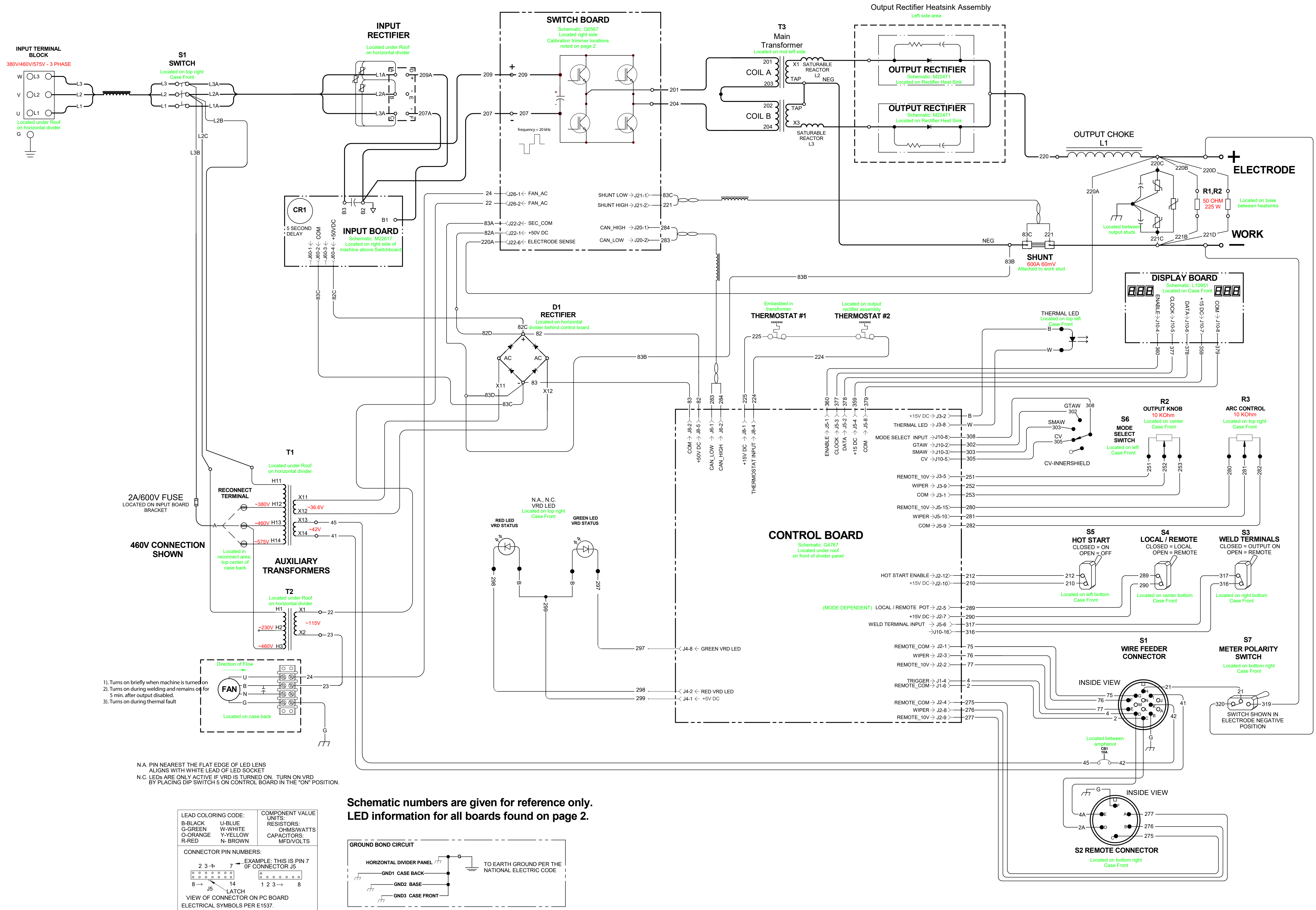


FLEXTEC 450 MACHINE SCHEMATIC G6462-7 REV: B



- 1). Turns on briefly when machine is turned on
- 2). Turns on during welding and remains on for 5 min. after output disabled.
- 3). Turns on during thermal fault

