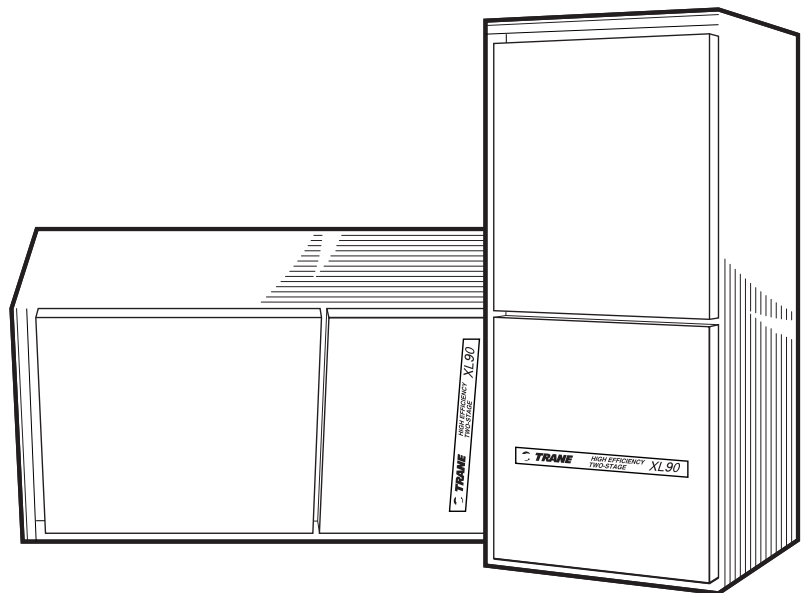




Downflow/Horizontal Two-stage Condensing Gas-Fired Furnace

XL 90
TDX060,080,100,120R-V
Direct Vent with Variable Speed Inducer





General Features

Natural Gas Models

Central heating furnace designs are certified by the American Gas Association for both natural and L.P. gas. Limit setting and rating data were established and approved under standard rating conditions using American National Standards Institute standards.

Safe Operation

The Integrated System Control has solid state devices, which continuously monitor for presence of flame, when the system is in the heating mode of operation. Dual solenoid combination gas valve and regulator provide extra safety.

Quick Heating

Durable, cycle tested, heavy gauge **aluminized steel heat exchanger** quickly transfers heat to provide warm conditioned air to the structure. **Low energy power vent blower**, to increase efficiency and provide a positive discharge of gas fumes to the outside.

Burners

Multi-port In-shot burners will give years of quiet and efficient service. All models can be converted to **L.P. gas** without changing burners.

Integrated System Control

Exclusively designed operational program provides total control of furnace limit sensors, blowers, gas valve, flame control and includes self diagnostics for ease of service. Also contains connection points for E.A.C./humidifier.

Condensate Drain

Built-in trap which can drain from either side when the furnace is installed upflow.

Air Delivery

The variable speed, direct drive blower motor, has sufficient airflow for most heating and cooling requirements, will switch from heating to cooling speeds on demand from room thermostat. The blower door safety switch will prevent or terminate furnace operation when the blower door is removed.

Secondary Heat Exchanger

The XL 90 has a special type 29-4C™ stainless steel secondary heat exchanger to reclaim heat from flue gases which would normally be lost outside.

Styling

Heavy gauge steel and “wrap-around” cabinet construction is used in the cabinet with baked-on enamel finish for strength and beauty. The heat exchanger section of the cabinet is completely lined with foil faced fiberglass insulation. This results in quiet and efficient operation due to the excellent acoustical and insulating qualities of fiberglass. Built-in bottom pan and alternate bottom, left or right side return air connection provision.

Features And General Operation

The XL 90 High Efficiency Gas Furnaces employ an Adaptive Silicon Nitride Hot Surface Ignition system, which eliminates the waste of a constant burning pilot. The integrated system control lights the main burners upon a demand for heat from the room thermostat. Complete front service access.

- a. Low energy power venter.
- b. Vent proving pressure switch.

