

Service Facts

*UC1-SF-1E



Gas Furnace — Induced Draft — Condensing — Single Stage Heat

X341011P15

Models:

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

*UC1B040A9241A *UC1C100A9481A *DC1B040A9241A *DC1C100A9481A
 *UC1B060A9361A *UC1D100A9601A *DC1B060A9361A *DC1D120A9601A
 *UC1B080A9421A *UC1D120A9601A *DC1B080A9421A

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	*UC1B040A9241A	*UC1B060A9361A	*UC1B080A9421A
TYPE	Upflow/Horizontal	Upflow/Horizontal	Upflow/Horizontal
RATINGS ^②			
Input BTUH ^③	40,000	60,000	80,000
Capacity BTUH (ICS) ^③	37,000	56,000	74,000
AFUE	92.1	92.1	92.1
Temp. rise (Min.-Max.) °F.	30 - 60	30 - 60	35 - 65
BLOWER DRIVE	DIRECT	DIRECT	DIRECT
Diameter - Width (In.)	9 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	1/5	1/3	1/3
R.P.M.	1075	1075	1075
Volts/Ph/Hz	115/1/60	115/1/60	115/1/60
COMBUSTION FAN - Type	Centrifugal	Centrifugal	Centrifugal
Drive - No. Speeds	Direct - 1	Direct - 1	Direct - 1
Motor HP - RPM	1/55 - 3000	1/55 - 3000	1/25 - 3200
Volts/Ph/Hz	115/1/60	115/1/60	115/1/60
FLA	1.0	1.0	1.35
FILTER — Furnished?	No	No	No
Type Recommended	High Velocity	High Velocity	High Velocity
Hi Vel. (No.-Size-Thk.)	1 - 17x25 - 1in.	1 - 17x25 - 1in.	1 - 17x25 - 1in.
VENT — Size (in.)	2 Round	2 Round	2 Round
HEAT EXCHANGER			
Type - Fired	Aluminized Steel - Type I	Aluminized Steel - Type I	Aluminized Steel - Type I
- 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)	4.7	8.3	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

* - First letter 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.

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

X341011P15

Service Facts

PRODUCT SPECIFICATIONS ^①

MODEL	*UC1C100A9481A	*UC1D100A9601A	*UC1D120A9601A
TYPE	Upflow/Horizontal	Upflow/Horizontal	Upflow/Horizontal
RATINGS ^②			
Input BTUH ^③	100,000	100,000	120,000
Capacity BTUH (ICS) ^③	94,000	93,000	113,000
AFUE	92.1	92.1	92.1
Temp. rise (Min.-Max.) °F.	35 - 65	35 - 65	40 - 70
BLOWER DRIVE	DIRECT	DIRECT	DIRECT
Diameter - Width (In.)	10 x 10	11 x 10	11 x 10
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	3/4
R.P.M.	1075	1100	1100
Volts/Ph/Hz	115/1/60	115/1/60	115/1/60
COMBUSTION FAN - Type	Centrifugal	Centrifugal	Centrifugal
Drive - No. Speeds	Direct - 1	Direct - 1	Direct - 1
Motor HP - RPM	1/20 - 3450	1/20 - 3450	1/20 - 3450
Volts/Ph/Hz	115/1/60	115/1/60	115/1/60
FLA	0.71	0.71	0.71
FILTER — Furnished?	No	No	No
Type Recommended	High Velocity	High Velocity	High Velocity
Hi Vel. (No.-Size-Thk.)	1 - 20x25 - 1in.	1 - 24x25 - 1in.	1 - 24x25 - 1in.
VENT — Size (in.)	2 Round	2 Round	3 Round
HEAT EXCHANGER			
Type - Fired	Aluminized Steel - Type I	Aluminized Steel - Type I	Aluminized Steel - Type I
- Unfired			
Gauge (Fired)	20	20	20
ORIFICES — Main			
Nat. Gas Qty. — Drill Size	5 — 45	5 — 45	6 — 45
L.P. Gas Qty. — Drill Size	5 — 56	5 — 56	6 — 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	5	5	6
POWER CONN. — V/Ph/Hz ^④	115/1/60	115/1/60	115/1/60
Ampacity (In Amps)	12.5	12.9	12.9
Max. Overcurrent Protection (Amps)	15	15	15
PIPE CONN. SIZE (IN.)	1/2	1/2	1/2
DIMENSIONS			
Crated (In.)	H x W x D 41-3/4 x 23 x 30-1/2	H x W x D 41-3/4 x 26-1/2 x 30-1/2	H x W x D 41-3/4 x 26-1/2 x 30-1/2
WEIGHT			
Shipping (Lbs.)/Net (Lbs)	171 / 160	197 / 185	205 / 193

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③ Based on U.S. government standard tests.

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MODEL	*DC1B040A9241A	*DC1B060A9361A	*DC1B080A9421A
TYPE	Downflow / Horizontal	Downflow / Horizontal	Downflow / Horizontal
RATINGS ^②			
Input BTUH ^③	40,000	60,000	80,000
Capacity BTUH (ICS) ^③	38,000	56,000	74,000
AFUE	92.1	92.1	92.1
Temp. rise (Min.-Max.) °F.	30 - 60	35 - 65	40 - 70
BLOWER DRIVE	DIRECT	DIRECT	DIRECT
Diameter - Width (In.)	10 x 7	10 x 8	11 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	1/5	1/3	1/2
R.P.M.	1080	1075	1075
Volts/Ph/Hz	115/1/60	115/1/60	115/1/60
COMBUSTION FAN - Type	Centrifugal	Centrifugal	Centrifugal
Drive - No. Speeds	Direct - 1	Direct - 1	Direct - 1
Motor HP - RPM	1/55 - 3000	1/55 - 3000	1/25 - 3200
Volts/Ph/Hz	115/1/60	115/1/60	115/1/60
FLA	1.0	1.0	1.35
FILTER — Furnished?	No	No	No
Type Recommended	High Velocity	High Velocity	High Velocity
Hi Vel. (No.-Size-Thk.)	2 - 14x20 - 1in.	2 - 14x20 - 1in.	2 - 14x20 - 1in.
VENT — Size (in.)	2 Round	2 Round	2 Round
HEAT EXCHANGER			
Type - Fired	Aluminized Steel - Type I	Aluminized Steel - Type I	Aluminized Steel - Type I
- 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)	4.7	9.1	11.4
Max. Overcurrent Protection (Amps)	15	15	15
PIPE CONN. SIZE (IN.)	1/2	1/2	1/2
DIMENSIONS			
Crated (In.)	H x W x D 41-3/4 x 19-1/2 x 30-1/2	H x W x D 41-3/4 x 19-1/2 x 30-1/2	H x W x D 41-3/4 x 19-1/2 x 30-1/2
WEIGHT			
Shipping (Lbs.)/Net (Lbs)	145 / 135	155 / 145	168 / 158

PRODUCT SPECIFICATIONS ^①

MODEL	*DC1C100A9481A	*DC1D120A9601A
TYPE	Downflow / Horizontal	Downflow / Horizontal
RATINGS ^②		
Input BTUH ^③	100,000	120,000
Capacity BTUH (ICS) ^③	93,000	110,000
Temp. rise (Min.-Max.) °F.	92.1	92.1
	35 - 65	40 - 70
BLOWER DRIVE	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	1/2	3/4
R.P.M.	1075	1075
Volts/Ph/Hz	115/1/60	115/1/60
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	0.71	0.71
FILTER — Furnished?	No	No
Type Recommended	High Velocity	High Velocity
Hi Vel. (No.-Size-Thk.)	2 - 16x20 - 1in.	2 - 16x20 - 1in.
VENT — Size (in.)	2 Round	3 Round
HEAT EXCHANGER		
Type - Fired	Aluminized Steel - Type I	Aluminized Steel - Type I
- 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)	12.5	12.9
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)	185 / 175	206 / 196

* - First letter 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.

WARNING

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

Service Facts

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.

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.

CAUTION

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

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 approx. 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 approx. 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 name-

plate. 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!