N.A. PIN NEAREST THE FLAT EDGE OF LED LENS
ALIGNS WITH WHITE LEAD OF LED SOCKET
N.C. LEDs ARE ONLY ACTIVE IF VRD IS TURNED ON. TURN ON VRD
BY PLACING DIP SWITCH 5 ON CONTROL BOARD IN THE "ON" POSITION.

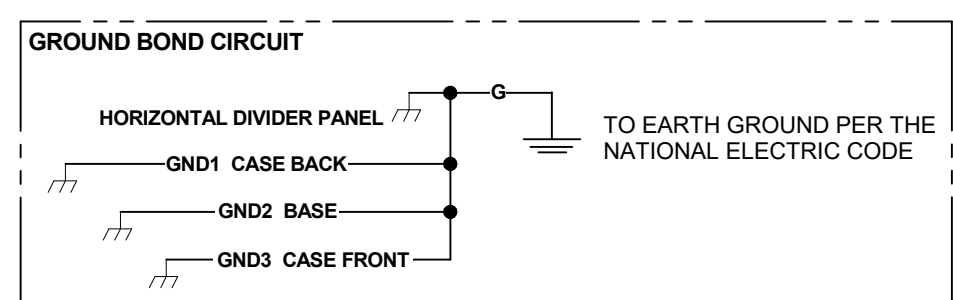
LEAD COLORING CODE:		COMPONENT VALUE UNITS:	
B-BLACK	U-BLUE	RESISTORS:	OHMS/WATTS
G-GREEN	W-WHITE	CAPACITORS:	MFD/VOLTS
O-ORANGE	Y-YELLOW		
R-RED	N-BROWN		

CONNECTOR PIN NUMBERS:

