:

<input type="checkbox"/>	DIRECTIVE (Action Is Required)	<input type="checkbox"/>	ALERT (Potential Problem)
<input type="checkbox"/>	INFORMATION (Action Is Optional)	<input checked="" type="checkbox"/>	PRODUCT IMPROVEMENT (Enhance Product)

PRODUCT SERIES / MODEL: W141 Series A1 Rail Lifters

SERIAL NO: All W141A1-26 / 27 and 28 Models
All W141A1-29 and Higher Models Have Been Updated At Factory

SUMMARY: A new Moeller Easy 721-DC-TC PLC Main Module w/ Transistor Outputs is now available to replace the old Moeller Easy 619-DC-RC PLC Main Module w/ Relay Outputs. The new PLC Main Module w/ Transistor Outputs will provide more machine reliability. The Group also includes a new Program Chip and Buffering Relays to handle the circuit loads.

OPERATIONAL IMPACT: To provide a new PLC Main Module w/ Transistor Outputs that is more reliable than the old PLC Main Module w/ Relay Outputs.

ACTION: The old PLC Main Module w Relay Outputs part #197502 is no longer being offered as a repair item and is being replaced by the new PLC Main Module w/ Transistor Outputs Group part #203460. Follow the instructions in this Service Bulletin to install the new PLC Main Module w/ Transistor Outputs Group.

CONTACT: If you have any questions or if we can be of any service, please contact the Service Department at the Columbia, SC. facility, 803-822-9160.

SAFETY INFORMATION

- **FOLLOW APPLICABLE RAILROAD LOCKOUT - TAGOUT PROCEDURE TO REMOVE ALL ENERGY SOURCES FROM MACHINE. FAILURE TO COMPLY COULD RESULT IN SEVERE BODILY INJURY.**

PLC MAIN MODULE w/ TRANSISTOR OUTPUTS INSTALLATION**Main I/O and Expansion I/OE Modules Removal** - See Figure 1, Figure 2 and Figure 3

1. The PLC Modules are located inside of the Main Control Box ahead of the Travel Seat on the Travel Platform of the Machine. Loosen the two thumb screws on the front panel of the Main Control Box and swing open to gain access to the PLC Modules.
2. Disconnect wire runs 1 thru 8 listed in Figure 9 - Wire Charts.
3. Disconnect all remaining wires from the Main Module (4). These remaining wires will reconnect to same terminals on the new Main Module (4). *See Note at end of Step 13.* It is not necessary to disconnect the wires from the Expansion Module (A).
4. Remove the left End Stop (B) from the Mounting Rail (C).
5. **Important:** Both Modules (4 - A) must be removed from the Mounting Rail (C) as one unit. Push down slightly on the top of both Modules and then pull out the bottom of both Modules to disconnect them from the Mounting Rail (C).
6. Disconnect the Main Module (4) from the Expansion Module (A) by pulling the two Modules apart. Be sure to keep the Modules straight when disconnecting so as not to damage the Connector (D).
7. Remove the Connector (D) from the Main Module (4).

Main I/O and Expansion I/OE Modules Installation - See Figure 1, Figure 4 and Figure 5

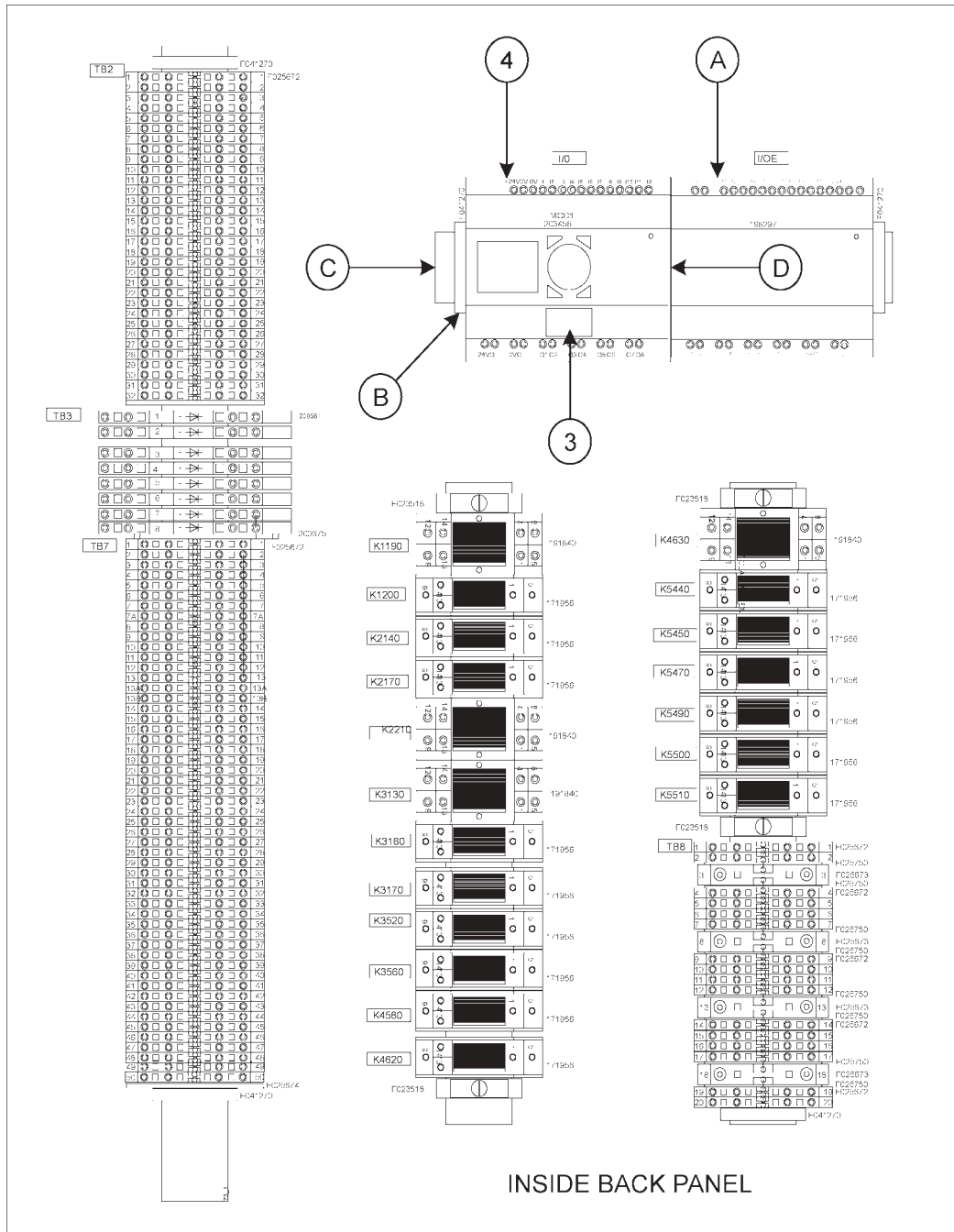
8. Make sure the new Program Chip (3) is installed in the new Main Module (4).
9. Install the Connector (3) in the new Main Module (4).
10. Align the Connector (3) in the new Main Module (4) with the Expansion Module (A) and push the Modules together until firmly seated. Be sure to keep the Modules straight when connecting so as not to damage the Connector (D).
11. **Important:** Both Modules (4 - A) must be installed on the Mounting Rail (C) as one unit. Hook the top of both Modules over the top of the Mounting Rail (C). Push down slightly on the top of both Modules and then push in the bottom of both Modules to connect them to the Mounting Rail (C).
12. Install the left End Stop (B) on the Mounting Rail (C).
13. Reconnect all wires that were disconnected in Step 3 from the old Module to same terminals on the new Main Module (4).

Note: The wires that were connected to the old Module terminals Q5-2 and Q6-2 will connect to the new Module terminals Q5 and Q6.

PLC MAIN MODULE w/ TRANSISTOR OUTPUTS INSTALLATION

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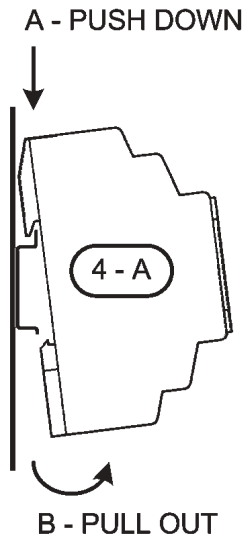
FIGURE 1
I/O MAIN AND I/OE EXPANSION MODULES



INSIDE BACK PANEL

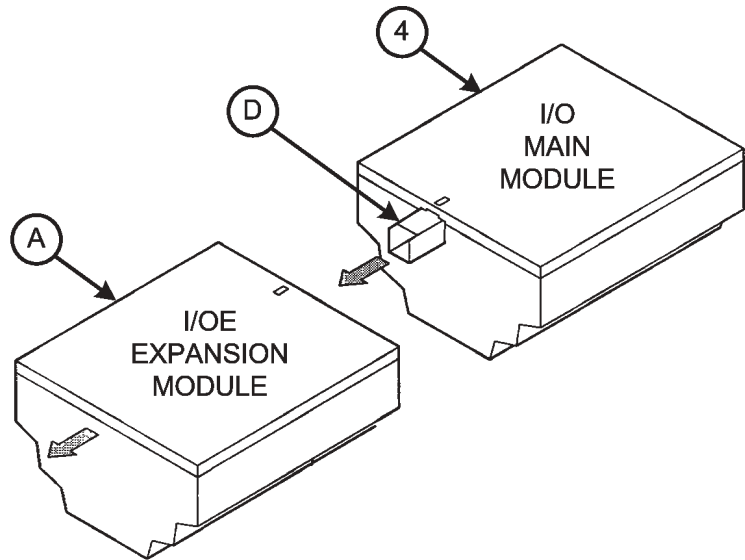
PLC MAIN MODULE w/ TRANSISTOR OUTPUTS INSTALLATION

FIGURE 2
REMOVING MODULES
FROM MOUNTING RAIL



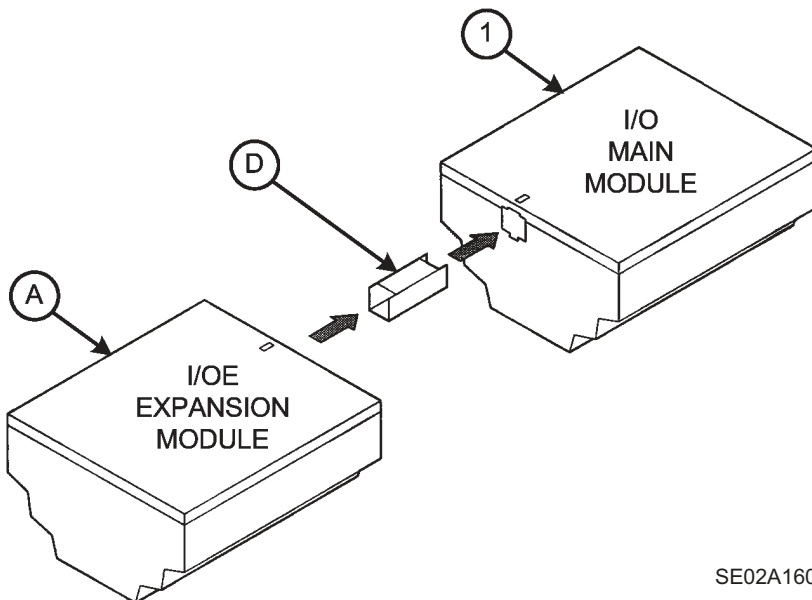
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FIGURE 3
DISCONNECTING MODULES



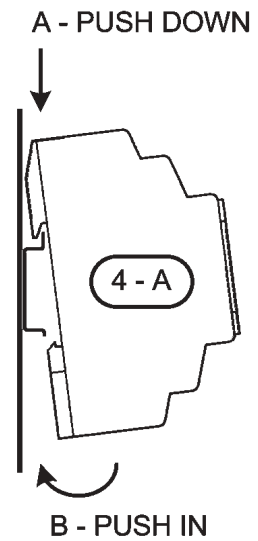
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FIGURE 4
CONNECTING MODULES



