



TECHNICAL SERVICE

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ST-028-07

TO: All York Branches and Distributors
All York Service Managers
All Field Service Supervisors

**SUBJECT: White Rodgers/ Emerson Integrated Furnace Control (IFC) Boards
On All Single and Two Stage Gas Furnaces**

As of July 1, 2007 (W0G7 furnace serial number prefix) all residential furnaces will have changed over to the new White Rodgers control boards.

These boards are basically a drop in replacement for current production models. The new boards are larger than previous boards which may require drilling mounting holes to apply in older products. Instructions with a drilling template will be with each board. Single stage boards are 4 7/8" X 6 1/2" and two stage boards are 4 7/8 X 8".

Single Stage Latitude products utilize the Basic Board SAP# **265901**. This board however will not be set up as a Source 1 Replacement Part. Only the two stage boards, P/N S1-33109167000 / 265902 will be provided from Source 1 for standardization purposes. Refer to Figure 1 below for basic board layout. (SAP# 265901 is the part number on the board)

Single Stage Premium Products utilize the Two-Stage Cooling Board **S1-33109167000 / 265902**. It is a direct replacement for part numbers: 265901 (basic board above), 031-01933-000, 031-01267-00*, 031-00662-000, 031-01250-000, 031-01266-000, 031-01284-000, 031-01973-000 and 031-01972-000. See Fig 2.

The Two Stage products with a PSC motor utilize a board P/N **S1-33109168000 / 265903**, which is a direct replacement for part numbers 031-01290-000 and 031-09117-000. Refer to Figure 3.

ECM motor furnace products, utilize a board P/N **S1-33109169000 / 265904** which is also the replacement for part numbers 031-01909-000 (ignition) and 031-09118-000 (CFM); 031-09117-000 (ignition) and 031-01955-000 (CFM); 031-01911-000 (CFM) and 031-09169-000 (combined). Note: This board has the CFM board incorporated; Fig 4, in it so there is no separate CFM board.
For temporary substitution of PSC motor when ECM motor or module are not available refer to ST-017-07

General Replacement Information:

Refer to the electrical wire diagram for the furnace being serviced for circuit connections specific to that model. There can be a fault light even with the 'On Board' fuse is blown.