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Features and Benefits

XL 90 STANDARD EQUIPMENT

- Direct or nondirect vent application
- Convertible to horizontal on left side
- Power supply 115/1/60
- 2-stage gas valve
- Variable speed inducer motor
- Adaptive Silicon Nitride hot surface igniter
- Integrated system control
- Heavy gauge aluminized steel heat exchanger
- Blower door safety switch
- Multi-port In-shot burners
- Alternate bottom/left/right return air in vertical position
- Slide-out blower assembly
- Direct drive, 4 speed motors
- Adjustable fan off times
- Single pipe venting
- Cleanable high velocity filters
- Heavy gauge reinforced wrap-around steel cabinet
- Super quiet performance
- Complete front service access
- Optional L.P. conversion kit
- Left/right gas connection
- **Limited lifetime warranty on primary and secondary heat exchangers to original owner**
- **One-year parts warranty**
- **Three-year warranty on integrated control and hot surface igniter**



Features and Benefits

XL 90 OPTIONAL EQUIPMENT

Thermostat, Mechanical 2-Stage Heating/1-Stage Cooling	BAYSTAT241 []
Thermostat, Mechanical Heating Only With Fan Switch	BAYSTAT303 []
Thermostat, Heating/Cooling Single Stage (Mounts Horizontally)	AY28X092 []
Thermostat, Heating/Cooling Single Stage (Mounts Vertically)	BAYSTAT305 []
Thermostat, Electronic Programmable 2-Stage Heating/2-Stage Cooling	BAYSTAT302B []
Thermostat, Electronic Programmable 1-Stage Heating/1-Stage Cooling	BAYSTAT300 []
Propane Conversion Kit	BAYLPKT210A []
Electronic Air Filter, "Perfect Fit" Super Efficiency (17-1/2" Wide Gas Furnace)	TFE175A9FR0 []
Electronic Air Filter, "Perfect Fit" Super Efficiency (21" Wide Gas Furnace)	TFE210A9FR0 []
Electronic Air Filter, "Perfect Fit" Super Efficiency (24-1/2" Wide Gas Furnace)	TFE245A9FR0 []
Electronic Air Filter, "Perfect Fit" High Efficiency (17-1/2" Wide Gas Furnace)	TFM175A9FR0 []
Electronic Air Filter, "Perfect Fit" High Efficiency (21" Wide Gas Furnace)	TFM210A9FR0 []
Electronic Air Filter, "Perfect Fit" High Efficiency (24-1/2" Wide Gas Furnace)	TFM245A9FR0 []
Electronic Air Filter, "Perfect Fit" Standard Efficiency (17-1/2" Wide Gas Furnace)	TFP175A9FR0 []
Electronic Air Filter, "Perfect Fit" Standard Efficiency (21" Wide Gas Furnace)	TFP210A9FR0 []
Electronic Air Filter, "Perfect Fit" Standard Efficiency (24-1/2" Wide Gas Furnace)	TFP245A9FR0 []
Coil Enclosure (17-1/2" Wide Cabinets)	BAYCLE1700 []
Coil Enclosure (21" Wide Cabinets)	BAYCLE2100 []
Coil Enclosure (24-1/2" Wide Cabinets)	BAYCLE2400 []
Downflow Subbase	BAYBASE205 []
High Altitude Switch (060)	BAYHALT245 []
High Altitude Switch (080,100)	BAYHALT246 []
High Altitude Switch (120)	BAYHALT247 []
Concentric Vent Termination	BAYVENT100A []
Sidewall Vent Termination	BAYVENT200B []
Manufactured/Mobile Home Kit	BAYMFGH100A []



