Wiring Diagrams

INDEX

INDEX (cont)

SYSTEM TYPE	THERMOSTAT	UNITS	DIAGRAM NUMBER	FIGURE NUMBER
2-Pipe Heating and Cooling with Automatic Changeover				
24-v Controls by Others	----------	42C,S,V (except VG) and 42D (600-1000 cfm)	1000-90000519	29
24-v Controls by Others (ECM, 3-Discrete Speed Input, Potentiometer Field Speed Adjustment)	----------	42C,S,V (except VG) and 42D (600-1000 cfm)	1000-00216603	30
		42D (1200-2000 cfm)		
Line Voltage Controls by Others	----------	42C,S,V and 42D (600-1000 cfm)	1000-90000507	31
		42D (1200-2000)	1000-90000511	32
Unit-Mounted Debonair Thermostat (24-v), Duct Sensor	33CSSN2-FC 33CSSP2-FC*	42SG,SH,SJ,VA,VB,VF	1000-00007360	33
Unit-Mounted Thermostat (Line Voltage)	T156	42SG,SH,SJ,VA,VB,VC,VE,VF	1000-00141198	34
Remote/Wall-Mounted Debonair Thermostat (24-v)	33CSSN2-FC 33CSSP2-FC*	42C,S,V (except VG) and 42D (600-1000 cfm)	1000-00005377	35
		42D (1200-2000)	1000-00012276	36
Remote/Wall-Mounted Thermostat (Line Voltage)	TB155-026 (702893-36)	42C,S,V and 42D	71171501	37
Open FC Controller (24-v) with Motorized Control Valve (2-Position)†	----------	42C,S,V (except VC, VE, VG) and 42D (600-1000 cfm)	1000-00135992	38
		42D (1200-2000 cfm)	1000-00135991	39
Open FC Controller (24-v) with Modulating Control Valve (0-10 vdc)†	----------	42C,S,V (except VC, VE, VG) and 42D (600-1000 cfm)	1000-00135994	40
		42D (1200-2000 cfm)	1000-00135993	41
Open FC Controller (24-v) with ECM, 3-Discrete Speed Input, Potentiometer Field Speed Adjustment†	----------	42C,S,V (except VG) and 42D (600-1000 cfm)	—	42
		42D (1200-2000 cfm)		
2-Pipe Heating and Cooling with Auxiliary Heat				
24-v Controls by Others	----------	42C,S,V (except VG) and 42D (600-1000 cfm)	1000-90000520	43
Line Voltage Controls by Others	----------	42C,S,V (except VG) and 42D (600-1000 cfm)	1000-90000508	44
		42D (1200-2000)	1000-90000512	45
Unit-Mounted Debonair® Thermostat (24-v), Duct Sensor and Dual Power Source	33CSSN2-FC 33CSSP2-FC*	42SG,SH,SJ,VA,VB,VC,VE,VF	71359601	46
Remote/Wall-Mounted Debonair Thermostat (24-v)	33CSSN2-FC 33CSSP2-FC*	42C,S,V (except VG) and 42D (600-1000 cfm)	1000-00006449	47
		42D (1200-2000)	1000-00046974	48
Remote/Wall-Mounted Debonair Thermostat (24-v) and Dual Power Source	33CSSN2-FC 33CSSP2-FC*	42C,S,V (except VG) and 42D (600-1000 cfm)	71360801	49
		42D (1200-2000)	71360803	50
Remote/Wall-Mounted Thermostat (Line Voltage) and Dual Power Source	TB155-026 (702893-36)	42C,S,V (except VG) and 42D (600-1000 cfm)	71171301	51
		42D (1200-2000)	71171313	52
Open FC Controller (24-v) with Motorized Control Valve (2-Position)†	----------	42C,S,V (except VC, VE, VG) and 42D (600-1000 cfm)	1000-00135995	53
		42D (1200-2000 cfm)	1000-00135861	54
Open FC Controller (24-v) with Modulating Control Valve (0-10 vdc)†	----------	42C,S,V (except VC, VE, VG) and 42D (600-1000 cfm)	1000-00135997	55
		42D (1200-2000 cfm)	1000-00135996	56
Open FC Controller (24-v) with ECM, 3-Discrete Speed Input, Potentiometer Field Speed Adjustment†	----------	42C,S,V (except VG) and 42D (600-1000 cfm)	—	57
		42D (1200-2000 cfm)		
2-Pipe Cooling with Total Electric Heat				
24-v Controls by Others	----------	42C,S,V (except VG) and 42D (600-1000 cfm)	1000-90000523	58
24-v Controls by Others (ECM, 3-Discrete Speed Input, Potentiometer Field Speed Adjustment)	----------	42C,S,V (except VG) and 42D (600-1000 cfm)	1000-00217357	59
		42D (1200-2000 cfm)		
Line Voltage Controls by Others	----------	42C,S,V (except VG) and 42D (600-1000 cfm)	1000-90000490	60
		42D (1200-2000)	1000-90000515	61
Unit-Mounted Debonair Thermostat (24-v) and Duct Sensor	33CSSN2-FC 33CSSP2-FC*	42SG,SH,SJ,VA,VB,VC,VE,VF	1000-00017766	62
Unit-Mounted Debonair Thermostat (24-v), Duct Sensor and Dual Power Source	33CSSN2-FC 33CSSP2-FC*	42SG,SH,SJ,VA,VB,VC,VE,VF	71359701	63
Remote/Wall-Mounted Debonair Thermostat (24-v)	33CSSN2-FC 33CSSP2-FC*	42D (1200-2000)	1000-00005329	64

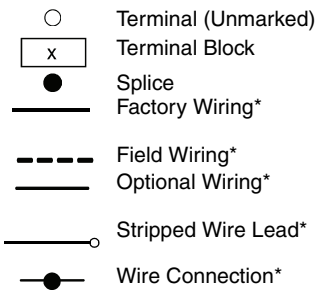
INDEX (cont)

INDEX (cont)

*The wiring diagrams for the 33CSSP2-FC and 33CSSN2-FC thermostats are the same; however, the 33CSSP2-FC thermostat is programmable while the 33CSSN2-FC thermostat is non-programmable.
†Wall-mounted space temperature sensor is not included with Open FC control package. Space temperature sensors can be ordered as accessories.
**Open FC controller is available only if there is same end coil connections unit. Open FC controller is not available with opposite end connections.

LEGEND (Fig. 1-108)

AWG — American Wire Gage
CAP — Capacitor
COM — Common
DX — Direct Expansion
ELEC — Electric
GND — Ground
H/C — Heating/Cooling
LON-OC — LonWorks Option Card
MC — Motor Cut-Off
MTD — Mounted
MTR — Motor
NC — Normally Closed
NEC — National Electrical Code
NO — Normally Open
OAD — Outdoor Air Damper
OCC/FS — Occupied Fan Status
OPN-FC — Open FC
Q/C — Quick Connect
RA — Return Air
RH — Relative Humidity
RAT — Return Air Temperature
RNET — Sensor and Power Connection
SAT — Supply Air Temperature
SPT — Space Temperature
SW — Switch
TSTAT — Thermostat
W/O — Without
XFMR — Transformer
XFORMER — Transformer



*Use WHT for 120/277 v. Use BLK for 208/240 v.
NOTES (Fig. 1-98):
1. Disconnect power before servicing.
2. See nameplate for correct voltage. Use 75 C minimum copper conductors only. Unit terminals are not designed to accept any other wiring.
3. Motor(s) is thermally protected. Units with 2 motors are wired parallel.
4. Provide disconnect means and overcurrent protection as required.
5. Motor shown for 120/277 v operation; for 208/240 v motor common is ORG or YEL.
6. Valve optional, factory-supplied or field-supplied with NEC class 1 wiring. Do not exceed thermostat rating.
7. To ensure proper fan interlock and sequencing, external controller must energize heater stages in numerical order shown and deenergize stages in reverse order (first on, last off).
8. All contractor wiring must conform to national and local electrical codes.

OPERATION

Manual Fan Control — The standard fan-speed switch is furnished unit-mounted and wired on all vertical cabinet units. On all vertical furred-in units and all horizontal units, the switch is shipped separately on a decorative wall plate for field mounting and wiring.

The standard switch has LOW, MEDIUM, HIGH and OFF positions plus an auxiliary contact to energize thermostats, valves, dampers, etc.

Thermostatic Fan Control, 2-Pipe Systems — The thermostat cycles the fan on and off from any selected speed setting to maintain selected room temperature. Controls can be wired for heating-only, cooling-only or for heating/cooling with the addition of an automatic changeover device that senses water temperature and changes the action of the thermostat as required.

Thermostatic Fan Control, 2-Pipe Systems with Safety Cycle — This control is used for high humidity situations in which condensate problems can occur if fan is turned off while chilled water is still running through the coil.

The wiring provides fan cycling from HIGH to LOW on the cooling cycle and from LOW to OFF on the heating cycle. An ON-OFF toggle switch replaces the standard 3-speed fan switch. The toggle switch can be concealed to ensure that the unit runs on low speed when cooling. This action greatly reduces the chance of condensation problems that exist with other standard fan cycling controls.

Thermostatic Electric Valve Control, 2-Pipe — A thermostatically controlled 2-position valve provides superior control to fan cycling. With this control, the fan runs continuously unless it is manually switched to the OFF position. The fan must be on before the valve can be opened to supply water to the coil.

This system can be used for normal 2-pipe changeover systems and can also be furnished for cooling-only or heating-only applications by omitting the changeover and specifying which application is intended.

Thermostatic 2-Pipe Auxiliary Electric Heat with Valve Control — This system, also called Twilight or Intermediate Season electric heat, goes a long way towards solving the spring and fall control problems of 2-pipe systems.

Chilled water can be available late into the fall. It may also be turned on early in the spring and still provide heat to all units when required.

In winter, the system is switched over to hot water and requires 2 auto changeover devices (aquastats). One device controls the switching of the thermostat, the other device locks out the electric heater when hot water is in the coil.