Fig 1: Single Stage Basic Board 265901

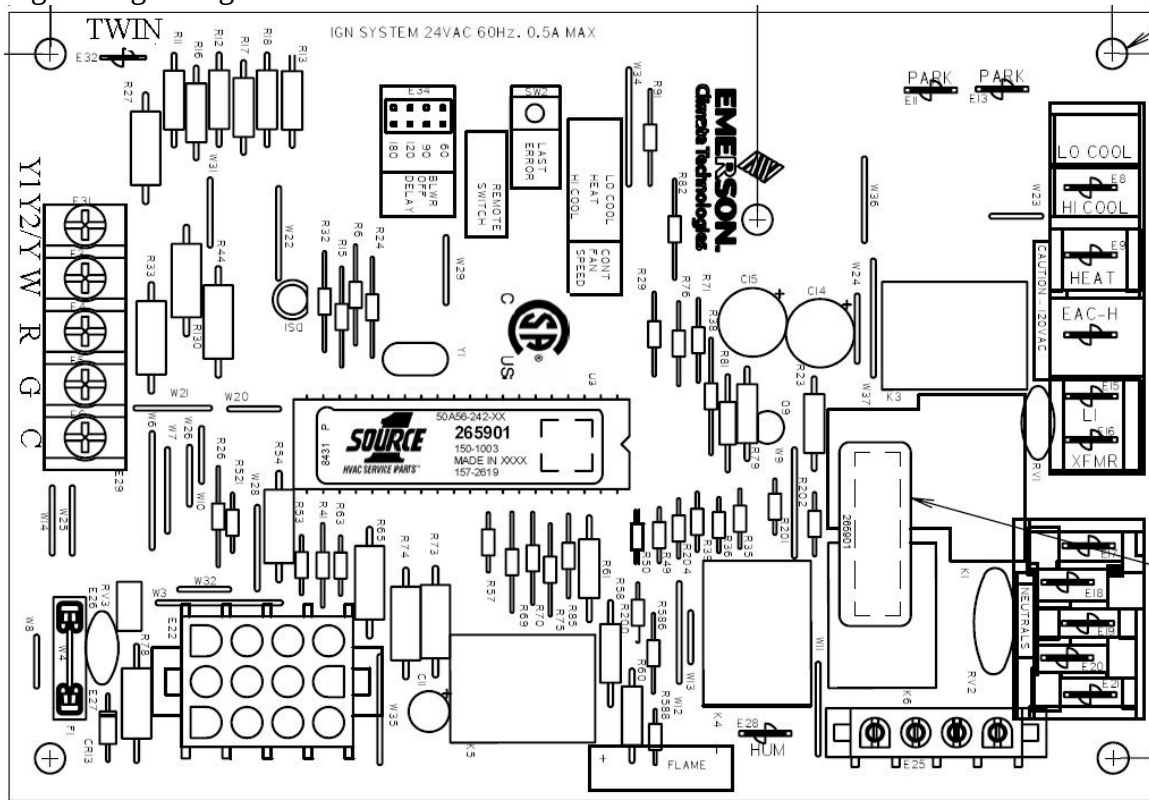
