Service Facts

UH1-H-SF-1E

High Efficiency Single Stage Gas Furnace — Condensing — Upflow/Horizontal and Downflow/ Horizontal — Single Stage Heat

Models: * - First letter may be "A" or "T"

***UH1B040A9H21B**	***UH1C100A9H41B**	***DH1B065A9H31B**
***UH1B060A9H31B**	***UH1D120A9H51B**	***DH1C085A9H41B**
***UH1B080A9H31C**	***DH1B040A9H21B**	***DH1D110A9H51B**

IMPORTANT — This document contains a wiring diagram and service information. This is customer property and is to remain with this unit. Please return to service information pack upon completion of work.

⚠ WARNING DISCONNECT POWER BEFORE SERVICING

PRODUCT SPECIFICATIONS ①

MODEL	*UH1B040A9H21B	*UH1B060A9H31B	*UH1B080A9H31C
TYPE	Upflow/Horizontal	Upflow/Horizontal	Upflow/Horizontal
RATINGS ②			
Input BTUH ③	40,000	60,000	77,000
Capacity BTUH (ICS) ③	38,000	57,000	73,150
AFUE	95	95	95
Temp. rise (Min.-Max.) °F.	30 - 60	30 - 60	35 - 65
BLOWER DRIVE ⑤	DIRECT	DIRECT	DIRECT
Diameter - Width (In.)	10 x 7	10 x 7	10 x 8
No. Used	1	1	1
Speeds (No.)	4	4	4
CFM vs. in. w.g.	See Fan Performance Table	See Fan Performance Table	See Fan Performance Table
Motor HP	1/2	1/2	1/2
R.P.M.	1075	1075	1075
Volts/Ph/Hz	115/1/60	115/1/60	115/1/60
FLA	6.8	6.8	6.8
COMBUSTION FAN — Type	Centrifugal	Centrifugal	Centrifugal
Drive - No. Speeds	Direct - 1	Direct - 1	Direct - 1
Motor HP - RPM	1/55 - 3000	1/15 - 3450	1/20 - 3450
Volts/Ph/Hz	115/1/60	115/1/60	115/1/60
FLA	1.00	1.75	0.70
FILTER — Furnished?	Yes	Yes	Yes
Type Recommended	High Velocity	High Velocity	High Velocity
Shipped (No.-Size-Thk.)	1 - 17x25 - 1in.	1 - 17x25 - 1in.	1 - 17x25 - 1in.
VENT PIPE DIAMETER - Min (in.) ⑥⑦	2 Round	2 Round	2 Round
HEAT EXCHANGER			
Type	Alum. Steel Fired	Alum. Steel	Alum. Steel
- Unfired			
Gauge (Fired)	20	20	20
ORIFICES — Main			
Nat. Gas. Qty. — Drill Size	2 — 45	3 — 45	4 — 45
L.P. Gas Qty. — Drill Size	2 — 56	3 — 56	4 — 56
GAS VALVE	Redundant - Single Stage	Redundant - Single Stage	Redundant - Single Stage
PILOT SAFETY DEVICE			
Type	Hot Surface Ignition	Hot Surface Ignition	Hot Surface Ignition
BURNERS — Type	Multiport Inshot	Multiport Inshot	Multiport Inshot
Number	2	3	4
POWER CONN. — V/Ph/Hz ④	115/1/60	115/1/60	115/1/60
Ampacity (In Amps)	9.7	10.4	9.4
Max. Overcurrent Protection (Amps)	15	15	15
PIPE CONN. SIZE (IN.)	1/2	1/2	1/2
DIMENSIONS	H x W x D	H x W x D	H x W x D
Crated (In.)	41-3/4 x 19-1/2 x 30-1/2	41-3/4 x 19-1/2 x 30-1/2	41-3/4 x 19-1/2 x 30-1/2
WEIGHT			
Shipping (Lbs.)/Net (Lbs.)	139 / 129	150 / 140	158 / 148

① Central Furnace heating designs are certified to ANSI Z21.47 / CSA 2.3.
② For U.S. applications, above input ratings (BTUH) are up to 2,000 feet, derate 4% per 1,000 feet for elevations above 2,000 feet above sea level.
For Canadian applications, above input ratings (BTUH) are up to 4,500 feet, derate 4% per 1,000 feet for elevations above 4,500 feet above sea level.
③ Based on U.S. government standard tests.
④ The above wiring specifications are in accordance with National Electrical Code; however, installations must comply with local codes.
⑤ 4 Speed constant torque high efficiency ECM blower motor
⑥ Refer to the Vent Length Table in the Installer's Guide or the Allowable Vent Length label located on the furnace.
⑦ All *UH1 and *DH1 furnace models have a vent outlet diameter that equals 2".
⑧ Energy Star

NOTICE: The manufacturer has a policy of continuous product and product data improvement and reserves the right to change design and specifications without notice.

Service Facts

PRODUCT SPECIFICATIONS ①

MODEL	*UH1C100A9H41B	*UH1D120A9H51B ⑧
TYPE	Upflow/Horizontal	Upflow/Horizontal
RATINGS ②		
Input BTUH ③	97,000	110,000
Capacity BTUH (ICS) ③	92,105	104,500
AFUE	95	95
Temp. rise (Min.-Max.) °F.	35 - 65	40 - 70
BLOWER DRIVE ⑤	DIRECT	DIRECT
Diameter - Width (In.)	11 x 10	11 x 10
No. Used	1	1
Speeds (No.)	4	4
CFM vs. in. w.g.	See Fan Performance Table	See Fan Performance Table
Motor HP	3/4	1
R.P.M.	1100	1100
Volts/Ph/Hz	115/1/60	115/1/60
FLA	8.4	10.9
COMBUSTION FAN — Type	Centrifugal	Centrifugal
Drive - No. Speeds	Direct - 1	Direct - 1
Motor HP - RPM	1/20 - 3450	1/20 - 3450
Volts/Ph/Hz	115/1/60	115/1/60
FLA	.70	.70
FILTER — Furnished?	Yes	Yes
Type Recommended	High Velocity	High Velocity
Shipped (No.-Size-Thk.)	1 - 20x25 - 1in.	1 - 24x25 - 1in.
VENT PIPE DIAMETER - Min (in.) ⑥⑦	3 Round	3 Round
HEAT EXCHANGER		
Type	Alum. Steel- Fired	Alum. Steel
- Unfired		
Gauge (Fired)	20	20
ORIFICES — Main		
Nat. Gas. Qty. — Drill Size	5 — 45	6 — 45
L.P. Gas Qty. — Drill Size	5 — 56	6 — 56
GAS VALVE	Redundant - Single Stage	Redundant - Single Stage
PILOT SAFETY DEVICE		
Type	Hot Surface Ignition	Hot Surface Ignition
BURNERS — Type	Multiport Inshot	Multiport Inshot
Number	5	6
POWER CONN. — V/Ph/Hz ④	115/1/60	115/1/60
Ampacity (In Amps)	11.4	14.5
Max. Overcurrent Protection (Amps)	15	15
PIPE CONN. SIZE (IN.)	1/2	1/2
DIMENSIONS	H x W x D	H x W x D
Crated (In.)	41-3/4 x 23 x 30-1/2	41-3/4 x 26-1/2 x 30-1/2
WEIGHT		
Shipping (Lbs.)/Net (Lbs.)	171 / 160	205 / 193

* May be "A" or "T

① Central Furnace heating designs are certified to ANSI Z21.47 / CSA 2.3.

② For U.S. applications, above input ratings (BTUH) are up to 2,000 feet, derate 4% per 1,000 feet for elevations above 2,000 feet above sea level.
For Canadian applications, above input ratings (BTUH) are up to 4,500 feet, derate 4% per 1,000 feet for elevations above 4,500 feet above sea level.

③ Based on U.S. government standard tests.

④ The above wiring specifications are in accordance with National Electrical Code; however, installations must comply with local codes.

⑤ 4 Speed constant torque high efficiency ECM blower motor

⑥ Refer to the Vent Length Table in the Installer's Guide or the Allowable Vent Length label located on the furnace.

⑦ All *UH1 and *DH1 furnace models have a vent outlet diameter that equals 2".

⑧ Energy Star

MODEL	*DH1B040A9H21B	*DH1B065A9H31B
TYPE	Upflow/Horizontal	Upflow/Horizontal
RATINGS ②		
Input BTUH ③	40,000	60,000
Capacity BTUH (ICS) ③	38,000	57,000
AFUE	95	95
Temp. rise (Min.-Max.) °F.	30 - 60	25 - 55
BLOWER DRIVE ⑤	DIRECT	DIRECT
Diameter - Width (In.)	10 x 7	10 x 8
No. Used	1	1
Speeds (No.)	4	4
CFM vs. in. w.g.	See Fan Performance Table	See Fan Performance Table
Motor HP	1/2	3/4
R.P.M.	1080	1075
Volts/Ph/Hz	115/1/60	115/1/60
FLA	6.8	8.4
COMBUSTION FAN — Type	Centrifugal	Centrifugal
Drive - No. Speeds	Direct - 1	Direct - 1
Motor HP - RPM	1/55 - 3000	1/25 - 3200
Volts/Ph/Hz	115/1/60	115/1/60
FLA	1.0	1.35
FILTER — Furnished?	Yes	Yes
Type Recommended	High Velocity	High Velocity
Shipped (No.-Size-Thk.)	1 - 14x20 - 1in.	2 - 14x20 - 1in.
VENT PIPE DIAMETER - Min (in.) ⑥⑦	2 Round	2 Round
HEAT EXCHANGER		
Type	Alum. Steel- Fired	Alum. Steel
- Unfired		
Gauge (Fired)	20	20
ORIFICES — Main		
Nat. Gas. Qty. — Drill Size	2 — 45	4 — 48
L.P. Gas Qty. — Drill Size	2 — 56	4 — 56
GAS VALVE	Redundant - Single Stage	Redundant - Single Stage
PILOT SAFETY DEVICE		
Type	Hot Surface Ignition	Hot Surface Ignition
BURNERS — Type	Multiport Inshot	Multiport Inshot
Number	2	4
POWER CONN. — V/Ph/Hz ④	115/1/60	115/1/60
Ampacity (In Amps)	9.7	12.0
Max. Overcurrent Protection (Amps)	15	15
PIPE CONN. SIZE (IN.)	1/2	1/2
DIMENSIONS	H x W x D	H x W x D
Crated (In.)	41-3/4 x 19-1/2 x 30-1/2	41-3/4 x 19-1/2 x 30-1/2
WEIGHT		
Shipping (Lbs.)/Net (Lbs.)	145 / 135	158 / 148

PRODUCT SPECIFICATIONS ①

MODEL	*DH1C085A9H41B	*DH1D110A9H51B
TYPE	Downflow/Horizontal	Downflow/Horizontal
RATINGS ②		
Input BTUH ③	80,000	110,000
Capacity BTUH (ICS) ③	76,000	104,500
AFUE	95	95
Temp. rise (Min.-Max.) °F.	30 - 60	35 - 65
BLOWER DRIVE ⑤	DIRECT	DIRECT
Diameter - Width (In.)	11 x 10	11 x 10
No. Used	1	1
Speeds (No.)	4	4
CFM vs. in. w.g.	See Fan Performance Table	See Fan Performance Table
Motor HP	3/4	1
R.P.M.	1075	1075
Volts/Ph/Hz	115/1/60	115/1/60
FLA	8.4	10.9
COMBUSTION FAN — Type	Centrifugal	Centrifugal
Drive - No. Speeds	Direct - 1	Direct - 1
Motor HP - RPM	1/20 - 3450	1/20 - 3450
Volts/Ph/Hz	115/1/60	115/1/60
FLA	.70	.70
FILTER — Furnished?	Yes	Yes
Type Recommended	High Velocity	High Velocity
Shipped (No.-Size-Thk.)	2 - 16x20 - 1in.	2 - 16x20 - 1in.
VENT PIPE DIAMETER - Min (in.) ⑥⑦	2.5 Round	2.5 Round
HEAT EXCHANGER		
Type	Alum. Steel - Fired	Alum. Steel
- Unfired		
Gauge (Fired)	20	20
ORIFICES — Main		
Nat. Gas. Qty. — Drill Size	5 — 48	6 — 48
L.P. Gas Qty. — Drill Size	5 — 56	6 — 56
GAS VALVE	Redundant - Single Stage	Redundant - Single Stage
PILOT SAFETY DEVICE		
Type	Hot Surface Ignition	Hot Surface Ignition
BURNERS — Type	Multiport Inshot	Multiport Inshot
Number	5	6
POWER CONN. — V/Ph/Hz ④	115/1/60	115/1/60
Ampacity (In Amps)	11.4	14.5
Max. Overcurrent Protection (Amps)	15	15
PIPE CONN. SIZE (IN.)	1/2	1/2
DIMENSIONS	H x W x D	H x W x D
Crated (In.)	41-3/4 x 23 x 30-1/2	41-3/4 x 26-1/2 x 30-1/2
WEIGHT		
Shipping (Lbs.)/Net (Lbs.)	171 / 160	205 / 193

* May be "A" or "T

① Central Furnace heating designs are certified to ANSI Z21.47 / CSA 2.3.

② For U.S. applications, above input ratings (BTUH) are up to 2,000 feet, derate 4% per 1,000 feet for elevations above 2,000 feet above sea level.
For Canadian applications, above input ratings (BTUH) are up to 4,500 feet, derate 4% per 1,000 feet for elevations above 4,500 feet above sea level.

③ Based on U.S. government standard tests.

④ The above wiring specifications are in accordance with National Electrical Code; however, installations must comply with local codes.

⑤ 4 Speed constant torque high efficiency ECM blower motor

⑥ Refer to the Vent Length Table in the Installer's Guide or the Allowable Vent Length label located on the furnace.

⑦ All *UH1 and *DH1 furnace models have a vent outlet diameter that equals 2".

⑧ Energy Star

NOTE: Furnace is certified to leak 2% or less of nominal air conditioning CFM delivered when pressurized to .5" water column with all inlets, outlets, and drains sealed.