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FIGURE 5
INSTALLING MODULES
ON MOUNTING RAIL



SE02A159A-2

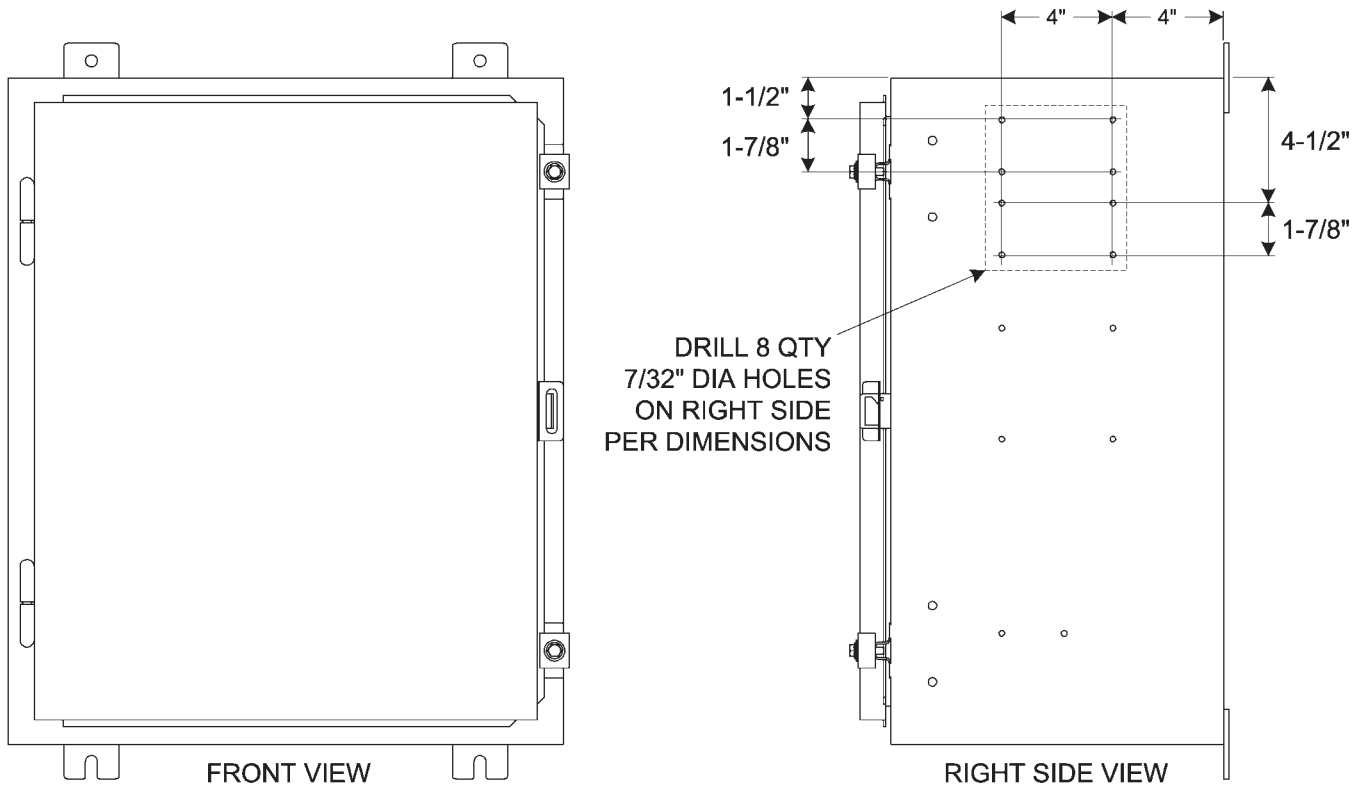
PLC MAIN MODULE w/ TRANSISTOR OUTPUTS INSTALLATION

Main Control Box Rework - See Figure 6

14. Drill eight 7/32" diameter holes in the right side of the Main Control Box per the dimensions shown.

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**FIGURE 6
MAIN CONTROL BOX REWORK**



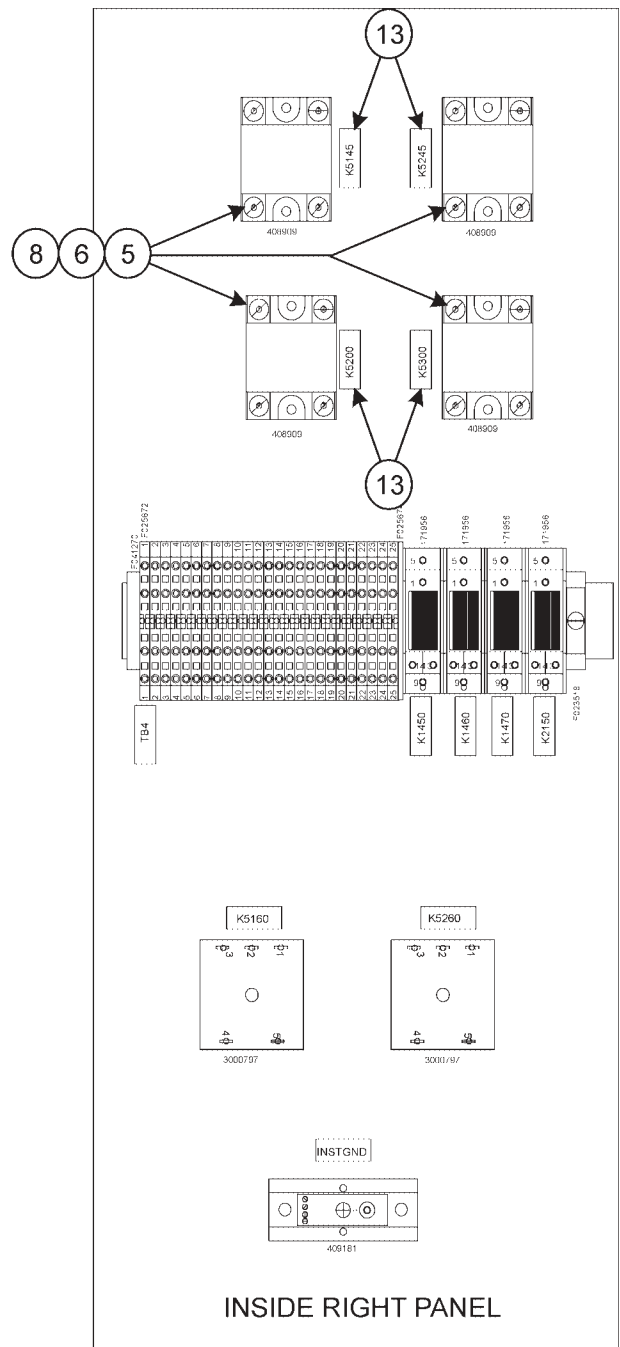
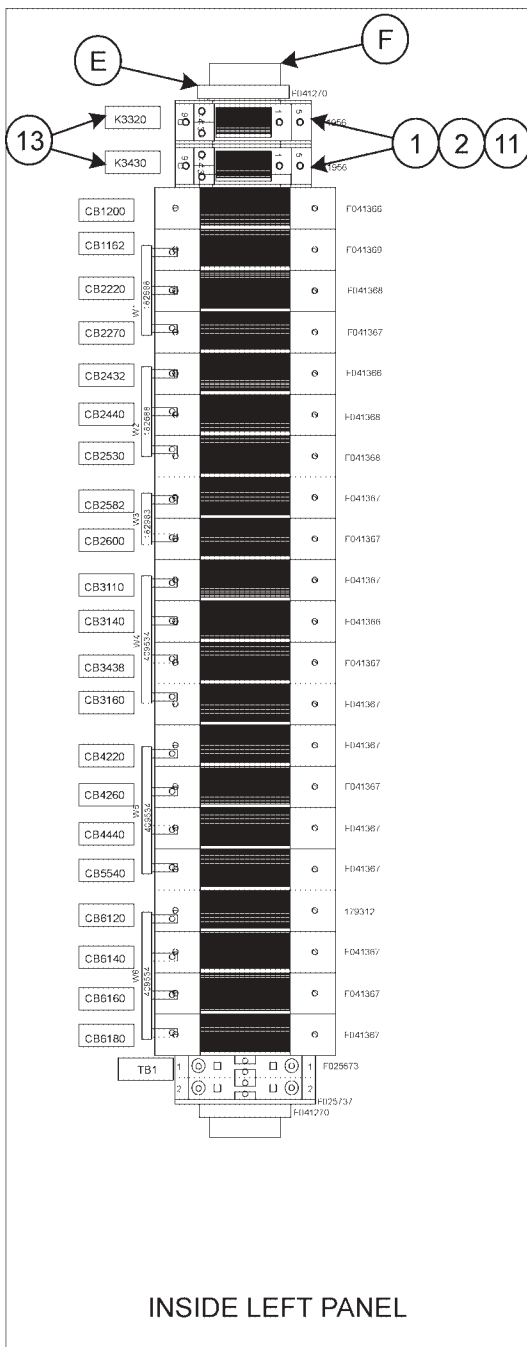
PLC MAIN MODULE w/ TRANSISTOR OUTPUTS INSTALLATION

Relays Installation - See Figure 7 or Figure 8

15. Install the four Solid State Relays (5) in the eight previously drilled holes on the inside right panel of the Main Control Box using eight #10-24 x 1/2" long Screws (6) and Nuts (8).
- Important:** Do not over-tighten the Screws (6) and Nuts (8) or damage may occur to the Relays (5).
16. Remove the Top (A1-26) or Bottom (A1-27 / 28) End Stop (E) from the Mounting Rail (F) on the inside left panel of the Main Control Box.

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**FIGURE 7
A1-26 MAIN CONTROL BOX RELAYS INSTALLATION**



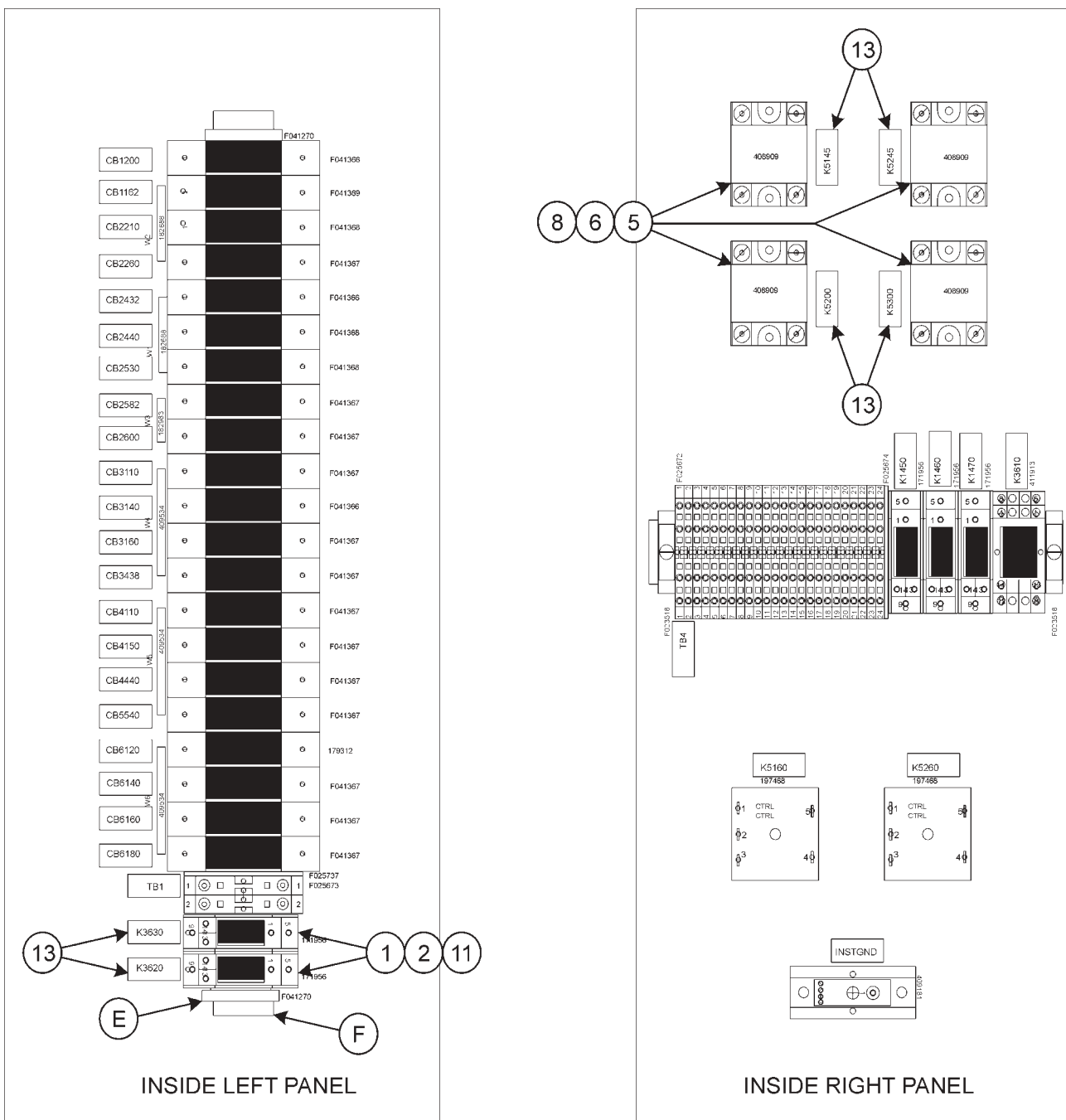
PLC MAIN MODULE w/ TRANSISTOR OUTPUTS INSTALLATION

