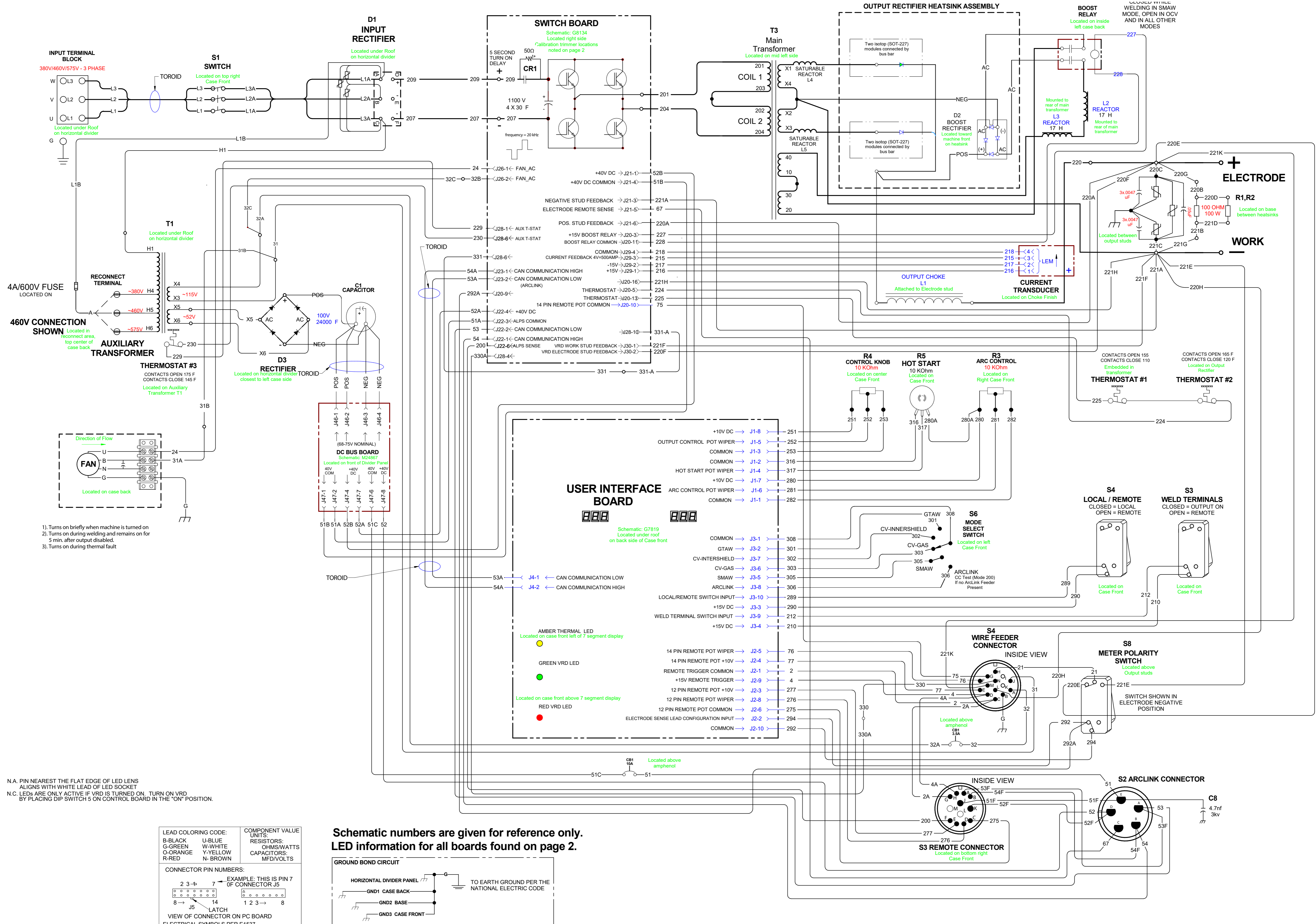


FLEXTEC 500 MACHINE SCHEMATIC G8693 REV: A



- 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:

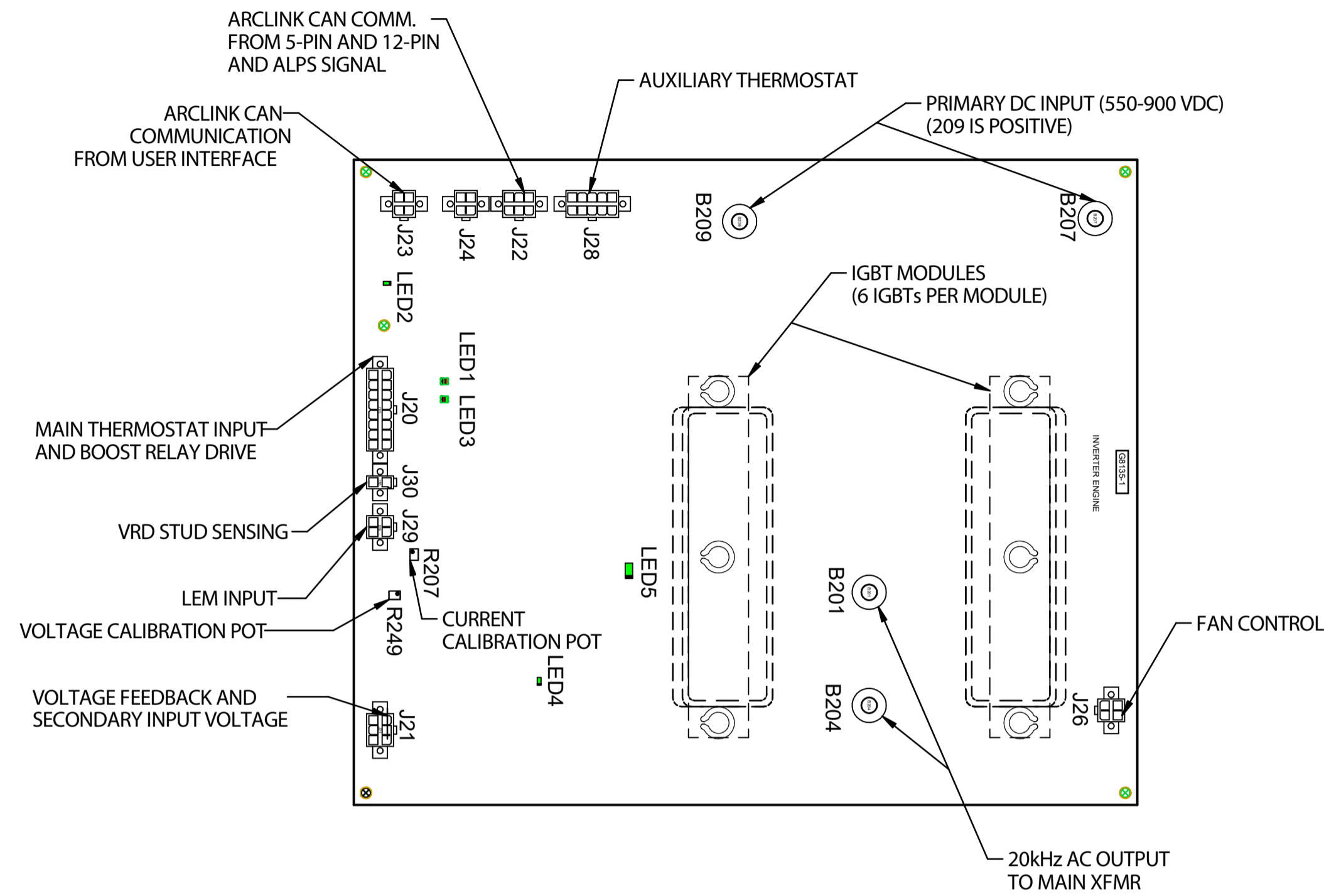
EXAMPLE: THIS IS PIN 7 OF CONNECTOR J5

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

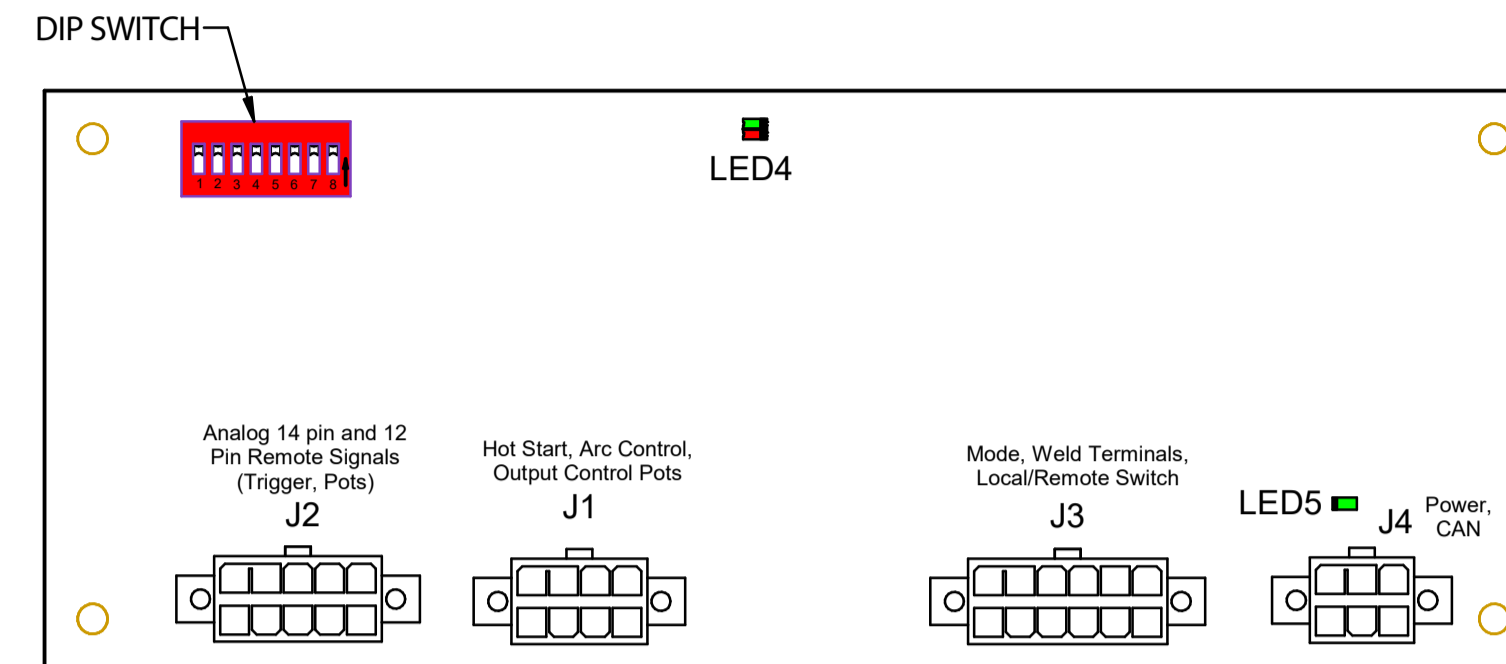


S30146 SWITCHBOARD		
LED #	COLOR	FUNCTION
1	RED	STATUS "ERROR" (CHECK CODE FOR SPECIFIC ERROR)
1	GREEN	STATUS "OK"
2	GREEN	15V CAN POWER SUPPLY "OK"
3	GREEN	STATUS "OK"
3	RED	STATUS "ERROR" (CHECK CODE FOR SPECIFIC ERROR)
4	GREEN	+15V DC POWER SUPPLY "OK"
5	GREEN	+5V DC PRIMARY POWER SUPPLY "OK"

USING THE FLEXTEC 500 SWITCHBOARD STATUS LED

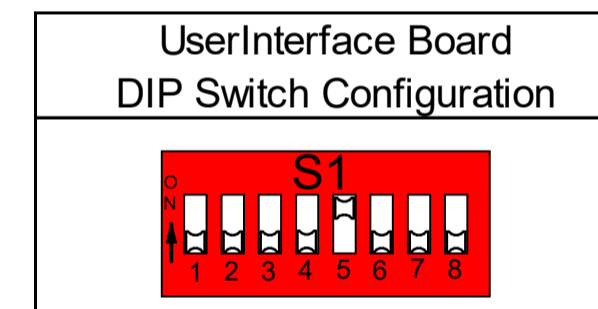
LIGHT CONDITION	MEANING
Steady Green	System OK.
Blinking Green	Occurs during startup or reset, and indicates that the switchboard is waiting for communication from the control board. Normal for the first 1-10 seconds after power is turned on.
Alternating Green and Red	A system fault has occurred. If 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.