General Data

TDX-R-V PRODUCT SPECIFICATIONS^①

MODEL	TDX060R936V	TDX080R942V	TDX100R948V	TDX120R960V
RATINGS^②				
1st Stage Input BTUH	39000	52000	65000	78000
1st Stage Capacity BTUH (ICS) ^③	36000	48000	60000	72000
2nd Stage Input BTUH	60000	80000	100000	120000
2nd Stage Capacity BTUH (ICS) ^③	55000	74000	93000	111000
AFUE (ICS)	92.0	92.5	93.0	92.5
Temp. Rise (Min.-Max.) °F.	35 - 65	35 - 65	45 - 75	45 - 75
BLOWER DRIVE				
	DIRECT	DIRECT	DIRECT	DIRECT
Dia.-Width (In.)	10 x 8	11 x 8	11 x 10	11 x 10
No. Used	1	1	1	1
Speeds (No.)	4	4	4	4
CFM vs. in. w.g.	SEE FAN PERF. TABLE	SEE FAN PERF. TABLE	SEE FAN PERF. TABLE	SEE FAN PERF. TABLE
Motor HP	1/3	1/2	1/2	3/4
R.P.M.	1075	1075	1075	1075
Volts/Ph/Hz	115/1/60	115/1/60	115/1/60	115/1/60
COMBUSTION FAN - TYPE				
	CENTRIFUGAL	CENTRIFUGAL	CENTRIFUGAL	CENTRIFUGAL
Drive - No. Speeds	DIRECT - VARIABLE	DIRECT - VARIABLE	DIRECT - VARIABLE	DIRECT - VARIABLE
Motor HP - RPM	1/15 - 5000	1/15 - 5000	1/15 - 5000	1/15 - 5000
Volts/Ph/Hz	115/1/60	115/1/60	115/1/60	115/1/60
FL Amps	1.1	1.1	1.1	1.1
FILTER — Furnished?				
	YES	YES	YES	YES
Type Recommended	HIGH VELOCITY	HIGH VELOCITY	HIGH VELOCITY	HIGH VELOCITY
Filter (No.-Size-Thk.)	2 - 14 X 20 X 1	2 - 14 X 20 X 1	2 - 16 X 20 X 1	2 - 16 X 20 X 1
VENT — Size (In.)				
	2 ROUND	2 ROUND	2 ROUND	3 ROUND
HEAT EXCHANGER				
Type-Fired	ALUMINIZED STEEL TYPE 1	ALUMINIZED STEEL TYPE 1	ALUMINIZED STEEL TYPE 1	ALUMINIZED STEEL TYPE 1
-Unfired				
Gauge (Fired)	20	20	20	20
ORIFICES — Main				
Nat. Gas. Qty. — Drill Size	3 - 45	4 - 45	5 - 45	6 - 45
L.P. Gas Qty. — Drill Size	3 - 56	4 - 56	5 - 56	6 - 56
GAS VALVE				
	REDUNDANT - TWO STAGE	REDUNDANT - TWO STAGE	REDUNDANT - TWO STAGE	REDUNDANT - TWO STAGE
DIRECT IGNITION DEVICE				
Type	HOT SURFACE IGNITER	HOT SURFACE IGNITER	HOT SURFACE IGNITER	HOT SURFACE IGNITER
BURNERS — Type				
	IN-SHOT	IN-SHOT	IN-SHOT	IN-SHOT
Number	4	4	5	6
POWER CONN. — V/Ph/Hz^④				
	115/1/60	115/1/60	115/1/60	115/1/60
Ampacity (In Amps)	9.1	11.4	12.5	12.9
Fuse Size — Max. (Amps)	15	15	15	15
PIPE CONN. SIZE (IN.)				
	0.50	0.50	0.50	0.50
DUCT CONN.				
	SEE OUTLINE DRAWING	SEE OUTLINE DRAWING	SEE OUTLINE DRAWING	SEE OUTLINE DRAWING
DIMENSIONS				
	H X W X D	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 23 X 30-1/2	41-3/4 X 26-1/2 X 30-1/2
Uncrated	SEE OUTLINE DRAWING	SEE OUTLINE DRAWING	SEE OUTLINE DRAWING	SEE OUTLINE DRAWING
WEIGHT				
Shipping (Lbs.)/Net (Lbs.)	155/145	168/158	185/175	206/196

① Central Furnace heating designs are certified by the American Gas Association Inc. Laboratories.

② Ratings shown are for elevations up to 2000 feet. For elevations above 2000 feet; Ratings should be reduced at the rate of 4% for each 1000 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.



Performance Data

TDX-R-V

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
TDX060R936V	4 - HIGH - Black	1487	1425	1362	1286	1209	1125	1040	935	830
	3 - MED.-HIGH - Blue	1342	1291	1240	1182	1124	1047	989	869	769
	2 - MED.-LOW - Yellow	1181	1147	1113	1061	1009	943	877	779	681
	1 - LOW - Red	877	863	849	820	791	739	686	612	537
TDX080R942V	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
TDX100R948V	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
TDX120R960V	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