Relays Installation - See Figure 7 or Figure 8

17. Slide the two Relay Sockets (11) on the Mounting Rail (F). Re-install the Top (A1-26) or Bottom (A1-27 / 28) End Stop (E) on the Mounting Rail (F).
18. Install the two Relay Clips (2) in the Relay Sockets (11). Then install the two Relays (1) in the Relay Sockets (11) and secure with the two Relay Clips (2).
19. Label the new Relays (1 - 5) with their identification number on the Decals (13). Use a ball point pen or permanent marker to label the Decals. Install the Decals next to the Relays.

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**FIGURE 8
A1-27 / 28 MAIN CONTROL BOX RELAYS INSTALLATION**



PLC MAIN MODULE w/ TRANSISTOR OUTPUTS INSTALLATION

Wiring Modification - See Figure 9 and Figure 10 (A1-26) or Figure 11 (A1-27 / 28)

20. Install wire runs 9 thru 32 listed in Figure 9 - Wire Charts.
21. Change wire runs 33 thru 34 listed in Figure 9 - Wire Charts. Use wire Connectors (10) and Wire (15) to lengthen the existing wires as required. Use a ratchet type crimp tool to ensure proper crimping between the connectors and wires.
22. Use Wire Markers (12) to mark all new or changed wire numbers.
23. Use Ty-Raps (7 - 9) as required to keep all wires neat and secure.
24. It is recommended to refer to Service Bulletin 05-008 to check and verify for proper Rail Jacks Lift Timer Relays / Potentiometers Wiring / Compatibility.
25. Swing in the front panel of the Main Control Box to close and then secure with the two thumb screws.

Check Operation

26. Start the machine engine.
27. Pull out the Neutral Start Switch in the Main Control Box to the RUN position to boot-up (turn on) the PLC.
28. Refer to Supplement Manual #1493 for operational information on the new PLC Module.
29. Test different operating functions of the machine to be sure they are operating properly with the new PLC Module and program.
30. If the machine functions are not operating properly, try re-loading the PLC Program. See PLC Program Loading instructions in Supplement Manual #1493.

PLC MAIN MODULE w/ TRANSISTOR OUTPUTS INSTALLATION

FIGURE 9
WIRE CHARTS

RUN	WIRE #	FROM	TO
1. Remove	#3214 / #4312	I/O Q1-2	TB7-8, 9
2. Remove	#3294 / #4322	I/O Q2-2	TB7-12, 13
3. Remove	#5570 (Blue)	TB7-34	Part of #S5130 Cable
4. Remove	#5580 (Blue)	TB7-39	Part of #S5230 Cable
5. Remove	#6140	TB2-28, 29	I/O Q1-1 / Q2-1 / Q3-1
6. Remove	#6160	TB2-30, 31	I/O Q4-1 / Q5-1 / Q6-1
7. Remove	#5210	I/O Q3-2	TB7-38
8. Remove	#5310	I/O Q4-2	TB7-43

RUN	WIRE #	PART NO.	FROM	TO
9. Install	#3620 / #3320	F040161	K3620-14 / K3320-14	I/O Q1
10. Install	#3630 / #3430	F040161	K3630-14 / K3430-14	I/O Q2
11. Install	#000	F040160	K3620-13 / K3320-13	K3630-13 / K3430-13
12. Install	#000	F040160	K3630-13 / K3420-13	TB8-11
13. Install	#6140	F040576	K3620-9 / K3320-9	TB2-28
14. Install	#6140	F040576	K3620-9 / K3320-9	K3630-9 / K3430-9
15. Install	#3214 / #4312	F040161	K3620-5 / K3320-5	TB7-8, 9
16. Install	#3294 / #4322	F040161	K3630-5 / K3430-5	TB7-12, 13
17. Install	#000	F040160	K5145-4	TB8-12
18. Install	#000	F040160	K5245-4	TB8-12
19. Install	#5570	F040161	K5145-1	TB7-34
20. Install	#5580	F040161	K5245-1	TB7-39
21. Install	#6160	F040576	K5145-2	TB2-30
22. Install	#6160	F040576	K5245-2	TB2-30
23. Install	#000	F040160	K5200-4	TB8-13
24. Install	#000	F040160	K5300-4	TB8-13
25. Install	#6160	F040576	K5200-2	TB2-31
26. Install	#6160	F040576	K5300-2	TB2-31
27. Install	#5200	F040161	K5200-3	I/O Q3
28. Install	#5210	F040161	K5200-1	TB7-38
29. Install	#5300	F040161	K5300-3	I/O Q4
30. Install	#5310	F040161	K5300-1	TB7-43
31. Install	#6140	F040576	I/O 24VQ	TB2-29
32. Install	#000	F040160	I/O OVQ	TB8-11

RUN	WIRE #
33. Change *	#5570 (Blue - Part of #S5130 Cable) To #5145 And Install To K5145-3
34. Change *	#5580 (Blue - Part of #S5230 Cable) To #5245 And Install To K5245-3
	* Use F022332 Connector And F040161 Wire To Lengthen Wire As Required

NOTES: Black = Models All
Blue = Models A1-27 / 28 Only
Red = Models A1-26 Only

PLC MAIN MODULE w/ TRANSISTOR OUTPUTS PARTS LIST

ITEM	PART NO	DESCRIPTION	QTY
	203460	PLC MAIN MODULE w/ TRANSISTOR OUTPUTS.	1
1	171956	Relay	2
2	199769	Clip, Relay	4
3	203448	Memory Module	1
4	203458	Module, Controller	1
5	408909	Relay, Solid State.	4
6	F010502	Round Head Machine Screw, #10-24 x 1/2"	8
7	F016578	Ty-Rap	10
8	F018029K	Hex Elastic Stop Nut, #10-24	8
9	F018229	Ty-Rap	20
10	F022332	Butt Connector	2
11	F023445	Relay Socket	2
12	F040133	Wire Marker	52
13	F040134	Decal	6
14	F040160	Wire, 16 Ga Black	25 ft
15	F040161	Wire, 16 Ga White	30 ft
16	F040576	Wire, 16 Ga Red	25 ft
17	BUL001493	Supplement Manual	1

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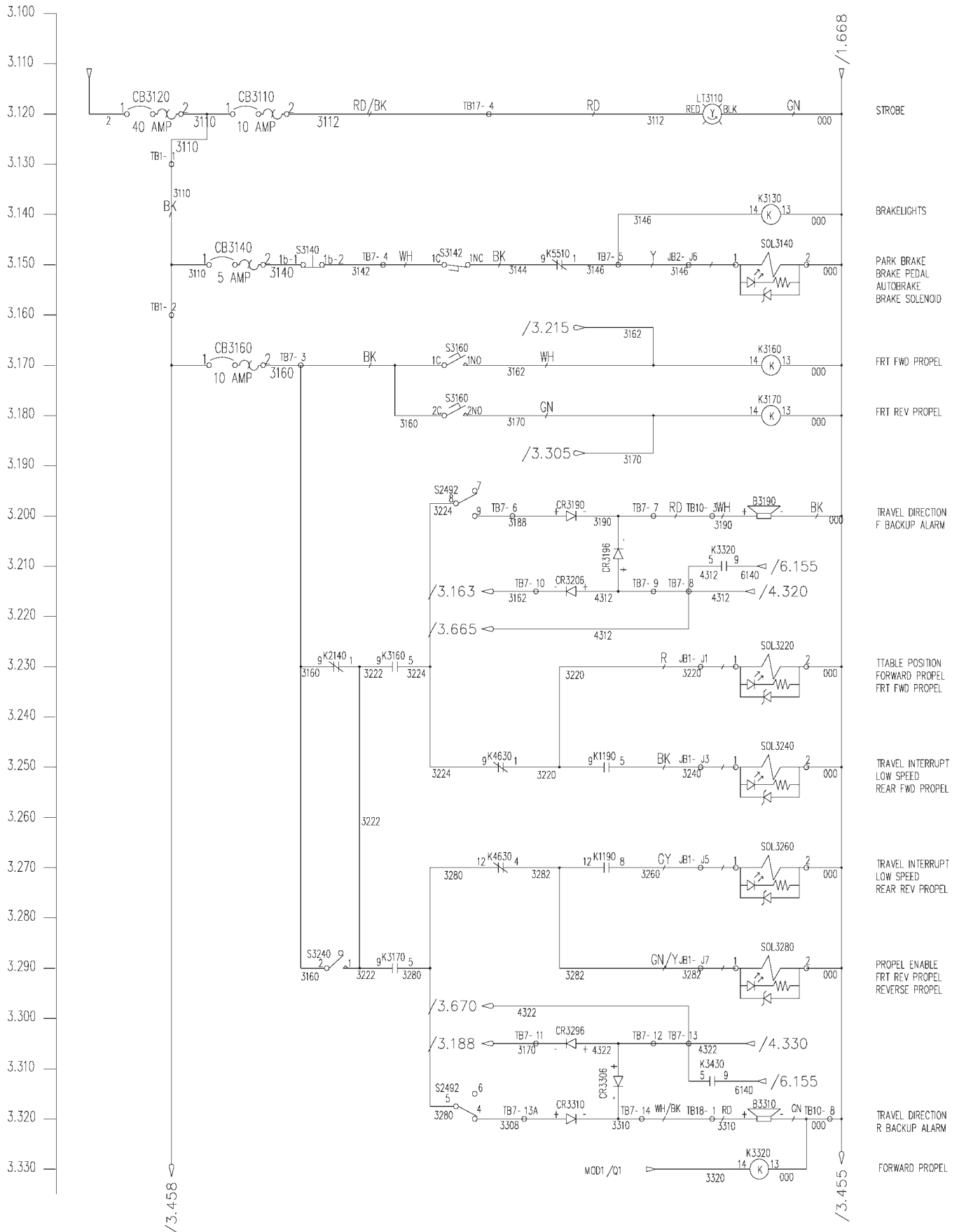
415 North Main Street
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 Fax: (507) 235-7370

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200 South Jackson Road
 Ludington, MI
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 Fax: (231) 843-1644