EXAMPLE: THIS IS PIN 7 OF CONNECTOR J5

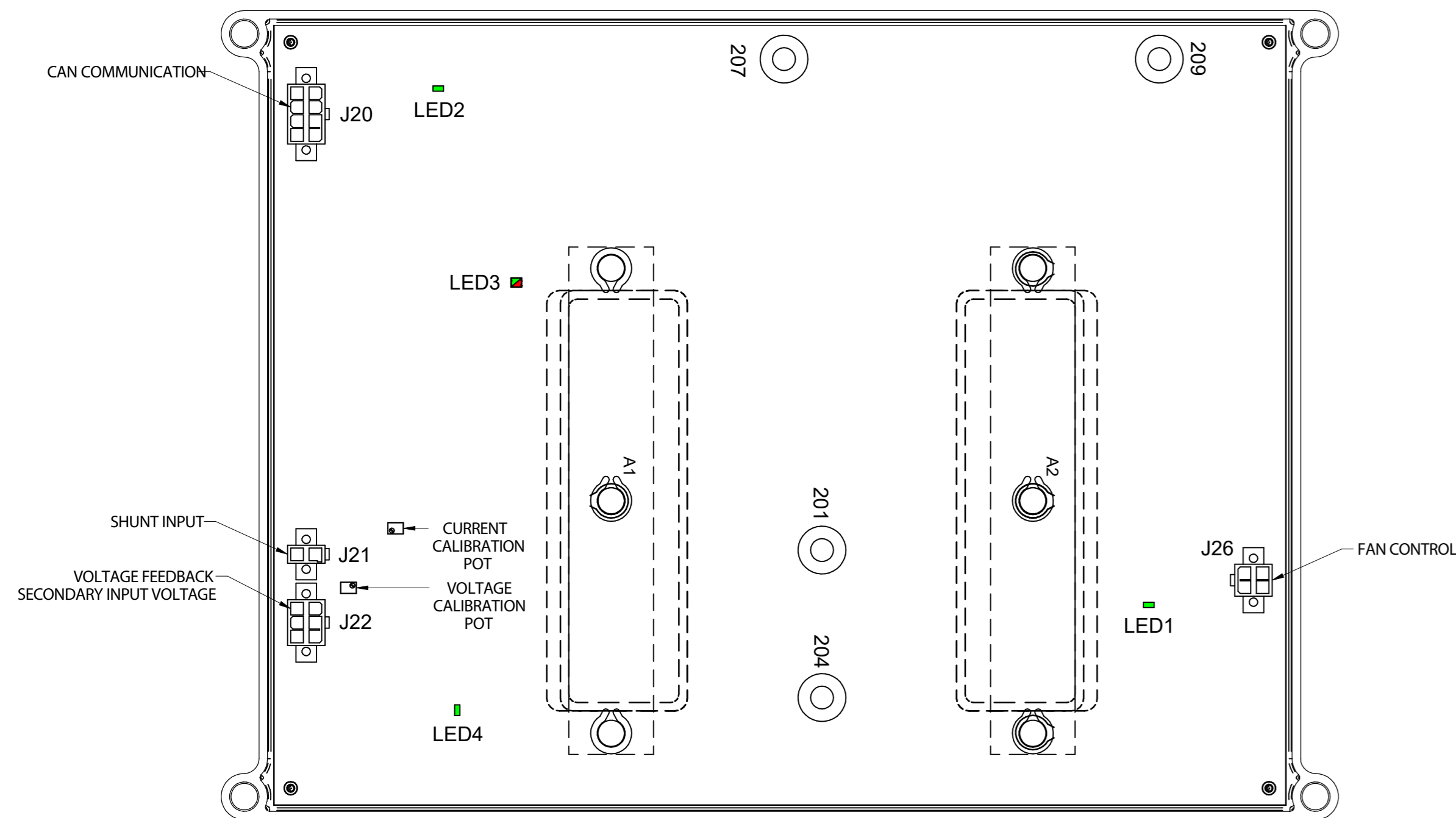
VIEW OF CONNECTOR ON PC BOARD
ELECTRICAL SYMBOLS PER E1537.

Schematic numbers are given for reference only.
LED information for all boards found on page 2.



ALL COMPONENTS VIEWED FROM REAR

SWITCHBOARD P.C. BOARD



S29423 SWITCHBOARD		
LED #	COLOR	FUNCTION
1	GREEN	+5V DC POWER SUPPLY "OK"
2	GREEN	CAN POWER SUPPLY "OK"
3	GREEN	STATUS "OK"
3	RED	STATUS "ERROR" (CHECK CODE FOR SPECIFIC ERROR)
4	GREEN	+15V DC POWER SUPPLY "OK"