SAFETY SECTION

⚠ WARNING

CARBON MONOXIDE POISONING HAZARD

Failure to follow the steps outlined below for each appliance connected to the venting system being placed into operation could result in carbon monoxide poisoning or death.

The following steps shall be followed for each appliance connected to the venting system being placed into operation, while all other appliances connected to the venting system are not in operation:

1. Seal any unused openings in the venting system.
2. Inspect the venting system for proper size and horizontal pitch, as required in the National Fuel Gas Code, ANSI Z223.1/NFPA 54 or the CAN/CGA B149 Installation Codes and these instructions. Determine that there is no blockage or restriction, leakage, corrosion and other deficiencies which could cause an unsafe condition.
3. As far as practical, close all building doors and windows and all doors between the space in which the appliance(s) connected to the venting system are located and other deficiencies which could cause an unsafe condition.
4. Close fireplace dampers.
5. Turn on clothes dryers and any appliance not connected to the venting system. Turn on any exhaust fans, such as range hoods and bathroom exhausts, so they are operating at maximum speed. Do not operate a summer exhaust fan.
6. Follow the lighting instructions. Place the appliance being inspected into operation. Adjust the thermostat so appliance is operating continuously.
7. If improper venting is observed during any of the above tests, the venting system must be corrected in accordance with the National Fuel Gas Code, ANSI Z221.1/NFPA 54 and/or CAN/CGA B149 Installation Codes.
8. After it has been determined that each appliance connected to the venting system properly vents where tested as outlined above, return doors, windows, exhaust fans, fireplace dampers and any other gas-fired burning appliance to their previous conditions of use.

⚠ WARNING

The cabinet must have an uninterrupted or unbroken ground according to National Electrical Code, ANSI/NFPA 70 - "latest edition" and Canadian Electrical Code, CSA C22.1 or local codes to minimize personal injury if an electrical fault should occur.
Failure to follow this warning could result in an electrical shock, fire, injury, or death.

⚠ CAUTION

The integrated furnace control is polarity sensitive. The hot leg of the 115 VAC power must be connected to the BLACK field lead.

⚠ WARNING

FIRE OR EXPLOSION HAZARD
Failure to follow the safety warnings exactly could result in serious injury, death or property damage.
Never test for gas leaks with an open flame. Use a commercially available soap solution made specifically for the detection of leaks to check all connections. A fire or explosion may result causing property damage, personal injury, or loss of life.

⚠ WARNING

FIRE OR EXPLOSION HAZARD
Failure to follow the safety warnings exactly could result in serious injury, death or property damage.
Improper servicing could result in dangerous operation, serious injury, death, or property damage.

SEQUENCE OF OPERATION

Thermostat call for heat

R and W thermostat contacts close signaling the control module to run its self-check routine. After the control module has verified that the pressure switch contacts are open and the limit switch(es) contacts are closed, the draft blower will be energized.

As the induced draft blower comes up to speed, the pressure switch contacts will close and the ignitor warm up period will begin. The ignitor will heat for approximately 17 seconds, then the gas valve is energized to permit gas flow to the burners. The flame sensor confirms that ignition has been achieved within the 4 second ignition trial period.

After the flame sensor confirms that ignition has been achieved, the delay to fan ON period begins timing and after approximately 45 seconds the indoor blower motor will be energized and will continue to run during the heating cycle.

When the thermostat is satisfied, R and W thermostat contacts open, the gas valve will close, the flames will extinguish, and the induced draft blower will be de-energized. The indoor blower motor will continue to run for the fan off period (Field selectable at 60, 100, 140 or 180 seconds), then will be de-energized by the control module.

AIRFLOW ADJUSTMENT
Check inlet and outlet air temperatures to make sure they are within the ranges specified on the furnace rating nameplate. If the airflow needs to be increased or decreased, see the wiring diagram for information on changing the speed of the blower motor.

⚠ WARNING

Disconnect power to the unit before removing the blower door.
Failure to follow this warning could result in personal injury from moving parts.

This unit is equipped with a blower door switch which cuts power to the blower and gas valve causing shutdown when the door is removed. Operation with the door removed or ajar can permit the escape of dangerous fumes. All panels must be securely closed at all times for safe operation of the furnace.

⚠ WARNING

BODILY INJURY CAN RESULT FROM HIGH VOLTAGE ELECTRICAL COMPONENTS, FAST MOVING FANS, AND COMBUSTIBLE GAS. FOR PROTECTION FROM THESE INHERENT HAZARDS DURING INSTALLATION AND SERVICING, THE ELECTRICAL SUPPLY MUST BE DISCONNECTED AND THE MAIN GAS VALVE MUST BE TURNED OFF. IF OPERATING CHECKS MUST BE PERFORMED WITH THE UNIT OPERATING, IT IS THE TECHNICIANS RESPONSIBILITY TO RECOGNIZE THESE HAZARDS AND PROCEED SAFELY.

INDOOR BLOWER TIMING
Heating: The control module controls the indoor blower. The blower start is fixed at 45 seconds after ignition. The FAN-OFF period is field selectable by dip switches at 60, 100, 140, or 180 seconds. The factory setting is 100 seconds (See wiring diagram).

Cooling: The fan delay off period is factory set at 0 seconds. The option for 80 second delay off is field selectable (See wiring diagram).

NOTE:
Direct drive motors have bearings which are permanently lubricated and under normal use, lubrication is not recommended.

The following warning complies with State of California law, Proposition 65.

⚠ WARNING

This product contains fiberglass wool insulation!

Fiberglass dust and ceramic fibers are believed by the State of California to cause cancer through inhalation. Glasswool fibers may also cause respiratory, skin, or eye irritation.

PRECAUTIONARY MEASURES

- Avoid breathing fiberglass dust.
- Use a NIOSH approved dust/mist respirator.
- Avoid contact with the skin or eyes. Wear long-sleeved, loose-fitting clothing, gloves, and eye protection.
- Wash clothes separately from other clothing: rinse washer thoroughly.
- Operations such as sawing, blowing, tear-out, and spraying may generate fiber concentrations requiring additional respiratory protection. Use the appropriate NIOSH approved respirator in these situations.

FIRST AID MEASURES

Eye Contact – Flush eyes with water to remove dust. If symptoms persist, seek medical attention.

Skin Contact – Wash affected areas gently with soap and warm water after handling.

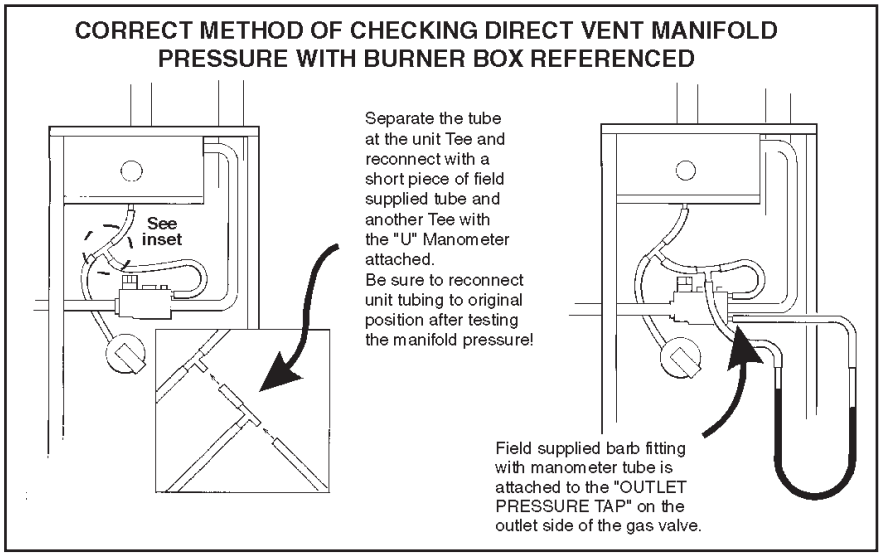
The following warning complies with State of California law, Proposition 65.

⚠ WARNING

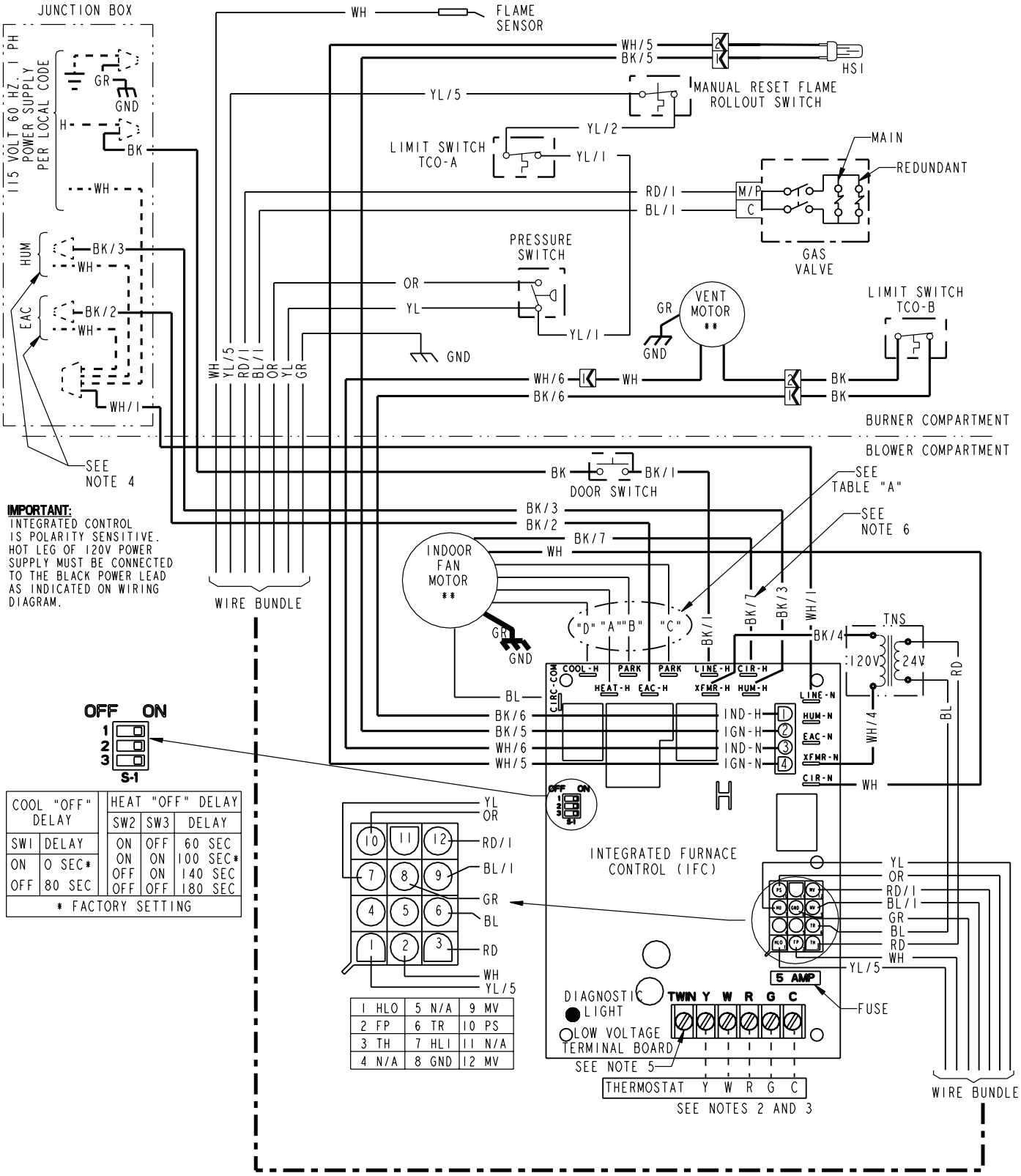
Hazardous Gases!

Exposure to fuel substances or by-products of incomplete fuel combustion is believed by the state of California to cause cancer, birth defects, or other reproductive harm.

CORRECT METHOD OF CHECKING DIRECT VENT MANIFOLD PRESSURE WITH BURNER BOX REFERENCED



WIRING DIAGRAM



COOL "OFF" DELAY	
SWI	DELAY
ON	0 SEC*
OFF	80 SEC

HEAT "OFF" DELAY		
SW2	SW3	DELAY
ON	OFF	60 SEC
ON	ON	100 SEC*
OFF	ON	140 SEC
OFF	OFF	180 SEC

* FACTORY SETTING

From Dwg. D342491P03

SCHEMATIC DIAGRAM

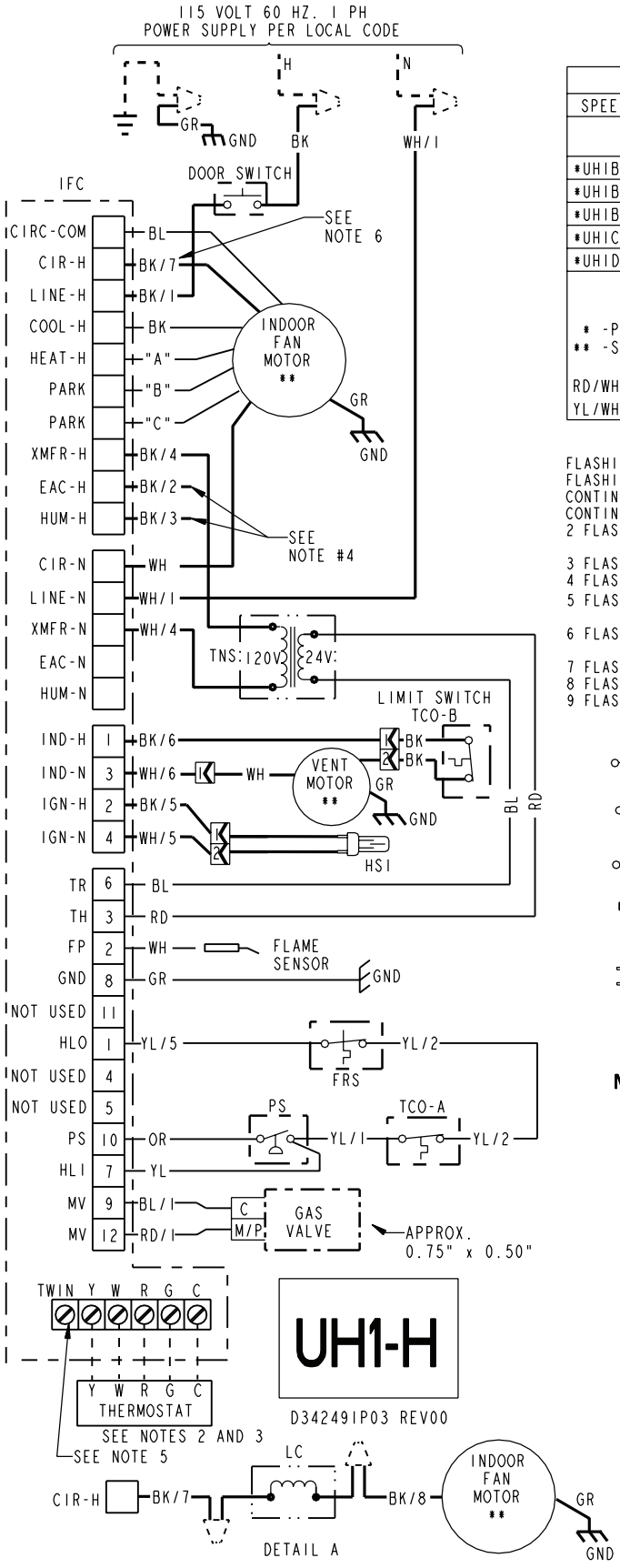


TABLE "A"				
SPEED TAPS FOR I.D. FAN MOTOR				
MODEL	HEAT "A"	PARK "B"	PARK "C"	COOL "D"
*UH1B040A9H21**	RD/WH	BK/WH	YL/WH	BL/WH
*UH1B060A9H31**	BL/WH	YL/WH	RD/WH	BK/WH
*UH1B080A9H31**	BL/WH	YL/WH	RD/WH	BK/WH
*UH1C100A9H41**	BL/WH	YL/WH	RD/WH	BK/WH
*UH1D120A9H51**	BL/WH	YL/WH	RD/WH	BK/WH