With this system, the fan runs continuously unless manually switched to the OFF position. Fan must be on before thermostat can send signal to open chilled water valve or turn on electric heater.

Two control methods are available:

1. Use of a standard automatic changeover thermostat with a deadband between heating and cooling.
2. Use of a manual changeover thermostat. Only one changeover is required with this method.

A 2-way or 3-way electric valve must be included with this system.

Thermostat 2-Pipe Total Electric Heat with Valve Control — With this system, the complete heating requirement for the space is provided by the electric heater; the water system is never changed over for heating. It is therefore possible, just as with 4-pipe systems, to have heating or cooling at any time of the year.

The fan runs continuously unless it is manually switched to the OFF position. Fan must be on before thermostat can send signal to open chilled water valve or turn on electric heater.

Normally, an automatic changeover thermostat with a deadband between heating and cooling is used, but a manual changeover thermostat is also suitable. A 2-way or 3-way valve must also be used so that the chilled water is off whenever the heater is on. No changeover device to sense water temperature is necessary.

Thermostatic Valve Control, 4-Pipe — The 4-pipe system provides the ultimate in economy and room temperature control. Both hot water and chilled water are available at any time.

Normally an automatic changeover thermostat is used, but a manual changeover thermostat is also suitable. Two 2-way valves, two 3-way valves, or one 2-way plus one 3-way valve must be selected. An automatic changeover device to sense water temperature is not required.

With this system, the fan runs continuously unless it is manually switched to the OFF position. The fan must be on before thermostat can send a signal to open the chilled water or hot water valve.

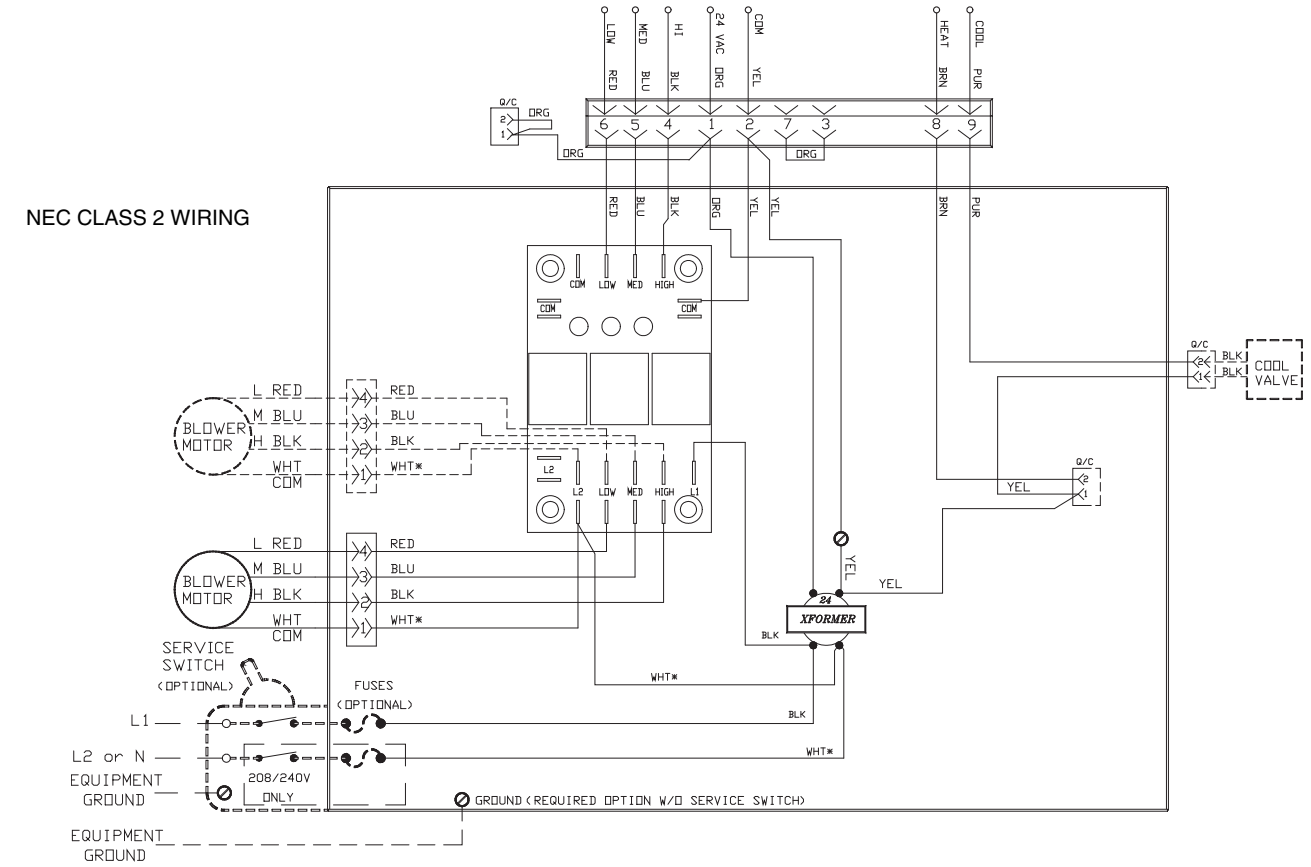


Fig. 1 — 42C,S, V (except VG) and 42D (600-1000 cfm) 2-Pipe Cooling Only — 24-v Controls by Others

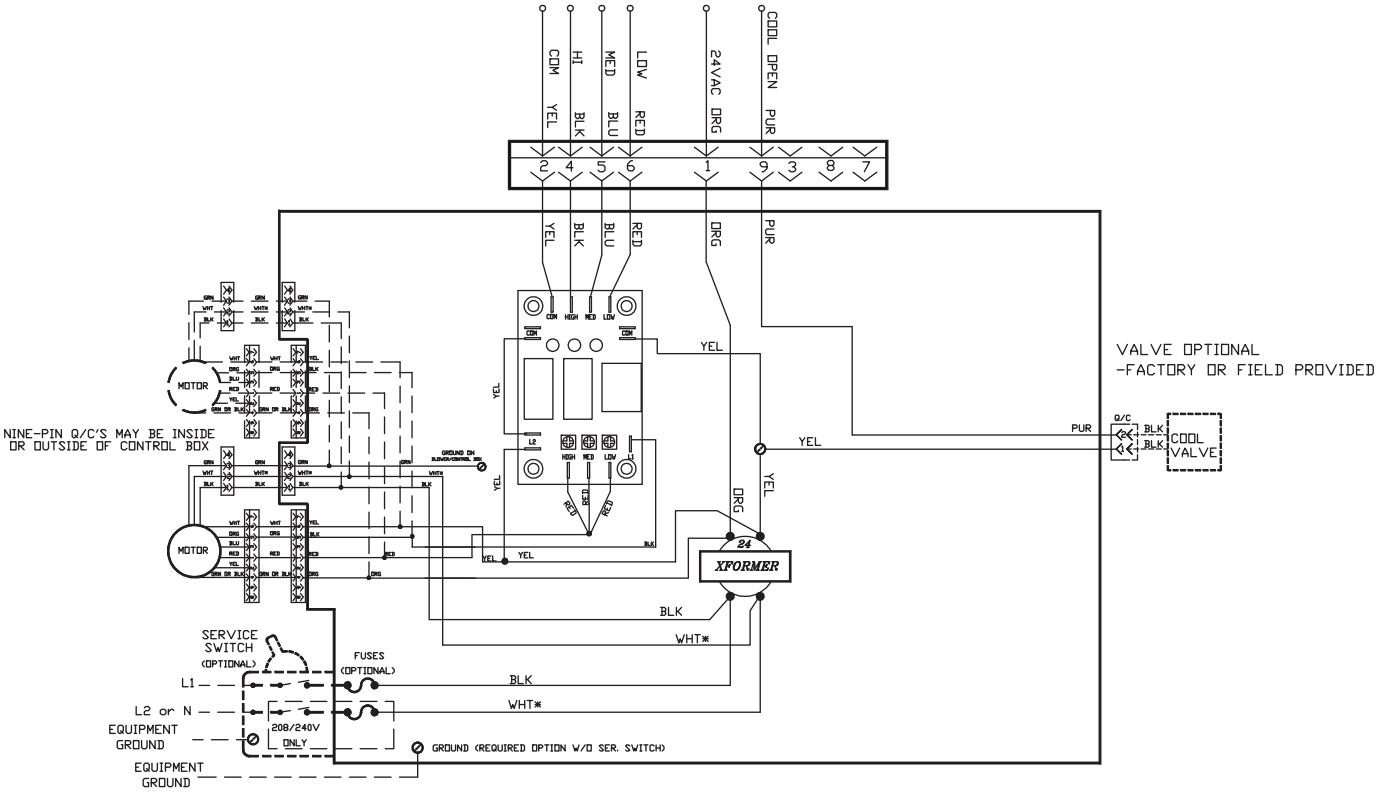


Fig. 2 — 42C,S,V (except VG) and 42D 2-Pipe Cooling Only — 24-v Controls by Others (ECM, 3-Discrete Speed Input, Potentiometer Field Speed Adjustment)