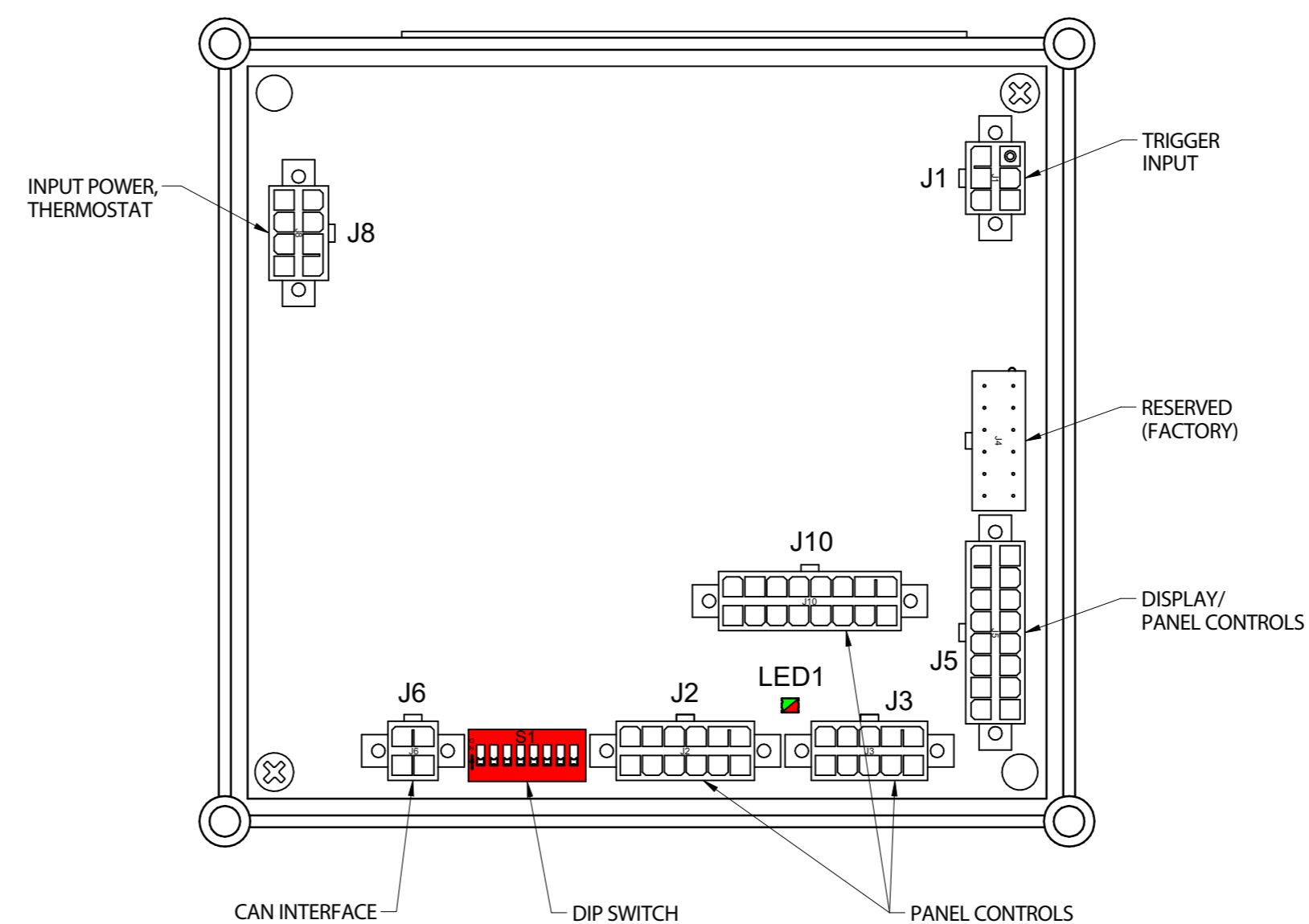
USING THE FLEXTEC 450 SWITCHBOARD STATUS LED

LIGHT CONDITION	MEANING
Steady Green	System OK.
Blinking Green	Occurs during startup or reset, and indicates that the switchboard is waiting for communication from the control board. Normal for the first 1-10 seconds after power is turned on.
Alternating Green and Red	A system fault has occurred. If the switchboard status LED is flashing any combination of red and green, errors are present. Individual code digits are flashed in red with a long pause between digits. If more than one code is present, the codes will be separated by a green light. See Page 3 for an Error Code Troubleshooting Guide.