* -PREFIX MAY BE "A" OR "T"
** -SUFFIX MAY BE "A" THROUGH "Z"

RD/WH= LOW=1 BL/WH= MED.HIGH=3
YL/WH= MED. LOW=2 BK/WH= HIGH=4

DIAGNOSTIC CODES

FLASHING SLOW: NORMAL - NO CALL FOR HEAT
FLASHING FAST: NORMAL - CALL FOR HEAT
CONTINUOUS ON: REPLACE IFC
CONTINUOUS OFF: CHECK POWER
2 FLASHES: EXTERNAL LOCKOUT (RETRIES OR RECYCLES EXCEEDED)
3 FLASHES: PRESSURE SWITCH ERROR
4 FLASHES: OPEN LIMIT DEVICE
5 FLASHES: FLAME SENSED WHEN NO FLAME SHOULD BE PRESENT
6 FLASHES: 115 VAC POWER REVERSED POLARITY OR POOR GROUNDING
7 FLASHES: GAS VALVE CIRCUIT ERROR
8 FLASHES: LOW FLAME SENSE SIGNAL
9 FLASHES: CHECK IGNITER

⚠ WARNING

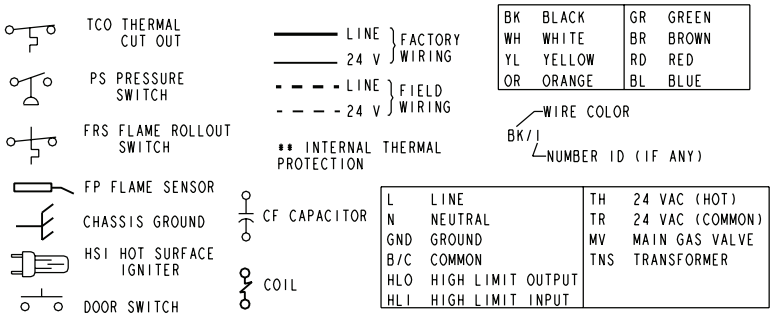
HAZARDOUS VOLTAGE:
DISCONNECT ALL ELECTRICAL POWER INCLUDING REMOTE DISCONNECTS BEFORE SERVICING.
FAILURE TO DISCONNECT POWER BEFORE SERVICING CAN CAUSE SEVERE PERSONAL INJURY OR DEATH.

⚠ CAUTION

USE COPPER CONDUCTORS ONLY!
UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS.
FAILURE TO DO SO MAY CAUSE DAMAGE TO THE EQUIPMENT.

INTEGRATED FURNACE CONTROL

REPLACE WITH PART CNT0471I OR EQUIVALENT
INPUT: 25 VAC, 60 HZ.
XFMR SEC. CURRENT: 450 MA.
MV OUTPUT: 1.5 A @ 24 VAC
IND OUTPUT: 2.2 FLA, 3.5 LRA @ 120 VAC
CIRC. BLOWER OUTPUT: 14.5 FLA, 14.5 LRA @ 120 VAC
HUMIDIFER & AIR CLEANER MAX. LOAD: 1.0 A @ 120 VAC
IGNITER OUTPUT: 2.0 A @ 120 VAC

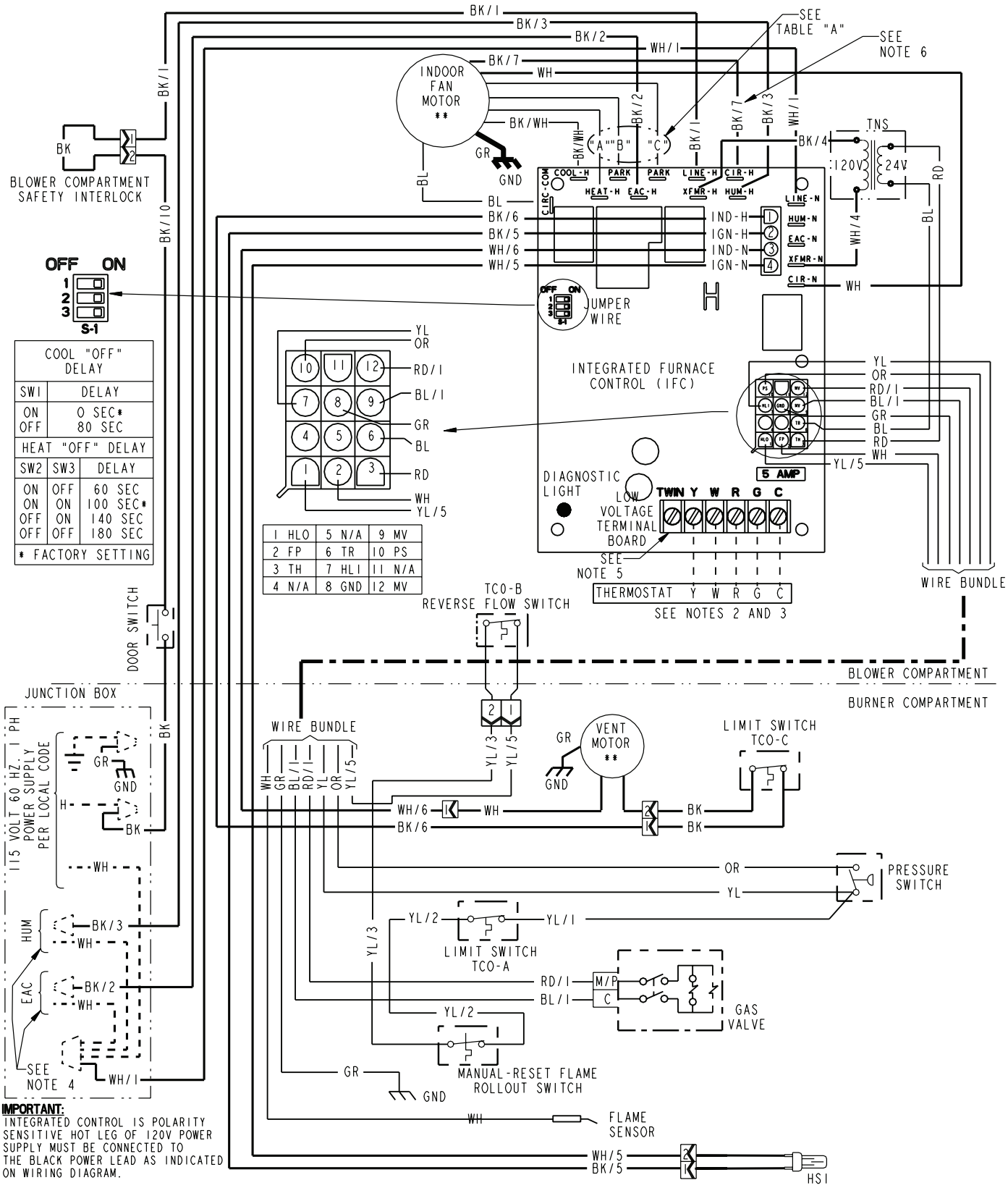


NOTES:

1. IF ANY OF THE ORIGINAL WIRING AS SUPPLIED WITH THIS FURNACE MUST BE REPLACED, IT MUST BE WITH WIRE HAVING A TEMPERATURE RATING OF AT LEAST 105 C.
2. THERMOSTAT HEAT ANTICIPATOR SETTING: .38 AMPS
3. FOR PROPER OPERATION OF COOLING SPEED, "Y" TERMINAL MUST BE CONNECTED TO THE ROOM THERMOSTAT.
4. THESE LEADS PROVIDE 120V POWER CONNECTIONS FOR ELECTRONIC AIR CLEANER (EAC) AND HUMIDIFIER (HUM). MAX. LOAD: 1.0 AMPS EACH.
5. WHEN TWINNING TWO FURNACES, BOTH UNITS MUST BE CONNECTED TO THE SAME 115 VAC PHASE CONNECT THE TWO UNITS 'TWIN' TERMINALS WITH 14 TO 22 AWG. WIRE.
6. FOR MOELS USING 3/4 HP & 1 HP INDOOR FAN MOTOR, USE DETAIL A & TABLE A.

From Dwg. D342491P03

WIRING DIAGRAM



COOL "OFF" DELAY	
SW1	DELAY
ON	0 SEC*
OFF	80 SEC

HEAT "OFF" DELAY		
SW2	SW3	DELAY
ON	OFF	60 SEC
ON	ON	100 SEC*
OFF	ON	140 SEC
OFF	OFF	180 SEC

* FACTORY SETTING

1 HLO	5 N/A	9 MV
2 FP	6 TR	10 PS
3 TH	7 HL1	11 N/A
4 N/A	8 GND	12 MV

IMPORTANT:
INTEGRATED CONTROL IS POLARITY SENSITIVE HOT LEG OF 120V POWER SUPPLY MUST BE CONNECTED TO THE BLACK POWER LEAD AS INDICATED ON WIRING DIAGRAM.

From Dwg. D342800P03

SCHEMATIC DIAGRAM

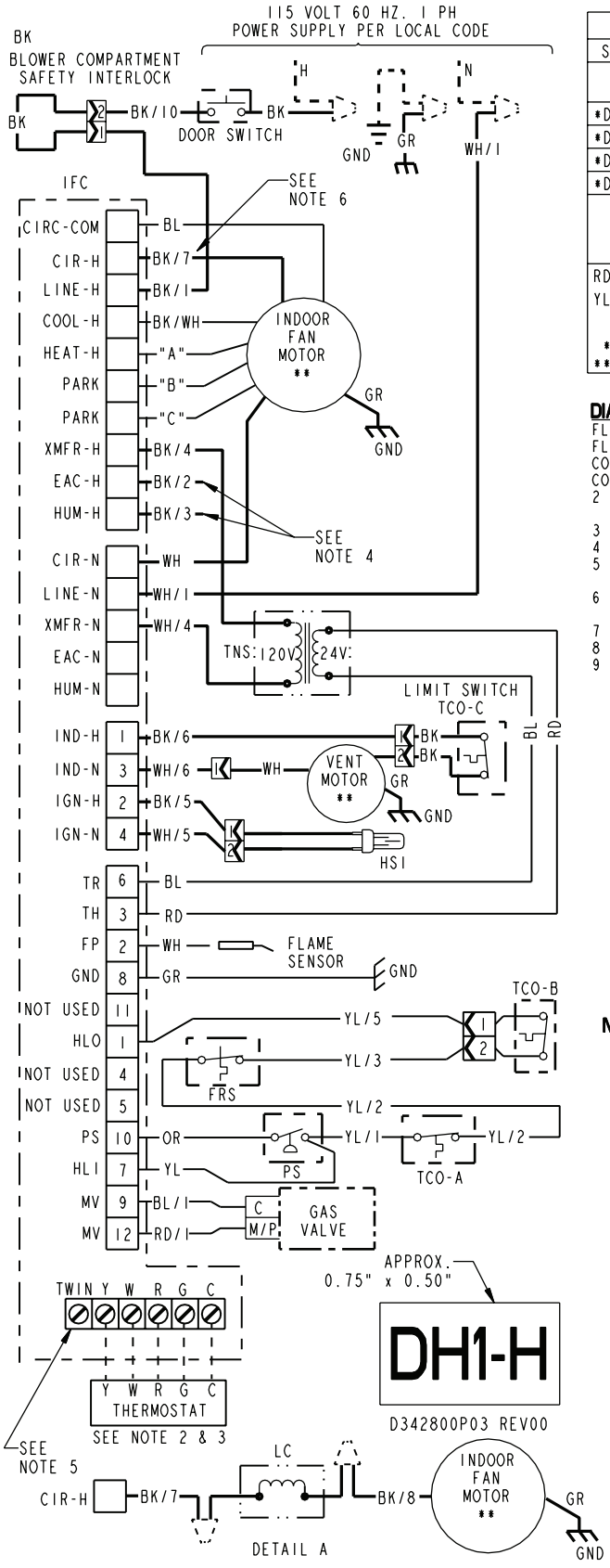


TABLE "A"				
SPEED TAPS FOR I.D. FAN MOTOR				
MODEL	HEAT "A"	PARK "B"	PARK "C"	COOL "D"
*DH1B040A9H21**	YL/WH	BL/WH	RD/WH	BK/WH
*DH1B065A9H31**	BL/WH	YL/WH	RD/WH	BK/WH
*DH1C085A9H41**	BL/WH	YL/WH	RD/WH	BK/WH
*DH1D110A9H51**	BL/WH	YL/WH	RD/WH	BK/WH

RD/WH = LOW=1 BL/WH = MED.HIGH=3
YL/WH = MED. LOW=2 BK/WH= HIGH=4

* - MAY BE PREFIX "A" OR "T"
** - MAY BE SUFFIX "A" THROUGH "Z"

⚠ WARNING

HAZARDOUS VOLTAGE:
DISCONNECT ALL ELECTRICAL POWER INCLUDING REMOTE DISCONNECTS BEFORE SERVICING.
FAILURE TO DISCONNECT POWER BEFORE SERVICING CAN CAUSE SEVERE PERSONAL INJURY OR DEATH.