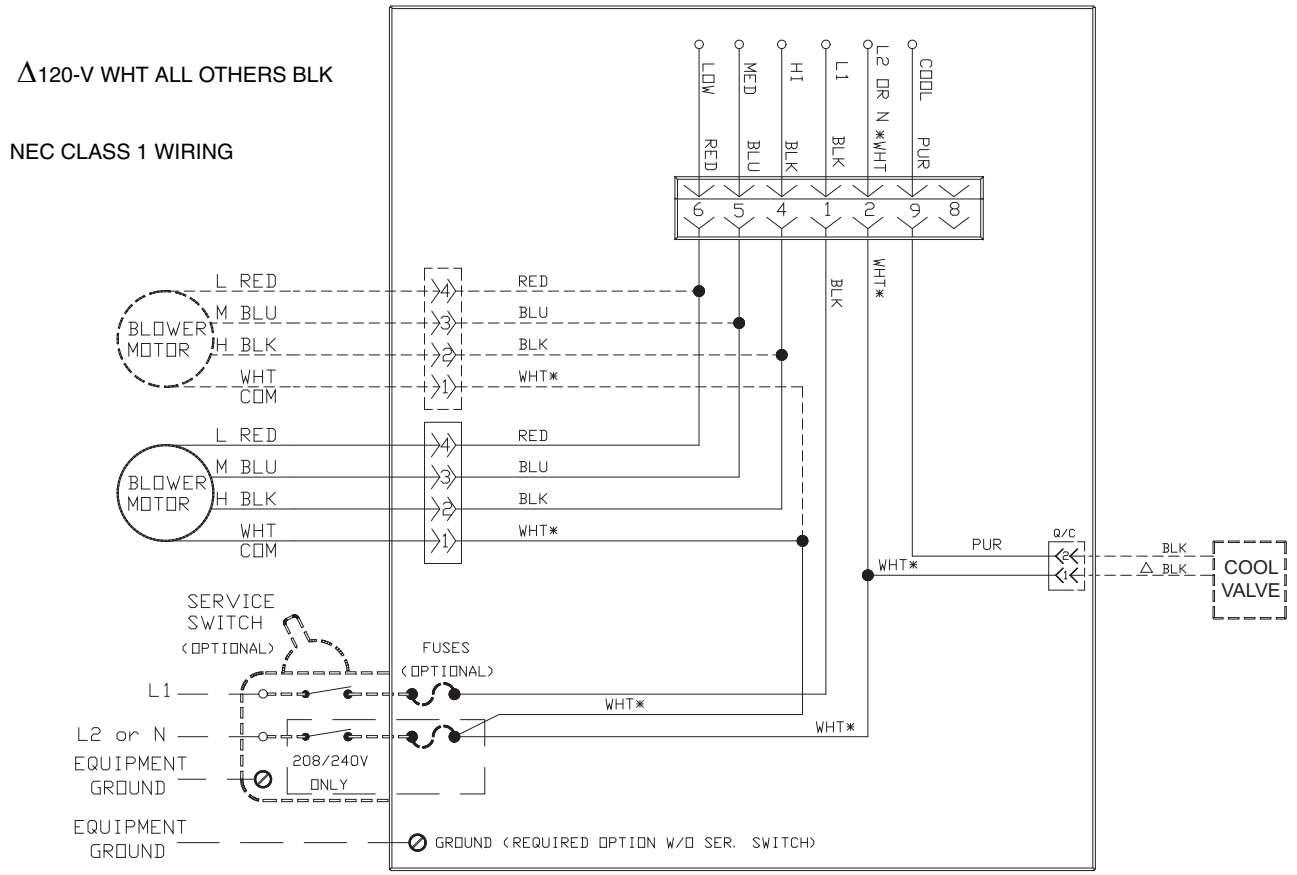


Fig. 3 — 42C,S,V and 42D (600-1000 cfm) 2-Pipe Cooling Only — Line Voltage Controls by Others

RELAY COIL LETTER REFERS TO RELAY P/N 706654-XX

VOLTS	A	B
24	01	06
120	02	07
208	03	08
240	04	09
277	05	10

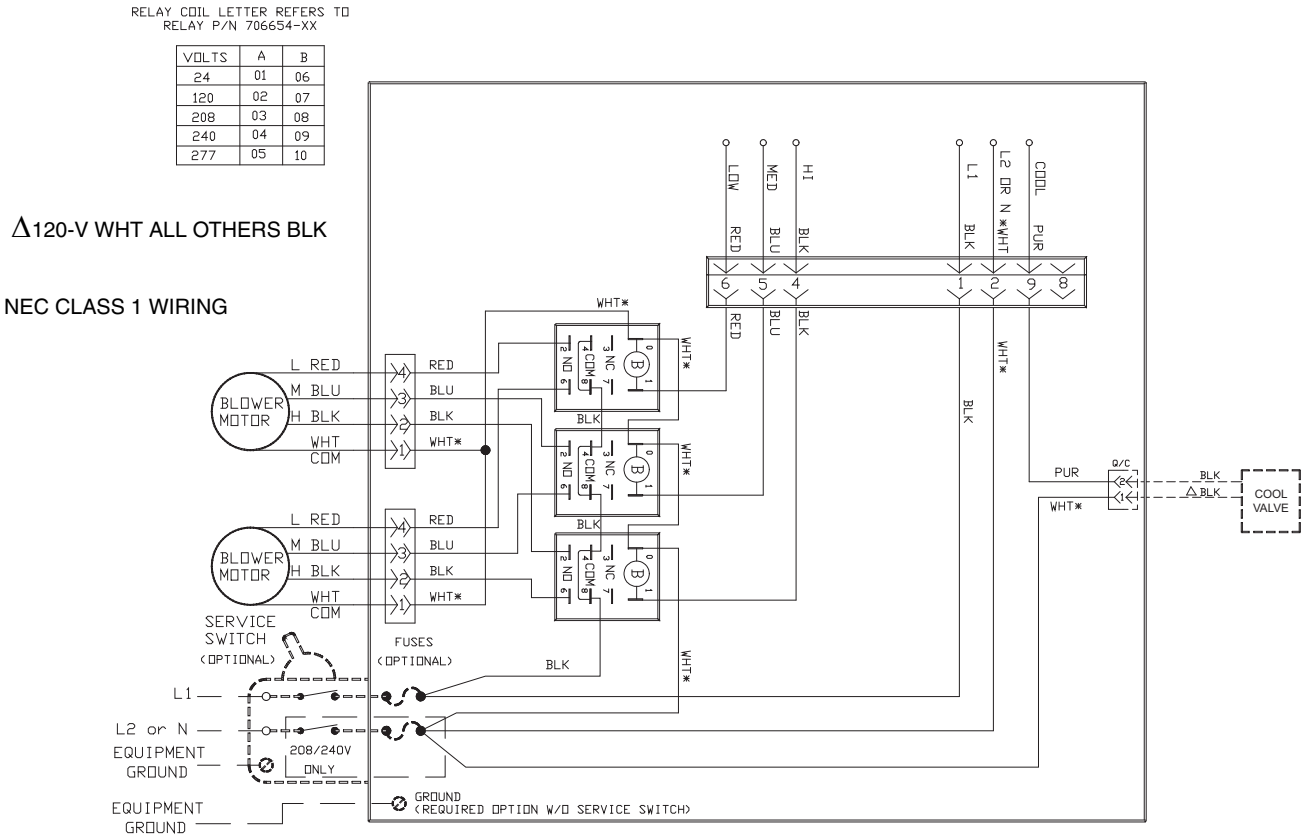


Fig. 4 — 42D (1200-2000) 2-Pipe Cooling Only — Field-Supplied and Installed Controls (Line Voltage and Control Valves)

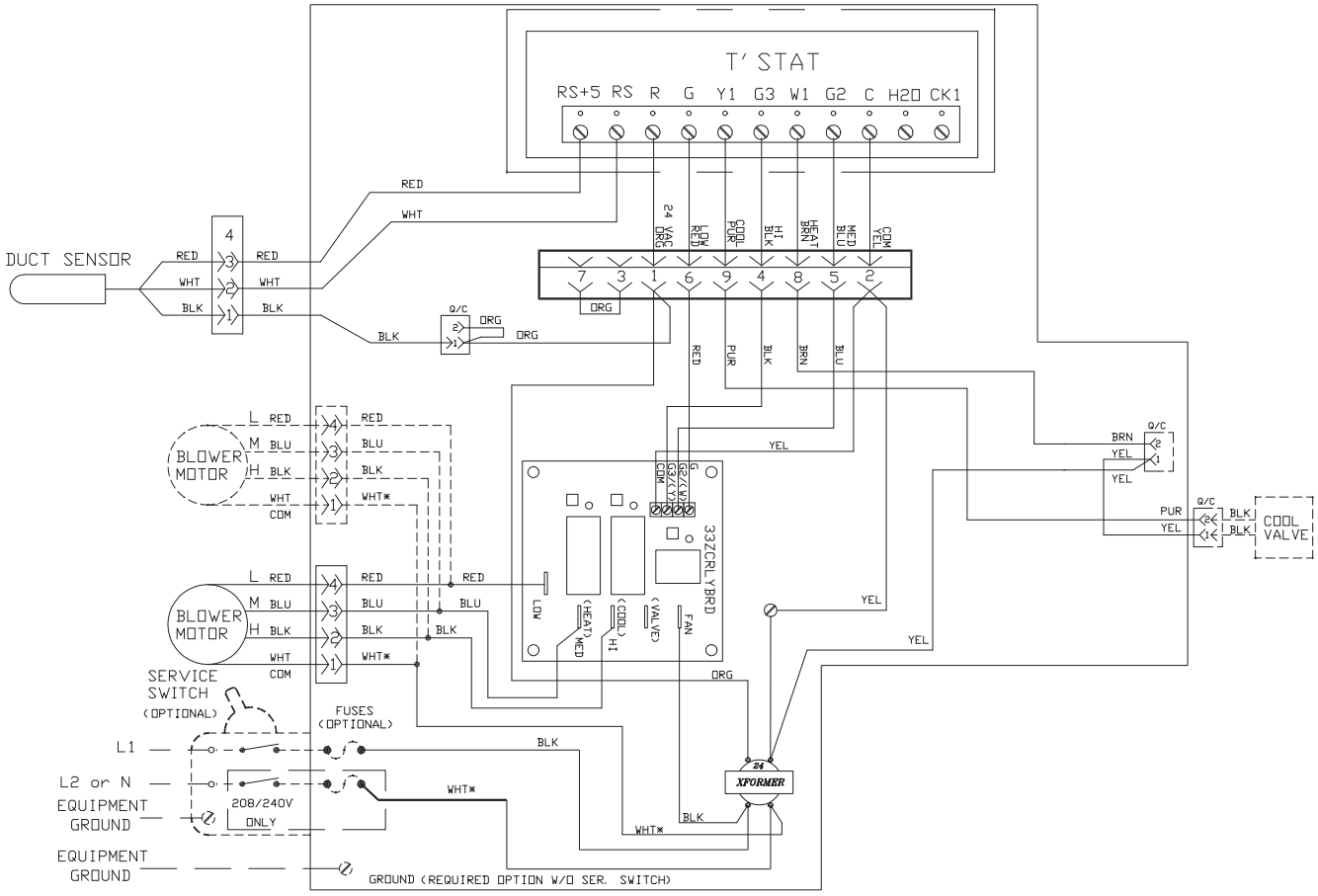


Fig. 5 — 42SG,SH,SJ,VA,VB,VF 2-Pipe Cooling Only — Unit-Mounted Debonair® Thermostat (24-v) and Duct Sensor