Performance Data

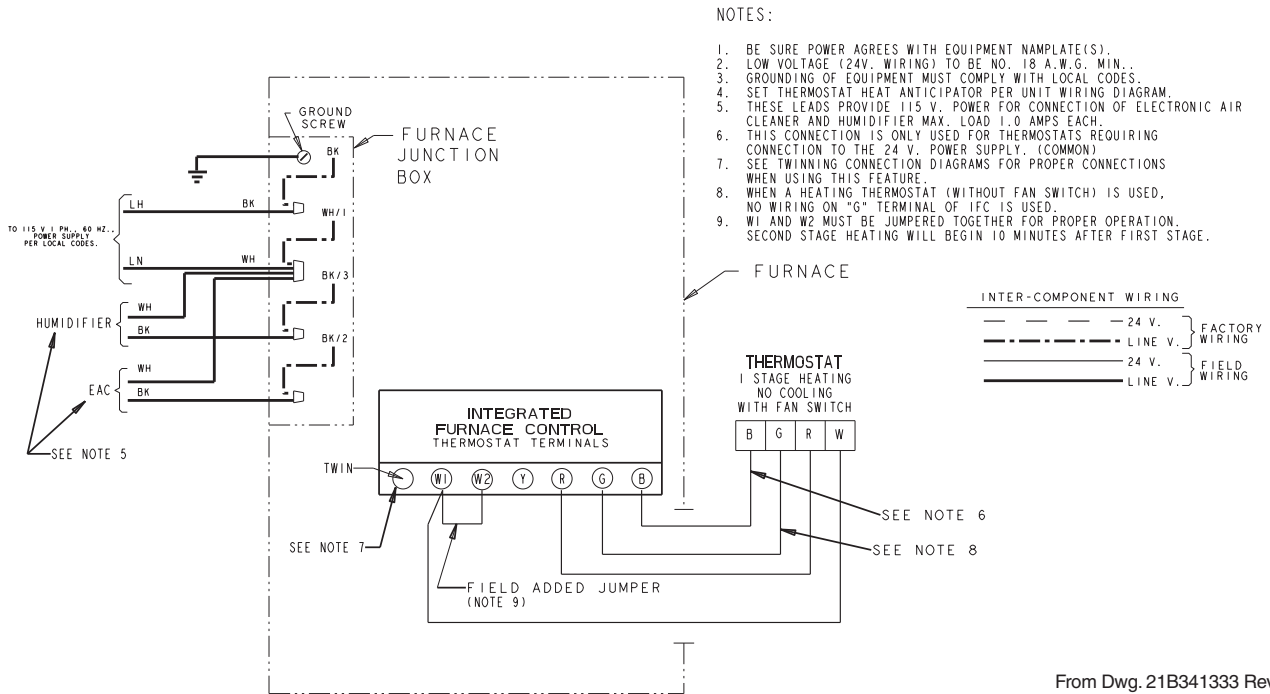
VENT LENGTH TABLE			
ALTITUDE	MAXIMUM TOTAL EQUIVALENT LENGTH IN FEET FOR VENT AND INLET AIR (SEE NOTES)		
0-7,000 Feet	2 INCH PIPE	2.5 INCH PIPE	3 INCH PIPE
TDX060R936V	200	200	200
TDX080R942V	50	120	200
TDX100R948V	Not Allowed	60	200
TDX120R960V	Not Allowed	Not Allowed	200
7,000-9,500 Feet	2 INCH PIPE	2.5 INCH PIPE	3 INCH PIPE
TDX060R936V	100	100	100
TDX080R942V	25	60	100
TDX100R948V	Not Allowed	30	100
TDX120R960V	Not Allowed	Not Allowed	100
9,500-12,000 Feet	2 INCH PIPE	2.5 INCH PIPE	3 INCH PIPE
TDX060R936V	50	50	50
TDX080R942V	Not Allowed	30	50
TDX100R948V	Not Allowed	Not Allowed	50
TDX120R960V	Not Allowed	Not Allowed	50

NOTES:

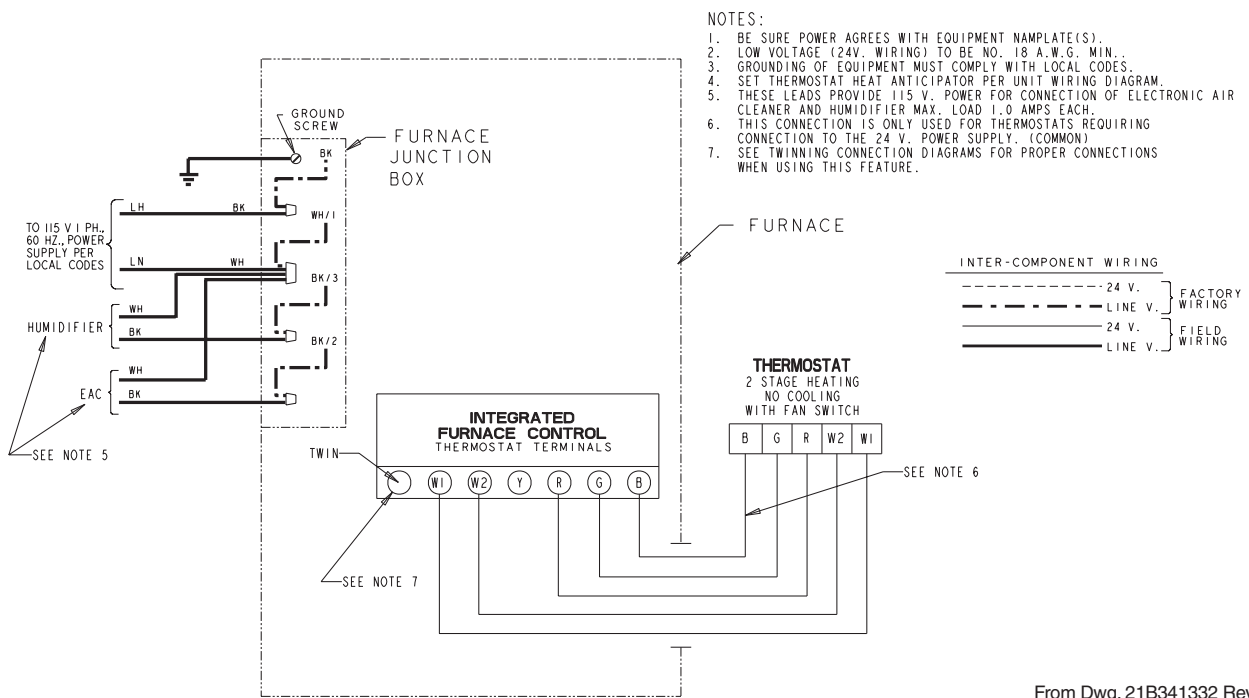
1. Minimum vent length for all models: 3' horizontal and vertical.
2. DO NOT MIX PIPE DIAMETERS IN THE SAME LENGTH OF PIPE OUTSIDE THE FURNACE CABINET (Except adapters at the top of the furnace).
3. MAXIMUM PIPE LENGTHS MUST NOT BE EXCEEDED! THE LENGTH SHOWN IS NOT A COMBINED TOTAL, IT IS THE MAXIMUM LENGTH OF EACH (Vent or Inlet air pipes).
4. One SHORT radius 90° elbow is equivalent to 10' of 3" pipe and one LONG radius elbow is equivalent to 6' of 3" pipe. One 90° elbow is equivalent to 7½' of 2½" pipe or 5' of 2" pipe. Two 45° elbows equal one 90° elbow.
5. The termination tee or bend must be included in the total number of elbows. If the BAYVENT100A termination kit is used, the equivalent length of pipe is 5 feet. BAYVENT200A/B equivalent length is 0 feet.
6. Pipe adapters are field supplied (except 120).