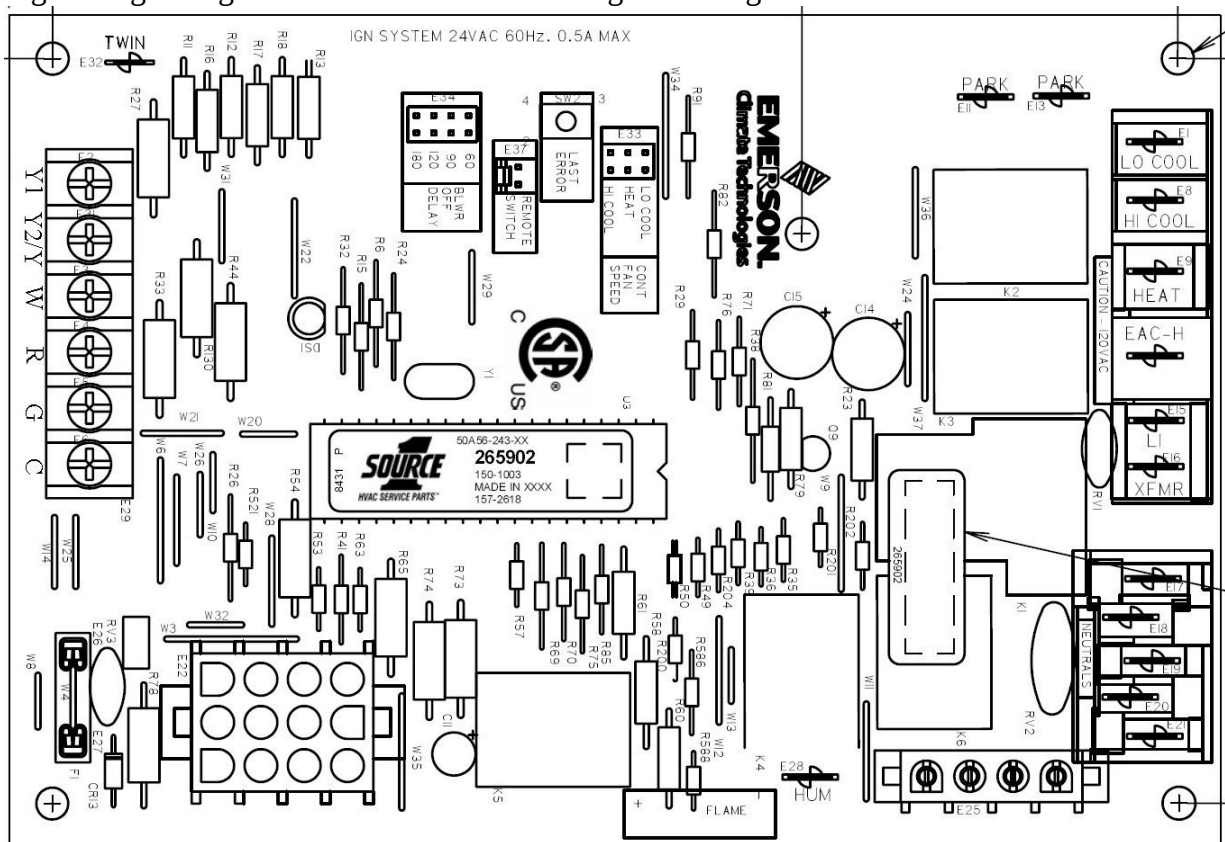
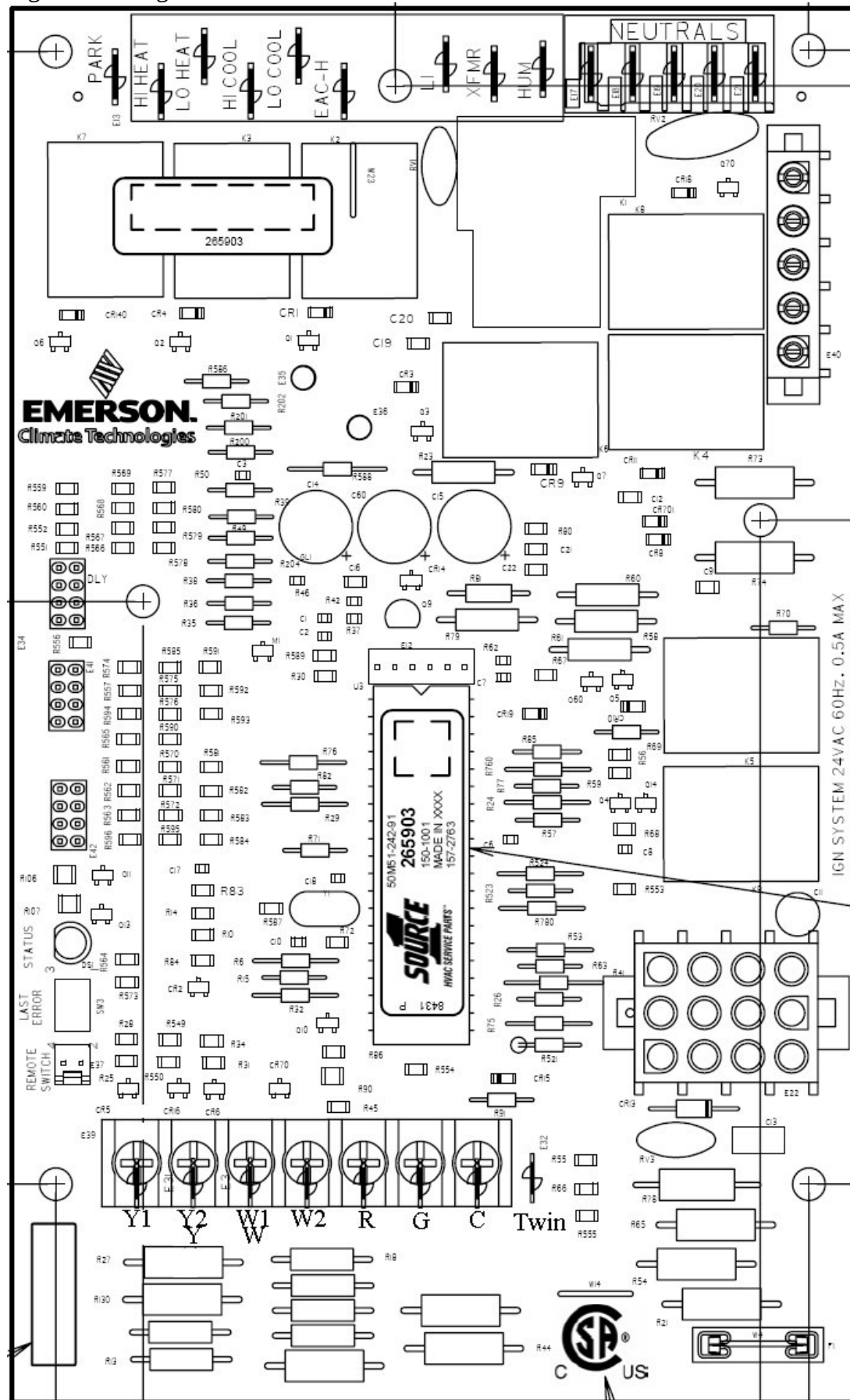