VRD Setup

Input Voltage (3 phase, 50/60Hz)	Control Board DIP Switch Configuration
380V	
460V	
575V	

CONTROL P.C. BOARD



S28454 CONTROL P.C. BOARD		
LED #	COLOR	FUNCTION
1	GREEN	STATUS "OK"
1	RED	STATUS "ERROR" (CHECK CODE FOR SPECIFIC ERROR)

TEST MODE CONFIGURATION

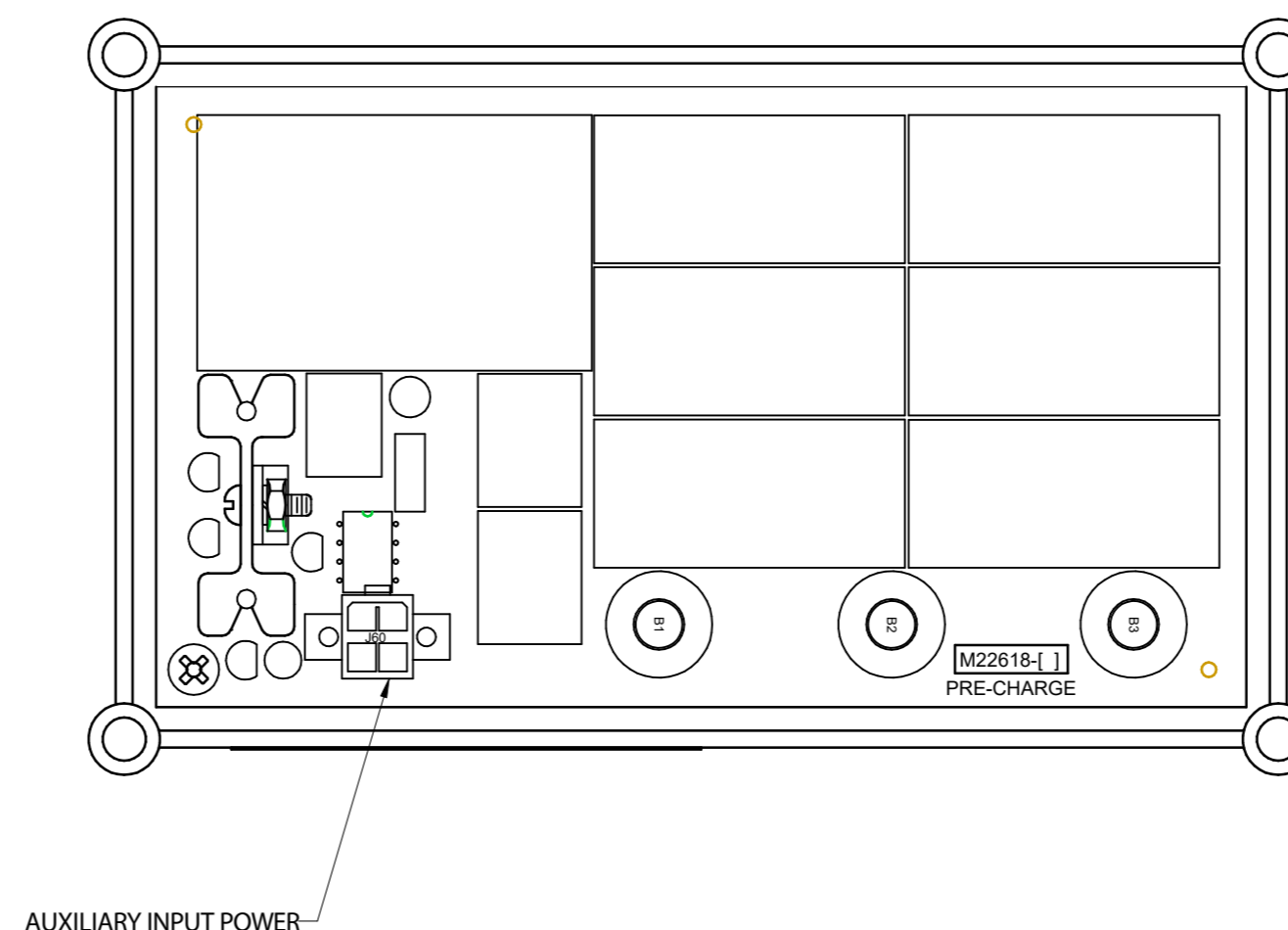


TURN ON PIN FOUR TO ENABLE TEST MODES
ALL SWITCHES ARE OFF BY FACTORY DEFAULT

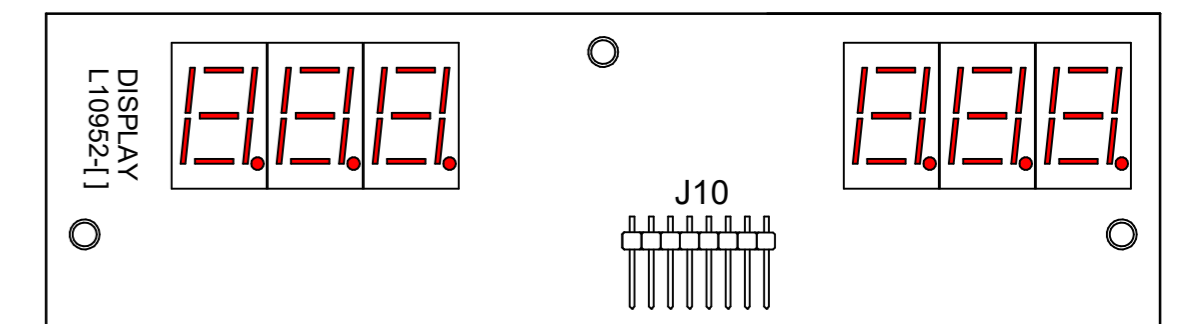
USING THE FLEXTEC 450 CONTROL BOARD STATUS LED

LIGHT CONDITION	MEANING
Steady Green	System OK.
Alternating Green and Red	A system fault has occurred. If the Control Board status LED is flashing any combination of red and green, errors are present. Individual code digits are flashed in red with a long pause between digits. If more than one code is present, the codes will be separated by a green light. See Page 3 for an Error Code Troubleshooting Guide.

PRECHARGE P.C. BOARD



DISPLAY P.C. BOARD



CONSTANT VOLTAGE TEST MODE

To enable Constant Voltage test mode:

- Set dip switch #4 to ON
- Set "WELD TERMINALS" switch to "☑"
- Set "MODE SELECT" knob to "GTAW"
- Set "LOCAL/REMOTE" switch to "LOCAL"
- Set "ARC CONTROL" knob to "+10"
- Set "HOT START" switch to "OFF"
- Turn on input power.