⚠ CAUTION

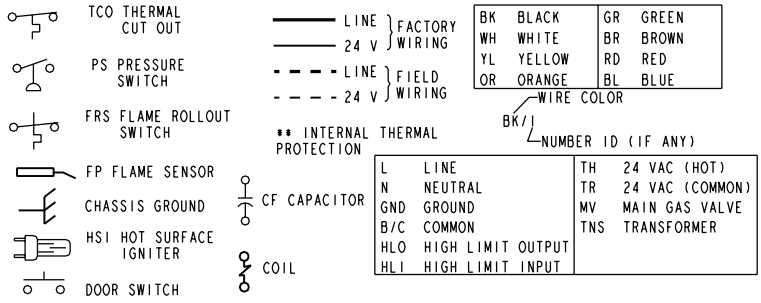
USE COPPER CONDUCTORS ONLY!
UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS.
FAILURE TO DO SO MAY CAUSE DAMAGE TO THE EQUIPMENT.

DIAGNOSTIC CODES

FLASHING SLOW: NORMAL - NO CALL FOR HEAT
FLASHING FAST: NORMAL - CALL FOR HEAT
CONTINUOUS ON: REPLACE IFC
CONTINUOUS OFF: CHECK POWER
2 FLASHES: EXTERNAL LOCKOUT (RETRIES OR RECYCLES EXCEEDED)
3 FLASHES: PRESSURE SWITCH ERROR
4 FLASHES: OPEN LIMIT DEVICE
5 FLASHES: FLAME SENSED WHEN NO FLAME SHOULD BE PRESENT
6 FLASHES: 115 VAC POWER REVERSED POLARITY OR POOR GROUNDING
7 FLASHES: GAS VALVE CIRCUIT ERROR
8 FLASHES: LOW FLAME SENSE SIGNAL
9 FLASHES: CHECK IGNITER

INTEGRATED FURNACE CONTROL

REPLACE WITH PART CNT04711 OR EQUIVALENT
INPUT: 25 VAC, 60 HZ.
XFMR SEC. CURRENT: 450 MA.
MV OUTPUT: 1.5 A @ 24 VAC
IND OUTPUT: 2.2 FLA, 3.5 LRA @ 120 VAC
CIRC. BLOWER OUTPUT: 14.5 FLA, 14.5 LRA @ 120 VAC
HUMIDIFER & AIR CLEANER MAX. LOAD: 1.0 A @ 120 VAC
IGNITER OUTPUT: 6.0 A @ 120 VAC



NOTES:

1. IF ANY OF THE ORIGINAL WIRING AS SUPPLIED WITH THIS FURNACE MUST BE REPLACED, IT MUST BE WITH WIRE HAVING A TEMPERATURE RATING OF AT LEAST 105 C.
2. THERMOSTAT HEAT ANTICIPATOR SETTING: .38 AMPS
3. FOR PROPER OPERATION OF COOLING SPEED, "Y" TERMINAL MUST BE CONNECTED TO THE ROOM THERMOSTAT.
4. THESE LEADS PROVIDE 120V POWER CONNECTIONS FOR ELECTRONIC AIR CLEANER (EAC) AND HUMIDIFIER (HUM). MAX. LOAD: 1.0 AMPS EACH.
5. WHEN TWINNING TWO FURNACES, BOTH UNITS MUST BE CONNECTED TO THE SAME 115 VAC PHASE CONNECT THE TWO UNITS 'TWIN' TERMINALS WITH 14 TO 22 AWG. WIRE.
6. FOR MOELS USING 3/4 HP & 1 HP INDOOR FAN MOTOR, USE DETAIL A & TABLE A.

NOTE: For the *DH1C085A9H41B furnace, Do NOT use the LOW speed tap for heating

From Dwg. D342800P03

PERIODIC SERVICING REQUIREMENTS

⚠ WARNING

Disconnect power to the unit before removing the blower door.
Failure to follow this warning could result in personal injury from moving parts.

1. GENERAL INSPECTION — Examine the furnace installation annually for the following items:
   a. All flue product carrying areas external to the furnace (i.e. chimney, vent connector) are clear and free of obstruction. A vent screen in the end of the vent (flue) pipe must be inspected for blockage annually.
   b. The vent connector is in place, slopes upward and is physically sound without holes or excessive corrosion.
   c. The return air duct connection(s) is physically sound, is sealed to the furnace and terminates outside the space containing the furnace.
   d. The physical support of the furnace should be sound without sagging, cracks, gaps, etc., around the base so as to provide a seal between the support and the base.
   e. There are no obvious signs of deterioration of the furnace.
2. FILTERS — Filters should be cleaned or replaced (with high velocity filters only), monthly and more frequently during high use times of the year such as midsummer or midwinter.
3. BLOWERS — The blower size and speed determine the air volume delivered by the furnace. The blower motor bearings are factory lubricated and under normal operating conditions do not require servicing. If motor lubrication is required it should only be done by a qualified servicer. Annual cleaning of the blower wheel and housing is recommended for maximum air output, and this must be performed only by a qualified servicer or service agency.
4. IGNITER — This unit has a special hot surface direct ignition device that automatically lights the burners. Please note that it is very fragile and should be handled with care.

⚠ WARNING

Do NOT touch igniter. It is extremely hot.
Failure to follow this warning could result in severe burns.

5. BURNER — Gas burners do not normally require scheduled servicing, however, accumulation of foreign material may cause a yellowing flame or delayed ignition. Either condition indicates that a service call is required. For best operation, burners must be cleaned annually using brushes and vacuum cleaner.

   Turn off gas and electric power supply. To clean burners, remove the top burner bracket. Lift burners from orifices.

NOTE:
Be careful not to break igniter when removing burners.

Clean burners with brush and/or vacuum cleaner. Reassemble parts by reversal of the above procedure.

NOTE:
On LP (propane) units, some light yellow tipping of the outer mantle is normal. Inner mantle should be bright blue.

Natural gas units should not have any yellow tipped flames. This condition indicates that a service call is required. For best operation, burners must be cleaned annually using brushes and vacuum cleaner.

NOTE:
On LP (propane) units, due to variations in BTU content and altitude, servicing may be required at shorter intervals.

⚠ WARNING

CARBON MONOXIDE POISONING HAZARD
Failure to follow the installation instructions for the venting system being placed into operation could result in carbon monoxide poisoning or death.

6. HEAT EXCHANGER/FLUE PIPE — These items must be inspected for signs of corrosion, and/or deterioration at the beginning of each heating season by a qualified service technician and cleaned annually for best operation. To clean flue gas passages, follow recommendations below:
   a. Turn off gas and electric power supply.
   b. Inspect flue pipe exterior for cracks, leaks, holes or leaky joints.
   c. Remove burner compartment door from furnace.
   d. Inspect around insulation covering flue collector box. Inspect induced draft blower connections to the flue pipe connection.
   e. Remove burners. (See 4.)
   f. Use a mirror and flashlight to inspect interior of heat exchanger, be careful not to damage the igniter, flame sensor or other components.
   g. If any corrosion is present, contact a service agency. Heat exchanger should be cleaned by a qualified service technician.
   h. After inspection is complete replace burners and furnace door.
   i. Restore gas supply. Check for leaks using a soap solution. Restore electrical supply. Check unit for normal operation.
7. FURNACE CONDENSATE DRAIN TUBES - Condensate drain tubes must be checked periodically to assure that condensate can flow freely from unit to drain. If a drain problem cannot be corrected, call a qualified servicer.
7. COOLING COIL CONDENSATE DRAIN — If a cooling coil is installed with the furnace, condensate drains should be checked and cleaned periodically to assure that condensate can drain freely from coil to drain. If condensate cannot drain freely water damage could occur. (See Condensate Drain in Installer's Guide)

⚠ CAUTION

Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation.

Verify proper operation after servicing.

FURNACE AIRFLOW (CFM) VS. STATIC PRESSURE (ins.w.g.)										
MODEL	SPEED TAP	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
*UH1B040A9H21B	4 - HIGH - Black	1159	1131	1102	1077	1052	1022	992	961	930
	3 - MED-HIGH - Blue	938	910	881	851	820	786	751	717	662
	2 - MED-LOW - Yellow	844	814	783	750	717	681	645	604	563
	1 - LOW - Red**	772	732	691	656	621	581	540	497	454
*UH1B060A9H31B	4 - HIGH - Black	1402	1362	1318	1267	1214	1157	1095	1033	960
	3 - MED-HIGH - Blue**	1199	1174	1149	1127	1099	1075	1028	973	897
	2 - MED-LOW - Yellow	1104	1080	1053	1031	1002	980	955	931	890
	1 - LOW - Red	834	808	770	750	712	677	641	599	566
*UH1B080A9H31C	4 - HIGH - Black	1328	1304	1277	1253	1224	1182	1127	1057	959
	3 - MED-HIGH - Blue**	1519	1493	1464	1422	1368	1306	1242	1161	1054
	2 - MED-LOW - Yellow	1072	1039	1015	991	956	928	891	858	828
	1 - LOW - Red	810	782	759	729	703	668	643	612	582
*UH1C100A9H41B	4 - HIGH - Black	1586	1552	1517	1477	1443	1410	1366	1331	1289
	3 - MED-HIGH - Blue**	1893	1858	1826	1793	1759	1724	1691	1646	1582
	2 - MED-LOW - Yellow	1364	1320	1282	1241	1205	1167	1120	1078	1045
	1 - LOW - Red	1107	1060	1003	959	919	863	825	782	730
*UH1D120A9H51B	4 - HIGH - Black	2141	2108	2076	2041	2009	1976	1939	1894	1826
	3 - MED-HIGH - Blue**	2072	2038	2007	1975	1938	1910	1880	1845	1797
	2 - MED-LOW - Yellow	1886	1853	1816	1785	1754	1718	1688	1652	1619
	1 - LOW - Red	1647	1609	1573	1540	1497	1465	1429	1391	1358

*= First letter may be "A" or "T"
** = Factory Set Heat Speed Tap Setting

CFM VS. TEMPERATURE RISE																			
MODEL	CFM (CUBIC FEET PER MINUTE)																		
	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
*UH1B040A9H21B	59	50	44	39	35	32	29												
*UH1B060A9H31B				59	53	48	44	41	38										
*UH1B080A9H31C						64	59	54	50	47	44	41							
*UH1C100A9H41B								66	61	57	53	50	47	45	43				
*UH1D120A9H51B										65	60	57	54	51	48	46	44		

* May be "A" or "T"

Service Facts

FURNACE AIRFLOW (CFM) VS. STATIC PRESSURE (ins.w.g.)										
MODEL	SPEED TAP	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
*DH1B040A9H21B	4 - HIGH - Black	1156	1128	1100	1072	1043	1012	981	917	852
	3 - MED-HIGH - Blue	935	859	859	828	797	757	717	679	641
	2 - MED-LOW - Yellow**	835	803	771	736	701	652	602	569	536
	1 - LOW - Red	752	726	700	648	596	554	511	471	431
*DH1B065A9H31B	4 - HIGH - Black	1455	1404	1352	1299	1232	1174	1101	1025	916
	3 - MED-HIGH - Blue**	1375	1350	1320	1270	1215	1153	1099	1014	934
	2 - MED-LOW - Yellow	1099	1076	1044	1021	994	968	941	904	874
	1 - LOW - Red	838	799	773	744	706	675	628	599	558
*DH1C085A9H41B	4 - HIGH - Black	1795	1763	1732	1701	1669	1627	1575	1514	1451
	3 - MED-HIGH - Blue**	1686	1655	1619	1586	1554	1525	1494	1458	1415
	2 - MED-LOW - Yellow	1395	1362	1328	1289	1258	1225	1186	1151	1115
	1 - LOW - Red	1179	1141	1094	1059	1019	970	931	888	846
*DH1D110A9H51B	4 - HIGH - Black	2105	2063	2010	1951	1880	1802	1721	1630	1543
	3 - MED-HIGH - Blue**	1880	1853	1817	1785	1747	1708	1649	1579	1499
	2 - MED-LOW - Yellow	1756	1718	1688	1647	1616	1576	1546	1505	1468
	1 - LOW - Red	1582	1553	1509	1473	1433	1397	1362	1317	1282

*= First letter may be "A" or "T"
** = Factory Set Heat Speed Tap Setting

CFM VS. TEMPERATURE RISE																		
MODEL	CFM (CUBIC FEET PER MINUTE)																	
	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
*DH1B040A9H21B	59	50	44	39	35	32	29											
*DH1B065A9H31B					53	48	44	41	38	35								
*DH1C085A9H41B							59	54	50	47	44	41	39					
*DH1D110A9H51B										65	60	57	54	51	48	46		

* May be "A" or "T"

INTEGRATED FURNACE CONTROL ERROR FLASH CODES	
Flashing Slow ---	Normal - No call for Heat
Flashing Fast ---	Normal - Call for Heat
Continuous ON ---	Replace IFC
Continuous OFF ---	Check Power
2 Flashes ---	System Lockout (Retries or Recycles exceeded)
3 Flashes ---	Draft Pressure Error - Possible problems: a) Venting problem b) Pressure switch problem c) Inducer problem
4 Flashes ---	Open Temperature Limit Circuit
5 Flashes ---	Flame sensed when no flame should be present
6 Flashes ---	115 volt AC power reversed, poor grounding or system voltage too low
7 Flashes ---	Gas valve circuit error
8 Flashes ---	Low flame sense signal
9 Flashes ---	Check Ignitor Circuit and Line "N" to 24VAC "Common" voltage (≤ 2 volts) [possible grounding problem]

ABNORMAL CONDITIONS

1. EXCESSIVE COMBUSTION VENT PRESSURE OR FLUE BLOCKAGE
   If pressure against the induced draft blower outlet becomes excessive, the pressure switch will shut off the gas valve until acceptable combustion pressure is again available.
2. LOSS OF FLAME OR GAS SUPPLY FAILURE
   If loss of flame occurs during a heating cycle (when flame is not present at the sensor), the control module will retry the ignition sequence up to two times after the sensor cools. If ignition is not achieved, it will lockout the furnace.
3. POWER FAILURE
   If there is a power failure during a heating cycle, the system will restart the ignition sequence automatically when power is restored, if the thermostat still calls for heat.
4. INDUCED DRAFT BLOWER FAILURE
   If pressure is not sensed by the pressure switch, it will not allow the gas valve to open, therefore the unit will not start. If failure occurs during a running cycle, the pressure switch will cause the gas valve to close and shut the unit down.