USER INTERFACE P.C. BOARD



S31126 USER INTERFACE P.C. BOARD		
LED #	COLOR	FUNCTION
4	GREEN	STATUS "OK"
4	RED	STATUS "ERROR" (CHECK CODE FOR SPECIFIC ERROR)
5	GREEN	+15 V DC POWER SUPPLY "OK"

VRD Setup

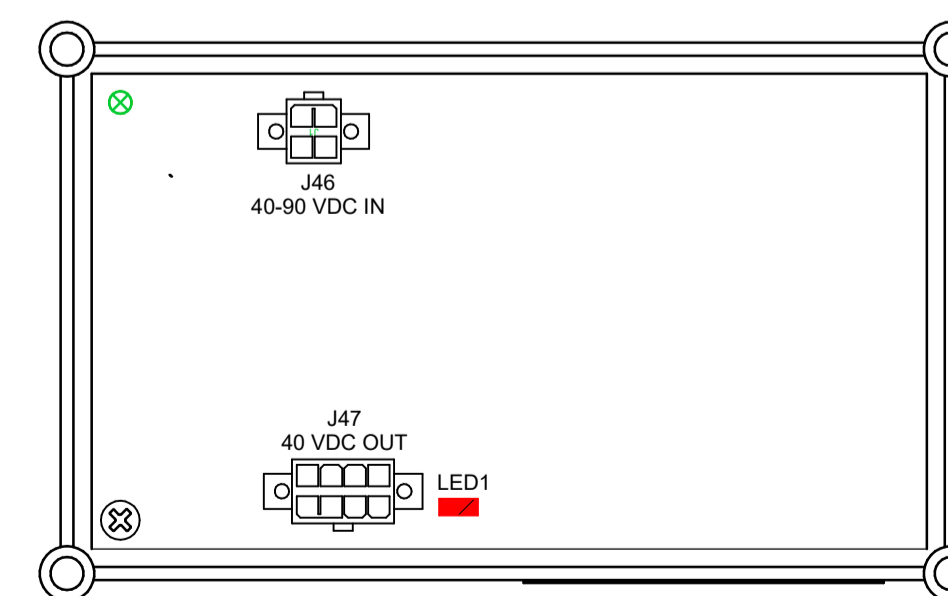


TURN ON PIN FIVE TO ENABLE VDR
ALL SWITCHES ARE OFF BY FACTORY DEFAULT

USING THE FLEXTEC 500 USER INTERFACE BOARD STATUS LED

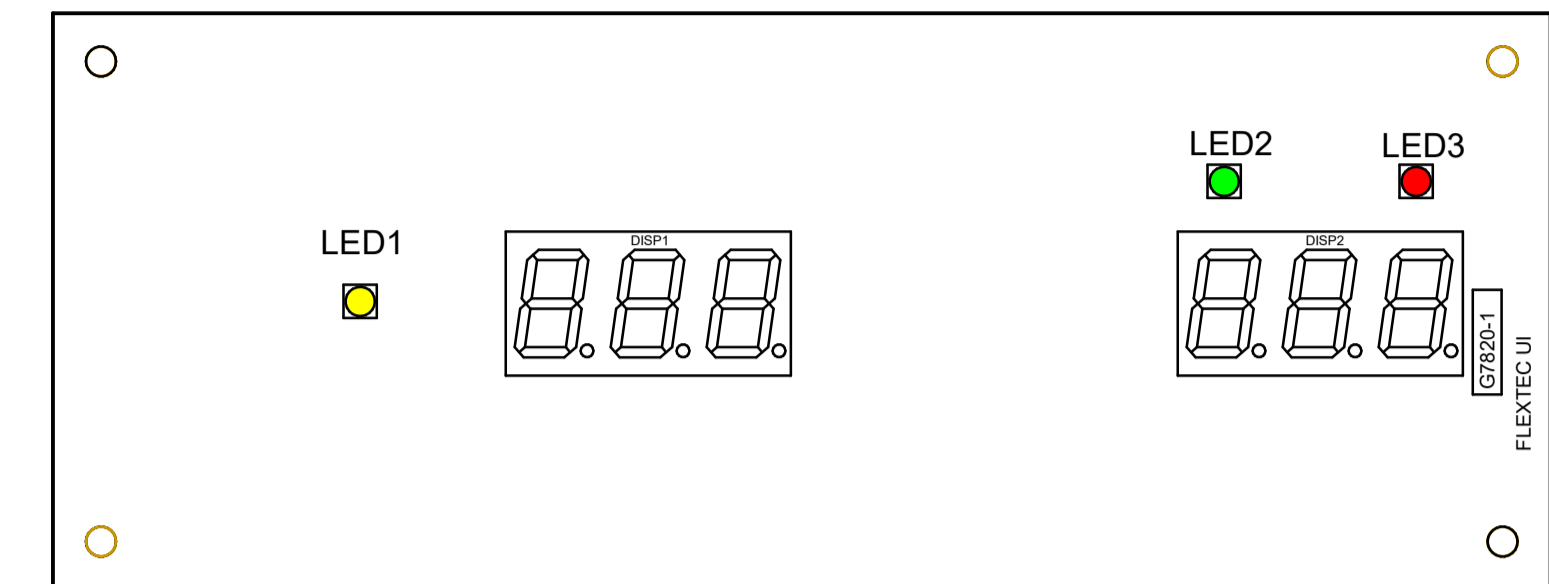
LIGHT CONDITION	MEANING
Steady Green	System OK.
Alternating Green and Red	A system fault has occurred. If the User Interface Board status LED is flashing any combination of red and green, errors are present. Individual code digits are flashed in red with a long pause between digits. If more than one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

40V BUS BOARD



L16423 40VDC BUS P.C. BOARD		
LED #	COLOR	FUNCTION
1	RED	40VDC PRESENT ON OUTPUT

USER INTERFACE P.C. BOARD (DISPLAY SIDE)



S29937 USER INTERFACE P.C. BOARD		
LED #	COLOR	FUNCTION
1	AMBER	THERMAL LED
2	GREEN	VRD LED VOLTAGE REDUCED
3	RED	VRD LED VOLTAGE NOT REDUCED

ACCESS ERROR LOG

To access the Error Log:

- Dip Switch #8 in the ON position; All other Dip Switch positions OFF.
- Switches and potentiometers should be set to the following positions:
 - Weld Terminals On/Remote Switch – On Position
 - Process Selection Switch – GTAW Position
 - Local / Remote Switch – Local Position
 - Output Control Potentiometer – Fully Counter-Clockwise
 - Arc Control Potentiometer – Fully Counter-Clockwise
 - Hot Start knob – "0" position.
- Turn on Power. The displays will show "----" "----".