- Use the "OUTPUT CONTROL KNOB" to adjust the setpoint to a desired value on the right display
- Use the "WELD TERMINALS" switch to enable and disable output

CONSTANT CURRENT TEST MODE

To enable Constant Current test mode:

- Set dip switch #4 to ON
- Set "WELD TERMINALS" switch to "☑"
- Set "MODE SELECT" knob to "GTAW"
- Set "LOCAL/REMOTE" switch to "LOCAL"
- Set "OUTPUT CONTROL KNOB" to "MIN"
- Set "ARC CONTROL" knob to "-10"
- Set "HOT START" switch to "OFF"
- Turn on input power.
- Use the "OUTPUT CONTROL KNOB" to adjust the setpoint to a desired value on the right display
- Use the "WELD TERMINALS" switch to enable and disable output

ACCESS ERROR LOG

To access the Error Log:

- Set dip switch #4 to ON
- Set "WELD TERMINALS" switch to "☑"
- Set "MODE SELECT" knob to "GTAW"
- Set "LOCAL/REMOTE" switch to "LOCAL"
- Set "OUTPUT CONTROL KNOB" to "MIN"
- Set "ARC CONTROL" knob to "-10"
- Set "HOT START" switch to "ON"
- Turn on input power. The display will show "8.8.8" "8.8.8" and "THERMAL LED" will light
- The displays will then go to "--" "--" and "THERMAL LED" will go out.
- Toggle the "HOT START" switch "OFF" and "ON" to step through menu's
- STEP E00 to E14 are error logs in chronological order
- To clear error logs set the "LOCAL/REMOTE" switch to "☑" then back to "LOCAL"