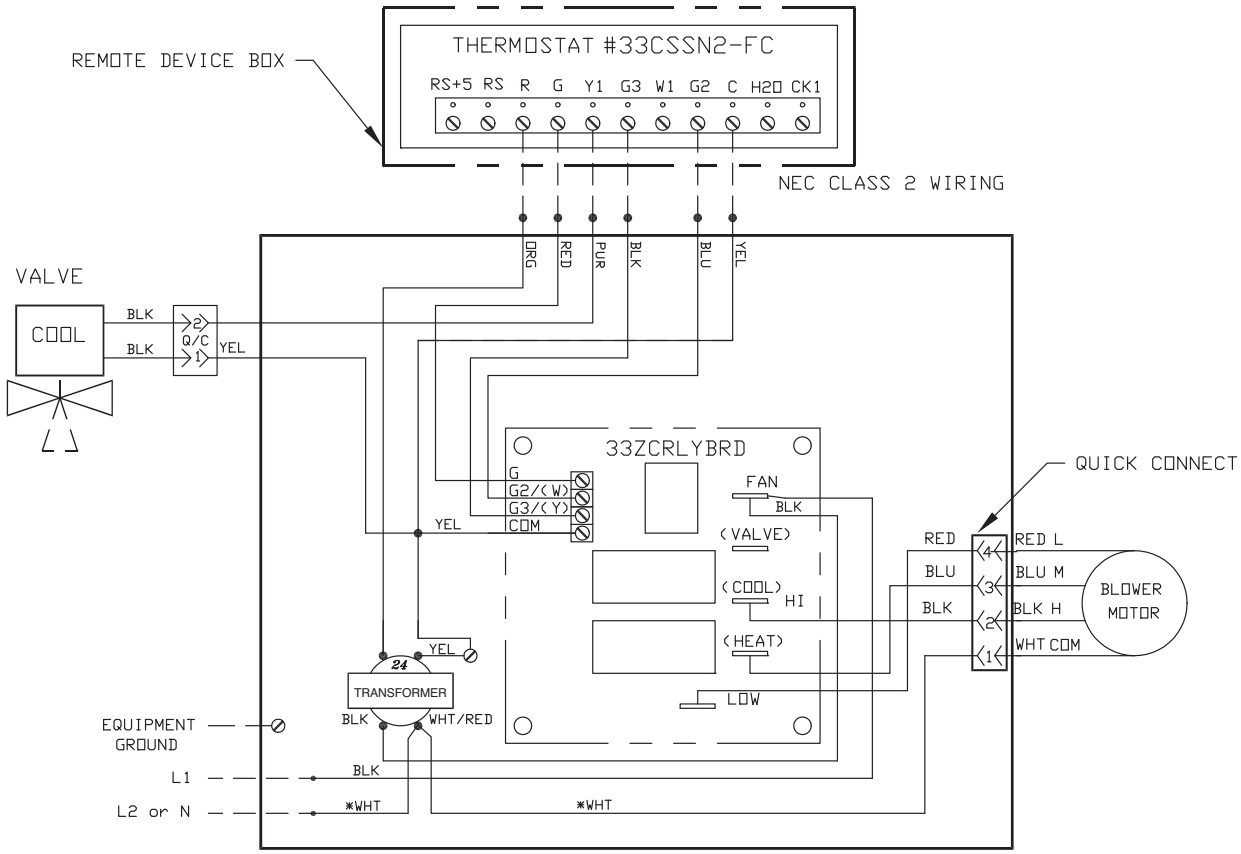


Fig. 6 — 42C,S,V (except VG) and 42D (600-1000 cfm) 2-Pipe Cooling Only — Remote/Wall-Mounted Debonair Thermostat (24-v)

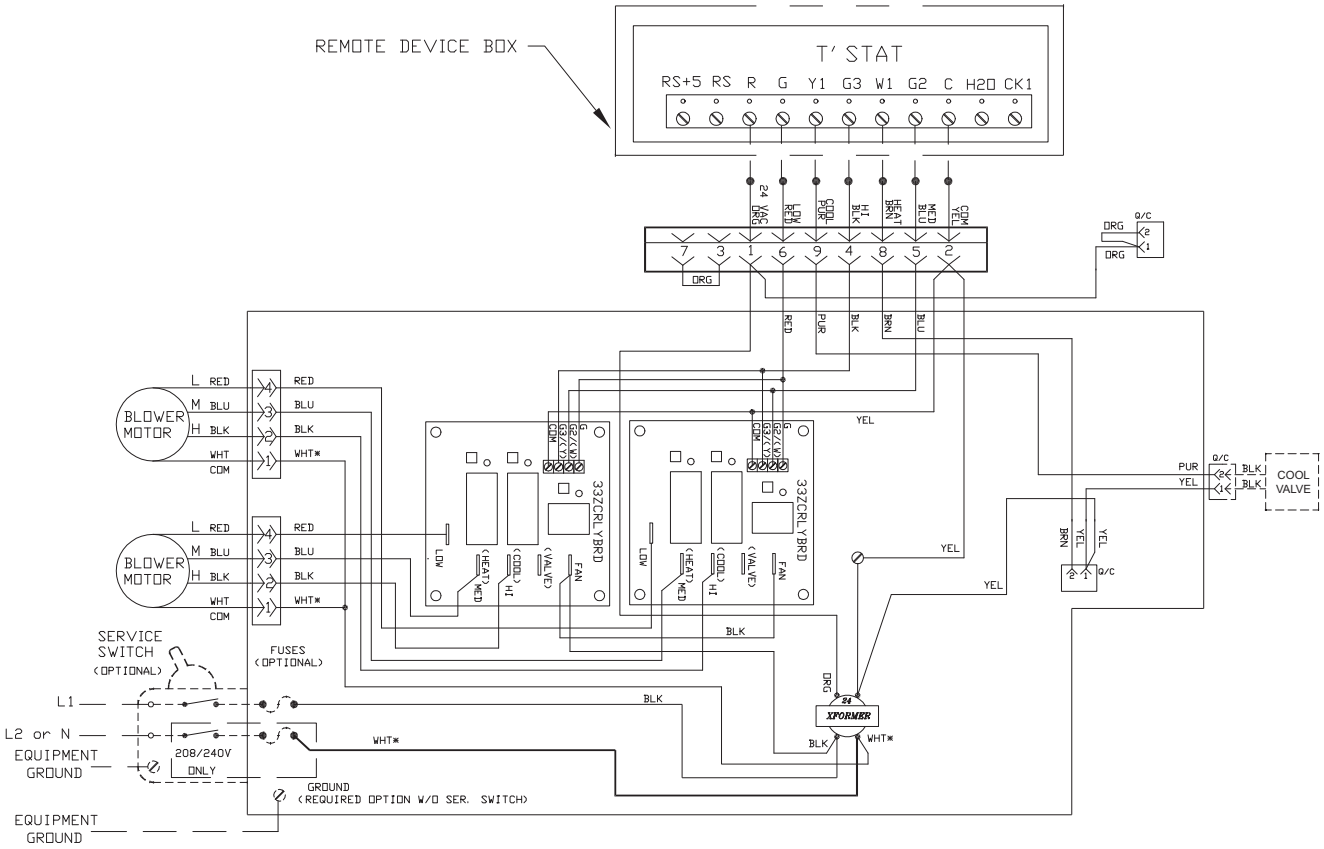


Fig. 7 — 42D (1200-2000) 2-Pipe Cooling Only — Remote/Wall-Mounted Debonair® Thermostat (24-v)