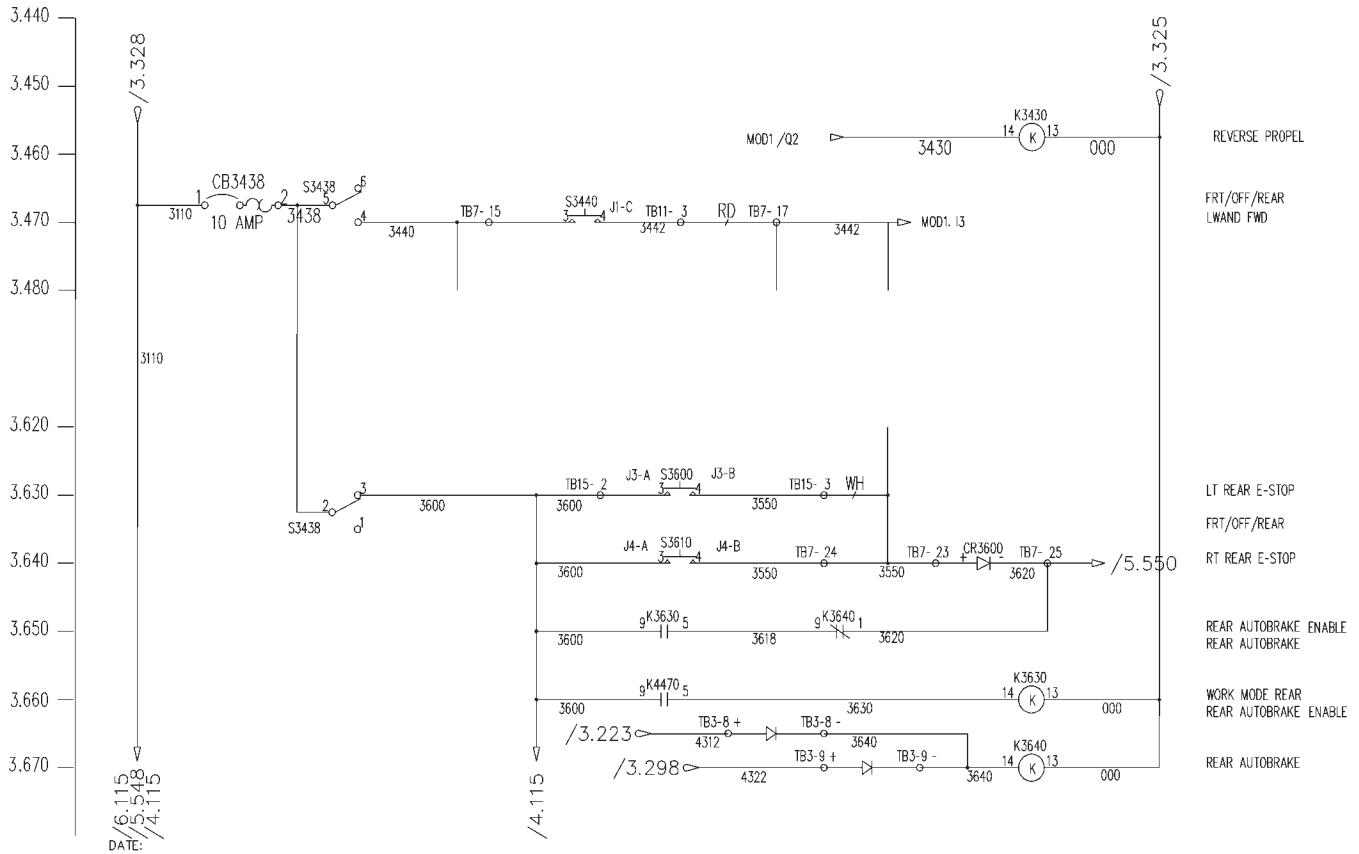
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FIGURE 10.1
A1-26 ELECTRICAL SCHEMATIC - 1 OF 3



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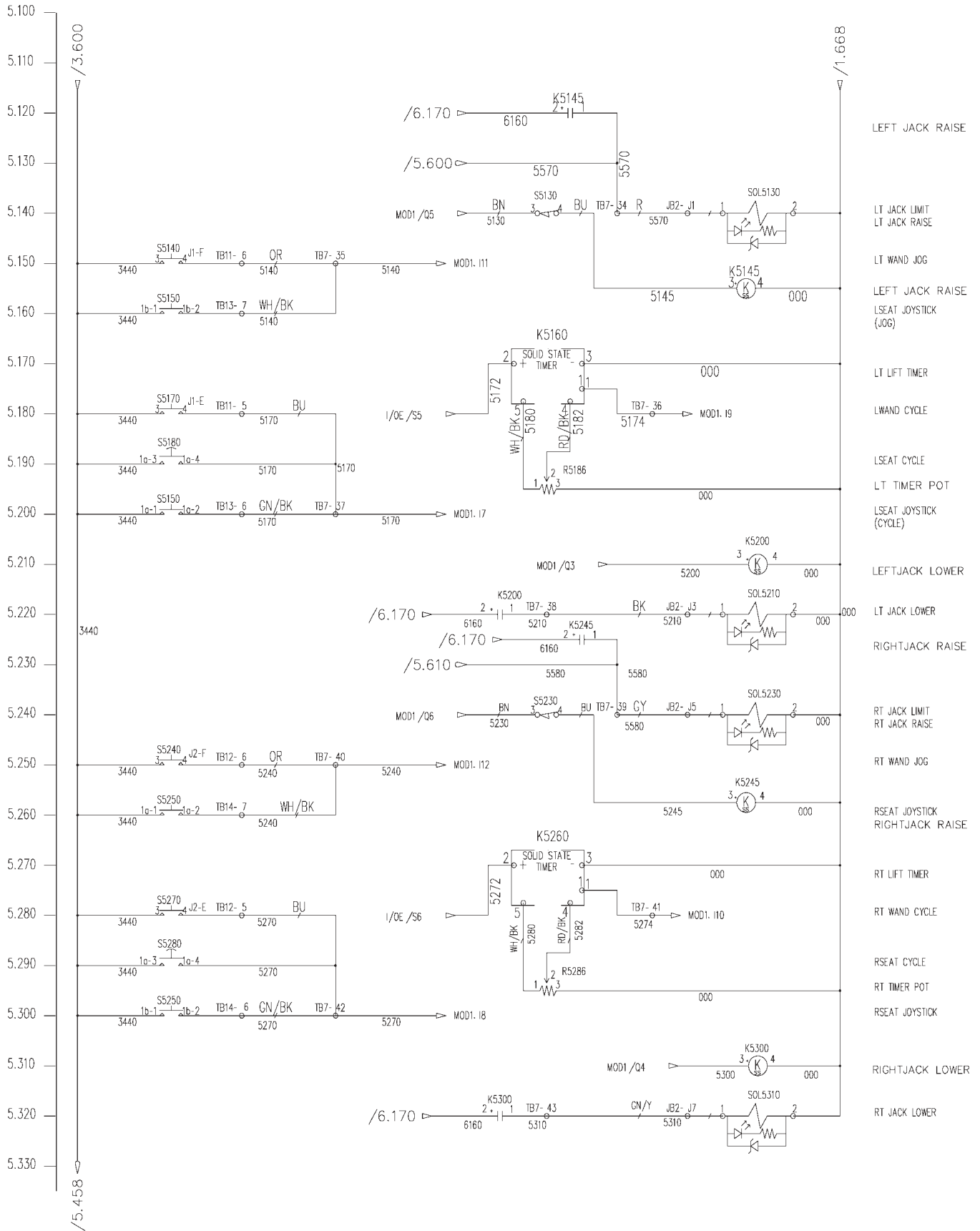
FIGURE 10.2
A1-26 ELECTRICAL SCHEMATIC - 2 OF 3



RELAYS							
	K1110	/1.120	STARTER BENDIX	+ENG	STARTER		
	K1190	/1.203	/3.250	/3.270	LOW SPEED	CTRL	1
	K1210	/1.220	/6.130		PLC POWER	CTRL	
	K1300		/1.125		STARTER RELAY		1
	K1450	/1.480	/1.455		THROTTLE LOWER	CTRL	
	K1460	/1.490	/1.463		THROTTLE HOLD	CTRL	
	K1470	/1.500	/1.470		THROTTLE RAISE	CTRL	
	K2140	/2.150	/3.230		TTABLE POSITION	CTRL	
	K2180	/2.190	/2.190	/2.170	ALARM SILENCE	CTRL	
	K2150	/2.160	/1.568		REMOTE SHUTDOWN	CTRL	
	K2220	/2.230	/2.240	/2.260	WORKLIGHTS	CTRL	1
	K2430	/1.140	/2.460		EMERGENCY PUMP	MISC	
	K3130	/3.140	/2.470		BRAKELIGHTS	CTRL	1
	K3160	/3.170	/3.230		FRT FWD PROPEL	CTRL	
	K3170	/3.180	/3.290		FRT REV PROPEL	CTRL	
	K3320	/3.330	/3.210		FORWARD PROPEL	CTRL	
	K3430	/3.458	/3.313		REVERSE PROPEL	CTRL	
	K3520	/3.550	/2.660		WANDS HORN	CTRL	
	K3560	/3.590	/3.580	/3.570	E-STOP LATCH	CTRL	
	K3630	/3.660	/3.650		REAR AUTOBRAKE	CTRL	
	K3640	/3.670	/3.650		REAR AUTOBRAKE	CTRL	
	K4110	/4.120	/4.230		LT REAR RAISE	+RBOX	
	K4120	/4.130	/4.250		LT REAR LOWER	+RBOX	
	K4130	/4.140	/4.320		LT REAR FWD	+RBOX	
	K4140	/4.150	/4.330		LT REAR REV	+RBOX	
	K4150	/4.160	/4.270		RT REAR RAISE	+RBOX	
	K4160	/4.170	/4.290		RT REAR LOWER	+RBOX	
	K4170	/4.180	/4.320		RT REAR FWD	+RBOX	
	K4180	/4.190	/4.330		RT REAR REV	+RBOX	
	K4190	/4.200	/4.310		REAR CARR LOWER	+RBOX	
	K4470	/4.500	/3.660		WORK MODE REAR	CTRL	
	K4580	/4.610	/4.660		BUMPER TRIPPED	CTRL	
	K4620	/4.650	/4.650		INTERRUPT LATCH	CTRL	
	K4630	/4.660	/3.250	/3.270	TRAVEL INTERRUPT	CTRL	1
	K5145	/5.155	/5.120		LEFT JACK RAISE	CTRL	
	K5160	5171			LT LIFT TIMER	CTRL	
	K5200	/5.210	/5.220		LEFTJACK LOWER	CTRL	
	K5245	/5.258	/5.225		RIGHTJACK RAISE	CTRL	
	K5260	5271			RT LIFT TIMER	CTRL	
	K5300	/5.310	/5.320		RIGHTJACK LOWER	CTRL	
	K5440	/5.470	/5.630		LT CLAMP OPEN /FLOAT	CTRL	
	K5450	/5.480	/5.650		RT CLAMP OPEN /FLOAT	CTRL	
	K5470	/5.500	/5.600		LT JACK RAISE	CTRL	
	K5490	/5.520	/5.610		RT JACK RAISE	CTRL	
	K5500	/5.530	/5.570		STABILIZER	CTRL	
	K5510	/5.540	/3.150		AUTOBRAKE	CTRL	