Fig 2: Single Stage Premium Board w/Two Stages Cooling S1-33109167000/265902



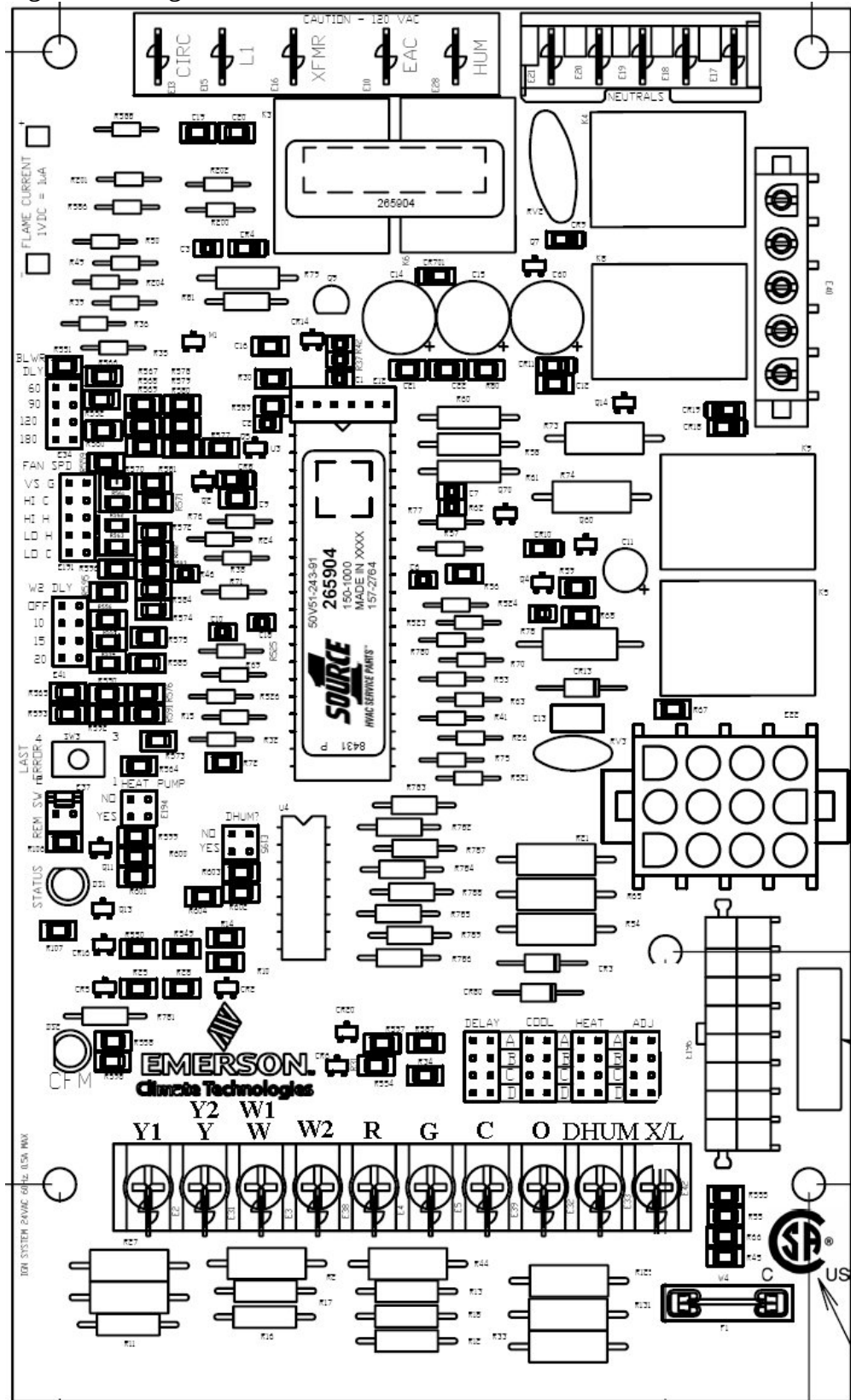
Note: Use Y2/Y For Single Stage Cooling

Fig 3: Two Stage Board For PSC Motor Furnaces S1-33109168000/265903



Note: Use Y2/Y For Single Stage Cooling

Fig 4: Two Stage Board For ECM Motor Furnaces, Note: CFM Selection Jumpers



Note: Use Y2/Y For Single Stage Cooling

Ron Butcher

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New White Rodgers/Emerson IFC Boards			
	Single Stage	Two Stage PSC Motor	Two Stage ECM Motor Variable Speed
Fault Code/Flashes	265901 & S1-33109167000 / 265902	S1-33109168000/265903	S1-33109169000/265904
Steady Off	No Power To Board, Fault Codes Possible With Blown On-Board Fuse		
Green Heart Beat	Normal Operation No Call For Heat		
1 Amber Flash	Normal Operation With Call For Heat, First Stage On 2 Stage		
2 Amber Flash	N/A	Normal Operation With Call For Second Stage Heat	
3 Amber Flash	N/A	W2 Present With No W1	
4 Amber Flash	Y Present With No G Call		
Rapid Amber Flash	Low Flame Sense Current		
Solid LED Red	Solid Internal GV Error, Micro, And Frequency Check		
Rapid Flash Red	Rapid Twinning Error, Incorrect 24v Phasing		
1 Flash Red *	Flame Sensed When No Flame Should Be Present		
2 Flash Red *	Pressure Switch Stuck Closed/ Inducer Error		
