

Service Facts



X342518P04

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

*UX1-H-SF-1D

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

B - FURNACES

- | | |
|----------------|----------------|
| *UX1B040A9H21B | *DX1B040A9H21B |
| *UX1B060A9H31B | *DX1B060A9H31B |
| *UX1B080A9H31B | *DX1B080A9H31B |
| *UX1C100A9H41B | *DX1C100A9H41B |
| *UX1D120A9H51B | *DX1D120A9H51B |

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	*UX1B040A9H21B	*UX1B060A9H31B	*UX1B080A9H31B
TYPE	Upflow / Horizontal	Upflow / Horizontal	Upflow / 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	30 - 60	35 - 65
BLOWER DRIVE	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
COMBUSTION FAN — Type	Centrifugal	Centrifugal	Centrifugal
Drive - No. Speeds	Direct - 1	Direct - 1	Direct - 1
Motor HP - RPM	1/55 - 3000	1/55 - 3000	1/24 - 3200
Volts / Ph / Hz	115/1/60	115/1/60	115/1/60
FLA	1.0	1.0	1.35
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 — Size (in.)	2 Round	2 Round	2 Round
HEAT EXCHANGER			
Type- Fired	Alum. Steel	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	9.7	10
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.)	139 / 129	150 / 140	158 / 148

① Central Furnace heating designs are certified by AGA and CSA.

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.

Service Facts

PRODUCT SPECIFICATIONS ①

MODEL	*UX1C100A9H41B	*UX1D120A9H51B
TYPE	Upflow / Horizontal	Upflow / Horizontal
RATINGS ②		
Input BTUH ③	100,000	120,000
Capacity BTUH (ICS) ③	93,000	112,000
AFUE	92.1	92.1
Temp. rise (Min.-Max.) °F.	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	3/4	1
R.P.M.	1100	1100
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	.71	.71
FILTER — Furnished?	Yes	Yes
Type Recommended	High Velocity	High Velocity
Shipped (No.-Size-Thk.)	1 - 20x25 - 1in.	1 - 24x25 - 1in.
VENT — Size (in.)	2 Round	4 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)	12.4	14.5
Max. Overcurrent Protection (Amps)	20	20
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 / 162	205 / 193

** UD060C936K was built with a 10" x 7" blower housing, however the 10" x 7" and 10" x 6" have identical airflow in this model. ① Central Furnace heating designs are certified by AGA and CSA. 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.

MODEL	*DX1B040A9H31B	*DX1B060A9H31B	*DX1B080A9H31B
TYPE	Upflow / Horizontal	Upflow / Horizontal	Upflow / 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	30 - 60	40 - 70
BLOWER DRIVE	DIRECT	DIRECT	DIRECT
Diameter - Width (In.)	10 x 7	10 x 8	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	3/4
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	1.14	1.0	1.35
FILTER — Furnished?	Yes	Yes	Yes
Type Recommended	High Velocity	High Velocity	High Velocity
Shipped (No.-Size-Thk.)	1 - 14x20 - 1in.	2 - 14x20 - 1in.	2 - 14x20 - 1in.
VENT — Size (in.)	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	9.7	12.4
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.)	145 / 135	155 / 145	168 / 158

PRODUCT SPECIFICATIONS ^①

MODEL	*DX1C100A9H41B	*DX1D120A9H51B
TYPE	Upflow / Horizontal	Upflow / Horizontal
RATINGS ^②		
Input BTUH ^③	100,000	120,000
Capacity BTUH (ICS) ^③	94,000	110,000
AFUE	92.1	92.1
Temp. rise (Min.-Max.) °F.	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	3/4	1
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	.71	.71
FILTER — Furnished?	Yes	Yes
Type Recommended	High Velocity	High Velocity
Shipped (No.-Size-Thk.)	2 - 16x20 - 1in.	2 - 16x20 - 1in.
VENT — Size (in.)	2 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)	12.4	15.5
Max. Overcurrent Protection (Amps)	20	20
PIPE CONN. SIZE (IN.)	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
WEIGHT		
Shipping (Lbs.) / Net (Lbs.)	185 / 175	206 / 196

① Central Furnace heating designs are certified by AGA and CSA.