Field Wiring

FIELD WIRING DIAGRAM FOR SINGLE STAGE HEATING



FIELD WIRING DIAGRAM FOR 2 STAGE HEATING THERMOSTAT

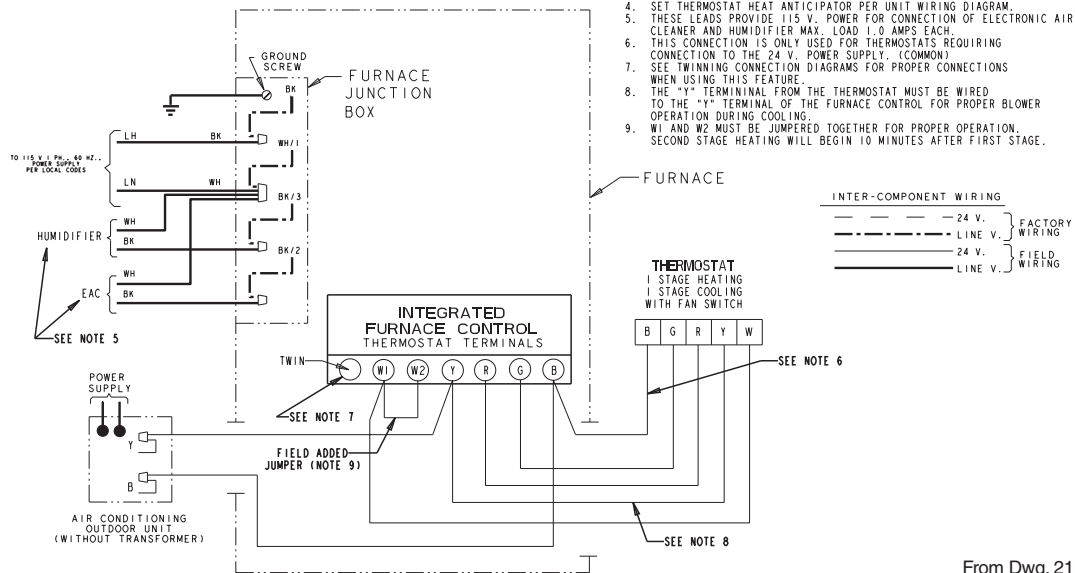


Field Wiring

FIELD WIRING DIAGRAM FOR SINGLE STAGE HEATING/COOLING (OUTDOOR SECTION WITHOUT TRANSFORMER)

NOTES:

1. BE SURE POWER AGREES WITH EQUIPMENT NAMEPLATE(S).
2. LOW VOLTAGE (24V. WIRING) TO BE NO. 18 A.W.G. MIN.
3. GROUNDING OF EQUIPMENT MUST COMPLY WITH LOCAL CODES.
4. SET THERMOSTAT HEAT ANTICIPATOR PER UNIT WIRING DIAGRAM.
5. THESE LEADS PROVIDE 115 V. POWER FOR CONNECTION OF ELECTRONIC AIR CLEANER AND HUMIDIFIER MAX. LOAD 1.0 AMPS EACH.
6. THIS CONNECTION IS ONLY USED FOR THERMOSTATS REQUIRING CONNECTION TO THE 24 V. POWER SUPPLY. (COMMON)
7. SEE TWINNING CONNECTION DIAGRAMS FOR PROPER CONNECTIONS WHEN USING THIS FEATURE.
8. THE "Y" TERMINAL FROM THE THERMOSTAT MUST BE WIRED TO THE "Y" TERMINAL OF THE FURNACE CONTROL FOR PROPER BLOWER OPERATION DURING COOLING.
9. W1 AND W2 MUST BE JUMPED TOGETHER FOR PROPER OPERATION. SECOND STAGE HEATING WILL BEGIN 10 MINUTES AFTER FIRST STAGE.

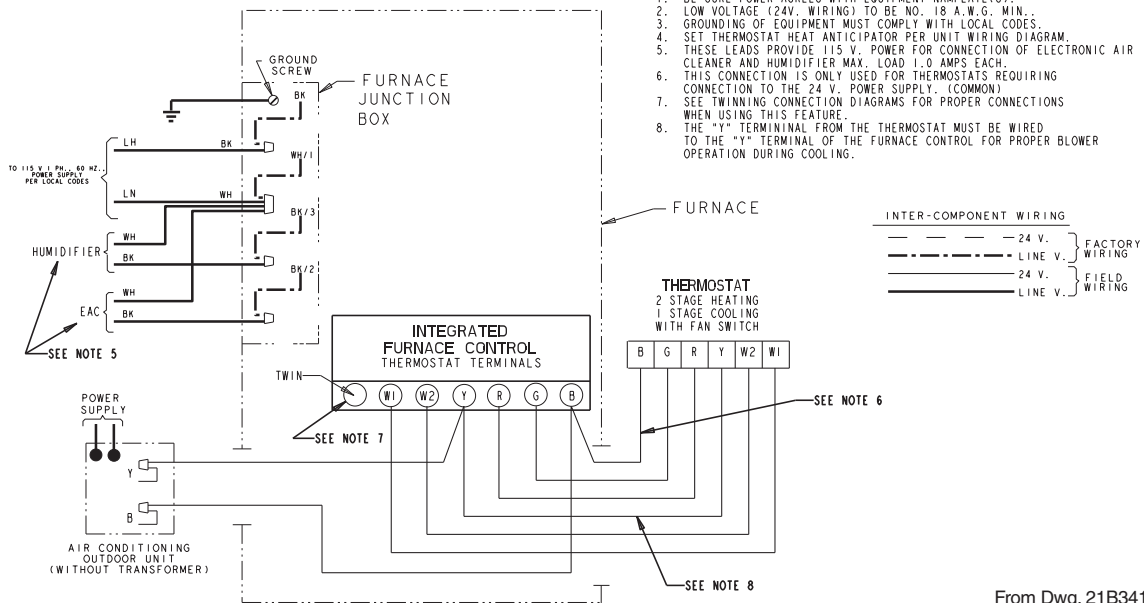


From Dwg. 21B341335 Rev. 0

FIELD WIRING DIAGRAM FOR 2 STAGE HEATING SINGLE STAGE COOLING (OUTDOOR SECTION WITHOUT TRANSFORMER)

NOTES:

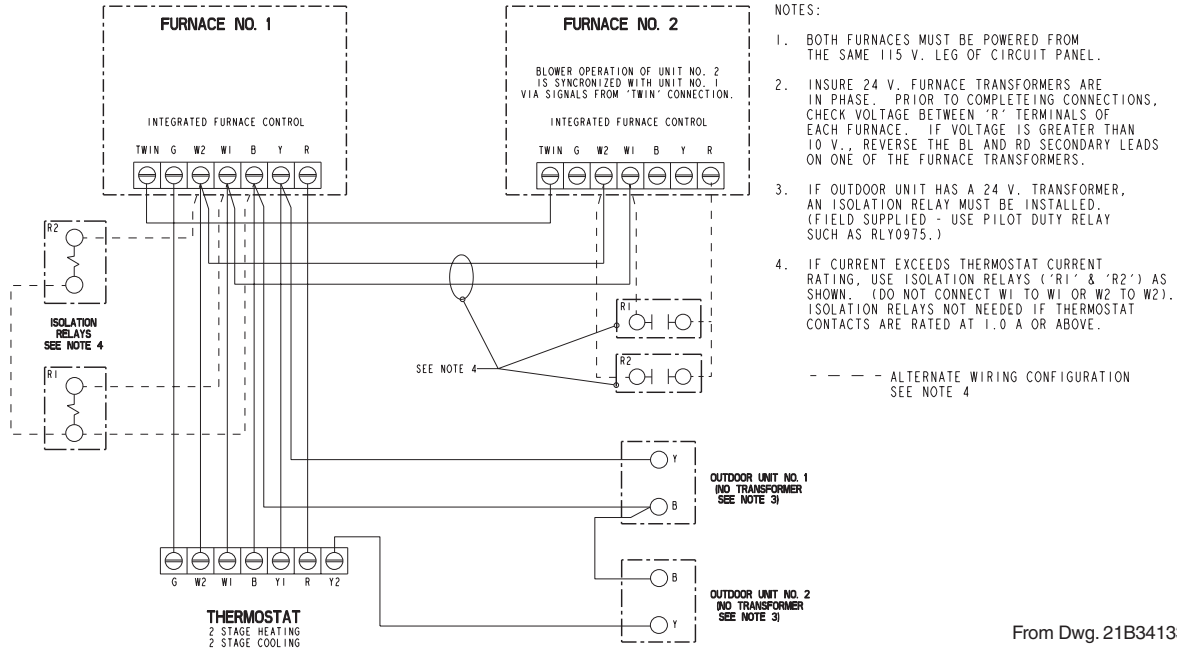
1. BE SURE POWER AGREES WITH EQUIPMENT NAMEPLATE(S).
2. LOW VOLTAGE (24V. WIRING) TO BE NO. 18 A.W.G. MIN.
3. GROUNDING OF EQUIPMENT MUST COMPLY WITH LOCAL CODES.
4. SET THERMOSTAT HEAT ANTICIPATOR PER UNIT WIRING DIAGRAM.
5. THESE LEADS PROVIDE 115 V. POWER FOR CONNECTION OF ELECTRONIC AIR CLEANER AND HUMIDIFIER MAX. LOAD 1.0 AMPS EACH.
6. THIS CONNECTION IS ONLY USED FOR THERMOSTATS REQUIRING CONNECTION TO THE 24 V. POWER SUPPLY. (COMMON)
7. SEE TWINNING CONNECTION DIAGRAMS FOR PROPER CONNECTIONS WHEN USING THIS FEATURE.
8. THE "Y" TERMINAL FROM THE THERMOSTAT MUST BE WIRED TO THE "Y" TERMINAL OF THE FURNACE CONTROL FOR PROPER BLOWER OPERATION DURING COOLING.