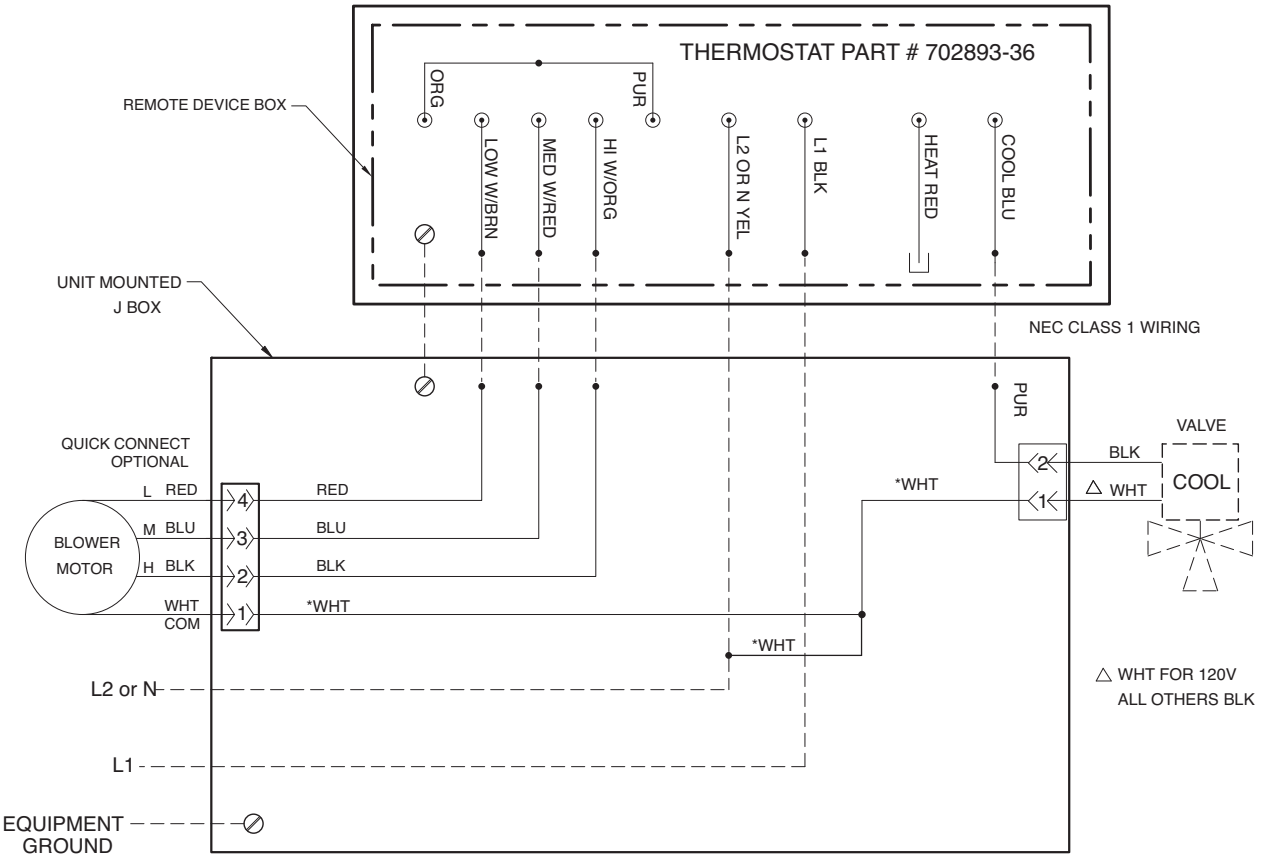


Fig. 8 — 42C,S,V and 42D (600-1000 cfm) 2-Pipe Cooling Only — Remote/Wall-Mounted Thermostat

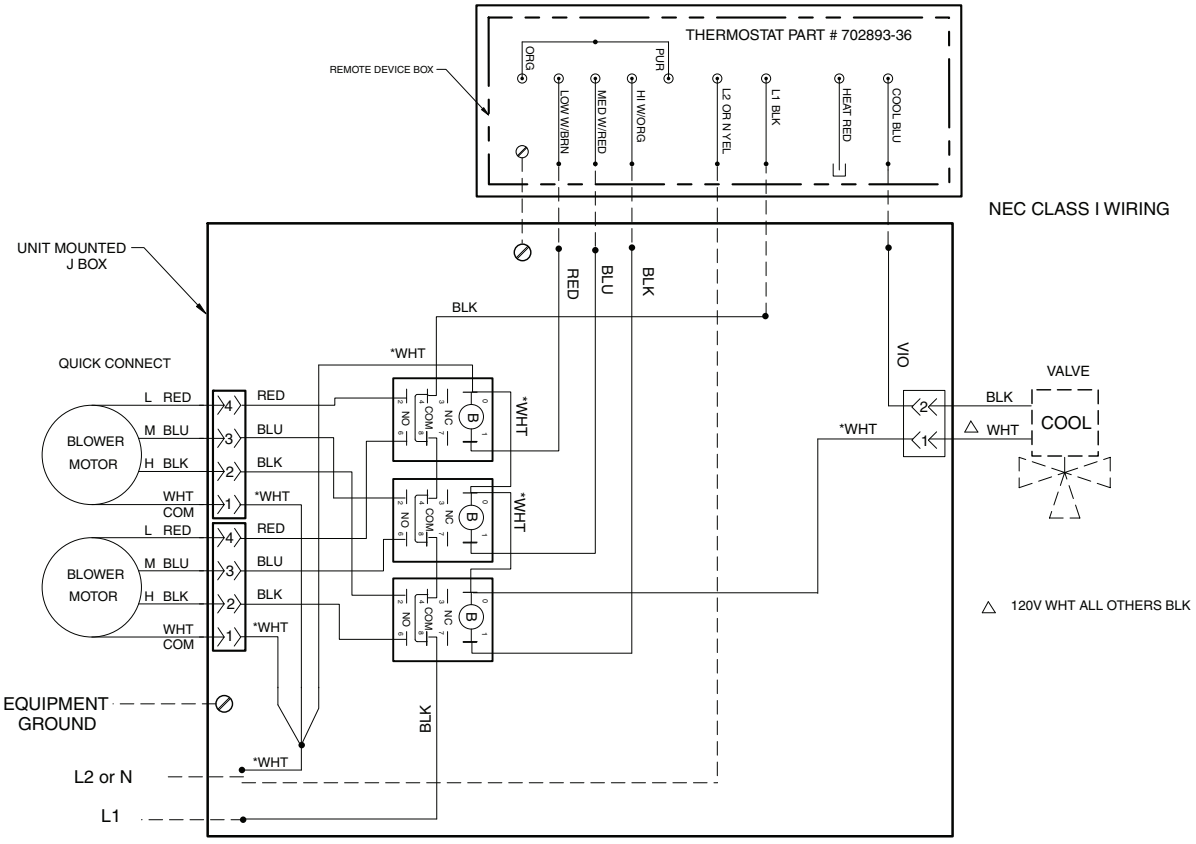


Fig. 9 — 42D (1200-2000) 2-Pipe Cooling Only — Remote/Wall-Mounted Thermostat (Line Voltage)

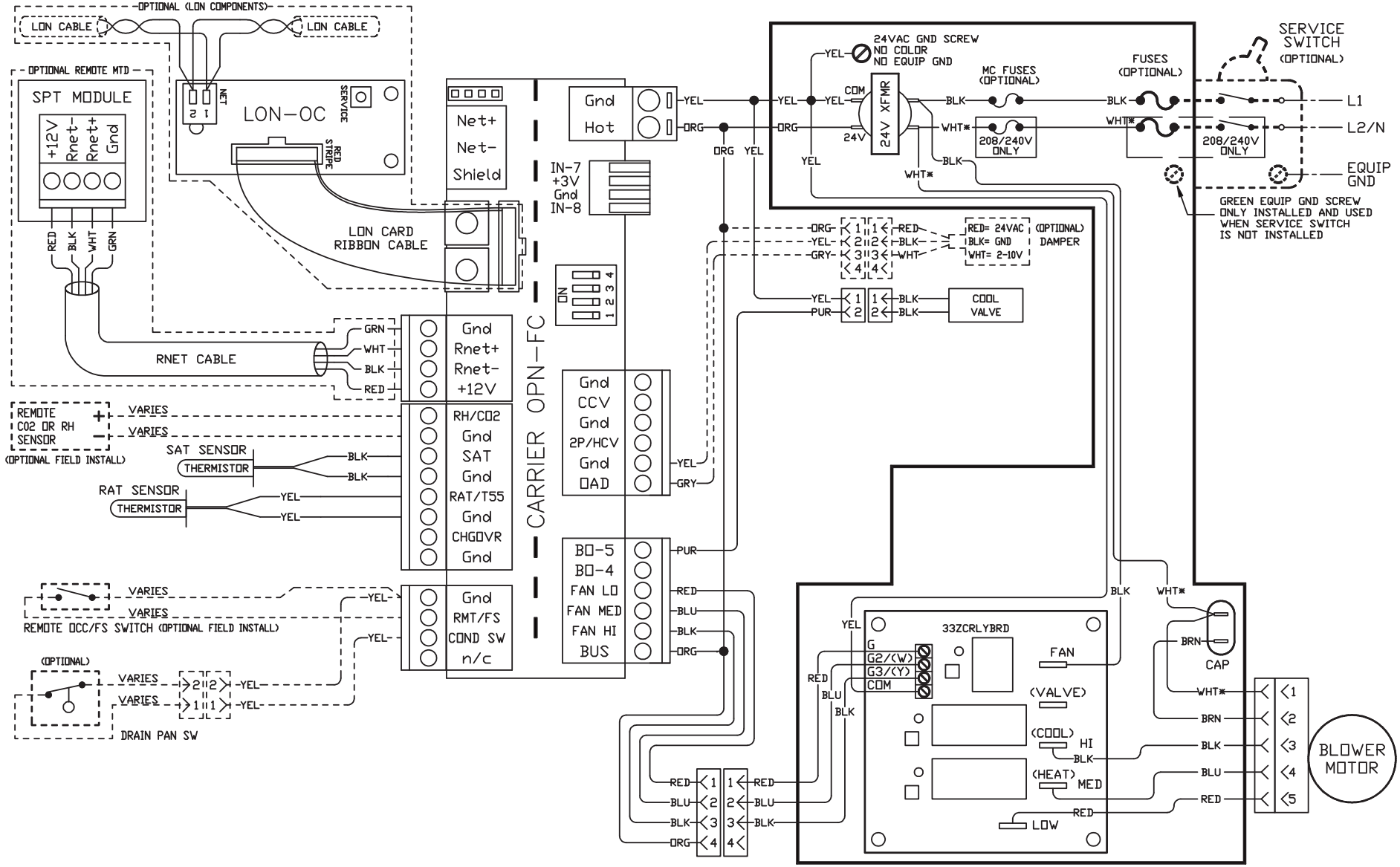


Fig. 10 — 42C,S,V (except VC,VE,VG) and 42D (600-1000 cfm) 2-Pipe Cooling Only — Open FC Controller (24-v) with Motorized Control Valve (2-Position)