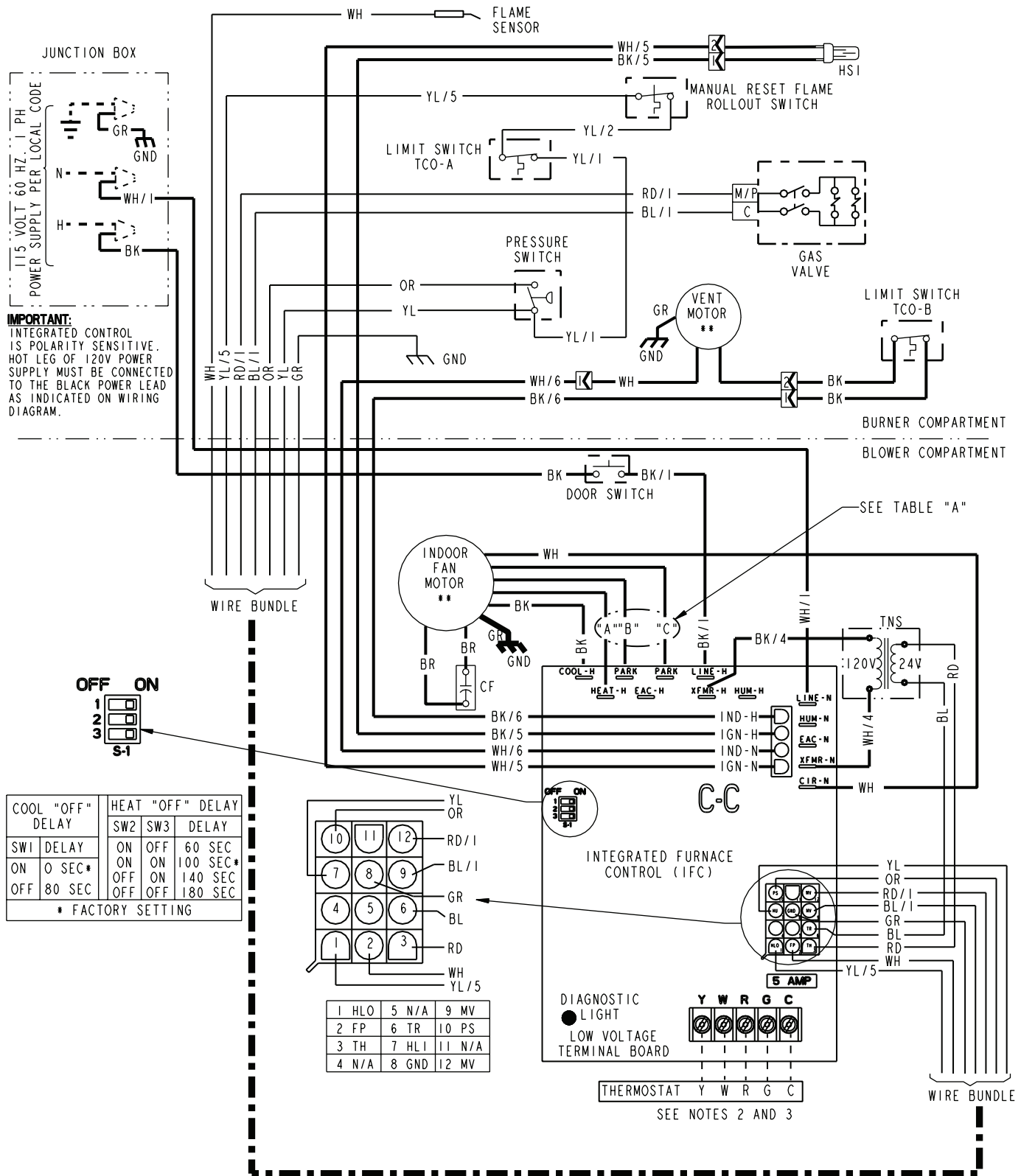
Exposure to fuel substances or by-products of incomplete fuel combustion is believed by the state of California to cause cancer, birth defects, or other reproductive harm.

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

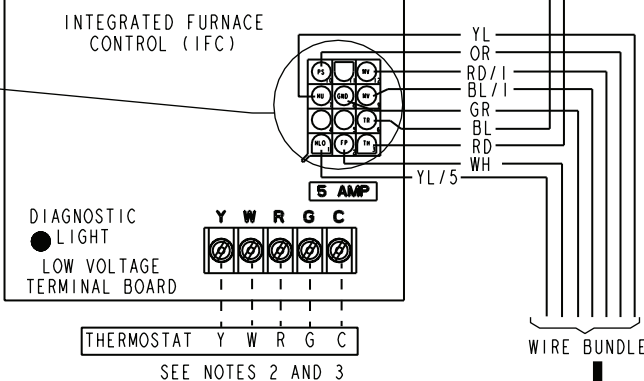
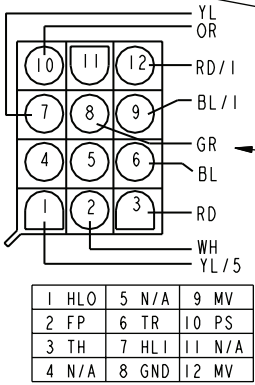
Service Facts

WIRING DIAGRAM



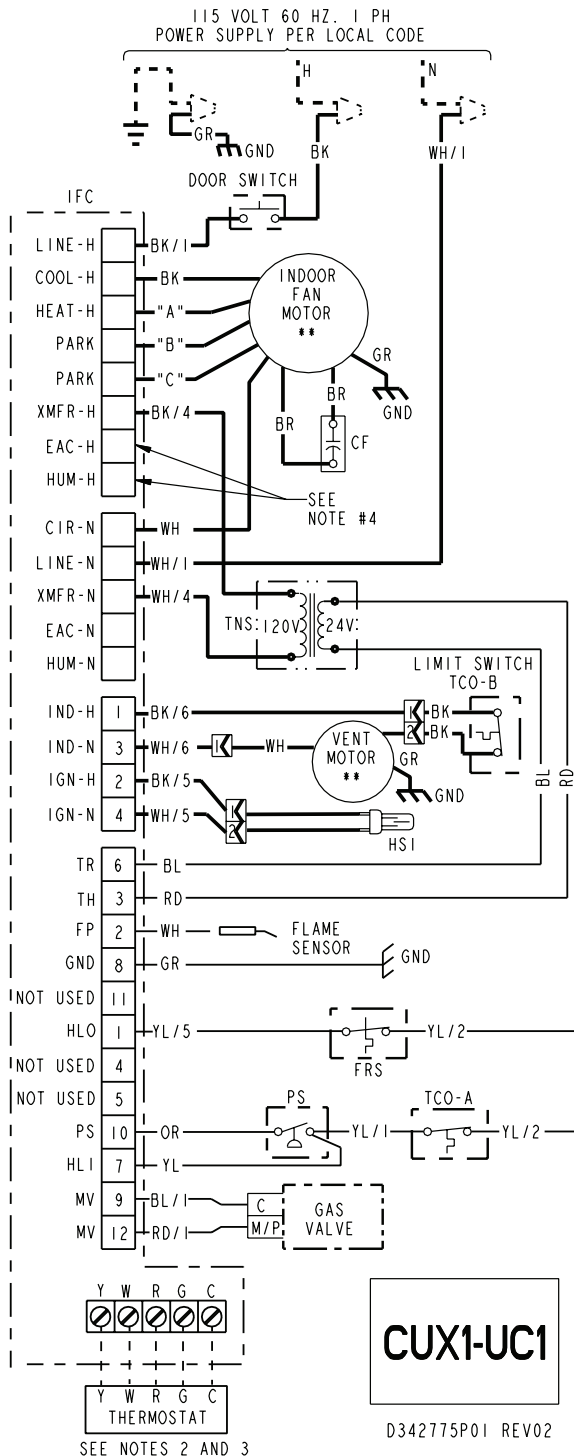
COOL "OFF" DELAY		HEAT "OFF" DELAY		
SW1	DELAY	SW2	SW3	DELAY
ON	0 SEC*	ON	ON	60 SEC
OFF	80 SEC	OFF	ON	100 SEC*
		OFF	OFF	140 SEC
		OFF	OFF	180 SEC

* FACTORY SETTING



(continued on next page)

SCHEMATIC DIAGRAM



SPEED TAPS FOR I.D. FAN MOTOR			
MODEL	HEAT "A"	PARK "B"	PARK "C"
CUX1B040A9241A* #UC1B040A9241A*	YL	RD	BL
CUX1B060A9361A* #UC1B060A9361A*	BL	RD	YL
CUX1B080A9421A* #UC1B080A9421A*	BL	RD	YL
CUX1C100A9481A* #UC1C100A9481A*	BL	RD	YL
CUX1D100A9601A* #UC1D100A9601A*	YL	RD	BL
CUX1D120A9601A* #UC1D120A9601A*	BL	RD	YL

RD = LOW BL = MED. HIGH
YL = MED. LOW BK = HIGH
- MAY BE "T" or "A"
* - MAY BE 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.

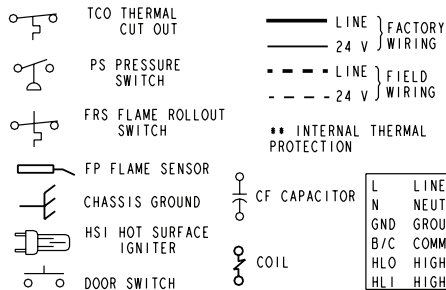
INTEGRATED FURNACE CONTROL
REPLACE WITH PART CNT02891 OR CNT 02183 OR EQUIVALENT
INPUT: 25 VAC, 60 HZ.
XFMR SEC. CURRENT: 450 MA.
MV OUTPUT: 1.5 A @ 24 VAC
IND OUTPUT: 2.2 FLA, 3.5 LRA @ 120 VAC
CIRC. BLOWER OUTPUT: 14.5 FLA, 26 LRA @ 120 VAC
HUMIDIFIER & AIR CLEANER
MAX. LOAD: 1.0 A @ 120 VAC
IGNITER OUTPUT: 6.0 A @ 120 VAC

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



BK	BLACK	GR	GREEN
WH	WHITE	BR	BROWN
YL	YELLOW	RD	RED
OR	ORANGE	BL	BLUE

WIRE COLOR

BK/1 WIRE COLOR NUMBER ID (IF ANY)