3 Flash Red *	1st-Stage Pressure Switch Stuck Open/ Inducer Error		
3 Double Red *	N/A	2nd-stage Pressure Switch Stuck Open/ Inducer Error	
4 Flash Red *	Open Limit Switch		
5 Flash Red * ##	Open Rollout/Open Fuse Detect		
6 Flash Red * #	Pressure Switch Cycle Lockout		
7 Flash Red * #	External Lockout (Retries)		
8 Flash Red * #	External Lockout (Recycles)		
9 Flash Red	Grounding Or Reversed Polarity, Transformer Leads Reversed		
10 Flash Red *	Gas Flow With No Call For Heat		
11 Flash Red * ##	Limit Switch Open More Than 5 Minutes – Blower Failure		
12 Flash Red	Ignitor Failure		
* = Stored In Error Code Array; # = One Hour Soft Lockout; ## = Hard Lockout			
Fault Code Retrieval: To retrieve fault codes, push and release the “LAST ERROR” button for more than 1/5 second and less than 5 seconds. The LED will flash up to five stored fault codes, beginning with the most recent. If there are no fault codes in memory, the LED will flash two green flashes. The control will flash the most recent error first and the oldest error last (last in first out). There shall be 2 seconds between codes. Solid LED error codes will not be displayed.			
Fault Code Reset: To clear the fault code memory, push and hold the “LAST ERROR” button for at least five seconds. The LED will flash three green flashes when the memory has been cleared.			