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.

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. A 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 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 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

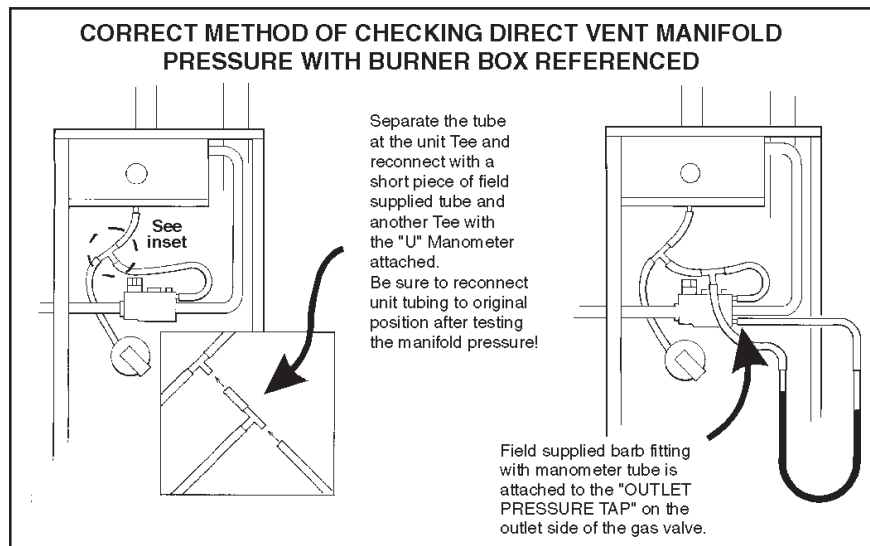
- Eye Contact** – Flush eyes with water to remove dust. If symptoms persist, seek medical attention.
- Skin Contact** – Wash affected areas gently with soap and warm water after handling.