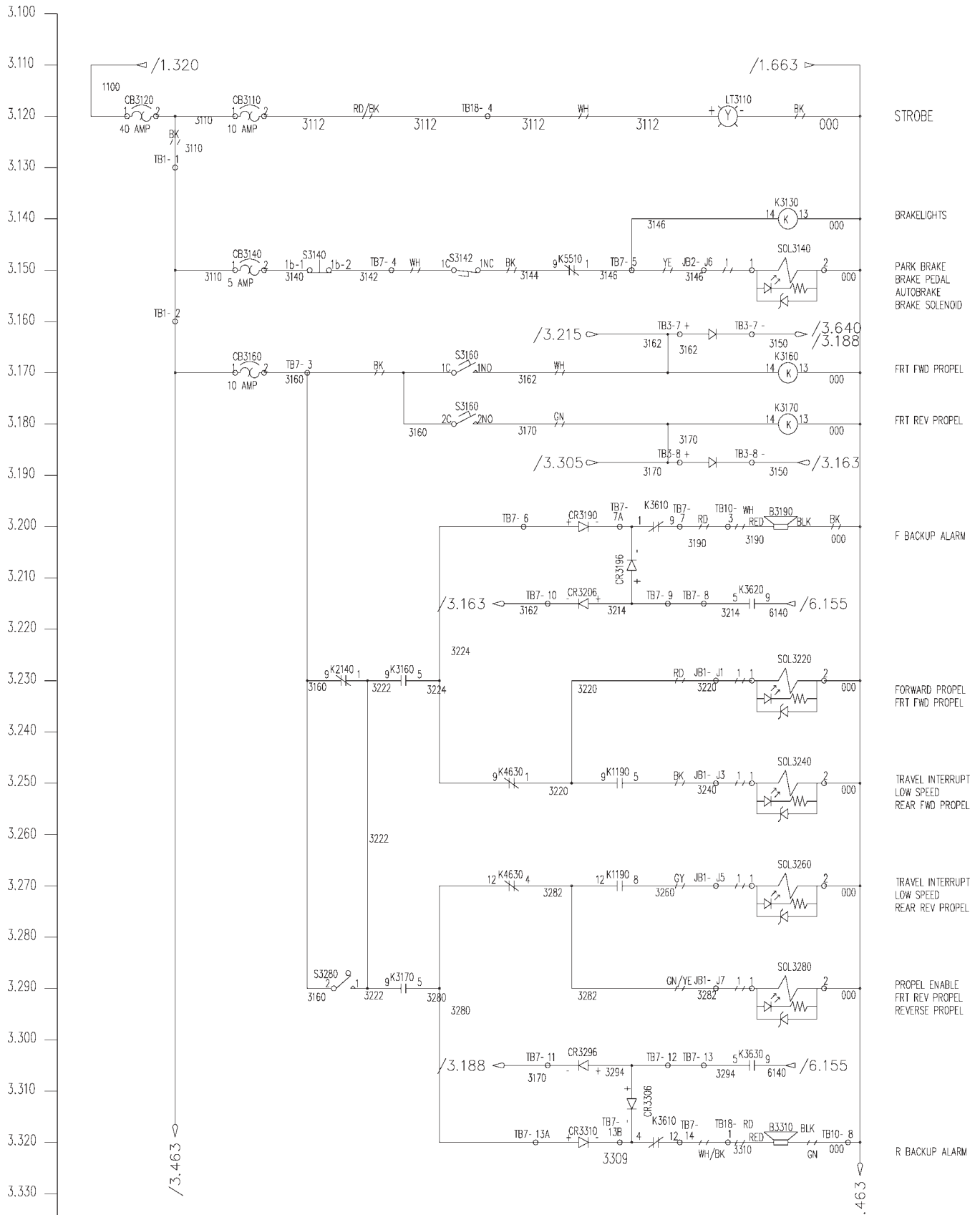
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FIGURE 10.3
A1-26 ELECTRICAL SCHEMATIC - 3 OF 3



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FIGURE 11.1
A1-27 / 28 ELECTRICAL SCHEMATIC - 1 OF 3



024488-3B

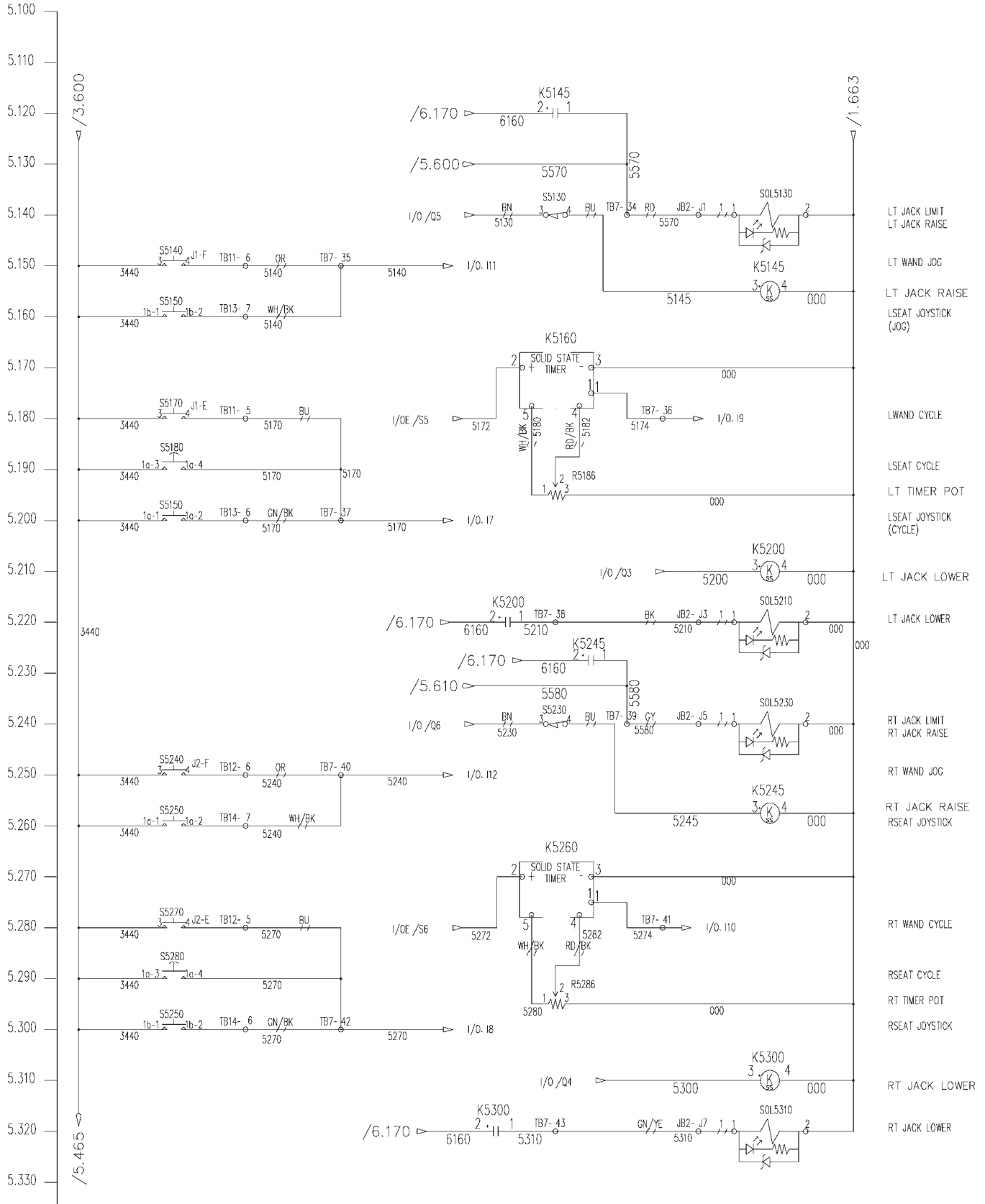
FIGURE 11.2
A1-27 / 28 ELECTRICAL SCHEMATIC - 2 OF 3



RELAYS									
K1110	/1.120	STARTER	BENDIX	+ENG	STARTER				
K1190	/1.200	/3.250	/3.270		LOW SPEED		CTRL	1	
K1200	/1.210	/6.130			PLC POWER		CTRL		
K1450	/1.480	/1.458			THROTTLE LOWER		CTRL		
K1460	/1.493		/1.465		THROTTLE HOLD		CTRL		
K1470	/1.505	/1.473			THROTTLE RAISE		CTRL		
K2140	/2.150		/3.230		ALARM SILENCE		CTRL		
K2170	/2.180	/2.180	/2.160		TTABLE POSITION		CTRL		
K2210	/2.220	/2.230	/2.250		WORKLIGHTS		CTRL	1	
K2430	/1.140	/2.460			EMERGENCY PUMP		CTRL		
K3130	/3.140		/2.470		BRAKELIGHTS		CTRL	1	
K3160	/3.170	/3.230			FRT FWD PROPEL		CTRL		
K3170	/3.180	/3.290			FRT REV PROPEL		CTRL		
K3520	/3.550	/2.660			WANDS HORN		CTRL		
K3560	/3.590	/3.580	/3.570		E-STOP LATCH		CTRL		
K3610	/3.640		/3.200	/3.320	MOTION ALARM TIMER		CTRL		
K3620	/3.650	/3.215			FWD PROPEL BUFFER		CTRL		
K3630	/3.660	/3.305			REV PROPEL BUFFER		CTRL		
K4580	/4.610		/4.660		BUMPER TRIPPED		CTRL		
K4620	/4.650	/4.650			INTERRUPT LATCH		CTRL		
K4630	/4.660		/3.250	/3.270	TRAVEL INTERRUPT		CTRL	1	
K5145	/5.155	/5.120			LT JACK RAISE		CTRL		
K5200	/5.210	/5.220			LT JACK LOWER		CTRL		
K5245	/5.258	/5.228			RT JACK RAISE		CTRL		
K5300	/5.310	/5.320			RT JACK LOWER		CTRL		
K5440	/5.470	/5.630			LT CLAMP OPEN /FLOAT		CTRL		
K5450	/5.480	/5.650			RT CLAMP OPEN		CTRL		
K5470	/5.500	/5.600			LT JACK RAISE		CTRL		
K5490	/5.520	/5.610			RT JACK RAISE		CTRL		
K5500	/5.530	/5.570			STABILIZER		CTRL		
K5510	/5.540		/3.150		AUTOBRAKE		CTRL		
K5160	/5.170				L JACKS TIMER		CTRL	3000797	
K5260	/5.270				R JACKS TIMER		CTRL	3000797	

024488-5A

FIGURE 11.3
A1-27 / 28 ELECTRICAL SCHEMATIC - 3 OF 3





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W141 SERIES A1 RAIL LIFTER SUPPLEMENT OPERATION AND SERVICE MANUAL

**THIS SUPPLEMENT MANUAL IS FOR MACHINES EQUIPPED WITH:
MOELLER EASY 721-DC-TC PROGRAMMABLE LOGIC CONTROLLER**

ISSUED 7 - 2005

BULLETIN 1493

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- **THIS MANUAL CONTAINS VITAL INFORMATION FOR THE SAFE USE AND EFFICIENT OPERATION OF THIS MACHINE. CAREFULLY READ THIS MANUAL BEFORE USING THE MACHINE. FAILURE TO ADHERE TO THE INSTRUCTIONS COULD RESULT IN BODILY INJURY AND/OR PROPERTY DAMAGE.**

A SUPPLEMENT MANUAL MUST REMAIN WITH THE MACHINE. Additional or replacement manuals may be obtained by calling or writing Harsco Track Technologies, Harsco Corporation.

This Supplement Manual must be used in conjunction with #1375 Operation and Service Manual.

All information, illustrations and specifications in this manual are based on the latest information available at the time of publication. Harsco Track Technologies, Harsco Corporation reserves the right to make changes at any time without notice.

FACILITY LOCATIONS

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CALIFORNIA

Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

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PLC Operation

PLC (Programmable Logic Controller) - See Figure 2.1-1

The machine is equipped with a micro Programmable Logic Controller (PLC) located inside of the Main Control Box. The PLC is an electronic device that controls the functions of the rail jacks. The PLC has a memory chip that contains the operating program (a series of instructions). The PLC uses the program to execute specific functions; such as on and off valve control, and valve sequencing.

2.1

The micro PLC consists of a Input / Output (I/O) Main Module (1) on the left and an Input / Output Expansion (I/OE) Module (2) on the right.

(1) I/O MAIN MODULE - See Figure 2.1-1

The Input / Output Main Module contains the following:

(1.1) Status LED - See Figure 2.1-1

LED OFF: No power.

LED ON STEADY: Power is present and module is operating in the STOP Mode.

LED FLASHING: Power is present and module is operating in the RUN Mode.

(1.2) Program Memory Chip - See Figure 2.1-1

The program memory chip contains the operating program.