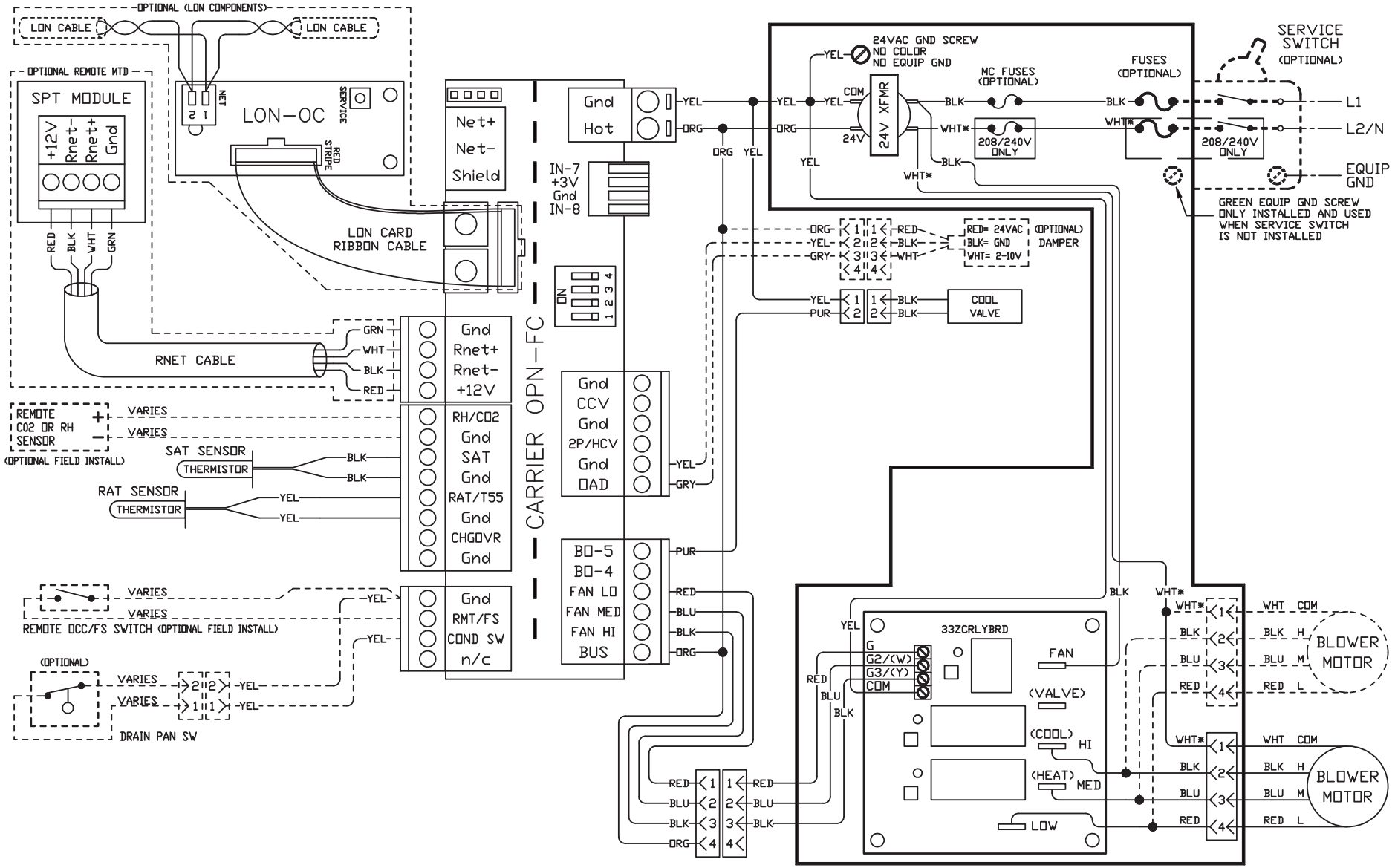


Fig. 11 — 42D (1200-2000 cfm) 2-Pipe Cooling Only — Open FC Controller (24-v) with Motorized Control Valve (2-Position)

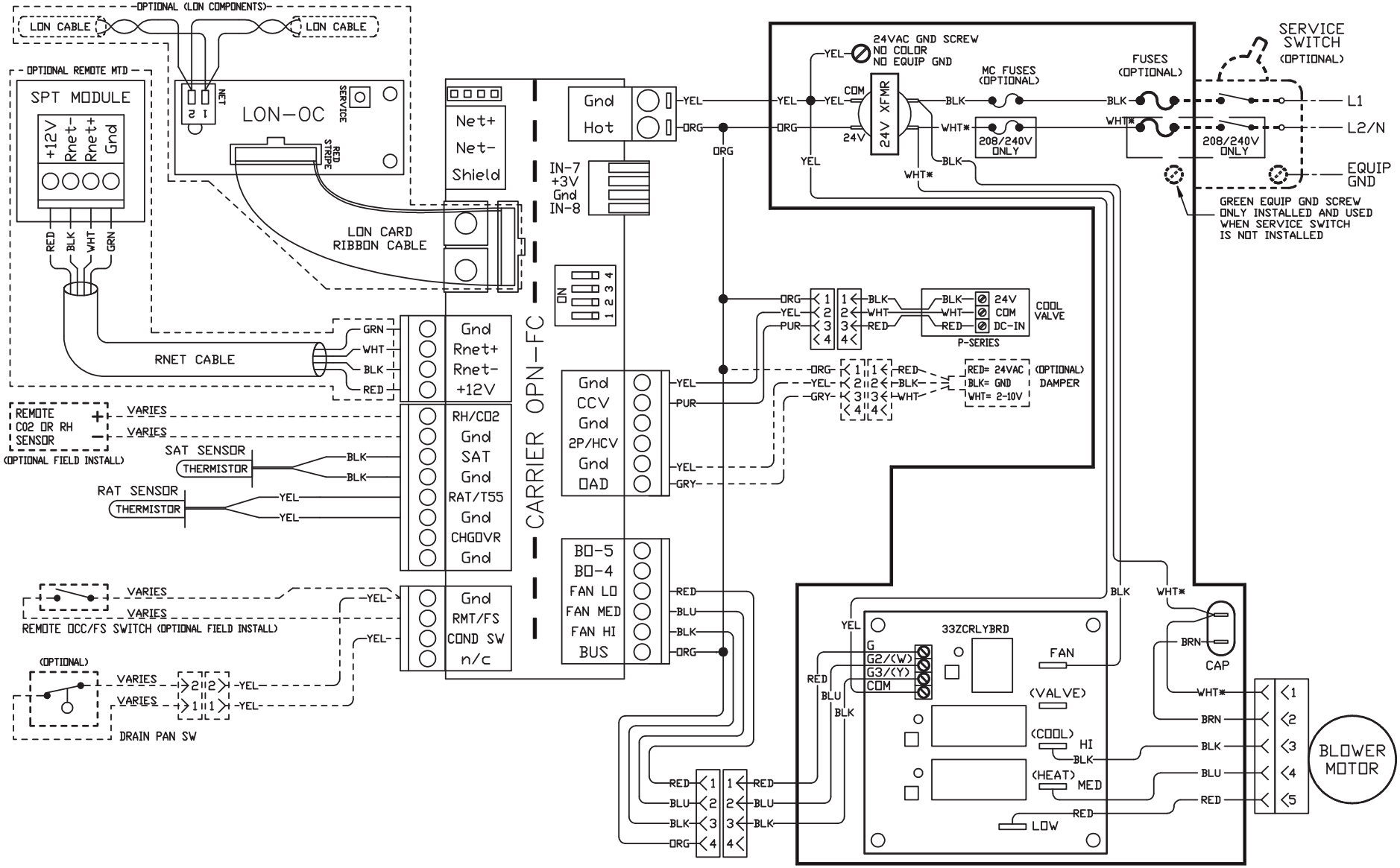


Fig. 12 — 42C,S,V (except VC,VE,VG) and 42D (600-1000 cfm) 2-Pipe Cooling Only — Open FC Controller (24-v) with Modulating Control Valve (0-10 vdc)

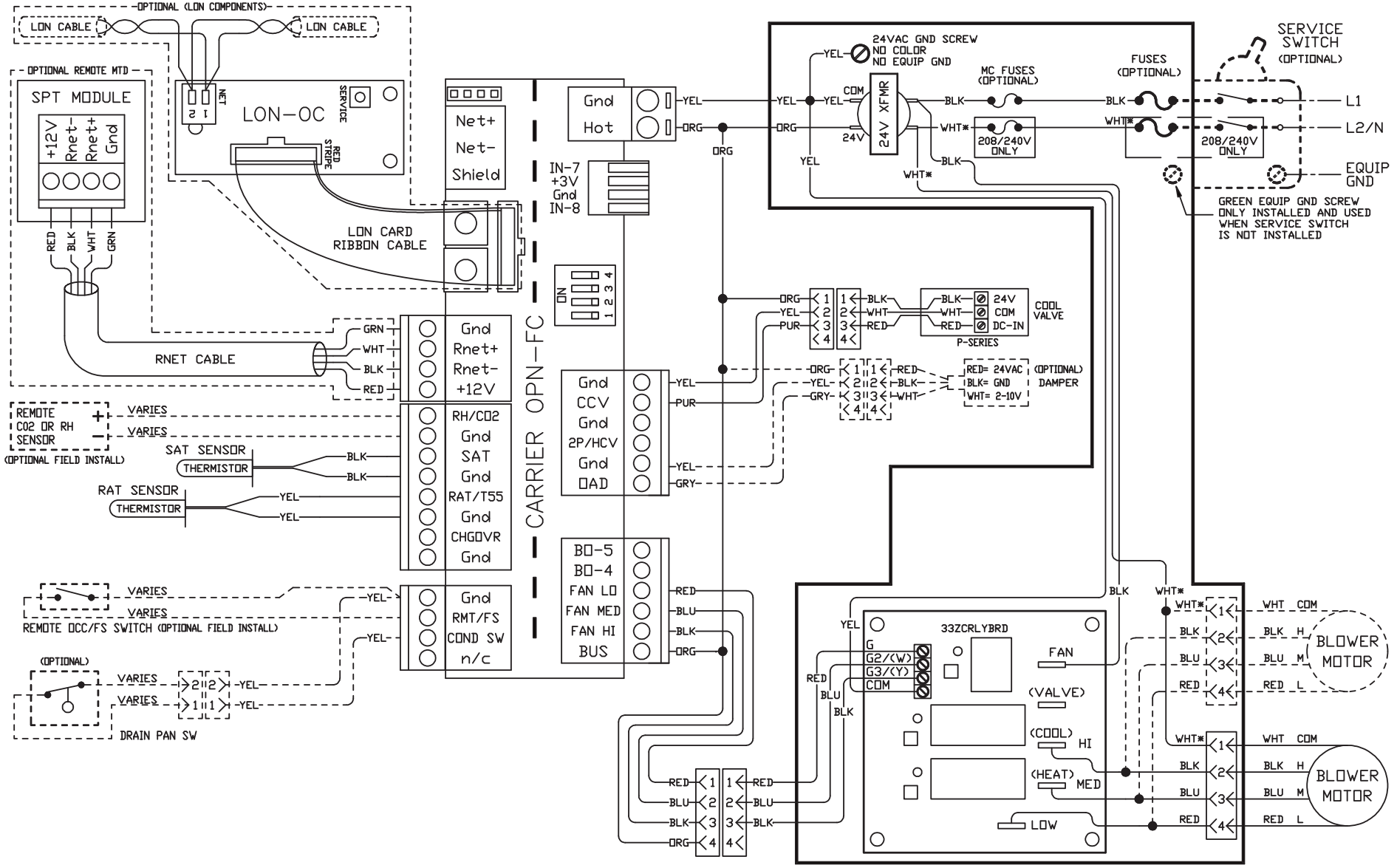


Fig. 13 — 42D (1200-2000 cfm) 2-Pipe Cooling Only — Open FC Controller (24-v) with Modulating Control Valve (0-10 vdc)