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

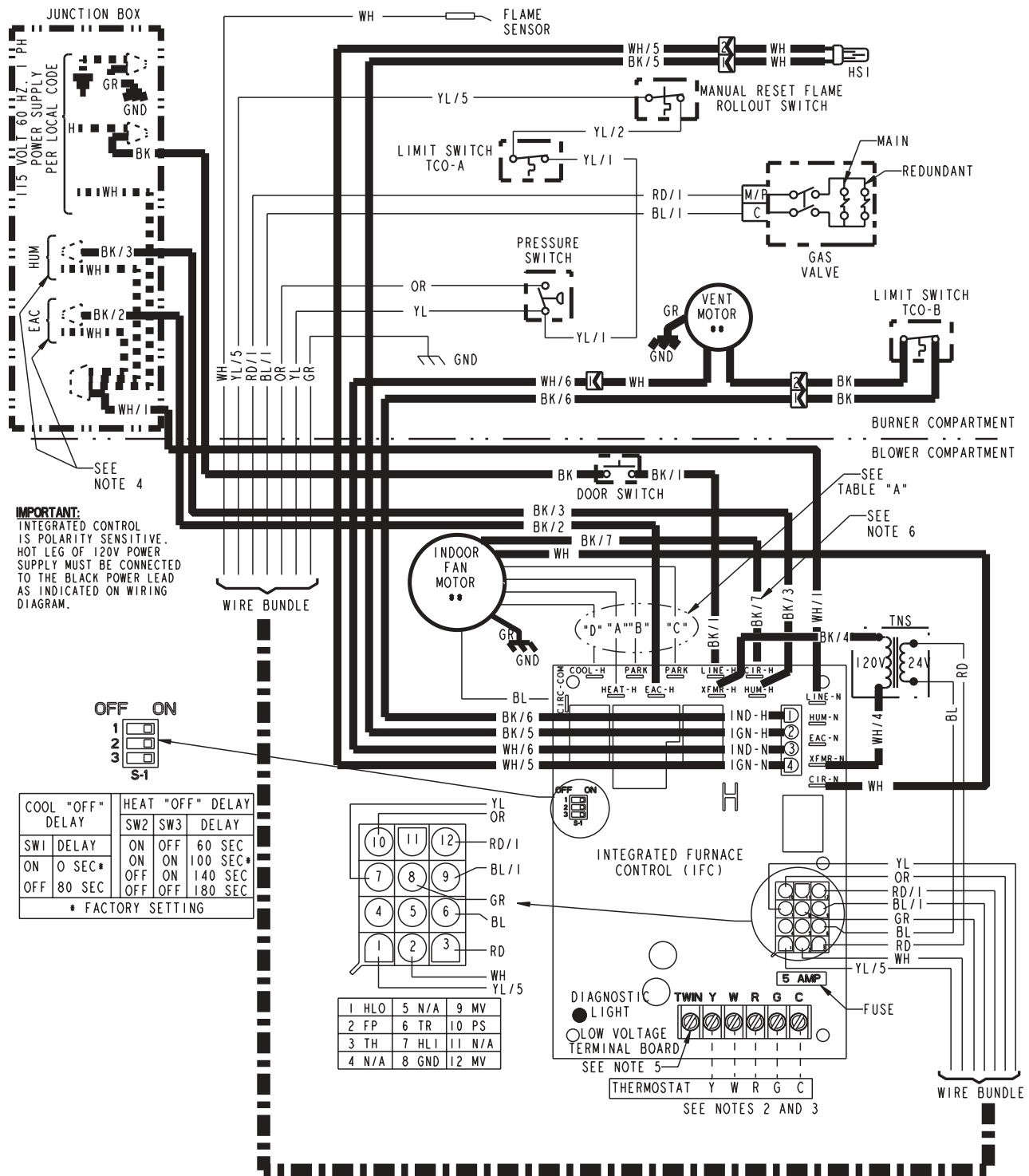
⚠ WARNING

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.