Note: To remove the program chip to install a new program chip with a new operating program, see PLC Program Update.

(1.3) Program Version - See Figure 2.1-1

The Program Version (W141a1_8c) is written on the decal.

Note: The Program Version will need to be known when contacting the factory for assistance.

(1.4) Operating Buttons - See Figure 2.1-1

The operating buttons are used to toggle between the menu screens, select the menu screen, change and/or enter values.

Note: See Operating Button Functions for operating information.

PLC Operation

(1) I/O MAIN MODULE - See Figure 2.1-1

(1.5) LCD Display - See Figure 2.1-1

The LCD displays the menu screens.

Note: See Status Menu Flow Chart for the Main Module and Expansion Module status menu screens.

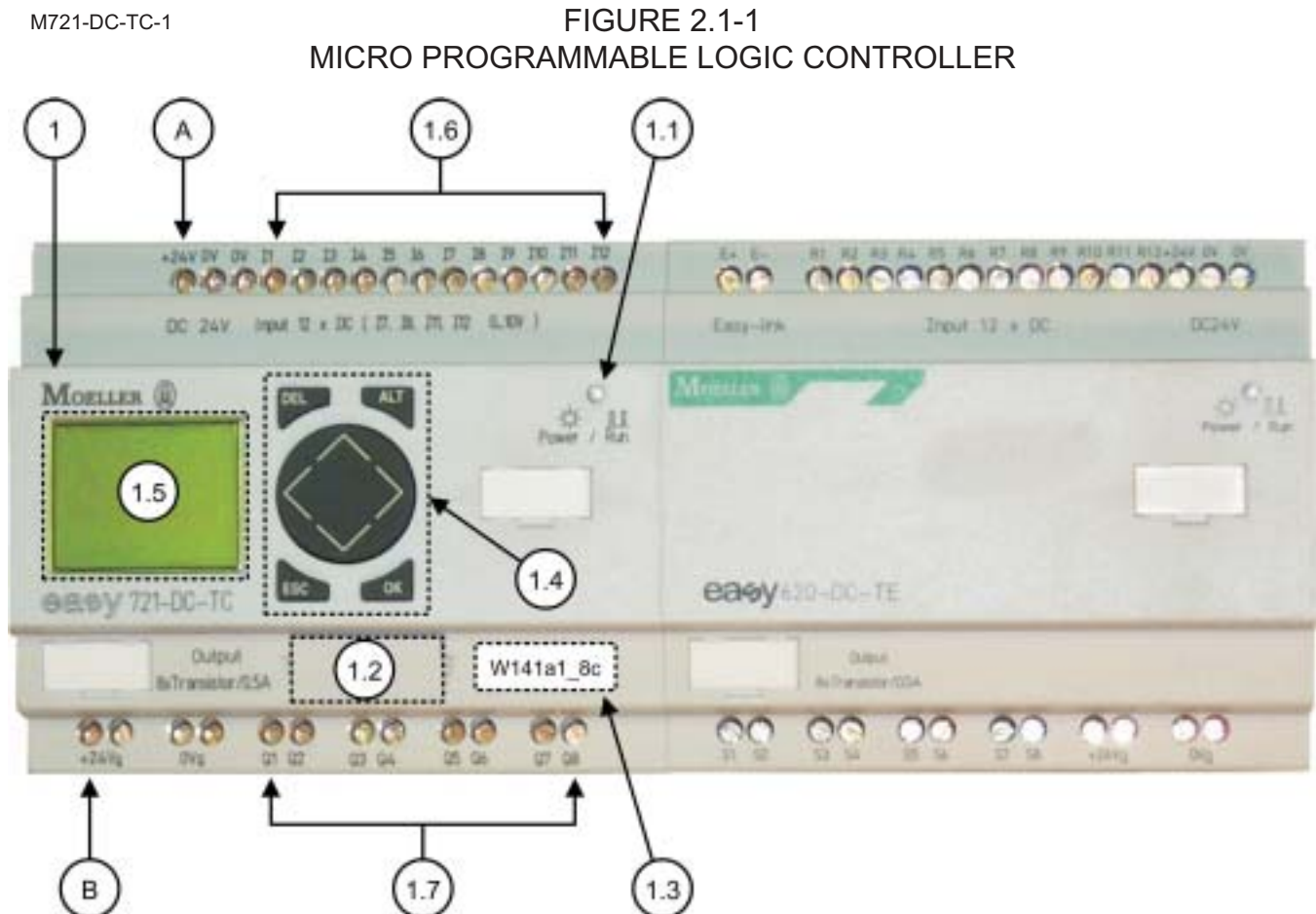
(1.6) Inputs - See Figure 2.1-1

There are twelve input terminals labeled I1 thru I12. +24 VDC power is supplied for each input at terminal +24V (A).

(1.7) Outputs - See Figure 2.1-1

There are eight output terminals labeled Q1 thru Q8. All outputs are transistor / 0.5 amp. +24 VDC power is supplied for each output at terminal +24V_Q (B).

2.1



PLC Operation

(2) I/OE EXPANSION MODULE - See Figure 2.1-2

The Input / Output Expansion Module contains the following:

(2.1) Status LED - See Figure 2.1-2

LED OFF: No power.

LED ON STEADY: Power is present and module is operating in the STOP Mode.

LED FLASHING: Power is present and module is operating in the RUN Mode.

2.1

(2.2) Inputs - See Figure 2.1-2

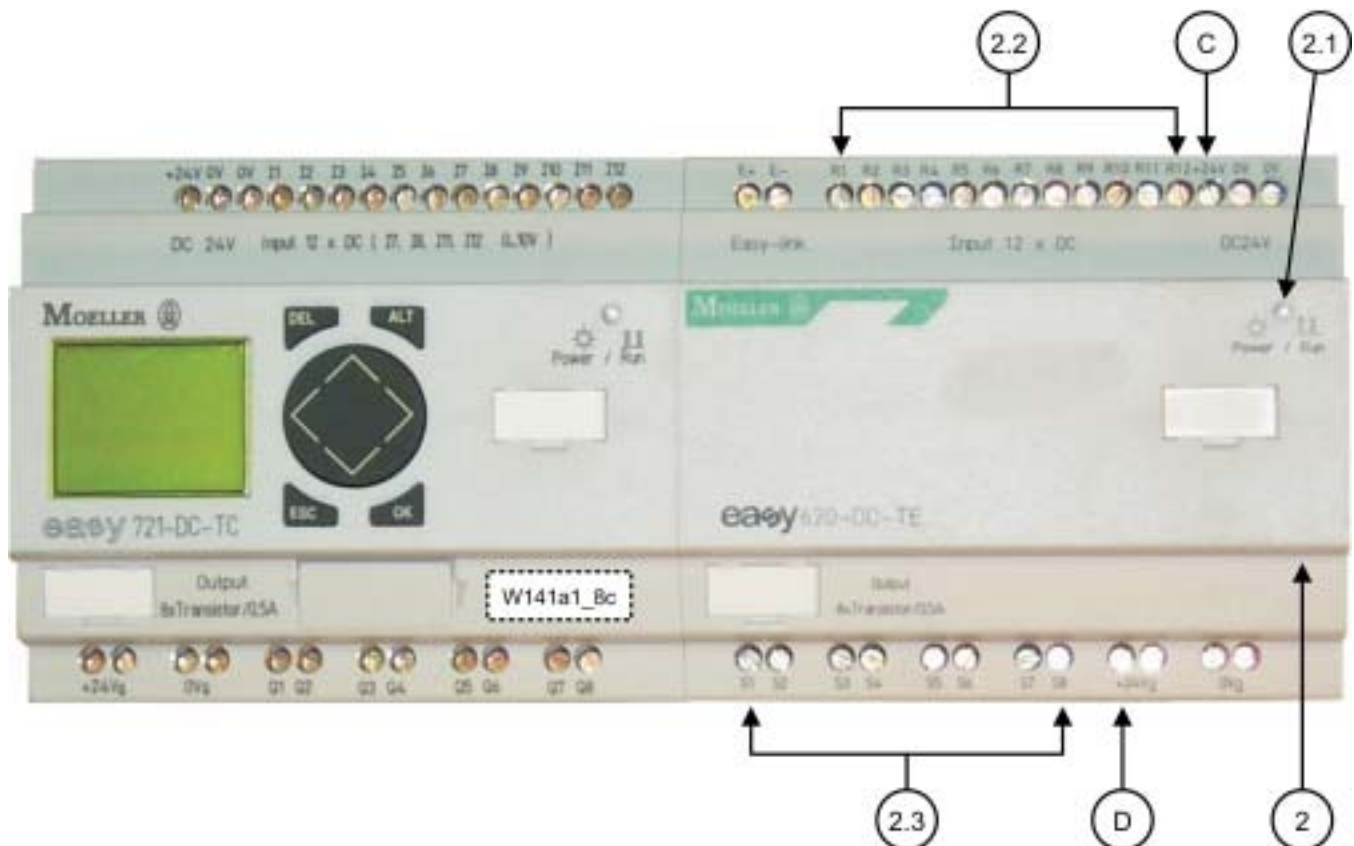
There are twelve input terminals labeled R1 thru R12. +24 VDC power is supplied for each input at terminal +24V (C).

(2.3) Outputs - See Figure 2.1-2

There are eight output terminals labeled S1 thru S8. All outputs are transistor / 0.5 amp. +24 VDC power is supplied for each output at terminal +24V_Q (D).

M721-DC-TC-2

FIGURE 2.1-2
MICRO PROGRAMMABLE LOGIC CONTROLLER



PLC Operation

SE02A125A-2

FIGURE 2.1-3
OPERATING BUTTON FUNCTIONS



- DEL:** Delete Object In Circuit Diagram
- ALT:** Special Functions In Circuit Diagram
Status Display
Toggle Between Date / Time Displays
- CURSOR BUTTONS:**
 - ^ v Change Menu Item
Change Value
 - < > Change Position
- OK:** Next Menu Level
Select Menu Item
Save Entry
- ESC:** Previous Menu Level
Cancel Entry Since Last OK
Retain Previous Value