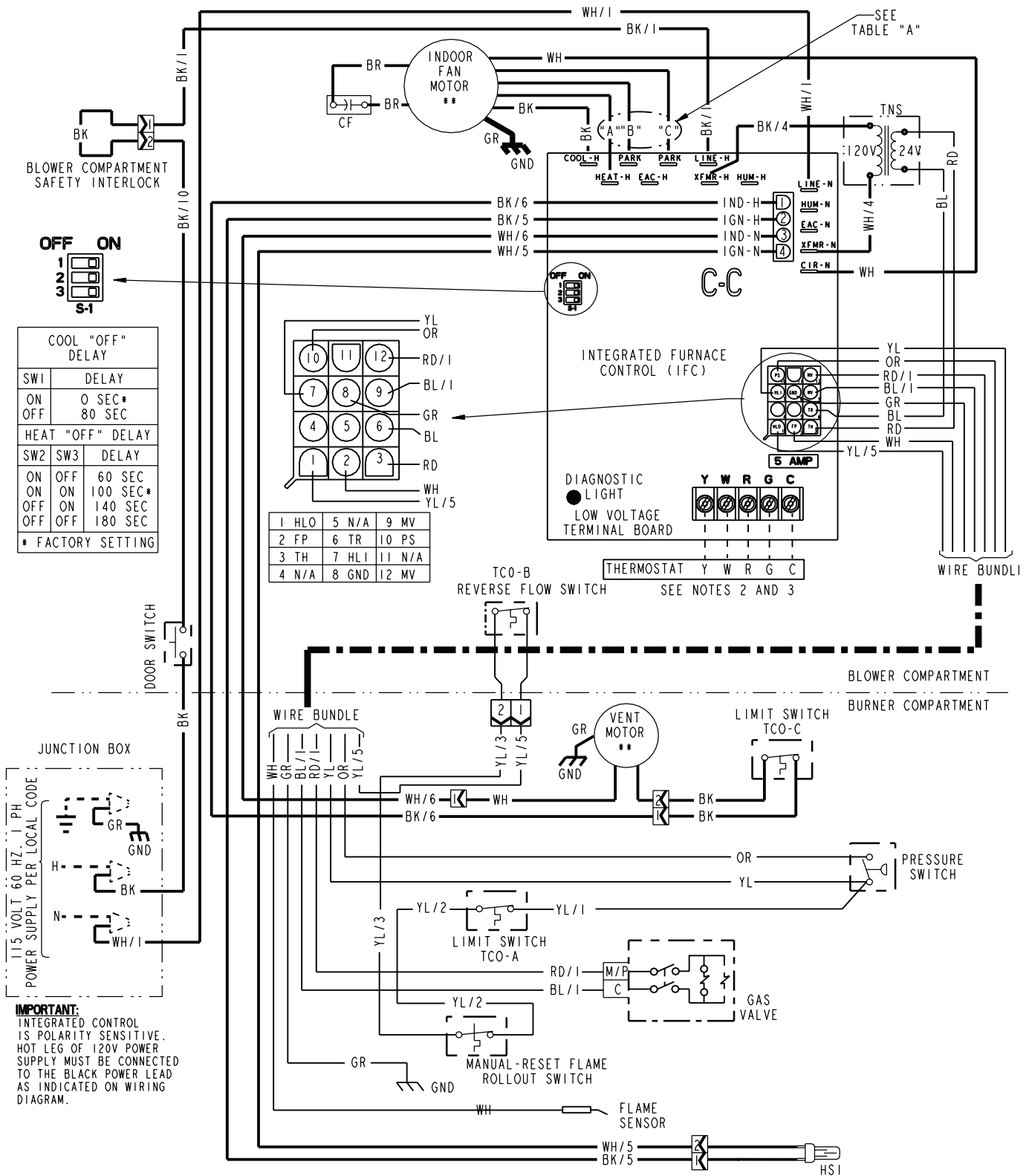
L	LINE	TH	24 VAC (HOT)
N	NEUTRAL	TR	24 VAC (COMMON)
GND	GROUND	MV	MAIN GAS VALVE
B/C	COMMON	TNS	TRANSFORMER
HLO	HIGH LIMIT OUTPUT		
HLI	HIGH LIMIT INPUT		

NOTES:

- 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.
- THERMOSTAT HEAT ANTICIPATOR SETTING: .38 AMPS
- FOR PROPER OPERATION OF COOLING SPEED, "Y" TERMINAL MUST BE CONNECTED TO THE ROOM THERMOSTAT.
- THESE TERMINALS PROVIDE 120V POWER CONNECTIONS FOR ELECTRONIC AIR CLEANER (EAC) AND HUMIDIFIER (HUM). MAX. LOAD: 1.0 AMPS EACH.

From Dwg. D342775 Rev. 1

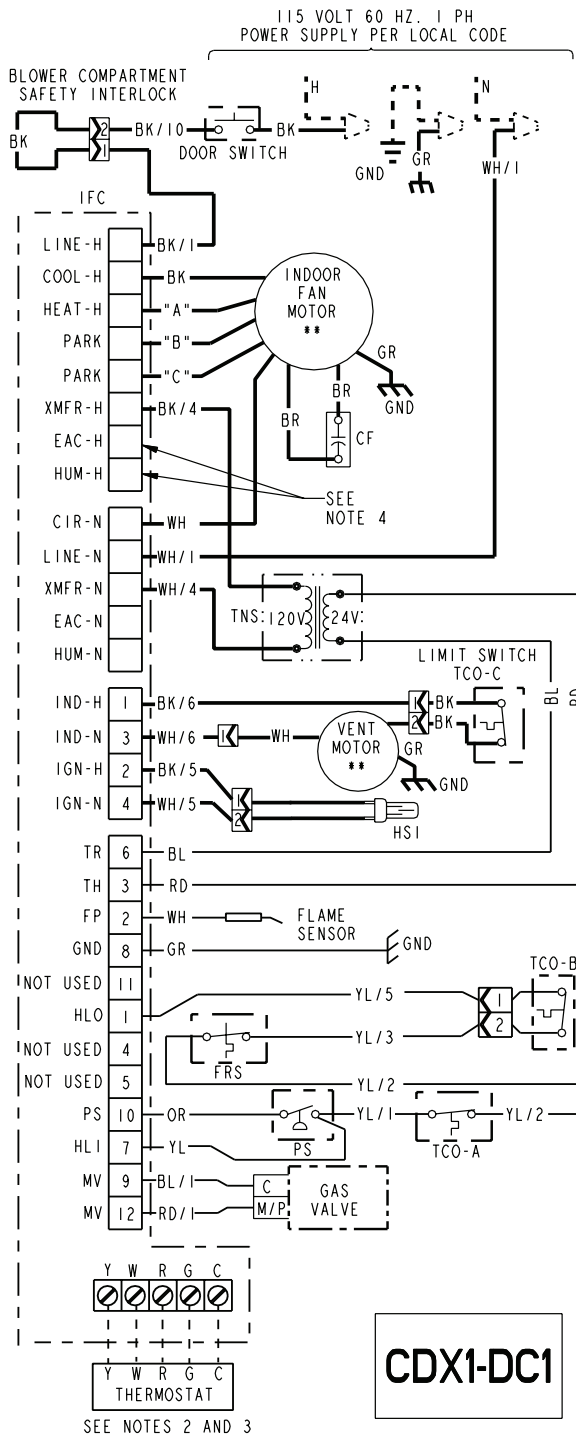
WIRING DIAGRAM



From Dwg. D342798P01 Rev. 1

(continued on next page)

SCHEMATIC DIAGRAM



WARNING

HAZARDOUS VOLTAGE:
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 UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS.
 FAILURE TO DO SO MAY CAUSE DAMAGE TO THE EQUIPMENT.

TABLE "A"
 SPEED TAPS FOR I.D. FAN MOTOR

MODEL	HEAT "A"	PARK "B"	PARK "C"
CDX1B040A9241A* #DC1B040A9241A*	YL	RD	BL
CDX1B060A9361A* #DC1B060A9361A*	YL	RD	BL
CDX1B080A9421A* #DC1B080A9421A*	BL	RD	YL
CDX1C100A9481A* #DC1C100A9481A*	BL	RD	YL
CDX1D120A9601A* #DC1D120A9601A*	BL	RD	YL

RD = LOW BL = MED. HIGH
 YL = MED. LOW BK = HIGH
 # - MAY BE "T" or "A"
 * - MAY BE A THROUGH Z

INTEGRATED FURNACE CONTROL
 REPLACE WITH PART CNT02891 OR CNT 02183 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, 26 LRA @ 120 VAC
 HUMIDIFIER & AIR CLEANER
 MAX. LOAD: 1.0 A @ 120 VAC
 IGNITER OUTPUT: 6.0 A @ 120 VAC

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

TCO THERMAL CUT OUT
 PS PRESSURE SWITCH
 FRS FLAME ROLLOUT SWITCH
 FP FLAME SENSOR
 CHASSIS GROUND
 HSI HOT SURFACE IGNITER
 DOOR SWITCH

LINE } FACTORY WIRING
 24 V }
 LINE } FIELD WIRING
 24 V }

WIRE COLOR

BK	BLACK	GR	GREEN
WH	WHITE	BR	BROWN
YL	YELLOW	RD	RED
OR	ORANGE	BL	BLUE

** INTERNAL THERMAL PROTECTION

CF CAPACITOR
 COIL

L	LINE	TH	24 VAC (HOT)
N	NEUTRAL	TR	24 VAC (COMMON)
GND	GROUND	MV	MAIN GAS VALVE
B/C	COMMON	TNS	TRANSFORMER
HLO	HIGH LIMIT OUTPUT		
HLI	HIGH LIMIT INPUT		

NOTES:

- 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.
- THERMOSTAT HEAT ANTICIPATOR SETTING: .38 AMPS
- FOR PROPER OPERATION OF COOLING SPEED, "Y" TERMINAL MUST BE CONNECTED TO THE ROOM THERMOSTAT.
- THESE TERMINALS PROVIDE 120V POWER CONNECTIONS FOR ELECTRONIC AIR CLEANER (EAC) AND HUMIDIFIER (HUM). MAX. LOAD: 1.0 AMPS EACH.