SCHEMATIC DIAGRAM



SCHEMATIC DIAGRAM

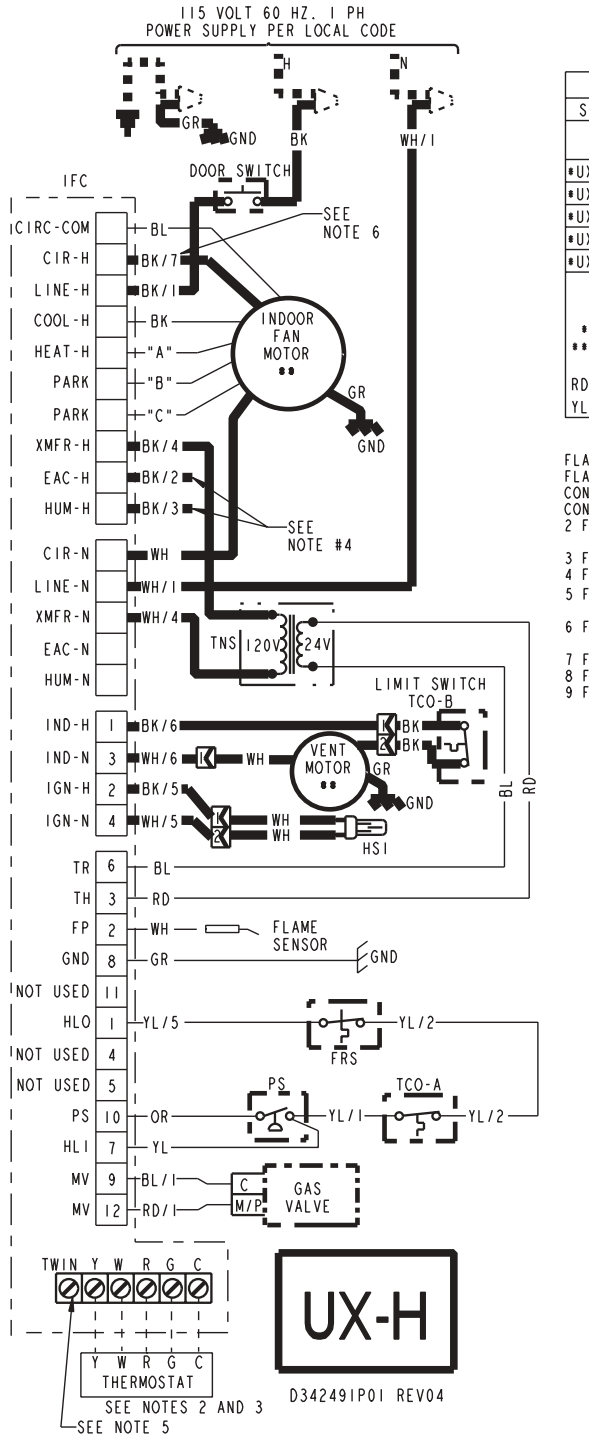


TABLE "A"
SPEED TAPS FOR I.D. FAN MOTOR

MODEL	HEAT "A"	PARK "B"	PARK "C"	COOL "D"
*UX1B040A9H21B**	RD/WH	BK/WH	YL/WH	BL/WH
*UX1B060A9H31B**	BL/WH	YL/WH	RD/WH	BK/WH
*UX1B080A9H31B**	BL/WH	YL/WH	RD/WH	BK/WH
*UX1C100A9H41B**	BL/WH	YL/H	RD/WH	BK/WH
*UX1D120A9H51B**	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

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

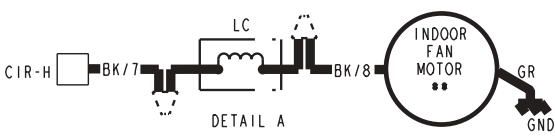
INTEGRATED FURNACE CONTROL
REPLACE WITH PART CNT04711 OR EQUIVALENT
INPUT: 25 VAC, 60 HZ.
XFMR SEC. CURRENT: 450 MA.
MV OUTPUT: 1.5 A @ 24 VAC
IND OUTPUT: 2.2 FLA, 3.5 LRA @ 120 VAC
CIRC. BLOWER OUTPUT: 14.5 FLA, 14.5 LRA @ 120 VAC
HUMIDIFIER & AIR CLEANER
MAX. LOAD: 1.0 A @ 120 VAC
IGNITER OUTPUT: 2.0 A @ 120 VAC

	TCO THERMAL CUT OUT		24 V } FACTORY WIRING	<table border="1"><tr><td>BK</td><td>BLACK</td><td>GR</td><td>GREEN</td></tr><tr><td>WH</td><td>WHITE</td><td>BR</td><td>BROWN</td></tr><tr><td>YL</td><td>YELLOW</td><td>RD</td><td>RED</td></tr><tr><td>OR</td><td>ORANGE</td><td>BL</td><td>BLUE</td></tr></table>	BK	BLACK	GR	GREEN	WH	WHITE	BR	BROWN	YL	YELLOW	RD	RED	OR	ORANGE	BL	BLUE