DEL and ALT: Show System Menu

2.1

SE02A122A-2

FIGURE 2.1-4
SELECTING OR TOGGING BETWEEN MENUS



Cursor ^ v

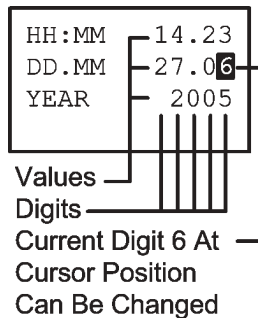


Select or Toggle

NOTE:
Flashing Menus Are Shown **HI-LIGHTED** In Screens

SE02A124A-2

FIGURE 2.1-5
SELECTING VALUES



Select Value ^ v
Select Digit < >
Change Value At Digit ^ v



Store Entries



Retain Previous Value

NOTE:
Flashing Menus Are Shown **HI-LIGHTED** In Screens

PLC Operation

SE02A123A-2

FIGURE 2.1-6
CURSOR DISPLAY

HH:MM	14:23
DD.MM	27.06
YEAR	2005

Cursor Flashes:
Full Cursor █/:
Move Cursor With < >

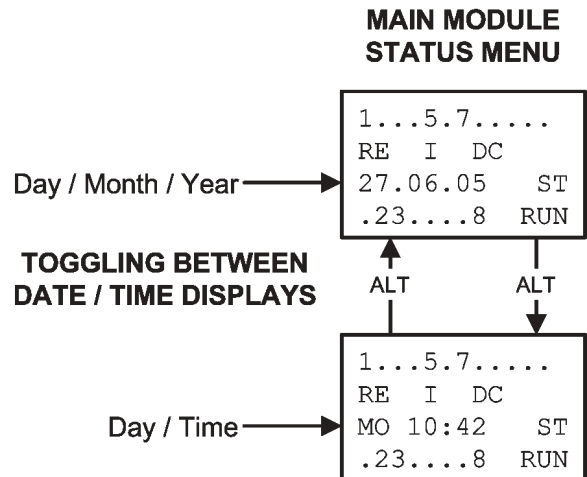
HH:MM	14:23
DD.MM	27.06
YEAR	2005

Value M/M
Change Positions With < >
Change Values With ^ v

2.1

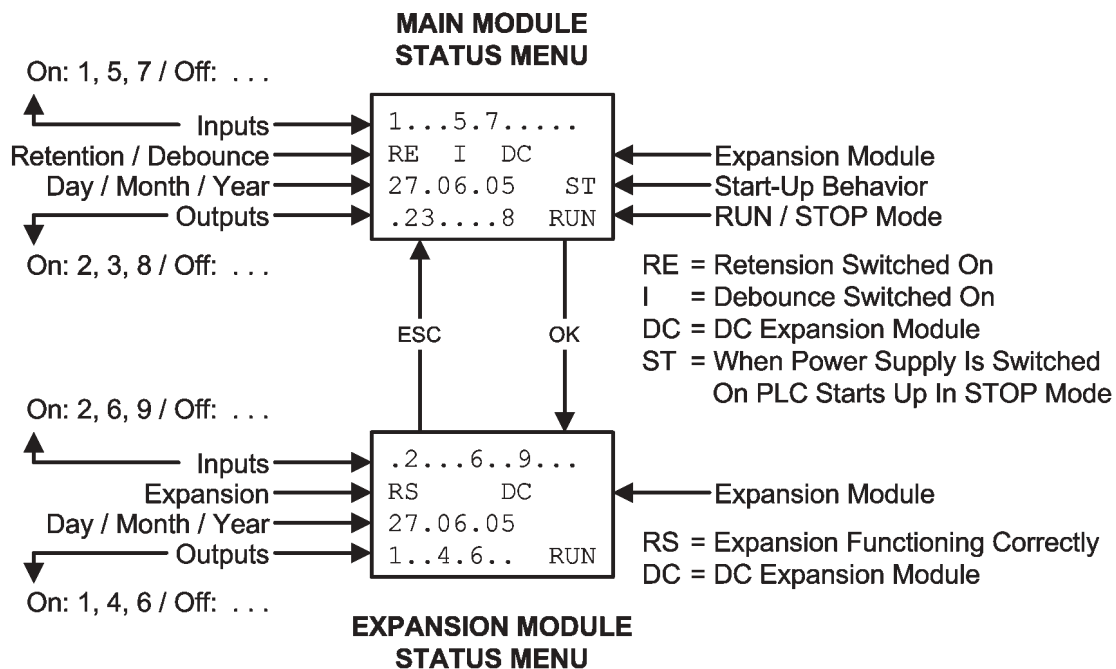
NOTE:
Flashing Menus Are Shown **HI-LIGHTED** In Screens