Service Facts

FURNACE AIRFLOW (CFM) VS. EXTERNAL STATIC PRESSURE (INS. w.g.)										
MODEL	SPEED TAP	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90
*UC1B040A9241A	4 - HIGH - Black	1043	992	930	885	812	740	647	518	457
	3 - MED.-HIGH - Blue	940	895	841	791	726	650	559	420	390
	2 - MED.-LOW - Yellow	837	798	752	705	649	560	438	305	279
	1 - LOW - Red	729	694	657	600	545	478	376	220	178
*UC1B060A9361A	4 - HIGH - Black	1394	1359	1314	1260	1196	1122	1038	945	853
	3 - MED.-HIGH - Blue	1250	1232	1202	1160	1106	1040	962	873	771
	2 - MED.-LOW - Yellow	1102	1092	1069	1034	986	925	852	766	668
	1 - LOW - Red	957	944	922	891	853	806	750	686	614
*UC1B080A9421A	4 - HIGH - Black	1748	1683	1615	1544	1470	1393	1314	1232	1147
	3 - MED.-HIGH - Blue	1375	1367	1347	1314	1268	1210	1139	1056	960
	2 - MED.-LOW - Yellow	1178	1167	1147	1119	1082	1036	982	919	847
	1 - LOW - Red	859	863	856	839	811	772	723	663	592
*UC1C100A9481A	4 - HIGH - Black	2054	1980	1906	1826	1746	1649	1551	1428	1305
	3 - MED.-HIGH - Blue	1932	1875	1818	1746	1673	1577	1481	1371	1260
	2 - MED.-LOW - Yellow	1762	1720	1677	1615	1552	1463	1373	1266	1158
	1 - LOW - Red	1558	1546	1533	1477	1421	1350	1278	1175	1071
*UC1D100A9601A	4 - HIGH - Black	2411	2358	2304	2235	2165	2083	2001	1915	1828
	3 - MED.-HIGH - Blue	2108	2083	2058	2007	1956	1893	1829	1754	1679
	2 - MED.-LOW - Yellow	1772	1759	1745	1723	1700	1657	1613	1544	1475
	1 - LOW - Red	1480	1477	1474	1458	1441	1414	1386	1327	1268
*UC1D120A9601A	4 - HIGH - Black	2454	2406	2358	2310	2261	2184	2106	2017	1928
	3 - MED.-HIGH - Blue	2105	2092	2078	2045	2012	1950	1887	1826	1765
	2 - MED.-LOW - Yellow	1747	1742	1736	1720	1703	1677	1651	1593	1535
	1 - LOW - Red	1445	1447	1449	1440	1430	1400	1369	1325	1280

* May be "A" or "T"

CFM VS. TEMPERATURE RISE																	
MODEL	Cubic Feet Per Minute (CFM)																
	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200
*UC1B040A9241A	56	48	42	37	33												
*UC1B060A9361A				56	50	45	42	39	36								
*UC1B080A9421A						61	56	51	48	44	42						
*UC1C100A9481A								64	60	56	52	49	46	44	42		
*UC1D100A9601A								64	60	56	52	49	46	44	42	40	38
*UC1D120A9601A											63	59	56	53	50	48	46

* May be "A" or "T"

FURNACE AIRFLOW (CFM) VS. EXTERNAL STATIC PRESSURE (in. w.c.)										
MODEL	SPEED TAP	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90
*DC1B040A9241A	4 - HIGH - Black	998	965	922	870	807	735	653	561	459
	3 - MED.-HIGH - Blue	856	832	797	751	695	628	550	462	363
	2 - MED.-LOW - Yellow	753	728	694	650	596	533	460	378	286
	1 - LOW - Red	647	617	581	538	490	435	375	308	235
*DC1B060A9361A	4 - HIGH - Black	1341	1285	1223	1156	1082	1004	919	829	734
	3 - MED.-HIGH - Blue	1198	1161	1115	1060	996	923	842	751	652
	2 - MED.-LOW - Yellow	1369	1232	1108	998	901	817	747	689	645
	1 - LOW - Red	784	781	767	741	703	654	593	521	437
*DC1B080A9421A	4 - HIGH - Black	1547	1498	1445	1386	1323	1254	1180	1101	1016
	3 - MED.-HIGH - Blue	1487	1436	1382	1325	1265	1202	1137	1069	998
	2 - MED.-LOW - Yellow	1388	1348	1302	1249	1191	1126	1056	979	896
	1 - LOW - Red	1263	1234	1196	1150	1095	1032	960	879	790
*DC1C100A9481A	4 - HIGH - Black	1892	1827	1762	1688	1614	1531	1448	1354	1260
	3 - MED.-HIGH - Blue	1779	1726	1672	1605	1538	1460	1381	1291	1200
	2 - MED.-LOW - Yellow	1630	1587	1544	1485	1426	1362	1297	1208	1119
	1 - LOW - Red	1444	1416	1388	1348	1308	1246	1184	1108	1032
*DC1D120A9601A	4 - HIGH - Black	2213	2138	2062	2001	1939	1863	1786	1706	1625
	3 - MED.-HIGH - Blue	2057	2000	1943	1883	1822	1752	1681	1595	1508
	2 - MED.-LOW - Yellow	1765	1733	1700	1652	1603	1552	1500	1424	1347
	1 - LOW - Red	1468	1452	1435	1409	1382	1336	1290	1225	1159

* May be "A" or "T"

CFM VS. TEMPERATURE RISE																					
MODEL	Cubic Feet Per Minute (CFM)																				
	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400		
*DC1B040A9241A	56	48	42	37	34																
*DC1B060A9361A			63	56	51	46	42	39	36	34											
*DC1B080A9421A					68	61	56	52	48	45	42	40									
*DC1C100A9481A								65	60	56	53	50	47	44	42	40	38	37	35		
*DC1D120A9601A										67	63	59	56	53	51	48	46	44	42		

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:*

- 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.
- The vent connector is in place, slopes upward and is physically sound without holes or excessive corrosion.
- 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.

Service Facts

WARNING

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

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

CARBON MONOXIDE POISONING HAZARD

Failure to follow the service and/or periodic maintenance instructions for the furnace and venting system, could result in carbon monoxide poisoning or death.

5. BURNERS – 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 should be cleaned annually by a qualified servicer.

Turn off gas and electric power supply. To clean burners, remove burner box cover (6 to 8 screws) and 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.

WARNING

CARBON MONOXIDE POISONING HAZARD

Failure to follow the service and/or periodic maintenance instructions for the furnace and venting system, could result in carbon monoxide poisoning or death.

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 should be cleaned annually by a qualified servicer.

NOTE:

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

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. Some discoloration of PVC pipe is normal.
- c. Remove burner compartment door from furnace.
- d. Inspect around insulation covering flue collector box. Inspect induced draft blower connections from recuperative cell and to the flue pipe connection.
- e. Remove burners. (See 5.)
- 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 all furnace doors.
- 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.

8. 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.

Troubleshooting Flowchart Index

- 14) IFC Component Layout
- 15) LED Flash Codes
- 16) Getting started
- 17) 2 Flash Troubleshooting Retry and Recycle Lockout
- 18) 3 Flash Troubleshooting Pressure Switch Fault
- 19) 4 Flash Troubleshooting High Limit and Auxiliary Limit
- 20) 4 Flash Troubleshooting Flame Rollout
- 21) 5 Flash Troubleshooting Flame Sensed Fault
- 22) 6 Flash Troubleshooting 115 Volt Reversed
- 23) 7 Flash Troubleshooting Gas Valve Circuit Error
- 24) 8 Flash Troubleshooting Low Flame Sense Signal

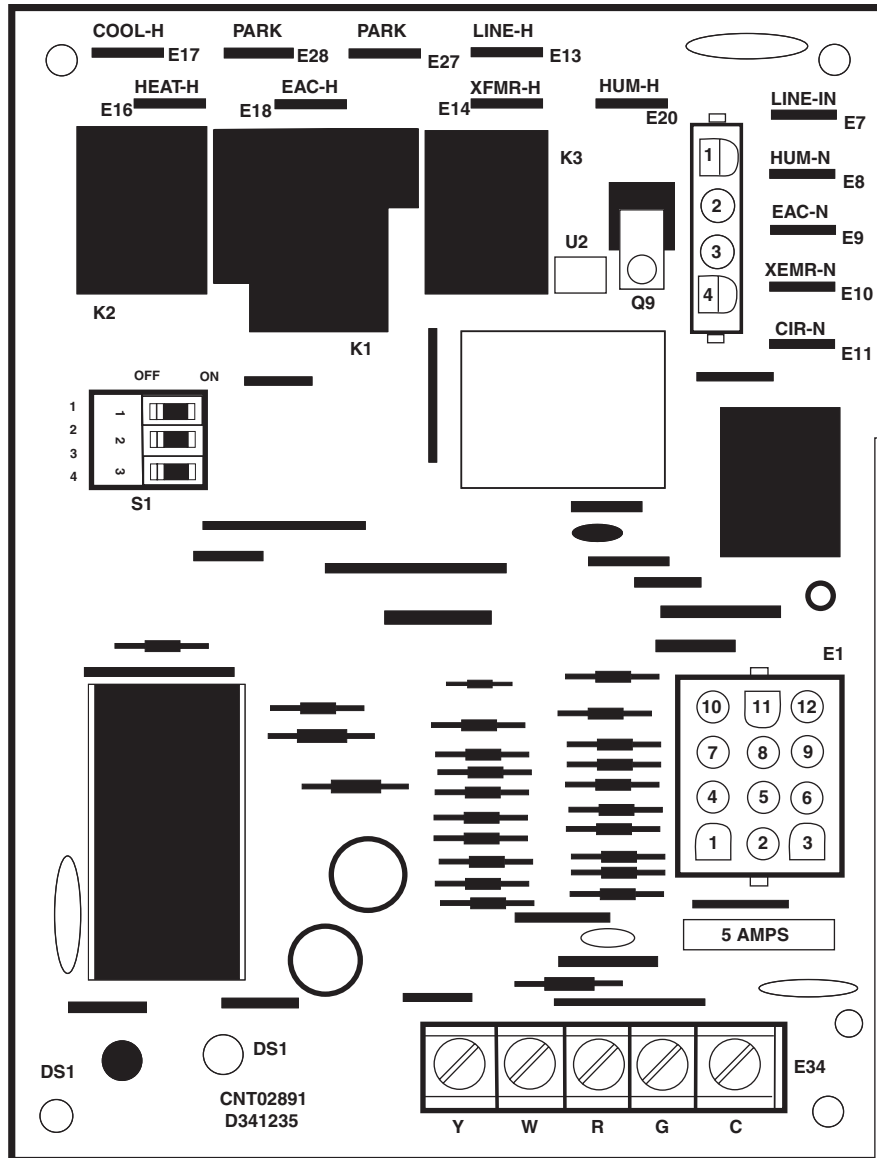
The following pages include troubleshooting flowcharts in reference to the TUE1, TDE1, AUE1, ADE1 TUC1 TDC1 AUC1 and ADC1 Single Stage furnaces and ONLY; using the FAULT LED as starting points.

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.