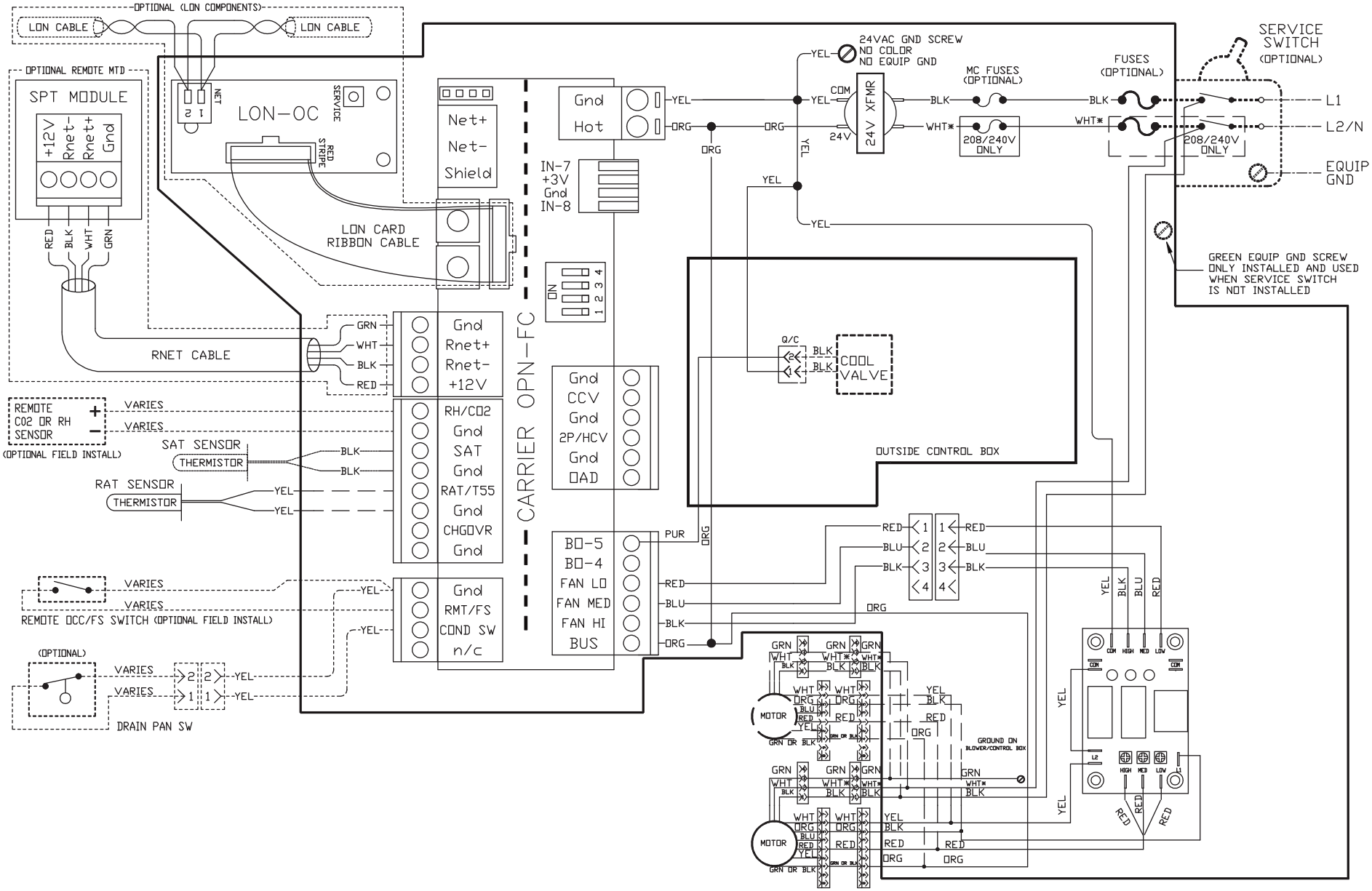


Fig. 14 — 42C,S,V (except VG) and 42D 2-Pipe Cooling Only — Open FC Controller (24-v) with ECM, 3-Discrete Speed Input, Potentiometer Field Speed Adjustment

NEC CLASS 2 WIRING

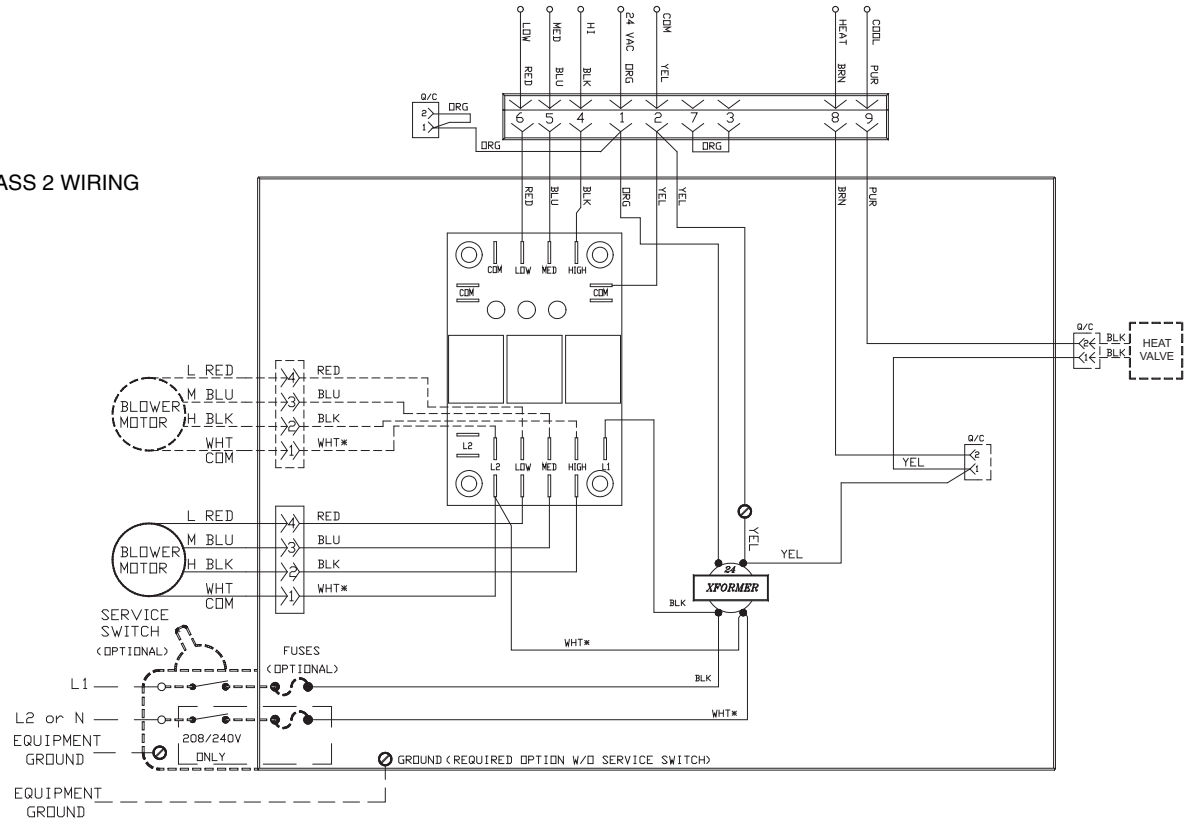


Fig. 15 — 42C,S,V (except VG) and 42D (600-1000 cfm) 2-Pipe Heating Only — 24-v Controls by Others