FIGURE 2.1-7
DATE / TIME DISPLAYS



SE02A120A-2

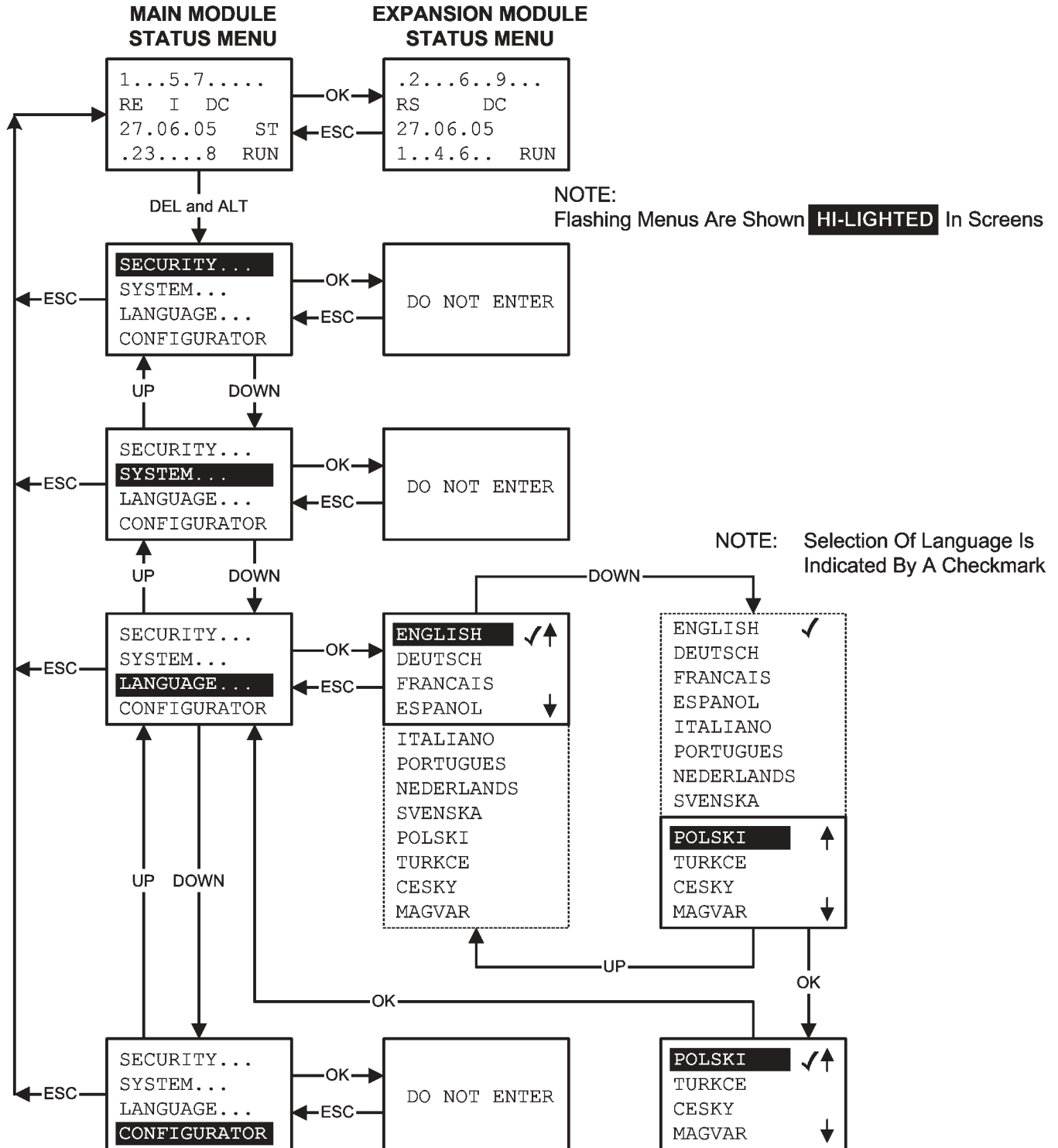
FIGURE 2.1-8
STATUS MENU FLOW CHART



PLC Operation

SE02A127A-2

FIGURE 2.1-9
SYSTEM MENU FLOW CHART

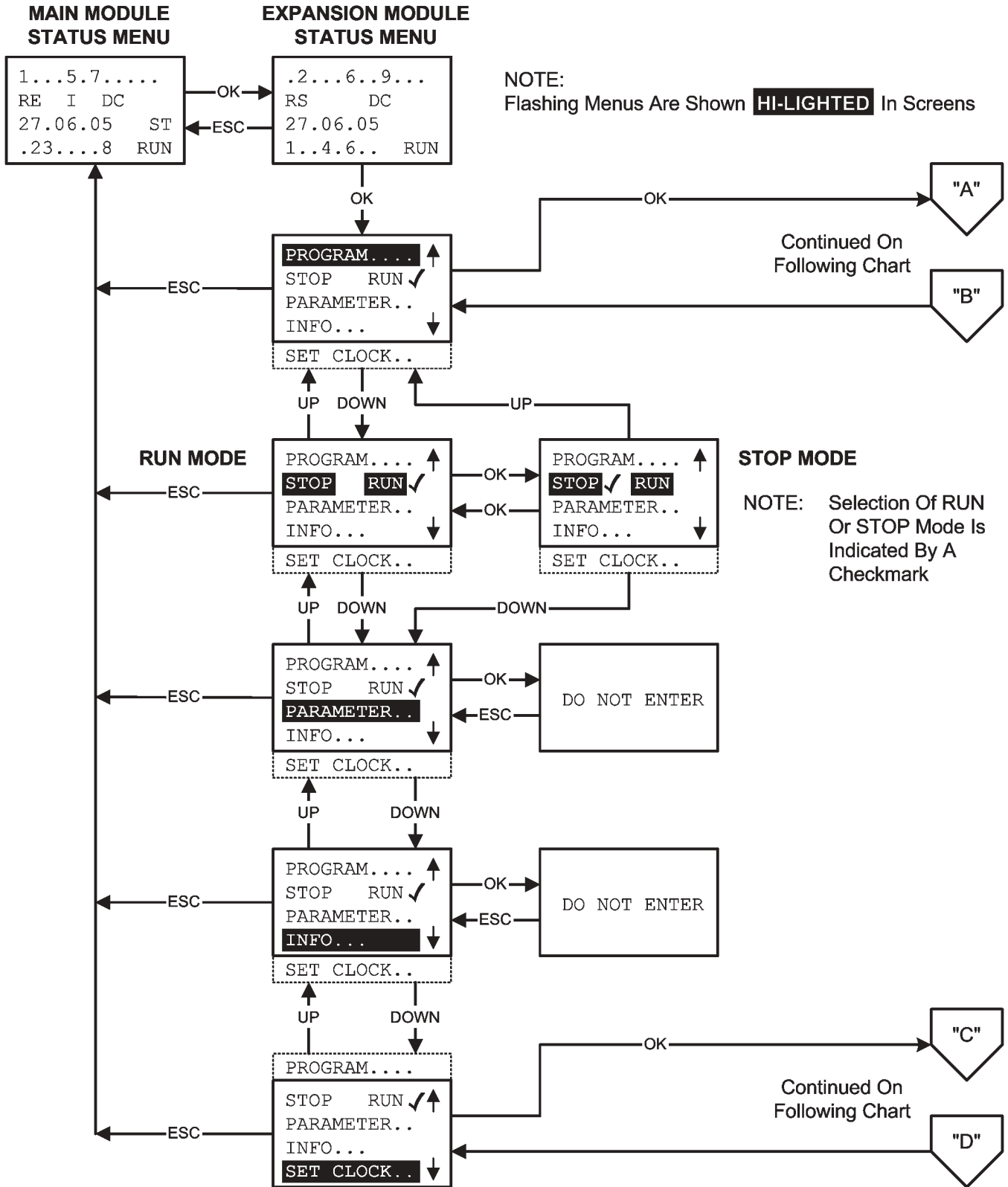


PLC Operation

SE02A121A-11

FIGURE 2.1-10
MAIN MENU FLOW CHART
Chart 1 of 3

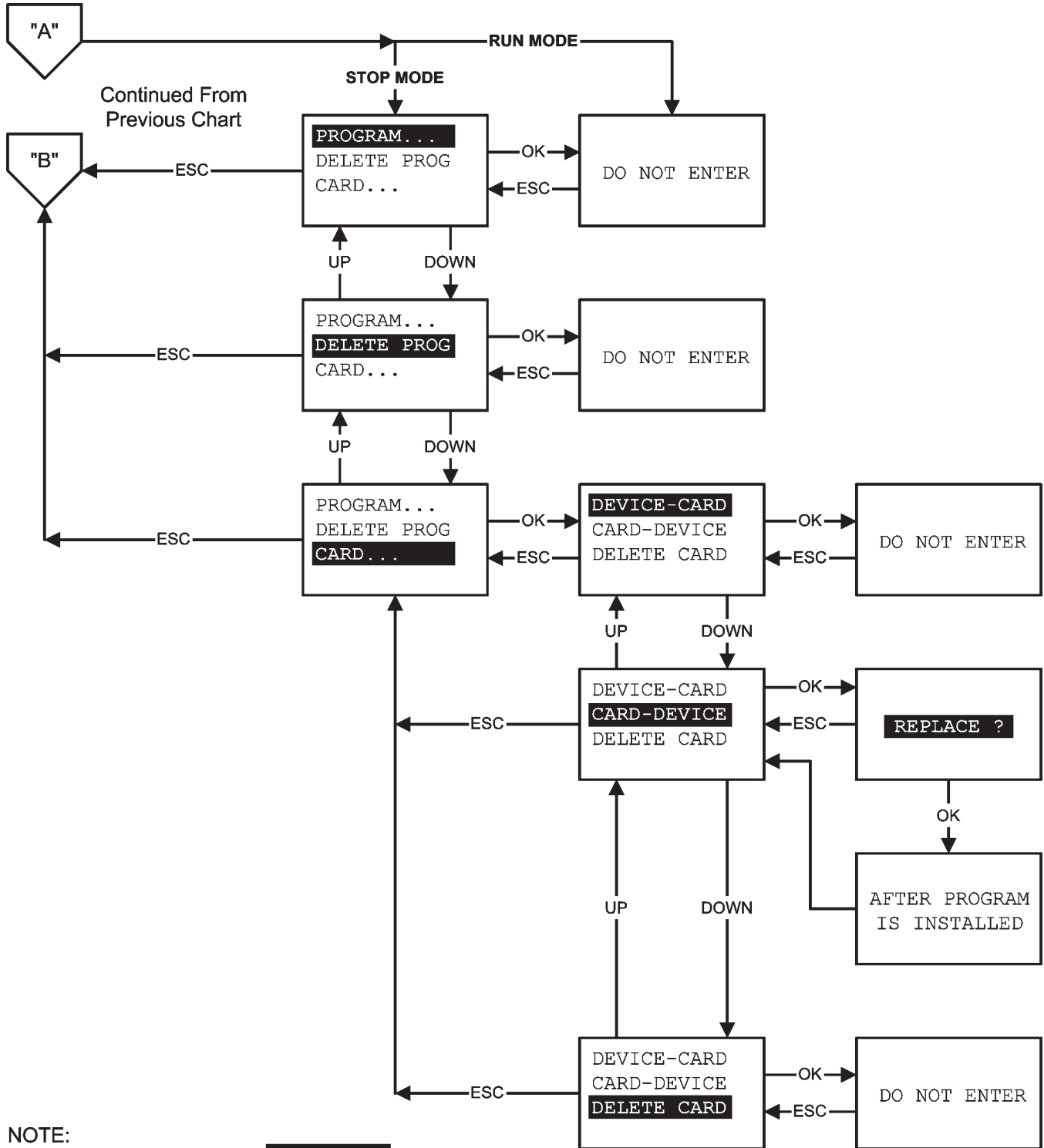
2.1



PLC Operation

SE02A121A-12

FIGURE 2.1-10
MAIN MENU FLOW CHART
Chart 2 of 3



2.1

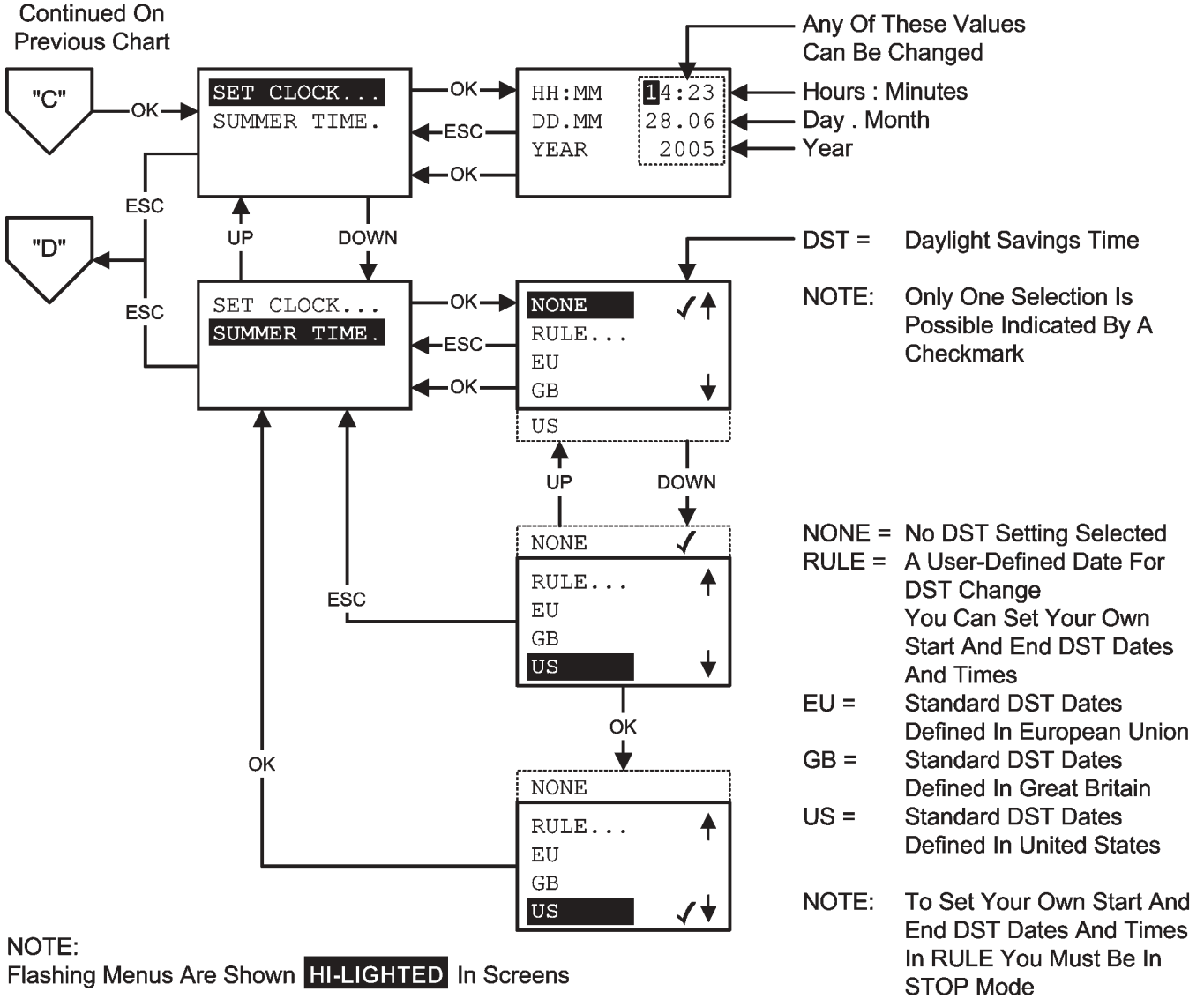
NOTE:
Flashing Menus Are Shown **HI-LIGHTED** In Screens

PLC Operation

SE02A121A-13

FIGURE 2.1-10
MAIN MENU FLOW CHART
Chart 3 of 3

2.1



PLC Operation

PLC BOOT UP / OPERATION

1. Pull out the Neutral Start Switch in the Main Control Box to the RUN position to boot up (turn on) the PLC.



- **BE SURE ALL PERSONS ARE CLEAR OF MACHINE BEFORE PULLING OUT NEUTRAL START SWITCH TO ENABLE HYDRAULIC SYSTEM AT FULL SYSTEM PRESSURE AND TO BOOT UP PLC. FAILURE TO COMPLY COULD RESULT IN BODILY INJURY AND/OR PROPERTY DAMAGE.**

2. After the PLC has successfully booted up (approximately 5 - 10 seconds), the Main Module Status Menu will be displayed on the LCD Display.
3. In order for the machine functions to operate, the Status LED on the Main Module must be FLASHING to indicate that the PLC is operating in the RUN Mode.

Note: If the Status LED is ON Steady, the PLC is operating in the STOP Mode. The STOP Mode must be changed to the RUN Mode. Go to Step 4 and/or see Figure 2.1-10 - Main Menu Flow Chart to change the PLC to the RUN Mode.

4. To change the PLC from the STOP Mode to the RUN Mode:
 - 4.1 With the Main Module Status Menu displayed, press "OK" until the Main Menu is displayed.
 - 4.2 Scroll up / down until "STOP / RUN" is flashing. Press "OK" until the checkmark is next to "RUN".
 - 4.3 Press "ESC" until the Main Module Status Menu is displayed.
 - 4.4 Verify that the Status LED on the Main Module is FLASHING to indicate that the PLC is operating in the RUN Mode.

PLC Operation

PLC PROGRAM UPDATE

2.1

1. It may be necessary to install a new program memory chip to update the program.
2. Push in the Neutral Start Switch in the Main Control Box to the START position to shut off the PLC.
3. Remove the existing program chip from the Main Module. Use a small flat-bladed screw-driver or other similar device to pry up both sides of the chip at the same time to prevent damage to the mounting socket.
4. Install the new program chip in the Main Module. Align the mounting pins on the bottom of the chip with the mounting socket and push the program chip in until it is firmly seated.
5. Be sure to record the new program version number on the decal next to the program chip.



- **BE SURE ALL PERSONS ARE CLEAR OF MACHINE BEFORE PULLING OUT NEUTRAL START SWITCH TO ENABLE HYDRAULIC SYSTEM AT FULL SYSTEM PRESSURE AND TO BOOT UP PLC. FAILURE TO COMPLY COULD RESULT IN BODILY INJURY AND/OR PROPERTY DAMAGE.**

6. Pull out the Neutral Start Switch in the Main Control Box to the RUN position to boot up (turn on) the PLC.
7. After the PLC has successfully booted up (approximately 5 - 10 seconds), the Main Module Status Menu will be displayed on the LCD Display.
8. In order to load the new program, the Status LED on the Main Module must be ON Steady to indicate that the PLC is operating in the STOP Mode.

Note: If the Status LED is FLASHING, the PLC is operating in the RUN Mode. The RUN Mode must be changed to the STOP. Go to Step 9 and/or see Figure 2.1-10 - Main Menu Flow Chart to change the PLC to the STOP Mode.

9. To change the PLC from the RUN Mode to the STOP Mode:
 - 9.1 With the Main Module Status Menu displayed, press "OK" until the Main Menu is displayed.
 - 9.2 Scroll up / down until "STOP / RUN" is flashing. Press "OK" until the checkmark is next to "STOP".
 - 9.3 Press "ESC" until the Main Module Status Menu is displayed.
 - 9.4 Verify that the Status LED on the Main Module is ON Steady to indicate that the PLC is operating in the STOP Mode.

PLC Operation

PLC PROGRAM UPDATE

10. To install the new program:
 - 10.1 With the Main Module Status Menu displayed, press "OK" until the Main Menu is displayed.
 - 10.2 Scroll up / down until "PROGRAM" is flashing. Press "OK" to enter the next screen.
 - 10.3 Scroll up / down until "CARD" is flashing. Press "OK" to enter the next screen.
 - 10.4 Scroll up / down until "CARD-DEVICE" is flashing. Press "OK" to enter the next screen.
 - 10.5 The "REPLACE ?" screen will be displayed. Press "OK" to install the new program.
 - 10.6 After the new program is installed, the "CARD-DEVICE" screen will be displayed again.
 - 10.7 Press "ESC" until the Main Module Status Menu is displayed.
11. In order for the new program to run, the Status LED on the Main Module must be FLASHING to indicate that the PLC is operating in the RUN Mode.

Note: If the Status LED is ON Steady, the PLC is operating in the STOP Mode. The STOP Mode must be changed to the RUN Mode. Go to Step 12 and/or see Figure 2.1-10 - Main Menu Flow Chart to change the PLC to the RUN Mode.
12. To change the PLC from the STOP Mode to the RUN Mode:
 - 12.1 With the Main Module Status Menu displayed, press "OK" until the Main Menu is displayed.
 - 12.2 Scroll up / down until "STOP / RUN" is flashing. Press "OK" until the checkmark is next to "RUN".
 - 12.3 Press "ESC" until the Main Module Status Menu is displayed.
 - 12.4 Verify that the Status LED on the Main Module is FLASHING to indicate that the PLC is operating in the RUN Mode.

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