Last Generation Control IFC Fault Codes			
	Single Stage 031-01972-000 (TI 6DT-1) ¹ 031-01973-000 (TI 6DT-2) ²	Two Stage 031-09117-000 (TI 6MD-1) ³ For All Motors	Note: For variable speed motor applications use with new CFM Board 031-09118-000 (TI 6MI-1)
¹ = Builders Models G*9S; ² = Next Gen Models PS9 & F*9S; ³ = Two Stage Models PT9, PV9, F*9T & F*9V			
Fault Code/Flashes	Fault Condition		Possible Causes - Check
Steady Off	No Power to The Board		24 VAC, Fuse
Green Heartbeat (2s on/2s off)	Normal Function - No Flame Detected		---
Amber Heartbeat (2s on/2s off)	Normal Function – Flame Detected	Normal Function – Flame Detected 1st Stage Heat	---
Amber Heartbeat (3.5s on/.5s off)	N/A	Normal Function – Flame Detected 2nd Stage Heat	---
3 Flashes Amber *(1)	N/A	W2 Present Without W1	Thermostat, Control Wiring
4 Flashes Amber *(1)	Y Present With No G		
Steady On Red	Control Failure Or Board Not Properly Tested		Reset Power, If Faults Again Replace Control
Rapid Flash Red	Incorrect 24 V Phasing/Twinning Error	N/A	24 VAC 'R' And 'C' Connections; Furnaces Same Line Phase
1 Flash Red *	Flame Present With Gas Off		Gas Valve, Wiring
2 Flashes Red *	Pressure Switch Stuck Closed	1 st Stage Pressure Switch Stuck Closed	Pressure Switch (1st Stage), Wiring
3 Flashes Red *(2)	Pressure Switch Stuck Open	1 st Stage Pressure Switch Stuck Open	Pressure Switch (1st Stage), Ventor Motor
3 Double Flashes Red *	N/A	2 nd Stage Pressure Switch Stuck Open	Pressure Switch (2nd Stage), Ventor Motor
4 Flashes Red *	Limit Switch Opened 5 Times In 1 Call For Heat		Main Limit, Blower, Filter
5 Flashes Red *	Rollout Switch Open ##		Rollout Switch, Overfired
6 Flashes Red *	Pressure Switch Cycle Lockout #		Same As Code 3
7 Flashes Red *	Ignition Lockout Due To Retries #		Gas- Flow, Pressure, Valve; Flame Sensor
8 Flashes Red *	Ignition Lockout Due To Recycles #		Same As Code 7
9 Flashes Red	Grounding Or Line Polarity Fault		L1 & Neutral, Connections, XFMR Ground, Flame Probe
10 Flashes Red *	MV/MV1 Failure Gas Valve Energized With W Off		1 ST Stage Gas Valve, Wiring
10 Doubles Flashes Red *	N/A	MV2 Failure	2 ND Stage Gas Valve, Wiring
11 Flashes Red *	Main Blower Failure ##		Main Blower, Limit Switch
Rapid Flash Amber Heartbeat (2s or 3.5s rapid flash on/2s off)	Dirty Flame Probe – May Soon Prevent Ignition And Cause Retry Lock-Out		Clean Flame Probe & Verify >3.0 VDC On Test Pads w/Meter
2 Flashes Green	No Active Error Codes In Array (When 'LAST ERROR' pushbutton is pressed between 1/5 and 5 seconds)		Only When Not In Heating or Cooling Modes
3 Flashes Green	Active Error Codes Cleared From Array (When 'LAST ERROR' pushbutton is pressed > (for more than) 5 seconds)		
* = Stored In Error Code Array; # = One-Hour Soft Lockout; ## = Hard Lockout			
(1) = Stored Only Once Per Power Cycle; (2) = Stored Only Once Per W Call			

Older Furnace IFC Fault Codes				
	Single Stage 031-01266-000 (W/R 50A50-241) 031-01267-001 (TI 6IF-3) 031-01993-000 (UT 1012-965)		2-Stage Deluxe 031-01290-000 (W/R 50A51-242) w/PSC Motor	2-Stage Ultra 031-01909-000 (W/R 50A51-243) w/ECM Motor
Fault Code Flashes	Fault Condition			Possible Causes - Check
Steady Off	No power to the board			24 VAC, Fuse
Continuous Flash	Flame sensed when it should not be present.			Gas Valve, Wiring
2-Flash	Pressure switch stuck closed.			Pressure Switch, Wiring
3-Flash	Pressure switch stuck open.			Pressure Switch, Ventor Motor
4-Flash	Limit switch open.	Limit switch or rollout open.		Main Limit, Blower, Filter
5-Flash	Rollout switch open.	N/A		Rollout Switch, Overfired
6-Flash	W/R	Pressure switch opened 5 times during a call for heat.		Same As Code 3
	TI /UT	Reversed line voltage polarity		L1 & Neutral, XFMR Ground, Connections
7-Flash	W/R	No flame sensed at start of cycle.		Same as Code 8 & 9
	TI /UT	One hour pressure switch lockout. Pressure switch cycled 4 times during a single call for heat.		Same As Code 3
8-Flash	W/R	Flame sensed but lost 5 times during a single cycle.		Gas- Flow, Pressure, Valve; Flame Sensor
	TI /UT	One hour ignition lockout. Burner failed to light in 3 tries.		
9-Flash	TI/UT Only	One hour ignition lockout. 5 recycles during a single call for heat.		
Continuous Light	Internal control fault.			Reset Power- Replace Control
Most faults will reset themselves or will be reset by the 1-hour “Watch-Dog” circuit. Auxiliary limits and rollouts are manual reset. Continuous Flash and Continuous Light are “Hard Lock-Outs”. To reset any condition, turn power off for 30 seconds, then turn back on.				
The 031-01290-000 board can <u>only</u> be used with the 2-stage multi-speed furnaces. <u>DO NOT</u> use this board with the variable speed furnace.				