BK	BLACK	GR	GREEN																	
WH	WHITE	BR	BROWN																	
YL	YELLOW	RD	RED																	
OR	ORANGE	BL	BLUE																	
	PS PRESSURE SWITCH		24 V } FIELD WIRING	<table border="1"><tr><td>BK/1</td><td>WIRE COLOR NUMBER ID (IF ANY)</td></tr></table>	BK/1	WIRE COLOR NUMBER ID (IF ANY)														
BK/1	WIRE COLOR NUMBER ID (IF ANY)																			
	FRS FLAME ROLLOUT SWITCH		** INTERNAL THERMAL PROTECTION	<table border="1"><tr><td>L</td><td>LINE</td><td>TH</td><td>24 VAC (HOT)</td></tr><tr><td>N</td><td>NEUTRAL</td><td>TR</td><td>24 VAC (COMMON)</td></tr><tr><td>GND</td><td>GROUND</td><td>MV</td><td>MAIN GAS VALVE</td></tr><tr><td>B/C</td><td>COMMON</td><td>TNS</td><td>TRANSFORMER</td></tr></table>	L	LINE	TH	24 VAC (HOT)	N	NEUTRAL	TR	24 VAC (COMMON)	GND	GROUND	MV	MAIN GAS VALVE	B/C	COMMON	TNS	TRANSFORMER
L	LINE	TH	24 VAC (HOT)																	
N	NEUTRAL	TR	24 VAC (COMMON)																	
GND	GROUND	MV	MAIN GAS VALVE																	
B/C	COMMON	TNS	TRANSFORMER																	
	FP FLAME SENSOR		CF CAPACITOR																	
	CHASSIS GROUND		COIL																	
	HSI HOT SURFACE IGNITER																			
	DOOR SWITCH																			