From Dwg. 21B341334 Rev. 0

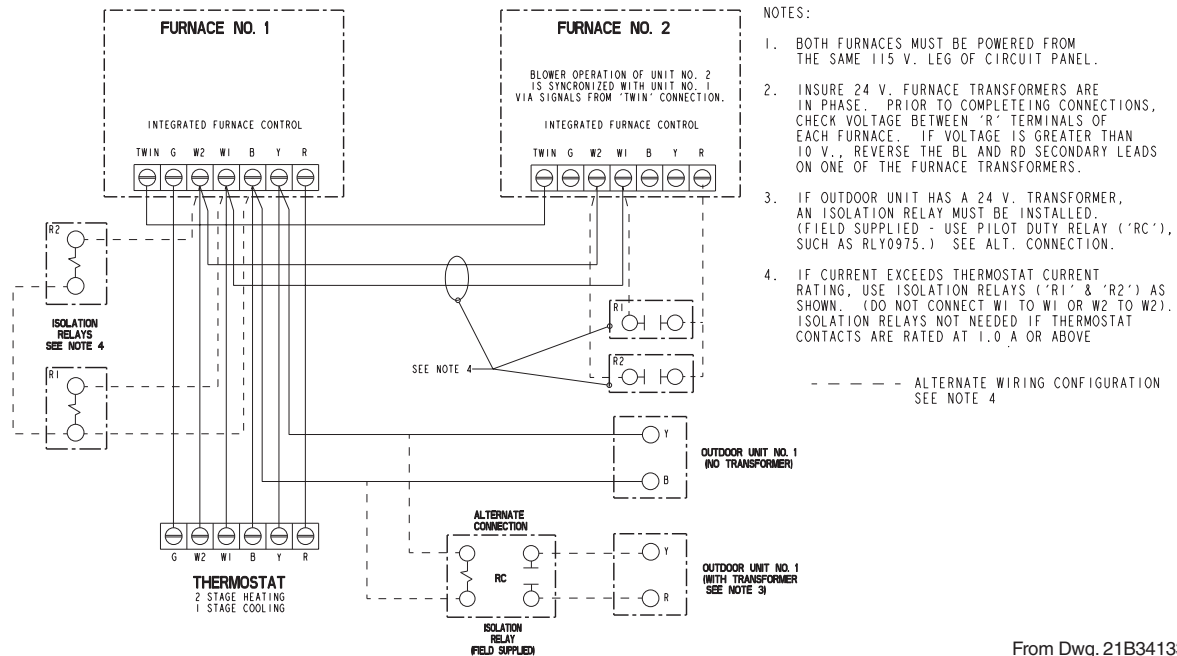
Twinning Field Wiring

Twinning Connection Diagram For Twinning UX/DX-R Furnaces - 2 Stage Heat / 2 Stage Cooling Thermostat



From Dwg. 21B341338 Rev. 0

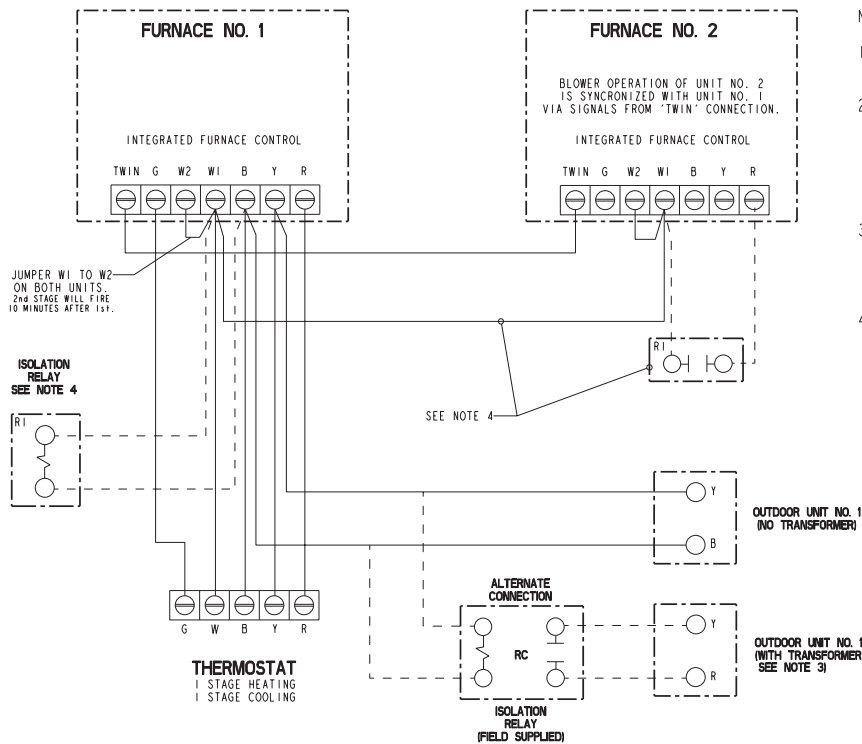
Twinning Connection Diagram For Twinning UX/DX-R Furnaces - 2 Stage Heat / 1 Stage Cooling Thermostat



From Dwg. 21B341337 Rev. 0

Twinning Field Wiring

Twinning Connection Diagram For Twinning UX/DX-R Furnaces - 1 Stage Heat / 1 Stage Cooling Thermostat



NOTES:

1. BOTH FURNACES MUST BE POWERED FROM THE SAME 115 V. LEG OF CIRCUIT PANEL.
2. INSURE 24 V. FURNACE TRANSFORMERS ARE IN PHASE. PRIOR TO COMPLETING CONNECTIONS, CHECK VOLTAGE BETWEEN 'R' TERMINALS OF EACH FURNACE. IF VOLTAGE IS GREATER THAN 10 V., REVERSE THE BL AND RD SECONDARY LEADS ON ONE OF THE FURNACE TRANSFORMERS.
3. IF OUTDOOR UNIT HAS A 24 V. TRANSFORMER, AN ISOLATION RELAY MUST BE INSTALLED. (FIELD SUPPLIED - USE PILOT DUTY RELAY ('RC'), SUCH AS RLY0975.) SEE ALT. CONNECTION.
4. IF CURRENT EXCEEDS THERMOSTAT CURRENT RATING, USE ISOLATION RELAYS ('R1') AS SHOWN. (DO NOT CONNECT W1 TO W1). ISOLATION RELAY NOT NEEDED IF THERMOSTAT CONTACTS ARE RATED AT 1.0 A OR ABOVE.

----- ALTERNATE WIRING CONFIGURATION
SEE NOTE 4

From Dwg. 21B341336 Rev. 0



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An American Standard Company

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