⚠ WARNING

Should overheating occur, or the gas supply fail to shut off, shut off the gas valve to the unit before shutting off the electrical supply.
Failure to follow this warning could result in property damage, personal injury, or death.

⚠ WARNING

FIRE OR EXPLOSION HAZARD
Failure to follow the safety warnings exactly could result in serious injury, death or property damage.
Never test for gas leaks with an open flame. Use a commercially available soap solution made specifically for the detection of leaks to check all connections. A fire or explosion may result causing property damage, personal injury, or loss of life.

The following warning complies with State of California law, Proposition 65.

⚠ WARNING

This product contains fiberglass wool insulation!

Fiberglass dust and ceramic fibers are believed by the State of California to cause cancer through inhalation. Glasswool fibers may also cause respiratory, skin, or eye irritation.

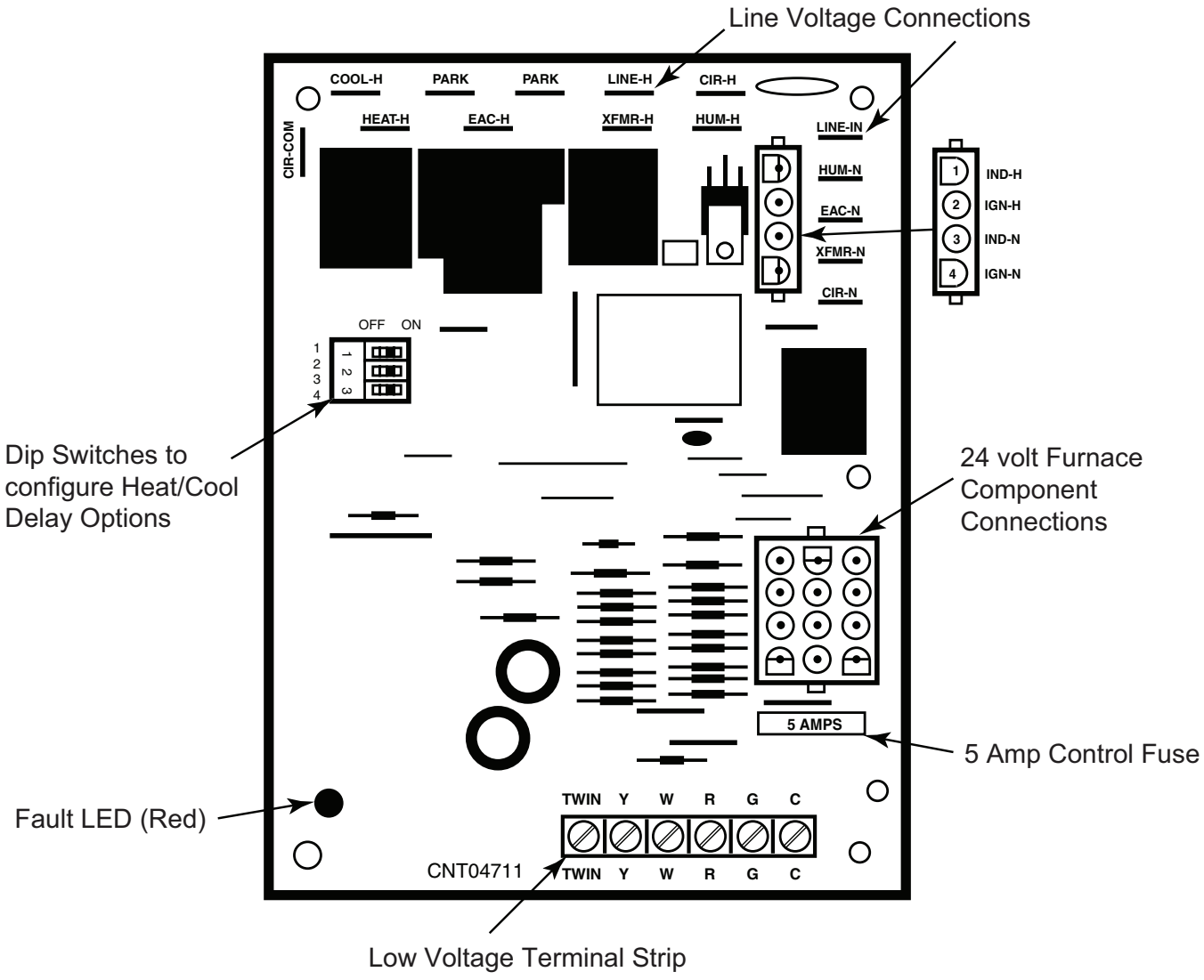
Troubleshooting Flowchart Index

The following pages include troubleshooting flowcharts in reference to the 90% Single Stage (*UX1-*DX1-A9H) furnaces ONLY; using the FAULT LED as starting points.

The information contained is for reference only and does not cover all scenarios or problems that may be encountered by a qualified field technician.

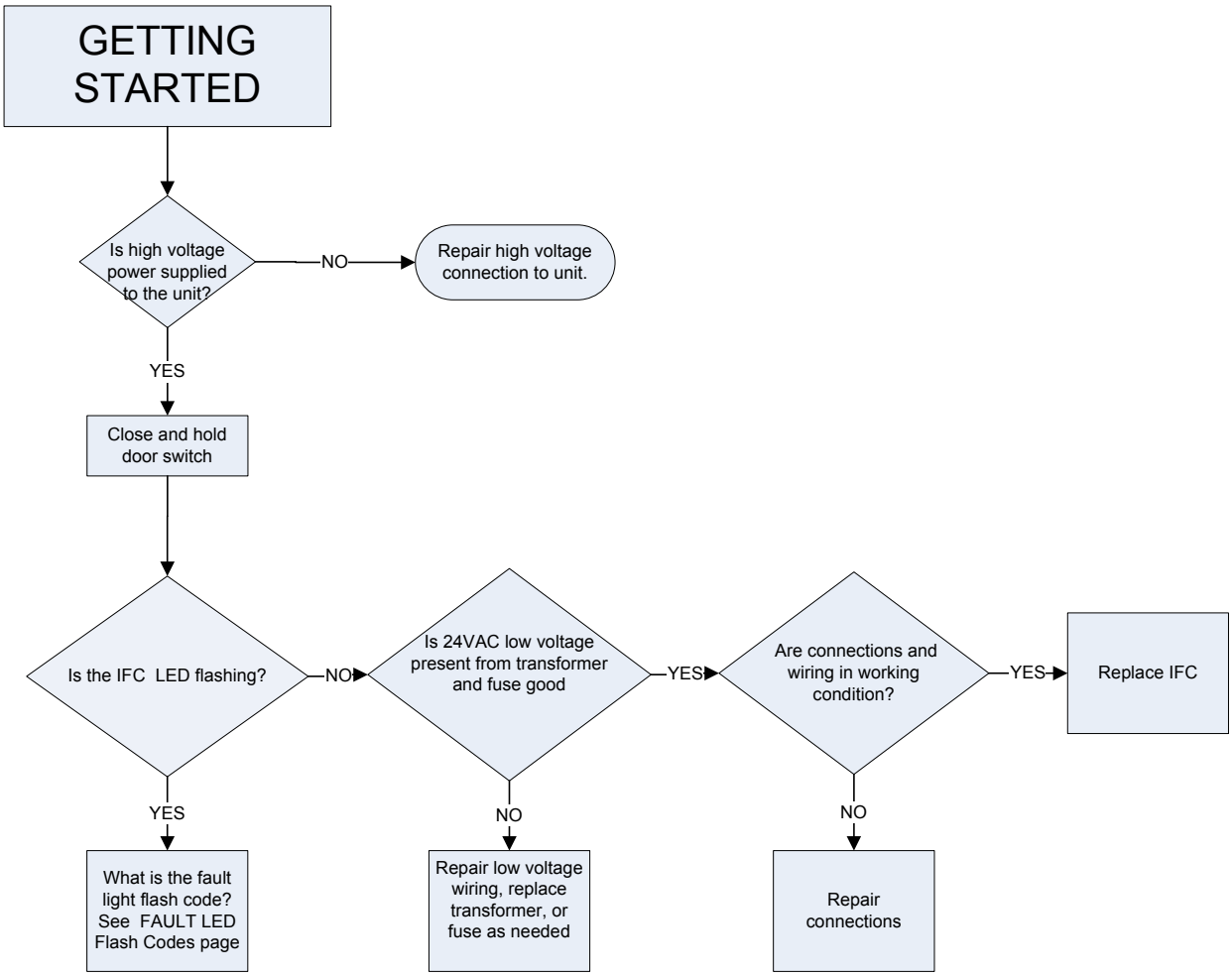
Only qualified technicians should attempt to install, troubleshoot, or repair this appliance. Failure to follow all cautions and/or warnings could result in personal or property damage; including death.