- The weld terminal switch will be used to step through the test steps and the error log.
- The left display will show the test step number.
- Cycle the weld terminals switch until the left display shows "17". The right display will show "---
- Rotate the output control potentiometer clockwise
- The left display will show numbers between 1 and 25
- The right display will show the 25 most recent **Weld Sequencer** errors
- Return the output control potentiometer to zero
- Cycle the weld terminals switch again. The left display will show "18". The right display will show "---
- Rotate the output control potentiometer clockwise
- The left display will show numbers between 1 and 25
- The right display will show the 25 most recent **Weld Controller** errors
- Return the output control potentiometer to zero
- Cycle the weld terminals switch again. The left display will show "19". The right display will show "---
- Rotate the output control potentiometer clockwise
- The left display will show numbers between 1 and 25
- The right display will show the 25 most recent **User Interface** errors
- Return the output control potentiometer to zero

TO ACCESS CONSTANT CURRENT TEST MODE, PLACE THE MODE SWITCH IN "ARCLINK" POSITION WITHOUT AN ARCLINK FEEDER CONNECTED TO THE 5-PIN CONNECTOR.

THE DISPLAY WILL THEN SHOW "Cur" AND "XXX" WHERE "XXX" IS THE WORKPOINT.

WORKPOINT CAN BE ADJUSTED BY USING THE OUTPUT CONTROL KNOB.

OUTPUT CAN BE TURNED "ON" OR "OFF" BY USING THE "WELD TERMINALS" SWITCH.

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).