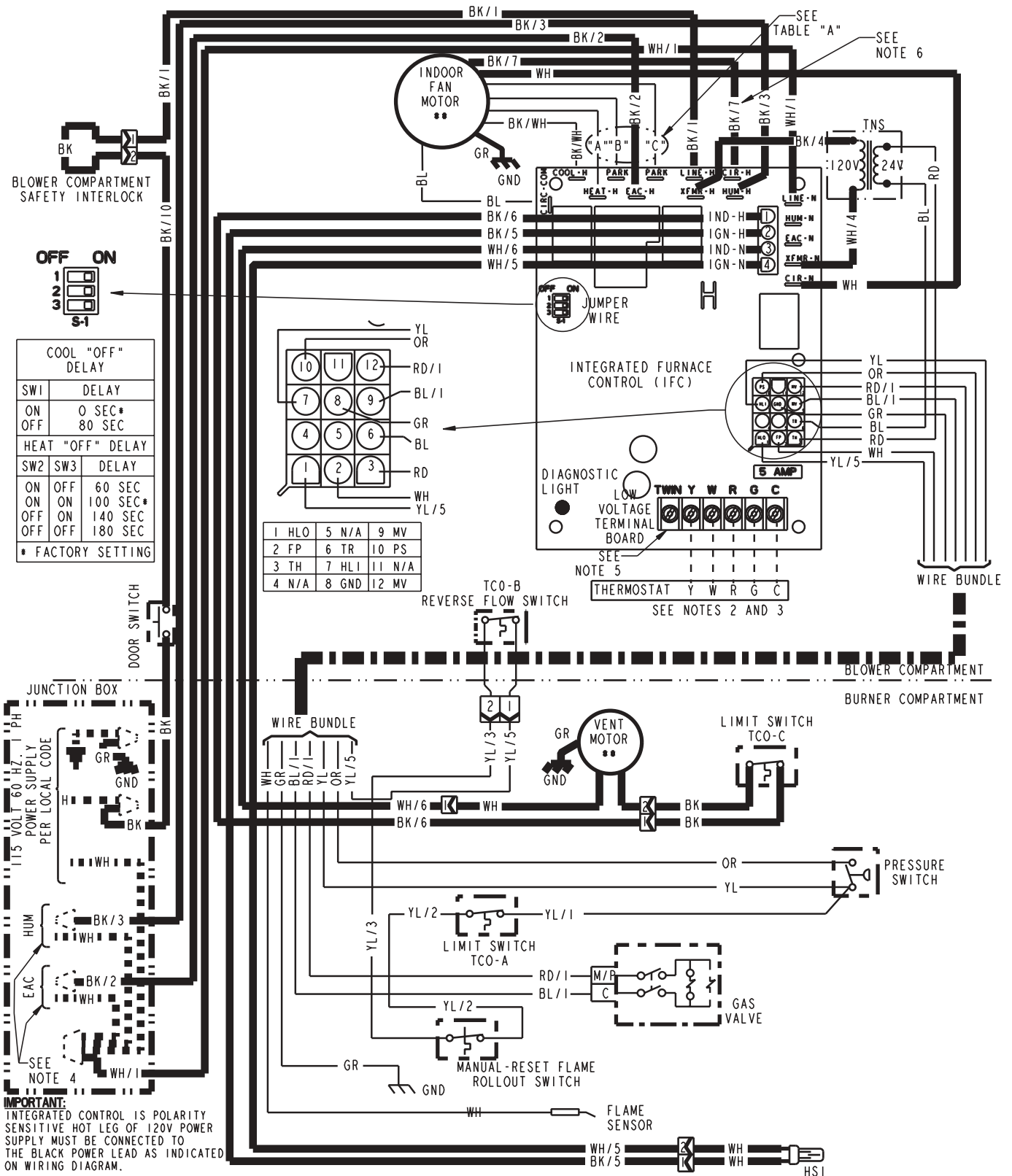
- NOTES:**
- IF ANY OF THE ORIGINAL WIRING AS SUPPLIED WITH THIS FURNACE MUST BE REPLACED, IT MUST BE WITH WIRE HAVING A TEMPERATURE RATING OF AT LEAST 105 C.
 - THERMOSTAT HEAT ANTICIPATOR SETTING: .38 AMPS
 - FOR PROPER OPERATION OF COOLING SPEED, "Y" TERMINAL MUST BE CONNECTED TO THE ROOM THERMOSTAT.
 - THESE LEADS PROVIDE 120V POWER CONNECTIONS FOR ELECTRONIC AIR CLEANER (EAC) AND HUMIDIFIER (HUM). MAX. LOAD: 1.0 AMPS EACH.
 - 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.
 - FOR MOELS USING 3/4 HP & 1 HP INDOOR FAN MOTOR, USE DETAIL A & TABLE A.