Service Facts

CNT02891



- Plug # E20**
1. IND-H
 2. IGN-H
 3. IND-N
 4. IGN-N

- Plug # E1**
- PINS OUT
12 PIN CONNECTOR**
- | | | |
|-----|--------|-------------------|
| 1. | HLO | High Limit Output |
| 2. | FP | Flame Probe |
| 3. | TH | 24V Hot |
| 4. | | Not Used |
| 5. | | Not Used |
| 6. | TR | 24V Return |
| 7. | HLI | High Limit Input |
| 8. | GND | Ground |
| 9. | MV COM | Main Valve Common |
| 10. | PS | Pressure Switch |
| 11. | | Not Used |
| 12. | MV | Main Valve |
- 4 PIN CONNECTOR**
- | | | |
|----|-------|-----------------|
| 1. | IND | Inducer |
| 2. | IGN | Ignighter |
| 3. | IND-N | Inducer Neutral |
| 4. | IGN-N | Ignitor Neutral |

Electrical Ratings

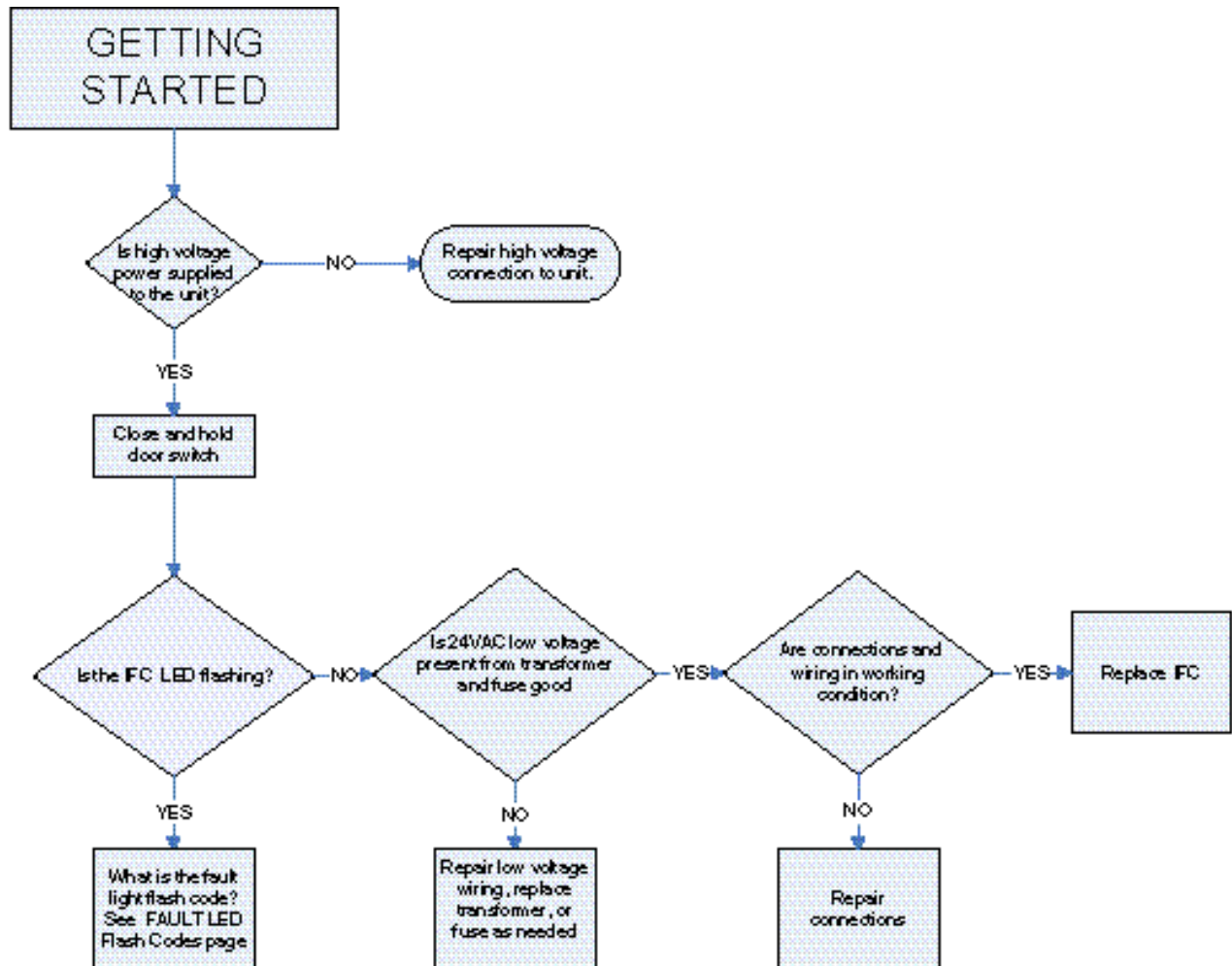
Input: 25 VAC, 60 Hz.
 XFMR Sec, Current: 450 MA
 IGN Output: 120 VAC, 2.0 A
 MV Output: 24 VAC, 1.5 A
 Cir. Blower Output: 120 VAC, 14.5 FLA, 26.0 LRA
 Trial for Ignition Period: 4 Seconds
 Ignitor Activation Period: Not Declared
 Prepurge: 0 Seconds
 Postpurge: 5 Seconds
 Retries: 2
 Recycles: 10
 Cir. Blower on Delay: Heat 45 Seconds
 Cir. Blower on Delay: Cool 2 Seconds

Cool "Off" Delay		
SW1	Secs	
On	0*	
Off	80	
Heat "Off" Delay		
SW2	SW3	Secs
On	Off	60
On	On	100*
Off	On	140
Off	Off	180
* Factory Settings		

Fault LED Flash Codes Definitions

INTERGRATED 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

Service Facts



Refer to 40" Residential Gas Furnace Service Manual to supplement this information.
Publication Number 34-4054-08

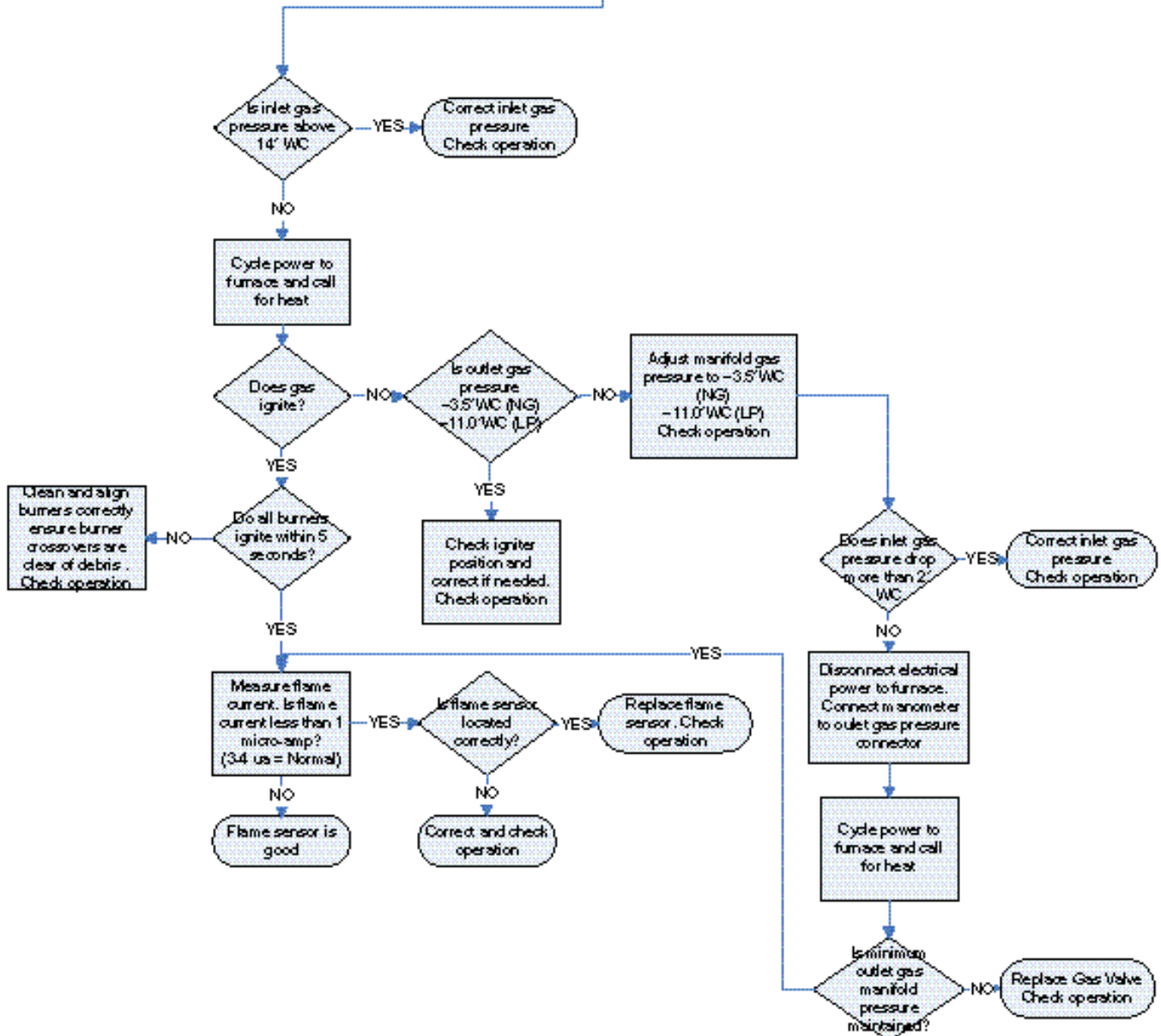
DEFINITION

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 in anometer to inlet gas pressure connector.