ERROR CODE TROUBLESHOOTING GUIDE

31	Primary Overcurrent
Description	Peak current through the transformer primary has exceeded threshold (140 amps).
Possible Solution 1	Verify connections to the switchboard, transformer and output rectifier assemblies are made correctly and there are no damaged components in the machine.
Possible Solution 2	Replace defective main transformer.
Possible Solution 3	Replace defective switchboard assembly (S28443).
36	Thermal Fault
Description	Thermostat on output rectifier heat sink or embedded in transformer has tripped.
Possible Solution 1	Do not exceed allowable ambient temperature or duty cycle limits.
Possible Solution 2	Verify that fan is operating and airflow is not being blocked.
Possible Solution 3	Measure thermostats at control board and replace if defective.
711	Capacitor Fault (Over-Voltage or Under-Voltage)
Description	Input voltage is less than 160 VDC or more than 1050 VDC
Possible Solution 1	Verify input voltage level, frequency, and quality. Verify that line is not too soft.
Possible Solution 2	If problem occurs on a generator, verify proper operation when connected to municipal power lines.
Possible Solution 3	Replace defective switchboard assembly (S28443).
712	CAN Communication Timeout
Description	CAN communication between switchboard and control board has timed out.
Possible Solution 1	Check the physical wiring and connections between control board and switchboard.
Possible Solution 2	Verify power supply to control board and switchboard.
Possible Solution 3	Replace defective switchboard assembly (S28443) or control board (S28454).
713	Misconnection - Switchboard Supply Voltage too High
Description	Switchboard auxiliary supply voltage is higher than 62 VDC at machine power-up.
Possible Solution 1	Improper input voltage configuration. Verify primary reconnect position, measure input voltage level and check three phase operation.
Possible Solution 2	Damaged auxiliary transformer or intermittent "A" lead connection. Verify 42 VAC output at 14 pin connector to determine the source of the problem.
Possible Solution 3	Replace defective switchboard assembly (S28443).
714	Misconnection - Switchboard Supply Voltage too Low
Description	Switchboard auxiliary supply voltage is lower than 42 VDC at machine power-up.
Possible Solution 1	Improper input voltage configuration. Verify primary reconnect position, measure input voltage level and check three phase operation.
Possible Solution 2	Damaged auxiliary transformer or intermittent "A" lead connection. Verify 42 VAC output at 14 pin connector to determine the source of the problem.
Possible Solution 3	Replace defective switchboard assembly (S28443).
715	Switchboard Undervoltage Lock Out
Description	Switchboard auxiliary supply voltage momentarily drops below 20 VDC.
Possible Solution 1	Damaged auxiliary transformer or intermittent "A" lead connection. Verify 42 VAC output at 14 pin connector to determine the source of the problem.
Possible Solution 2	Verify input voltage level, frequency, and quality. Verify that line is not too soft.
Possible Solution 3	Replace defective switchboard assembly (S28443).
717	Control Board Misconfiguration
Description	A jumper on the control board has been placed in the incorrect position.
Possible Solution 1	Verify that the wiring to connector J5 on the control board matches the machine wiring diagram.
Possible Solution 2	Replace defective control board assembly (S28454).
21, 24, 716, 718	Internal Control Board Error
Description	The microprocessor on the control board has experienced a critical internal error and cannot continue.
Possible Solution 1	Cycle power to the machine.
Possible Solution 2	Replace defective control board assembly (S28454).
719	Internal Switchboard Error
Description	The microprocessor on the switchboard has experienced a critical internal error and cannot continue.
Possible Solution 1	Cycle power to the machine.
Possible Solution 2	Replace defective switchboard assembly (S28443).