D342491P01 REV04



SCHEMATIC DIAGRAM



SCHEMATIC DIAGRAM

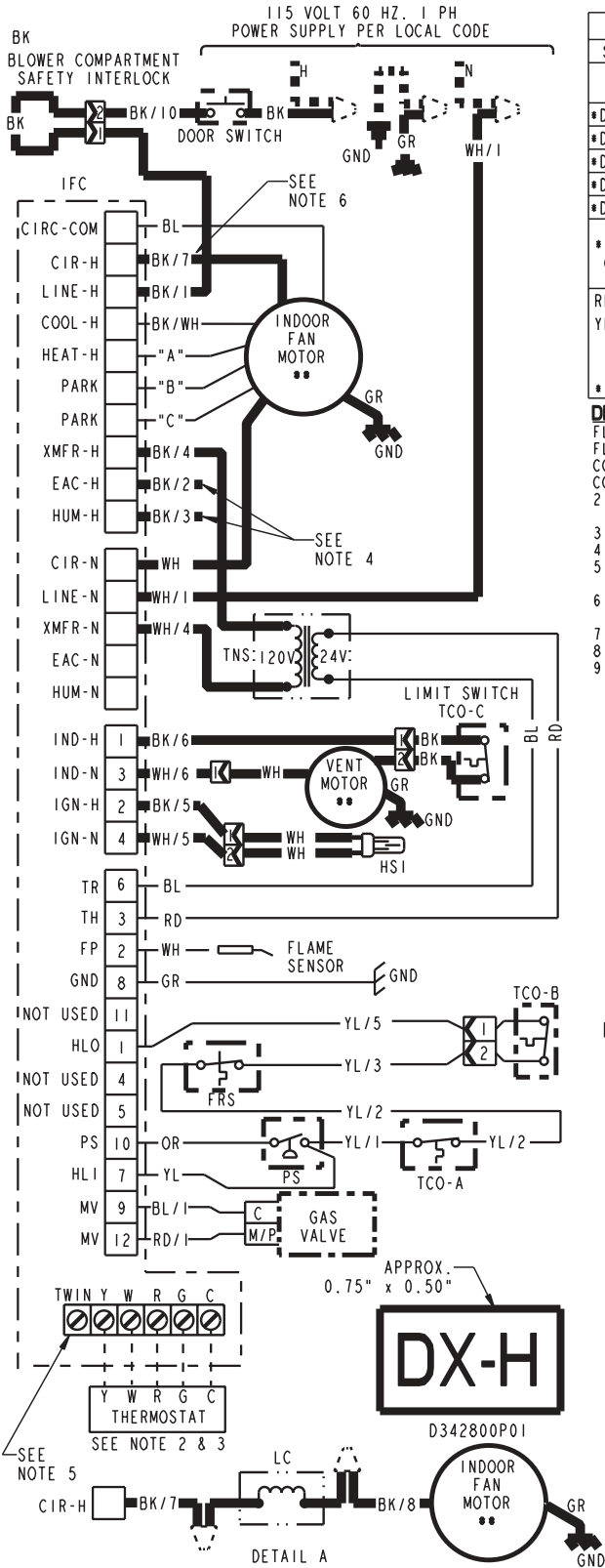


TABLE "A"
SPEED TAPS FOR I.D. FAN MOTOR

MODEL	HEAT "A"	PARK "B"	PARK "C"	BLOWER HP
*DX1B040A9H21B**	YL/WH	BL/WH	RD/WH	1/2
*DX1B060A9H31B**	BL/WH	YL/WH	RD/WH	1/2
*DX1B080A9H31B**	BL/WH	YL/WH	RD/WH	3/4
*DX1C100A9H41B**	BL/WH	YL/WH	RD/WH	3/4
*DX1D120A9H51B**	BL/WH	YL/WH	RD/WH	1

*DX1C100A9H41A** LOW SPEED TAP CAN NOT BE USED FOR HEATING

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"

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 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
HUMIDIFIER & AIR CLEANER
MAX. LOAD: 1.0 A @ 120 VAC
IGNITER OUTPUT: 6.0 A @ 120 VAC

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

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

** INTERNAL THERMAL PROTECTION
CF CAPACITOR
COIL

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

BK/1 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 LEADS PROVIDE 120V POWER CONNECTIONS FOR ELECTRONIC AIR CLEANER (EAC) AND HUMIDIFIER (HUM). MAX. LOAD: 1.0 AMPS EACH.
- 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.
- FOR MOELS USING 3/4 HP & 1 HP INDOOR FAN MOTOR, USE DETAIL A & TABLE A.

NOTE: For the *DX1C100A9H41A furnace, Do NOT use the LOW speed tap for heating

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
*UX1B040A9H21B	4 - HIGH - Black 3 - MED-HIGH - Blue 2 - MED-LOW - Yellow 1 - LOW - Red	1159 938 844 772	1131 910 814 732	1102 881 783 691	1077 851 750 656	1052 820 717 621	1022 786 681 581	992 751 645 540	961 717 604 497	930 662 563 454
*UX1B060A9H31B	4 - HIGH - Black 3 - MED-HIGH - Blue 2 - MED-LOW - Yellow 1 - LOW - Red	1358 1196 1025 863	1327 1166 1000 830	1296 1135 975 797	1272- 1109 943 762	1248 1082 910 726	1215 1053 878 687	1182 1023 845 648	1122 989 813 601	1061 955 780 554
*UX1B080A9H31B	4 - HIGH - Black 3 - MED-HIGH - Blue 2 - MED-LOW - Yellow 1 - LOW - Red	1436 1334 1239 1160	1404 1308 1209 1131	1371 1281 1179 1101	1346 1250 1149 1070	1320 1219 1119 1039	1289 1193 1090 1007	1257 1167 1060 974	1214 1132 1030 940	1170 1097 999 905
*UX1C100A9H41B	4 - HIGH - Black 3 - MED-HIGH - Blue 2 - MED-LOW - Yellow 1 - LOW - Red	1888 1751 1530 1245	1852 1715 1491 1204	1815 1679 1452 1162	1776 1643 1415 1115	1737 1606 1378 1067	1698 1571 1336 1023	1659 1536 1293 979	1626 1493 1253 931	1593 1450 1212 882
*UX1D120A9H51B	4 - HIGH - Black 3 - MED-HIGH - Blue 2 - MED-LOW - Yellow 1 - LOW - Red	2153 1895 1777 1618	2121 1856 1743 1579	2089 1817 1708 1540	2056 1779 1673 1504	2023 1741 1637 1467	1983 1708 1601 1430	1943 1674 1564 1393	1907 1634 1524 1354	1870 1593 1484 1315