Integrated Furnace Control
(IFC) Component Layout

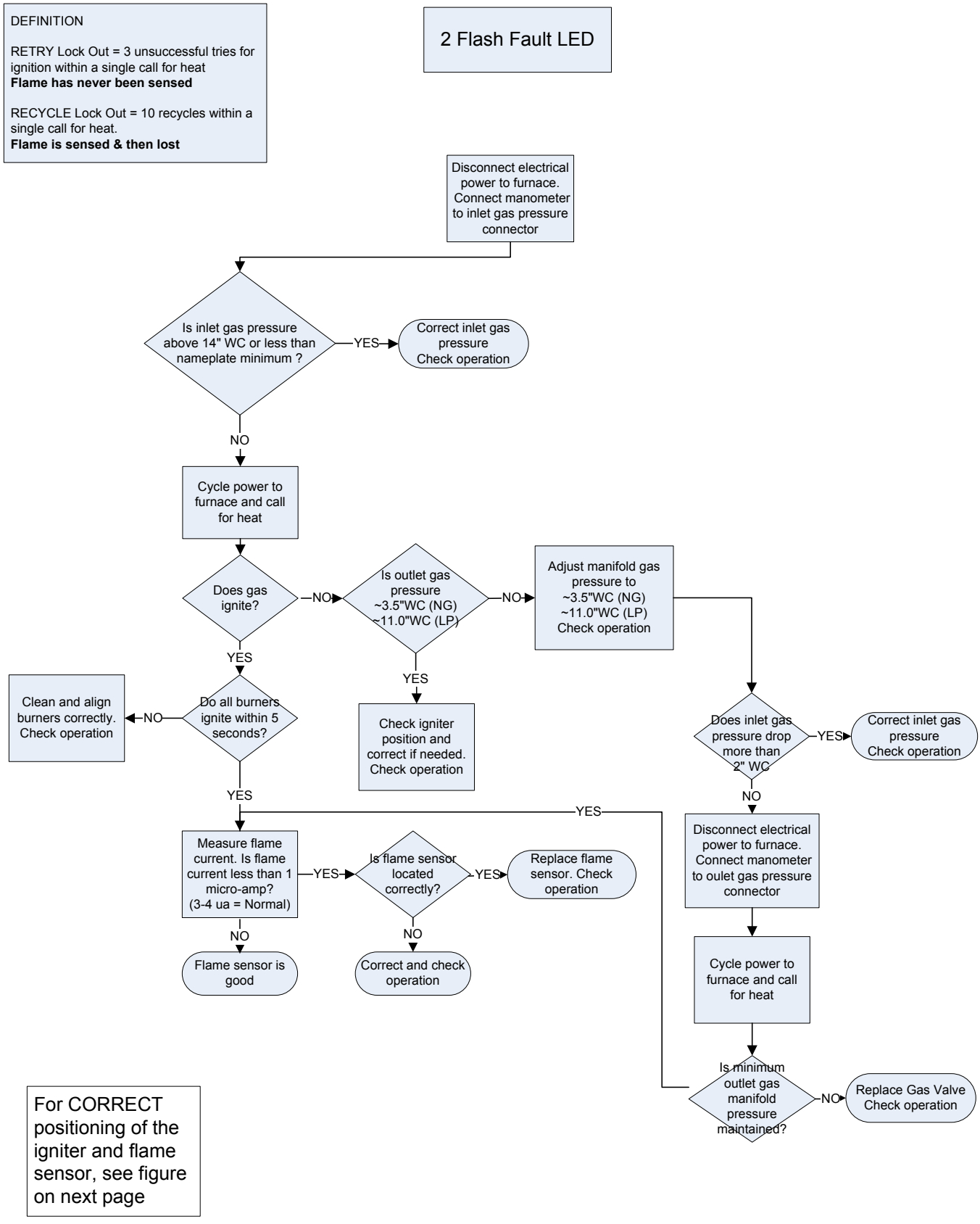


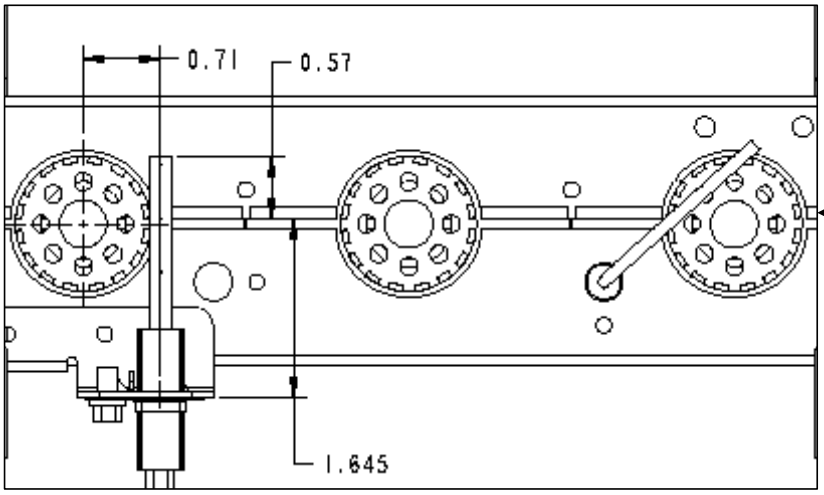
Fault LED Flash Codes Definitions

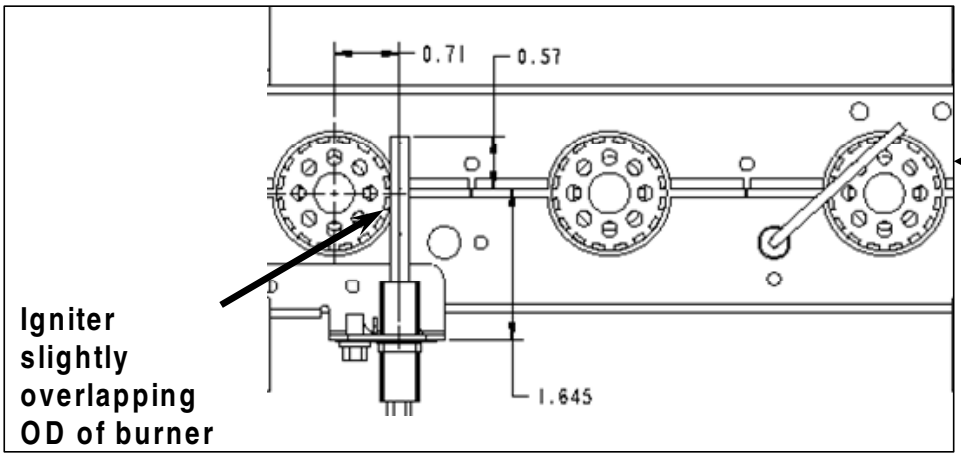
INTEGRATED FURNACE CONTROL ERROR FLASH CODES	
Flashing Slow ---	Normal - No call for Heat
Flashing Fast ---	Normal - Call for Heat
Continuous ON ---	Replace IFC
Continuous OFF ---	Check Power
2 Flashes ---	System Lockout (Retries or Recycles exceeded)
3 Flashes ---	Pressure Switch Error
4 Flashes ---	Open High Limit Device
5 Flashes ---	Flame sensed when no flame should be present
6 Flashes ---	115 Volt AC power reversed or Poor Grounding
7 Flashes ---	Gas valve circuit error
8 Flashes ---	Low flame sense signal
9 Flashes ---	Check Ignitor



Refer to Gas Furnace Silicon Nitride Ignitor Models Service Manual to supplement this information.
Publication Number 34-3405-08

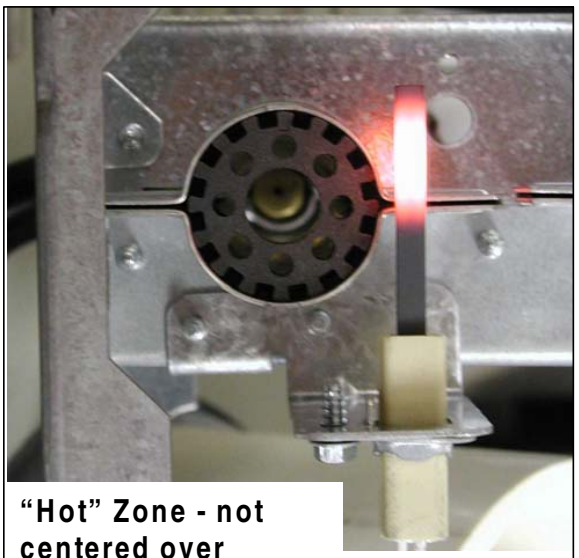

DEFINITION
RETRY Lock Out = 3 unsuccessful tries for ignition within a single call for heat
Flame has never been sensed
RECYCLE Lock Out = 10 recycles within a single call for heat.
Flame is sensed & then lost
2 Flash Fault LED
Disconnect electrical power to furnace. Connect manometer to inlet gas pressure connector
Is inlet gas pressure above 14" WC or less than nameplate minimum ?
YES
Correct inlet gas pressure Check operation
NO
Cycle power to furnace and call for heat
Does gas ignite?
NO
Is outlet gas pressure ~3.5"WC (NG) ~11.0"WC (LP)
NO
Adjust manifold gas pressure to ~3.5"WC (NG) ~11.0"WC (LP) Check operation
YES
YES
Clean and align burners correctly. Check operation
NO
Do all burners ignite within 5 seconds?
Check igniter position and correct if needed. Check operation
Does inlet gas pressure drop more than 2" WC
YES
Correct inlet gas pressure Check operation
NO
YES
YES
Measure flame current. Is flame current less than 1 micro-amp? (3-4 ua = Normal)
YES
Is flame sensor located correctly?
YES
Replace flame sensor. Check operation
NO
NO
Flame sensor is good
Correct and check operation
Disconnect electrical power to furnace. Connect manometer to oulet gas pressure connector
Cycle power to furnace and call for heat
Is minimum outlet gas manifold pressure maintained?
NO
Replace Gas Valve Check operation
For CORRECT positioning of the igniter and flame sensor, see figure on next page





Igniter slightly overlapping OD of burner

Correct positioning of ignitor and flame sensor.
NOTE the slight over lap of the ignitor and the burner

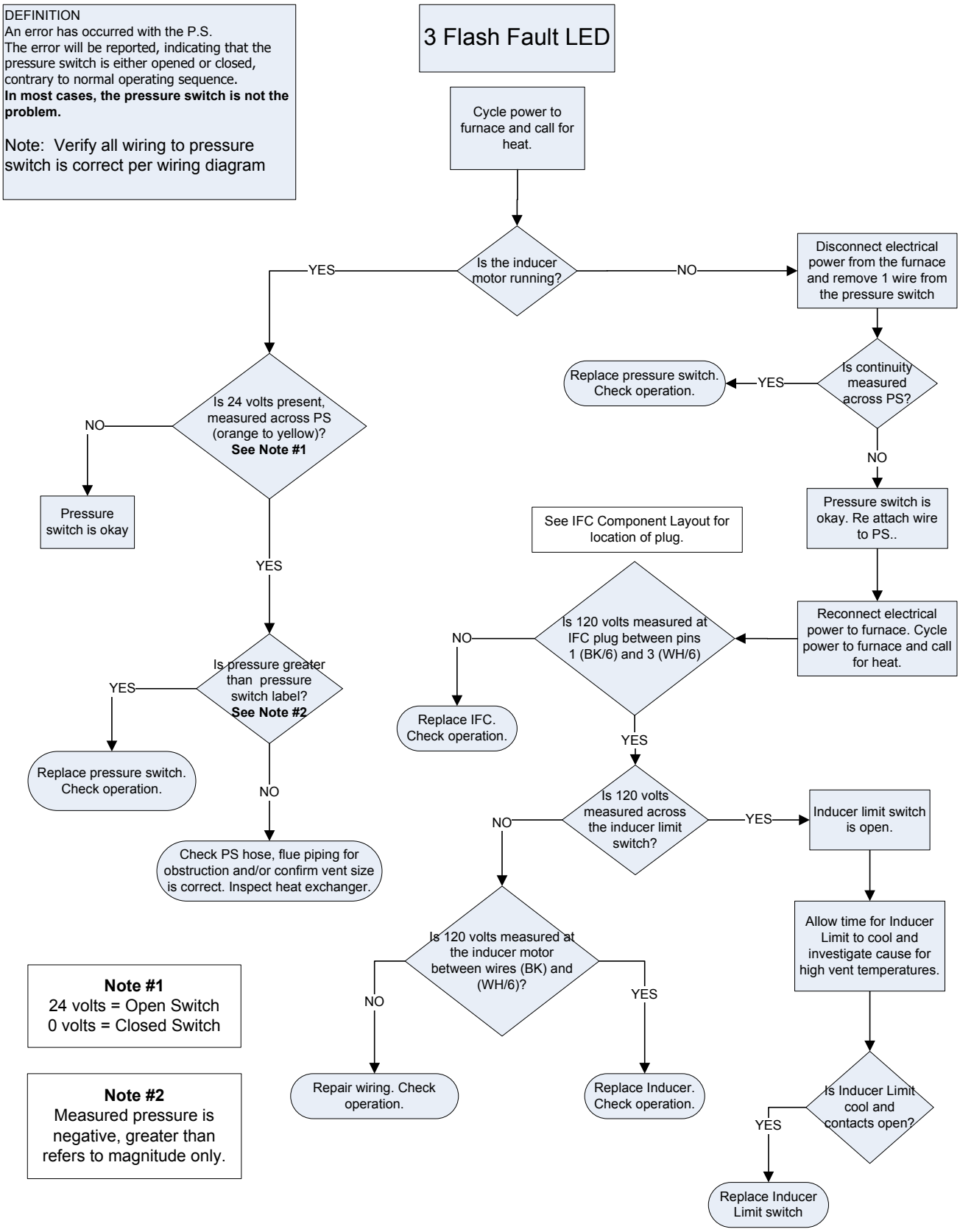


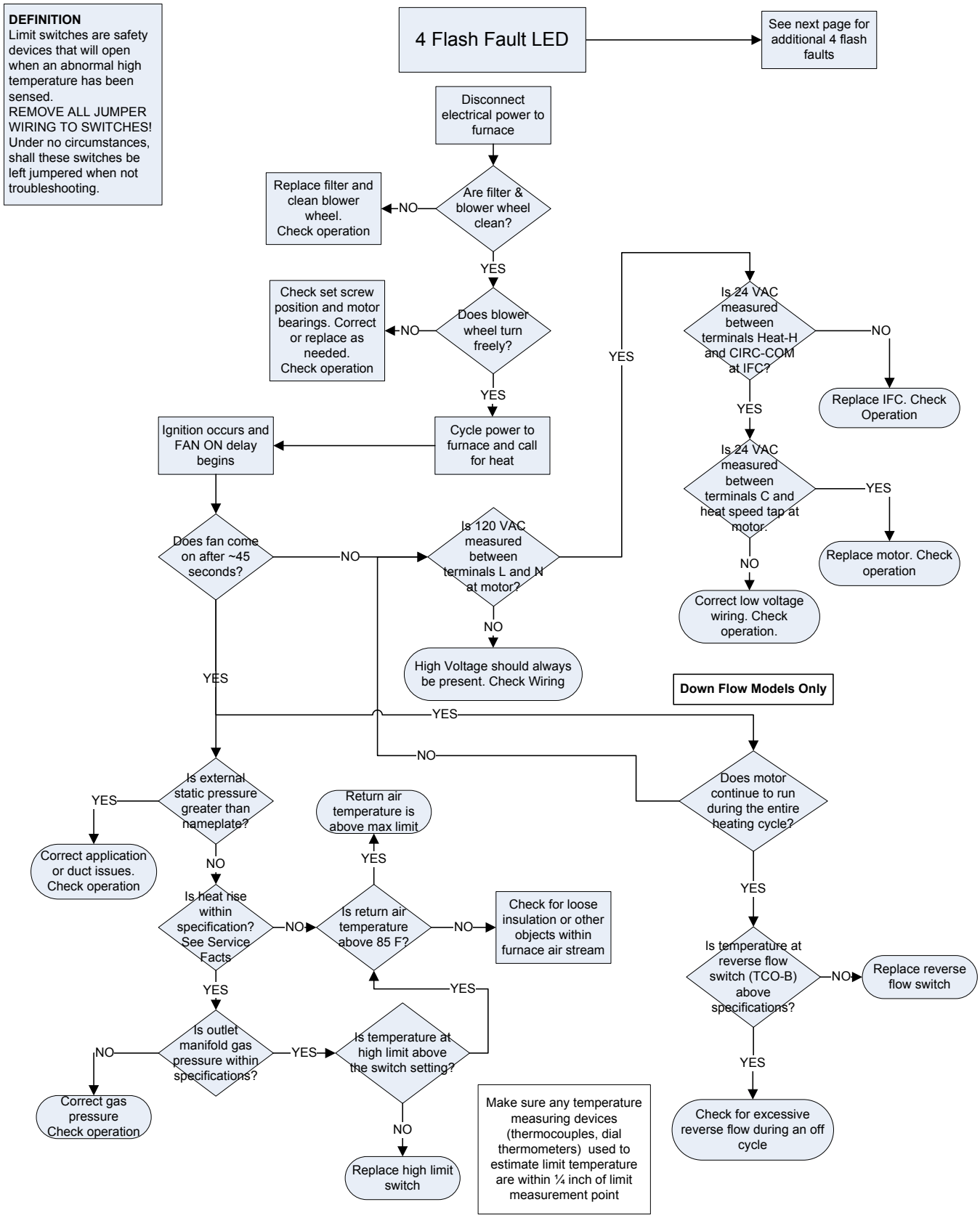
“Hot” Zone - not centered over crossover