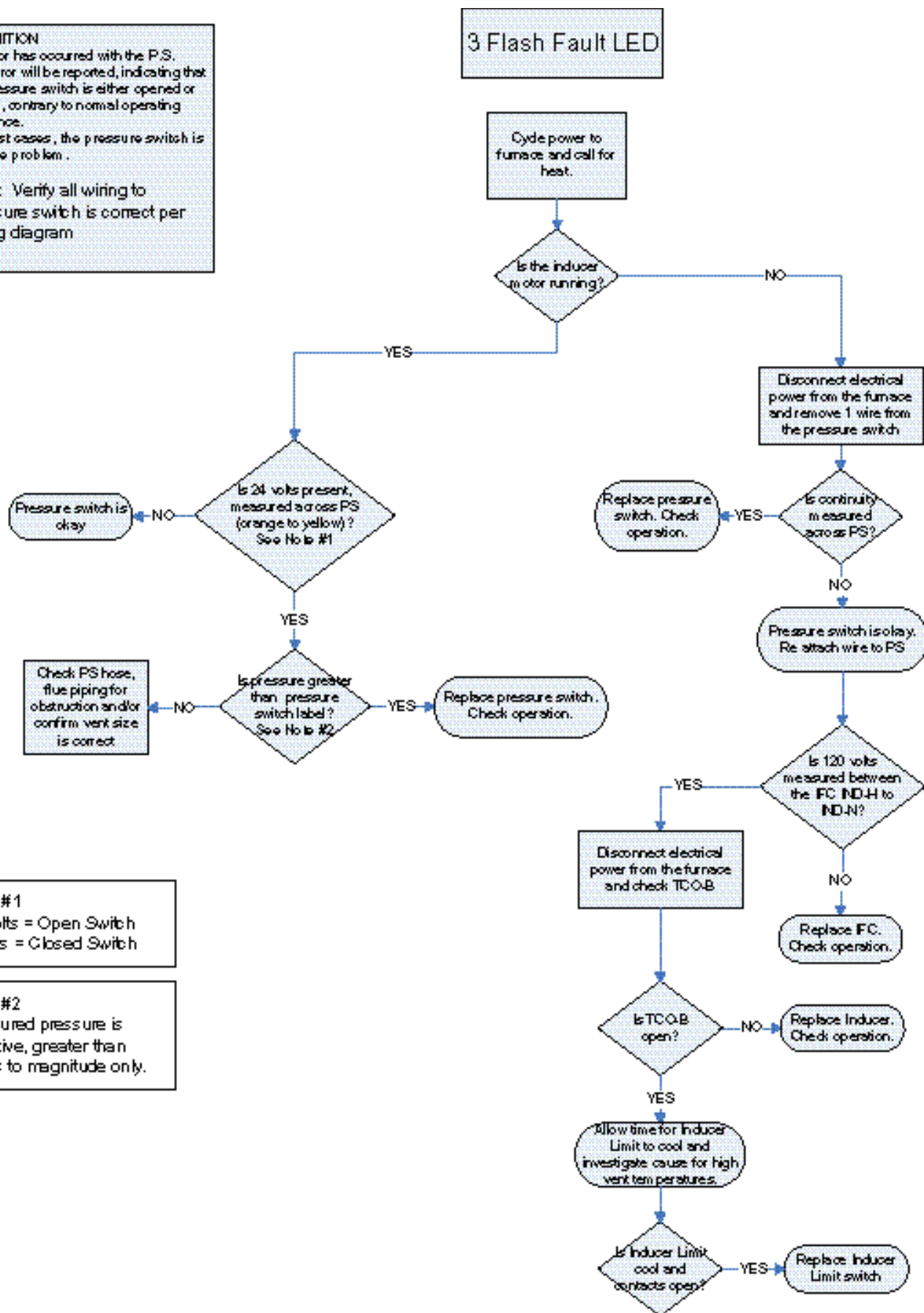
Service Facts

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



Note #1

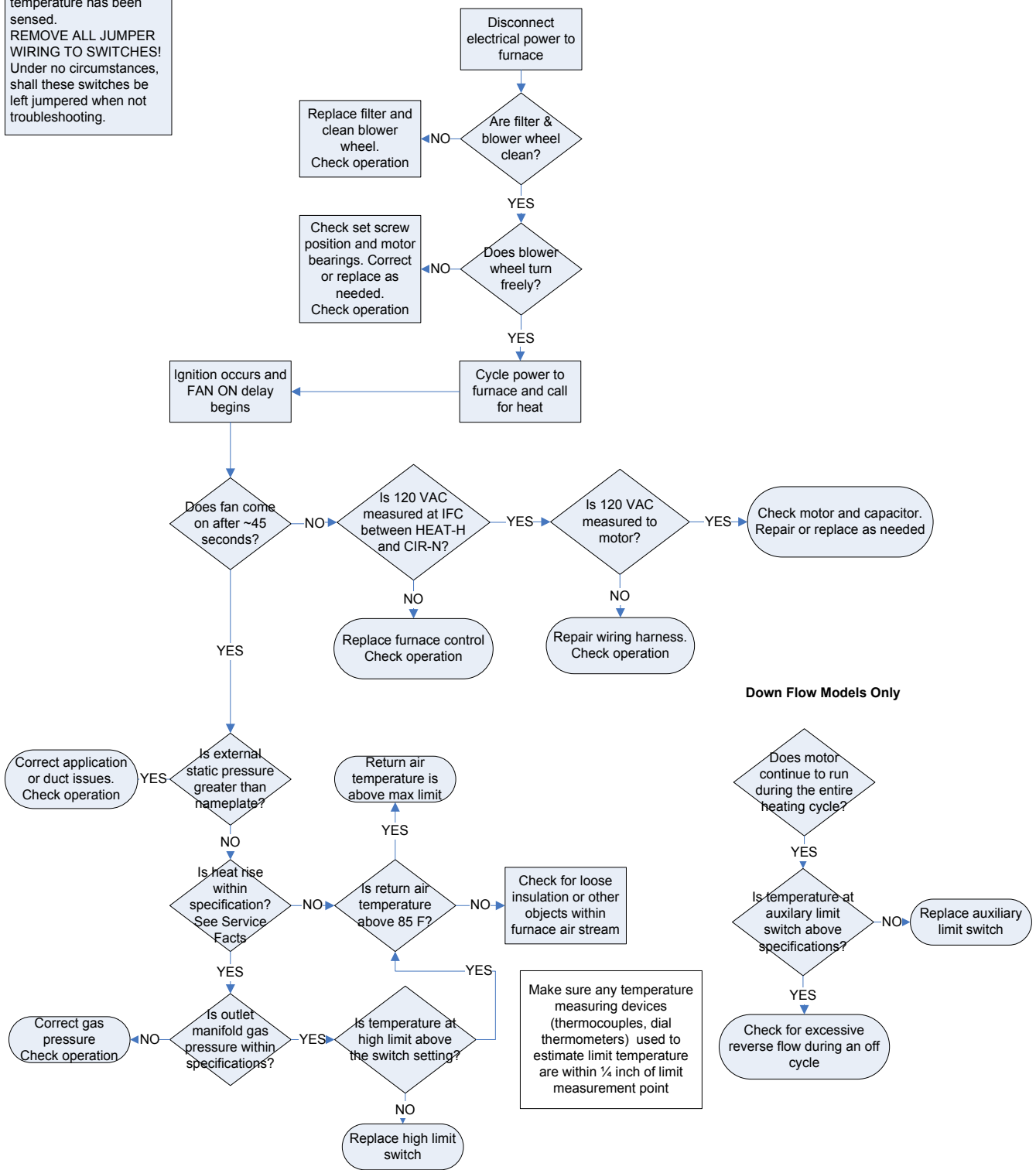
24 volts = Open Switch
0 volts = Closed Switch

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.

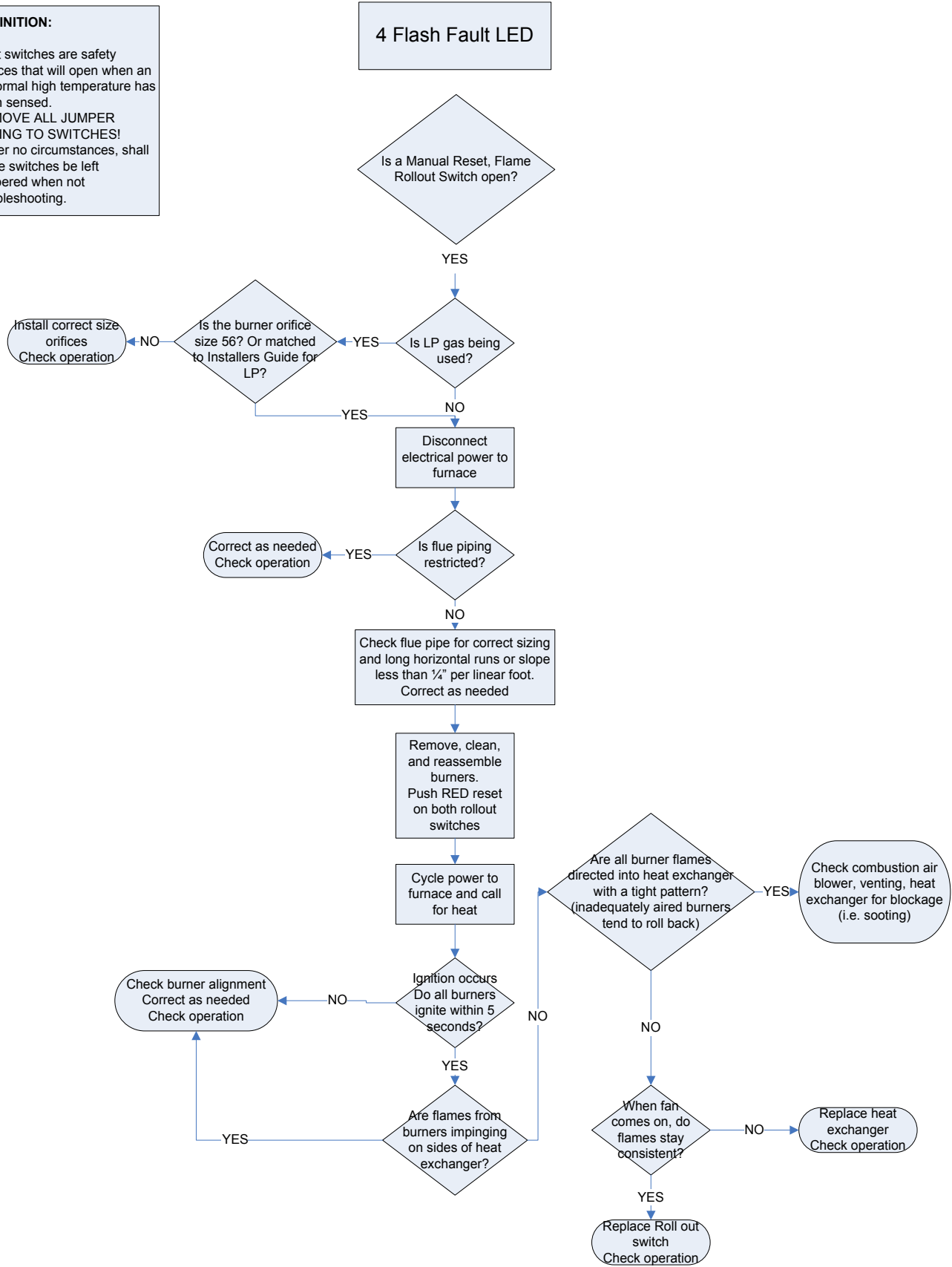
4 Flash Fault LED → See next page for additional 4 flash faults