CFM VS. TEMPERATURE RISE																				
MODEL	CFM (CUBIC FEET PER MINUTE)																			
	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100		
*UX1B040A9H21B			56	48	42	37	33	30												
*UX1B060A9H31B					63	56	50	45	42	38	36	33	31	29						
*UX1B080A9H31B							67	61	56	51	48	44	42	39	37	35				
*UX1C100A9H41B										64	60	56	52	49	46	44	42	40		
*UX1D120A9H51B											71	67	63	59	56	53	50	48		

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
*DX1B040A9H31B	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
*DX1B060A9H31B	4 - HIGH - Black	1337	1314	1291	1257	1223	1187	1150	1090	1030
	3 - MED-HIGH - Blue	1159	1127	1094	1065	1036	997	957	920	883
	2 - MED-LOW - Yellow	967	930	893	856	818	774	729	690	651
	1 - LOW - Red	863	823	782	742	702	657	611	571	531
*DX1B080A9H31B	4 - HIGH - Black	1614	1585	1555	1489	1423	1363	1303	1202	1101
	3 - MED-HIGH - Blue	1322	1295	1267	1239	1211	1180	1149	1111	1072
	2 - MED-LOW - Yellow	1098	1067	1036	1003	970	933	896	864	831
	1 - LOW - Red	970	934	898	868	837	794	750	712	674
*DX1C100A9H41B NOTE: Do NOT use the LOW speed tap for heating	4 - HIGH - Black	1844	1808	1771	1736	1700	1669	1638	1590	1542
	3 - MED-HIGH - Blue	1748	1716	1683	1648	1612	1574	1535	1497	1459
	2 - MED-LOW - Yellow	1429	1392	1354	1312	1269	1235	1200	1154	1108
	1 - LOW - Red	1203	1134	1124	1077	1029	983	937	887	837
*DX1D120A9H51B	4 - HIGH - Black	2162	2127	2091	2049	2006	1964	1922	1849	1775
	3 - MED-HIGH - Blue	1928	1888	1848	1811	1774	1736	1698	1653	1607
	2 - MED-LOW - Yellow	1782	1743	1703	1665	1626	1582	1537	1500	1462
	1 - LOW - Red	1552	1520	1488	1450	1412	1370	1328	1295	1261

CFM VS. TEMPERATURE RISE																		
MODEL	CFM (CUBIC FEET PER MINUTE)																	
	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100
*DX1B040A9H31B			56	48	42	37	33	30										
*DX1B060A9H31B					63	56	50	45	42	38	36	33	31	29				
*DX1B080A9H31B							67	61	56	51	48	44	42	39	37	35		
*DX1C100A9H41B										64	60	56	52	49	46	44	42	40
*DX1D120A9H51B											71	67	63	59	56	53	50	48

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.

Service Facts



Literature Order Number	---	
File Number	---	
Supersedes	---	
Stocking Location	---	P.I.

American Standard Inc.
6200 Troup Highway
Tyler, TX 75707

For more information contact
your local dealer (distributor)

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