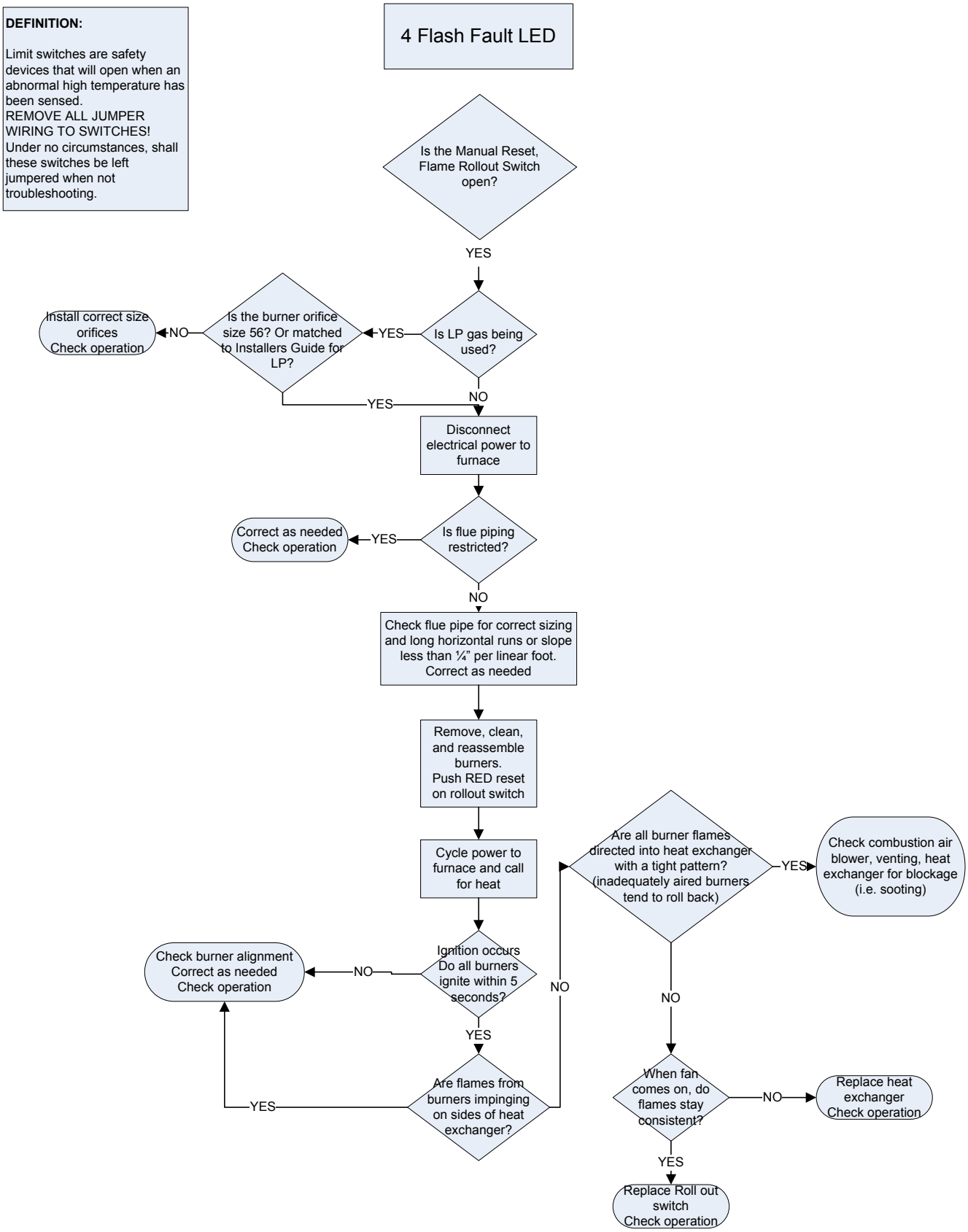
INCORRECT positioning of ignitor.

HOT ZONE must be centered over the cross-over

Ignitor not overlapping burner (see above)

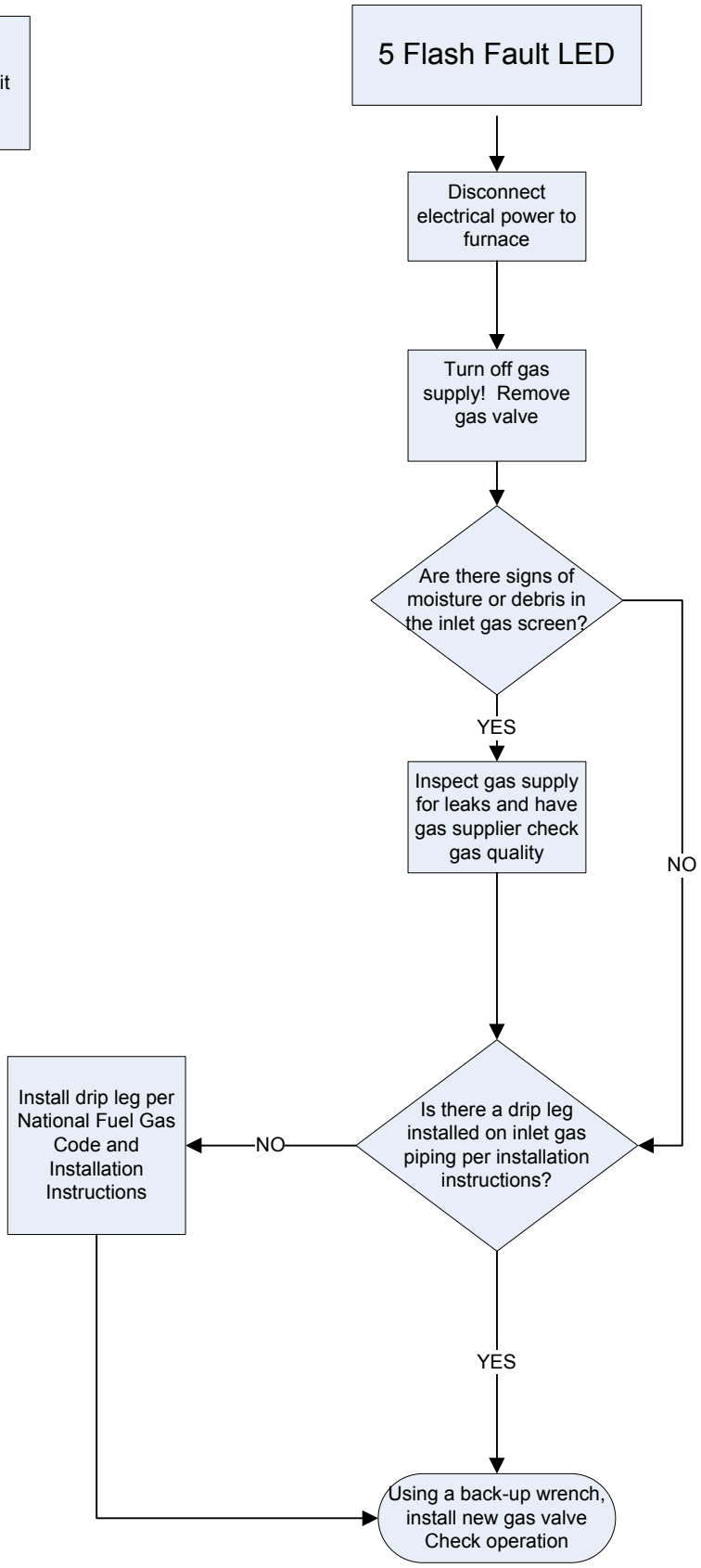

DEFINITION
An error has occurred with the P.S.
The error will be reported, indicating that the pressure switch is either opened or closed, contrary to normal operating sequence.
In most cases, the pressure switch is not the problem.
Note: Verify all wiring to pressure switch is correct per wiring diagram
3 Flash Fault LED
Cycle power to furnace and call for heat.
Is the inducer motor running?
YES
NO
Disconnect electrical power from the furnace and remove 1 wire from the pressure switch
Is continuity measured across PS?
YES
Replace pressure switch. Check operation.
NO
Pressure switch is okay. Re attach wire to PS..
Reconnect electrical power to furnace. Cycle power to furnace and call for heat.
Is 24 volts present, measured across PS (orange to yellow)? **See Note #1**
NO
Pressure switch is okay
YES
Is pressure greater than pressure switch label? **See Note #2**
YES
Replace pressure switch. Check operation.
NO
Check PS hose, flue piping for obstruction and/or confirm vent size is correct. Inspect heat exchanger.
See IFC Component Layout for location of plug.
Is 120 volts measured at IFC plug between pins 1 (BK/6) and 3 (WH/6)
NO
Replace IFC. Check operation.
YES
Is 120 volts measured across the inducer limit switch?
NO
YES
Inducer limit switch is open.
Allow time for Inducer Limit to cool and investigate cause for high vent temperatures.
Is Inducer Limit cool and contacts open?
YES
Replace Inducer Limit switch
Is 120 volts measured at the inducer motor between wires (BK) and (WH/6)?
NO
Repair wiring. Check operation.
YES
Replace Inducer. Check operation.
Note #1
24 volts = Open Switch
0 volts = Closed Switch
Note #2
Measured pressure is negative, greater than refers to magnitude only.


DEFINITION
Limit switches are safety devices that will open when an abnormal high temperature has been sensed.
REMOVE ALL JUMPER WIRING TO SWITCHES! Under no circumstances, shall these switches be left jumpered when not troubleshooting.
4 Flash Fault LED
See next page for additional 4 flash faults
Disconnect electrical power to furnace
Are filter & blower wheel clean?
NO
Replace filter and clean blower wheel. Check operation
YES
Does blower wheel turn freely?
NO
Check set screw position and motor bearings. Correct or replace as needed. Check operation
YES
Cycle power to furnace and call for heat
Ignition occurs and FAN ON delay begins
Does fan come on after ~45 seconds?
NO
Is 120 VAC measured between terminals L and N at motor?
NO
High Voltage should always be present. Check Wiring
YES
Is 24 VAC measured between terminals Heat-H and CIRC-COM at IFC?
NO
Replace IFC. Check Operation
YES
Is 24 VAC measured between terminals C and heat speed tap at motor.
YES
Replace motor. Check operation
NO
Correct low voltage wiring. Check operation.
Down Flow Models Only
YES
NO
Is external static pressure greater than nameplate?
YES
Correct application or duct issues. Check operation
NO
Is heat rise within specification? See Service Facts
NO
Is return air temperature above 85 F?
NO
Check for loose insulation or other objects within furnace air stream
YES
Return air temperature is above max limit
YES
Is outlet manifold gas pressure within specifications?
NO
Correct gas pressure Check operation
YES
Is temperature at high limit above the switch setting?
YES
NO
Replace high limit switch
Does motor continue to run during the entire heating cycle?
YES
Is temperature at reverse flow switch (TCO-B) above specifications?
NO
Replace reverse flow switch
YES
Check for excessive reverse flow during an off cycle
Make sure any temperature measuring devices (thermocouples, dial thermometers) used to estimate limit temperature are within ¼ inch of limit measurement point


DEFINITION:
Limit switches are safety devices that will open when an abnormal high temperature has been sensed.
REMOVE ALL JUMPER WIRING TO SWITCHES!
Under no circumstances, shall these switches be left jumpered when not troubleshooting.
4 Flash Fault LED
Is the Manual Reset, Flame Rollout Switch open?
YES
Is LP gas being used?
YES
Is the burner orifice size 56? Or matched to Installers Guide for LP?
NO
Install correct size orifices Check operation
YES
NO
Disconnect electrical power to furnace
Is flue piping restricted?
YES
Correct as needed Check operation
NO
Check flue pipe for correct sizing and long horizontal runs or slope less than ¼" per linear foot. Correct as needed
Remove, clean, and reassemble burners. Push RED reset on rollout switch
Cycle power to furnace and call for heat
Ignition occurs Do all burners ignite within 5 seconds?
NO
Check burner alignment Correct as needed Check operation
YES
Are flames from burners impinging on sides of heat exchanger?
YES
NO
Are all burner flames directed into heat exchanger with a tight pattern? (inadequately aired burners tend to roll back)
YES
Check combustion air blower, venting, heat exchanger for blockage (i.e. sooting)
NO
When fan comes on, do flames stay consistent?
NO
Replace heat exchanger Check operation
YES
Replace Roll out switch Check operation

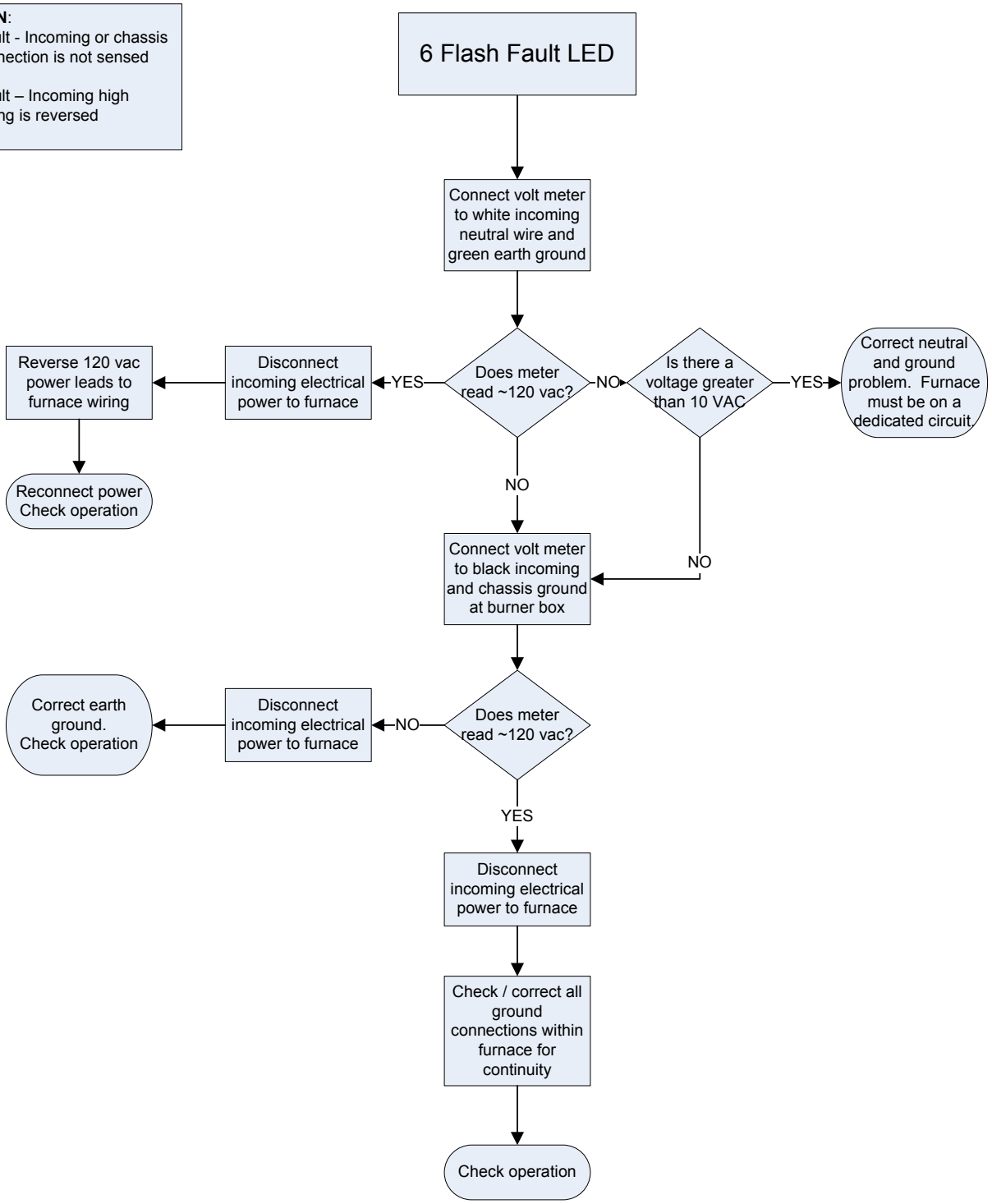
DEFINITION:

Flame is sensed when it should not be sensed.