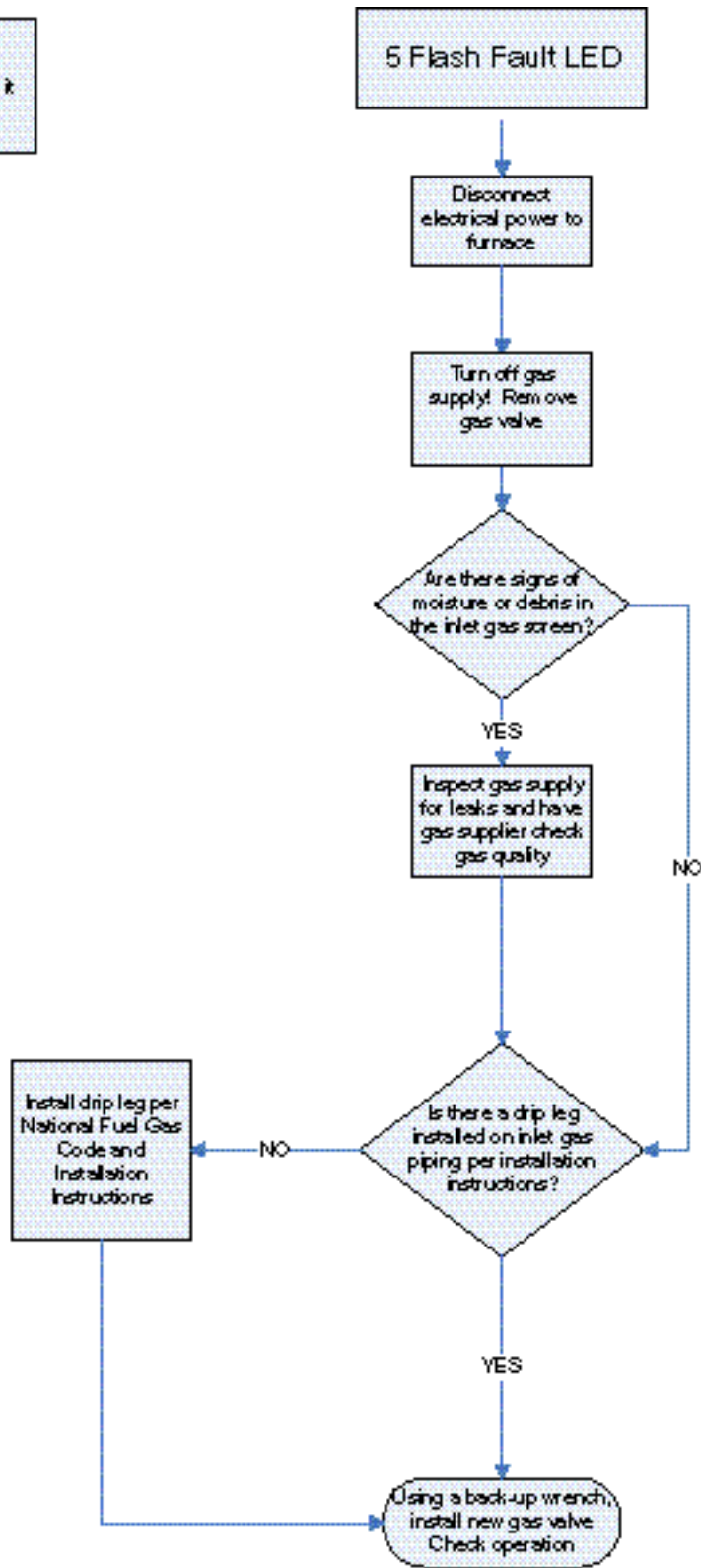
Service Facts

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.

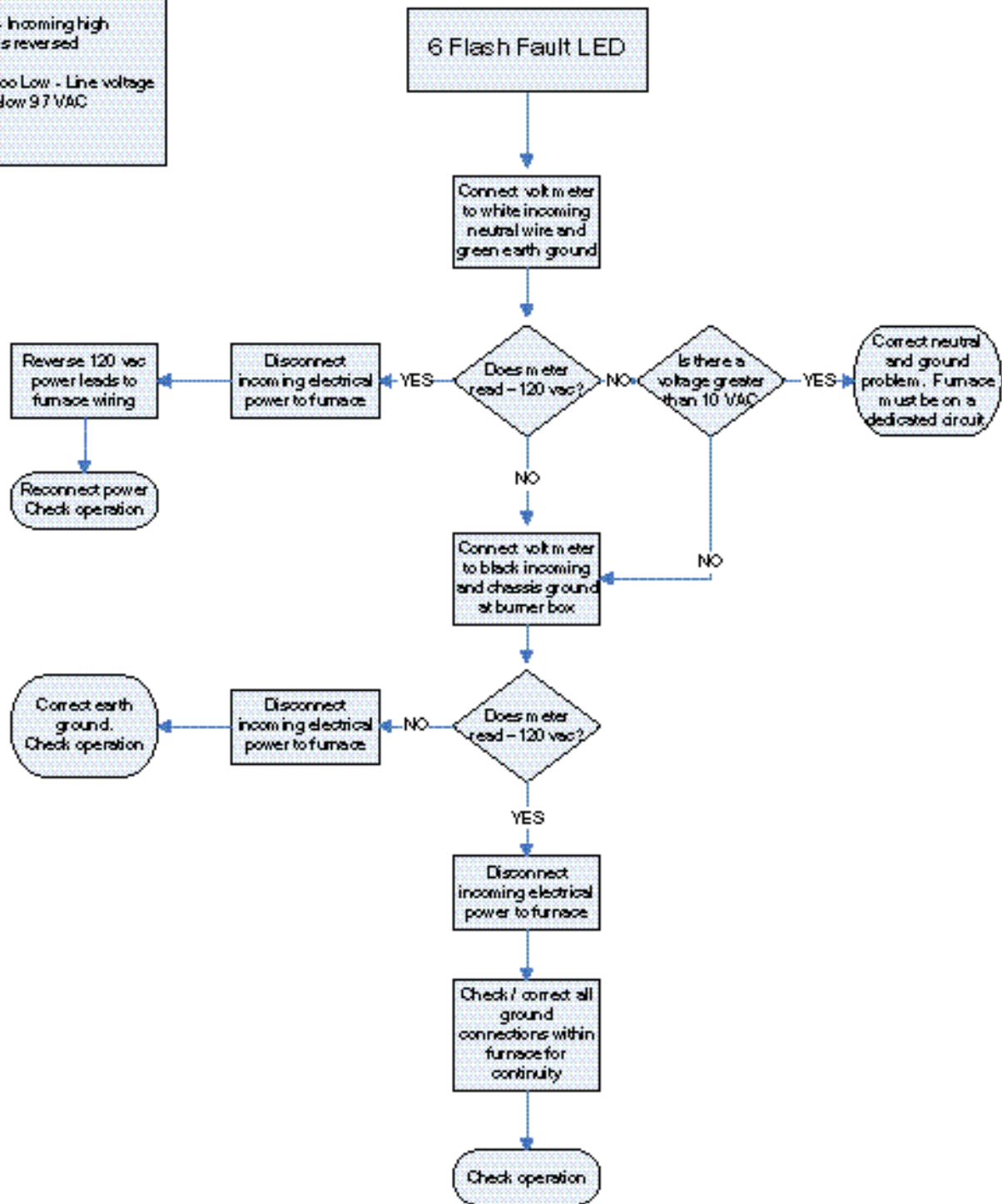


DEFINITION:
Flame is sensed when it should not be sensed.

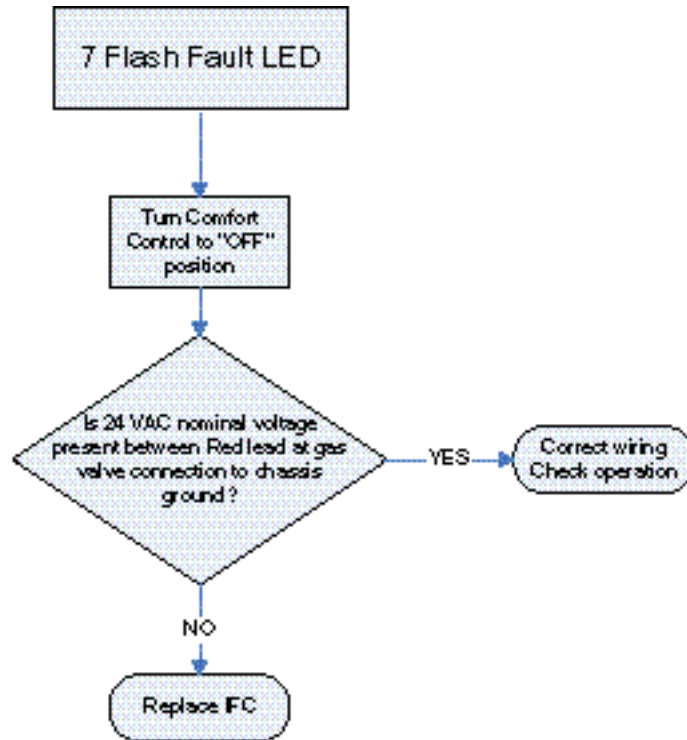


Service Facts

DEFINITION:
 Ground Fault - Incoming or chassis ground connection is not sensed
 Polarity Fault - Incoming high voltage wiring is reversed
 Line Voltage Too Low - Line voltage must not be below 97 VAC



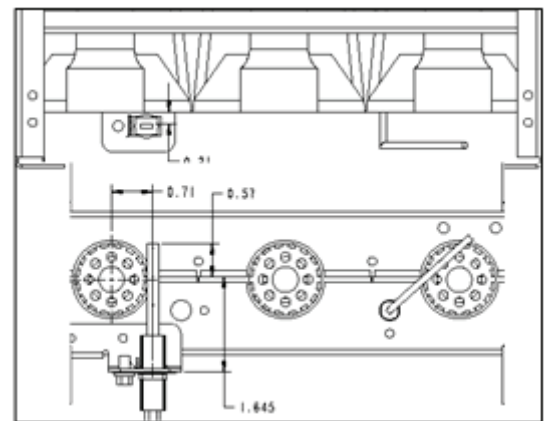
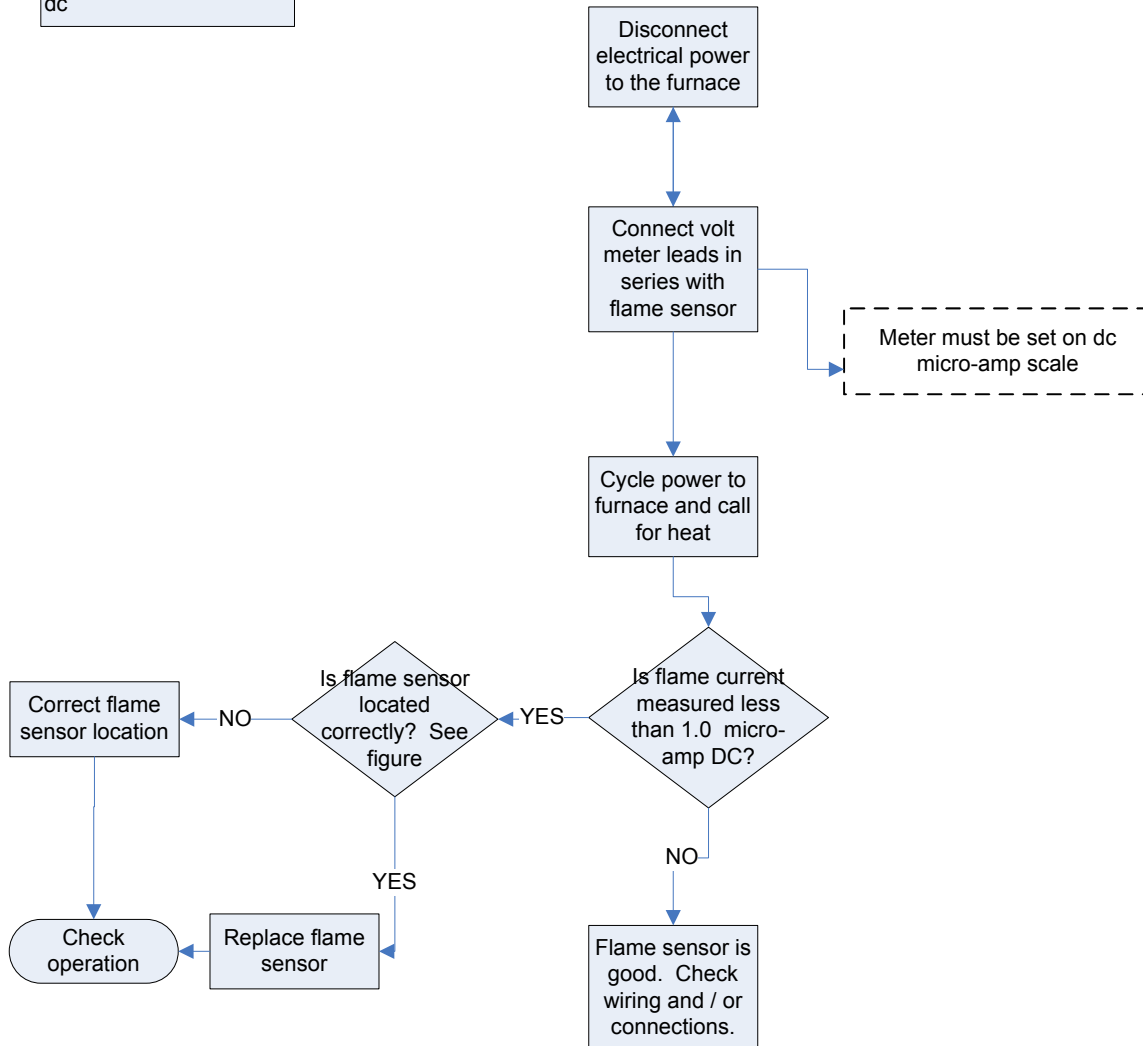
DEFINITION: External Gas Valve Circuit Error (24 volts is present when it should not be present)



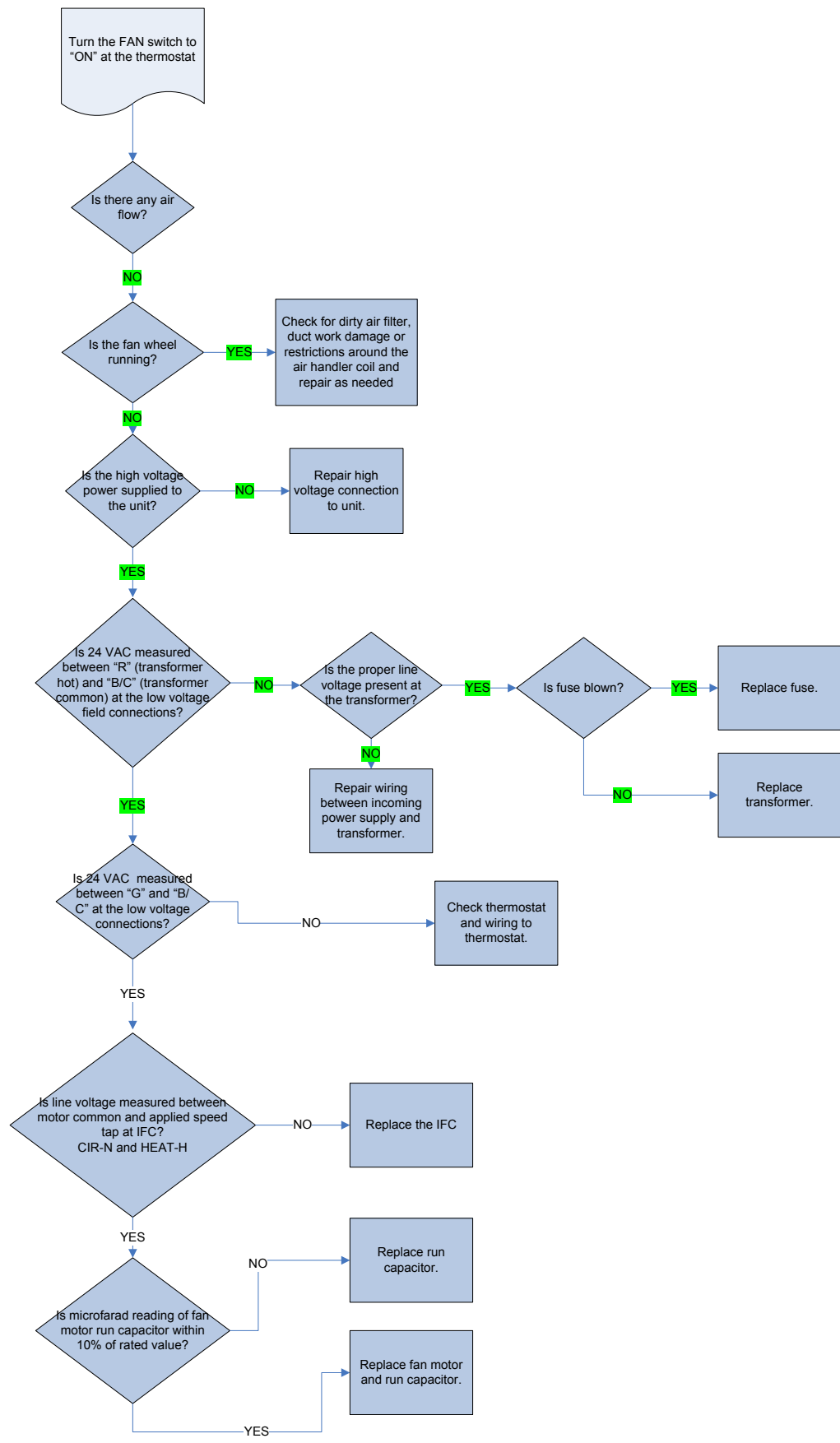
Service Facts

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

8 Flash Fault LED



Furnace PSC fan motor - No Air Flow



Service Facts

Trane
6200 Troup Highway
Tyler, TX 75707
www.trane.com

*For more information contact
your local dealer (distributor)*

07/11

Since the manufacturer has a policy of continuous product and product data improvement, it reserves the right to change design and specifications without notice.