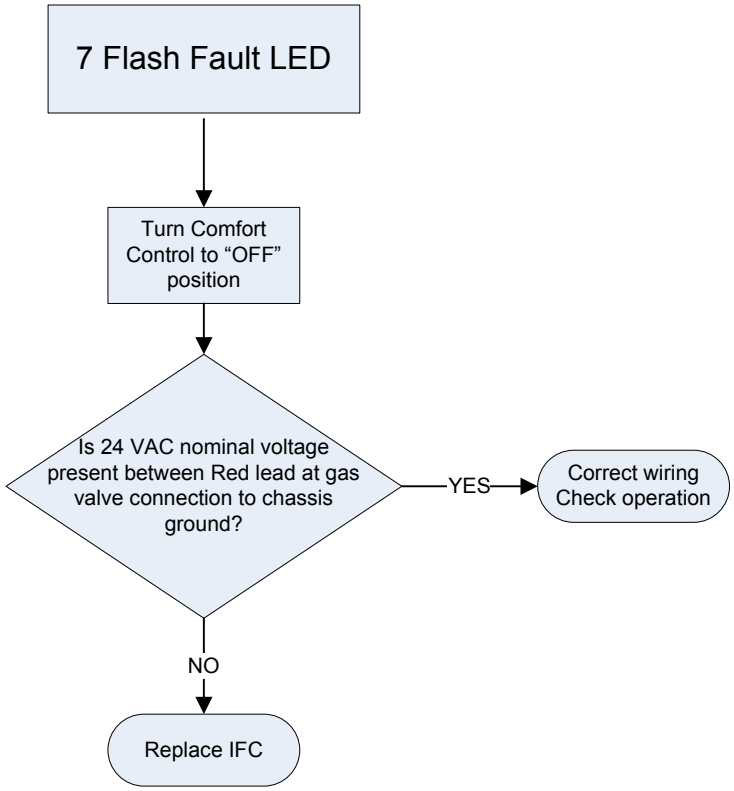


DEFINITION:
Ground Fault - Incoming or chassis ground connection is not sensed

Polarity Fault – Incoming high voltage wiring is reversed



DEFINITION: External Gas Valve Circuit Error (24 volts is present when it should not be present)



DEFINITION:
The flame sense current is less than 1 micro-amp DC

8 Flash Fault LED

Disconnect electrical power to the furnace

Connect volt meter leads in series with flame sensor

Meter must be set up for DC micro-amp scale

Cycle power to furnace and call for heat

Is flame current measured less than 1.0 micro-amp DC?

YES

Is flame sensor located correctly? See figure

NO

Correct flame sensor location

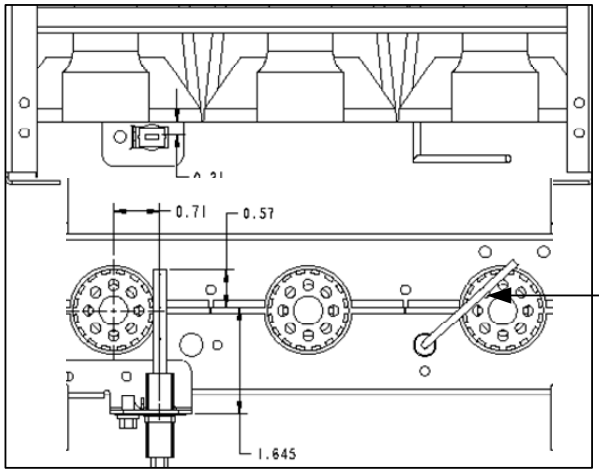
YES

Replace flame sensor

Check operation

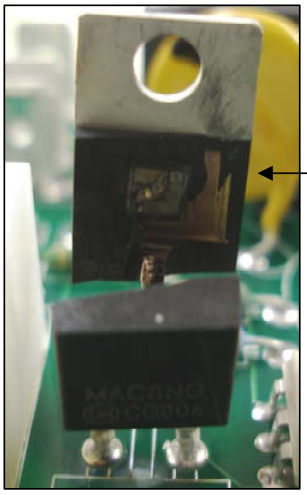
NO

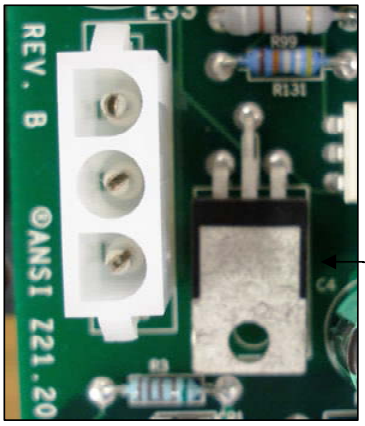
Flame sensor is good. Check wiring and / or connections.

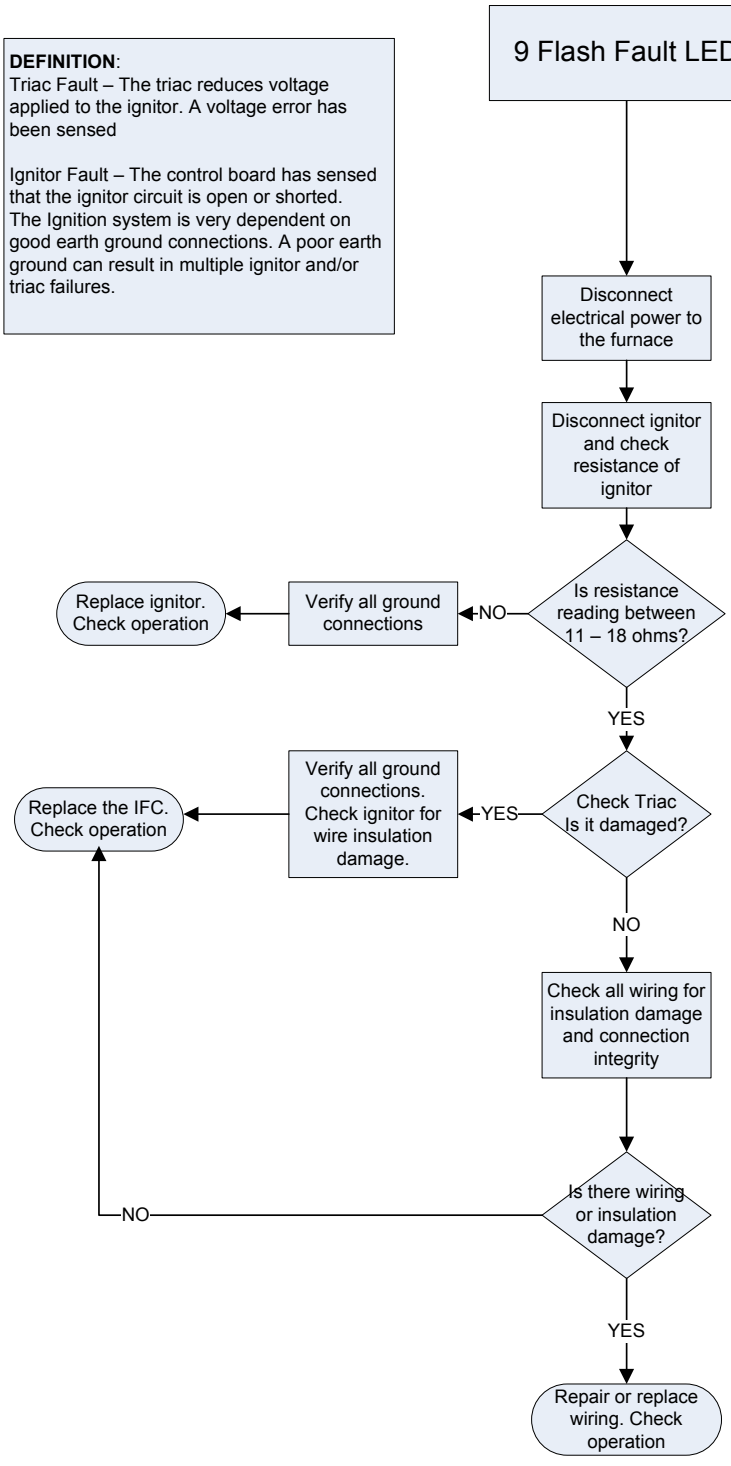


DEFINITION:
Triac Fault – The triac reduces voltage applied to the ignitor. A voltage error has been sensed

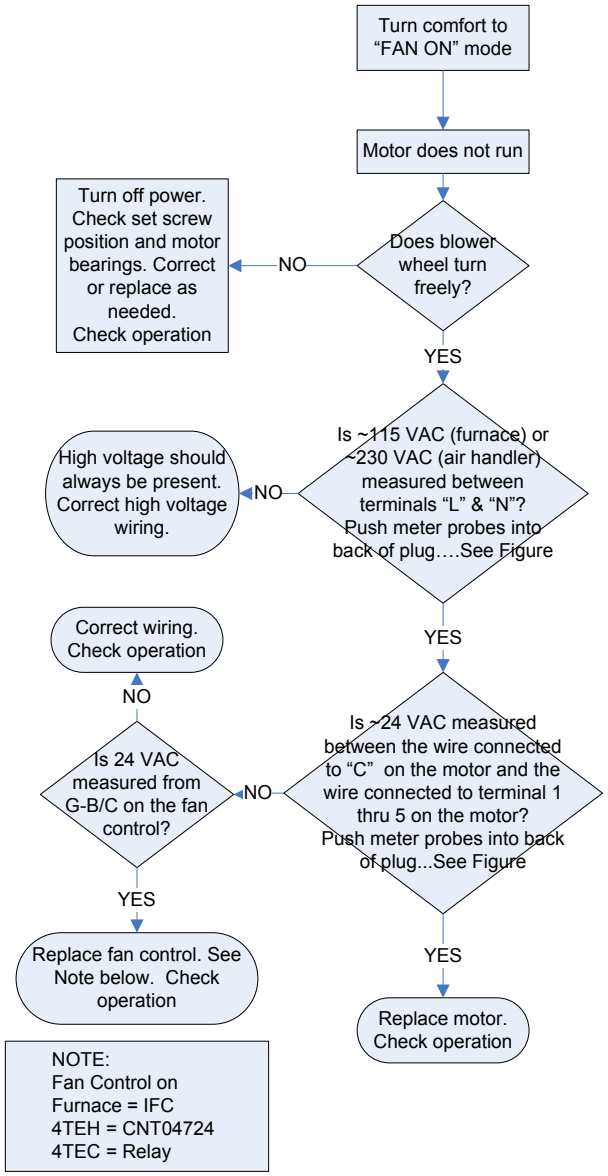
Ignitor Fault – The control board has sensed that the ignitor circuit is open or shorted. The Ignition system is very dependent on good earth ground connections. A poor earth ground can result in multiple ignitor and/or triac failures.







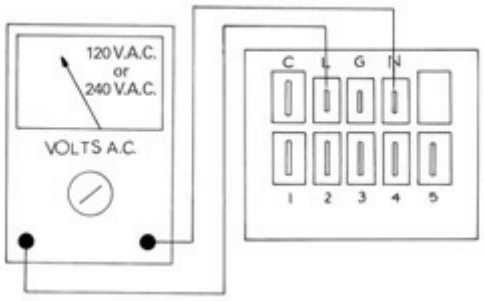
Constant Torque Motor Troubleshooting

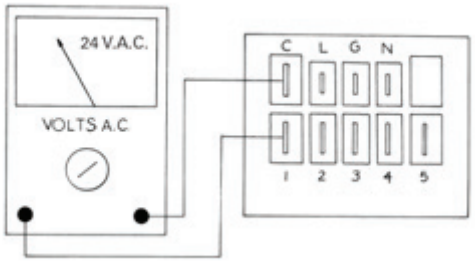


FURNACE = 120 VAC

AIR HANDLER = 240 VAC

This terminal block is located on the motor. Look for labels below on the motor side of the connection.





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Intertek

Library	Unitary
Product Section	Furnaces
Product	Furnace
Model	*UH1-H, *DH1-H
Literature Type	Service Facts
Sequence	-
Date	06/13
File No.	UH1-H-SF-1E
Supersedes	UH1-H-SF-1D

Trane
6200 Troup Highway
Tyler, TX 75707

For more information contact your local dealer (distributor)