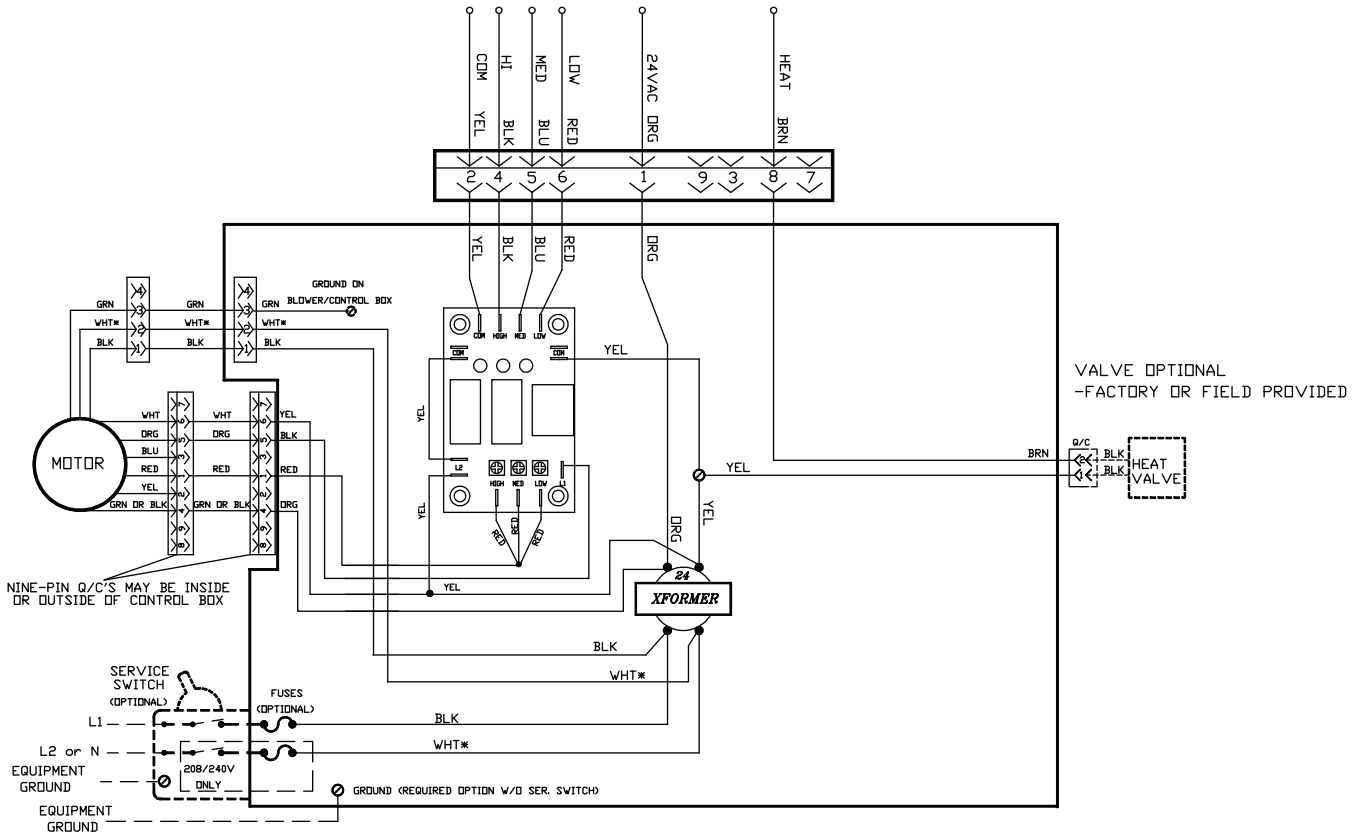


Fig. 16 — 42C,S,V (except VG) and 42D 2-Pipe Heating Only — 24-v Controls by Others (ECM, 3-Discrete Speed Input, Potentiometer Field Speed Adjustment)

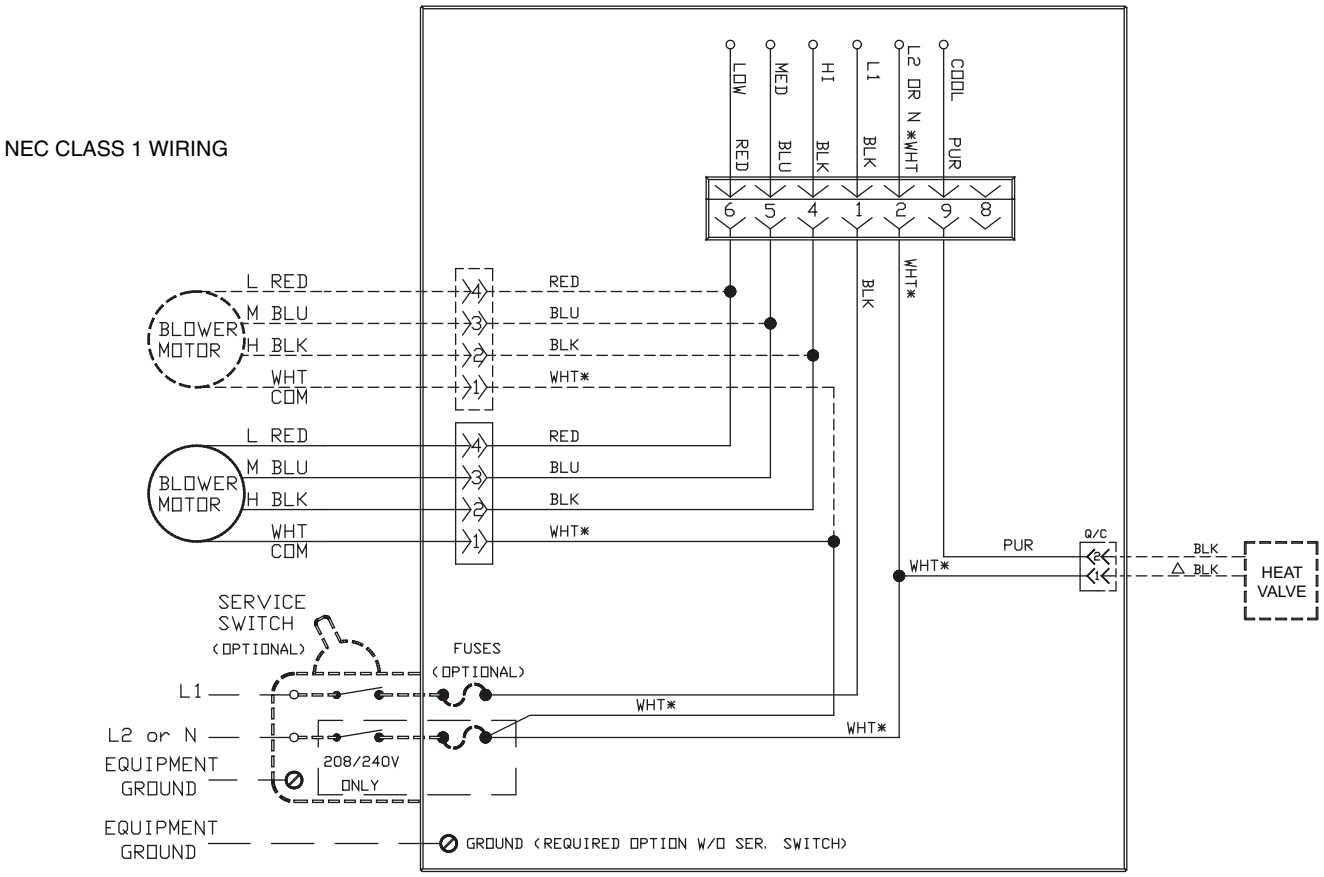


Fig. 17 — 42C,S,V and 42D (600-1000 cfm) 2-Pipe Heating Only — Line Voltage Controls by Others

RELAY COIL LETTER REFERS TO
RELAY P/N 706654-XX

VOLTS	A	B
24	01	06
120	02	07
208	03	08
240	04	09
277	05	10

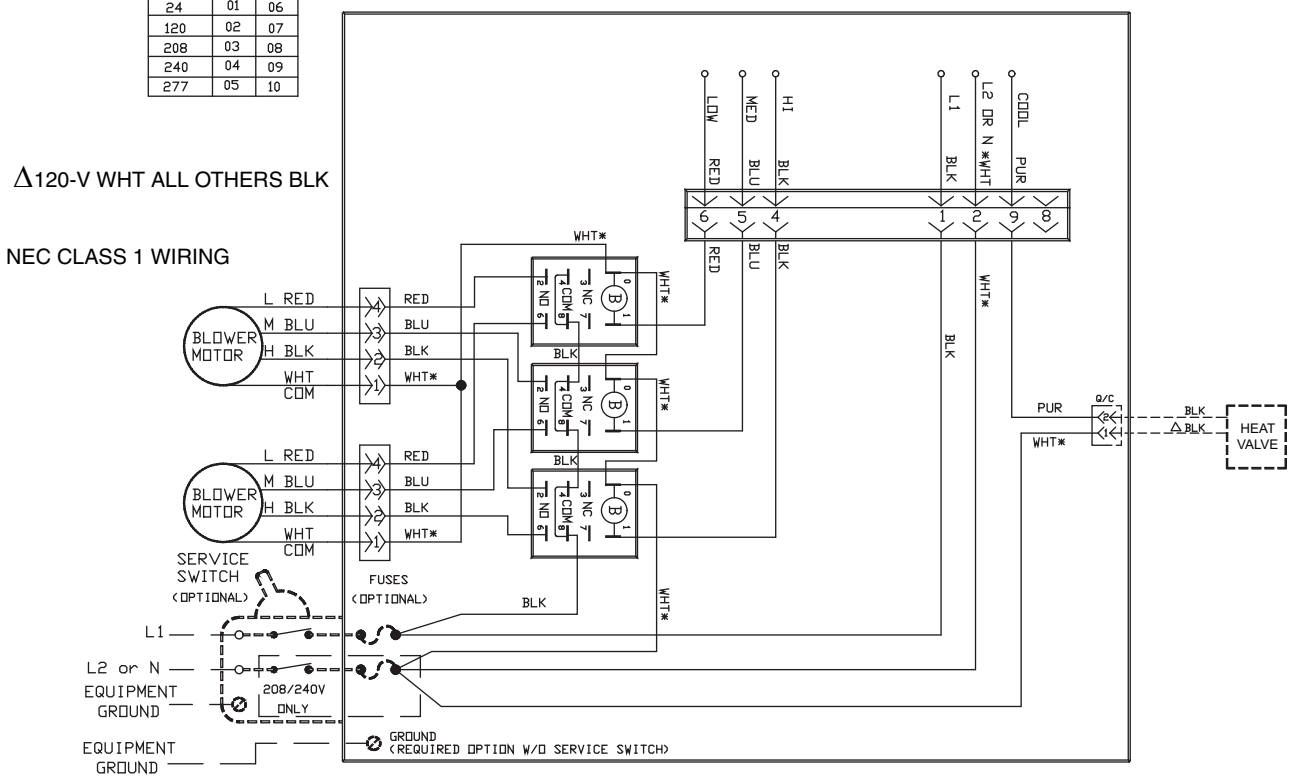


Fig. 18 — 42D (1200-2000) 2-Pipe Heating Only — Field-Supplied and Installed Controls (Line Voltage and Control Valves)

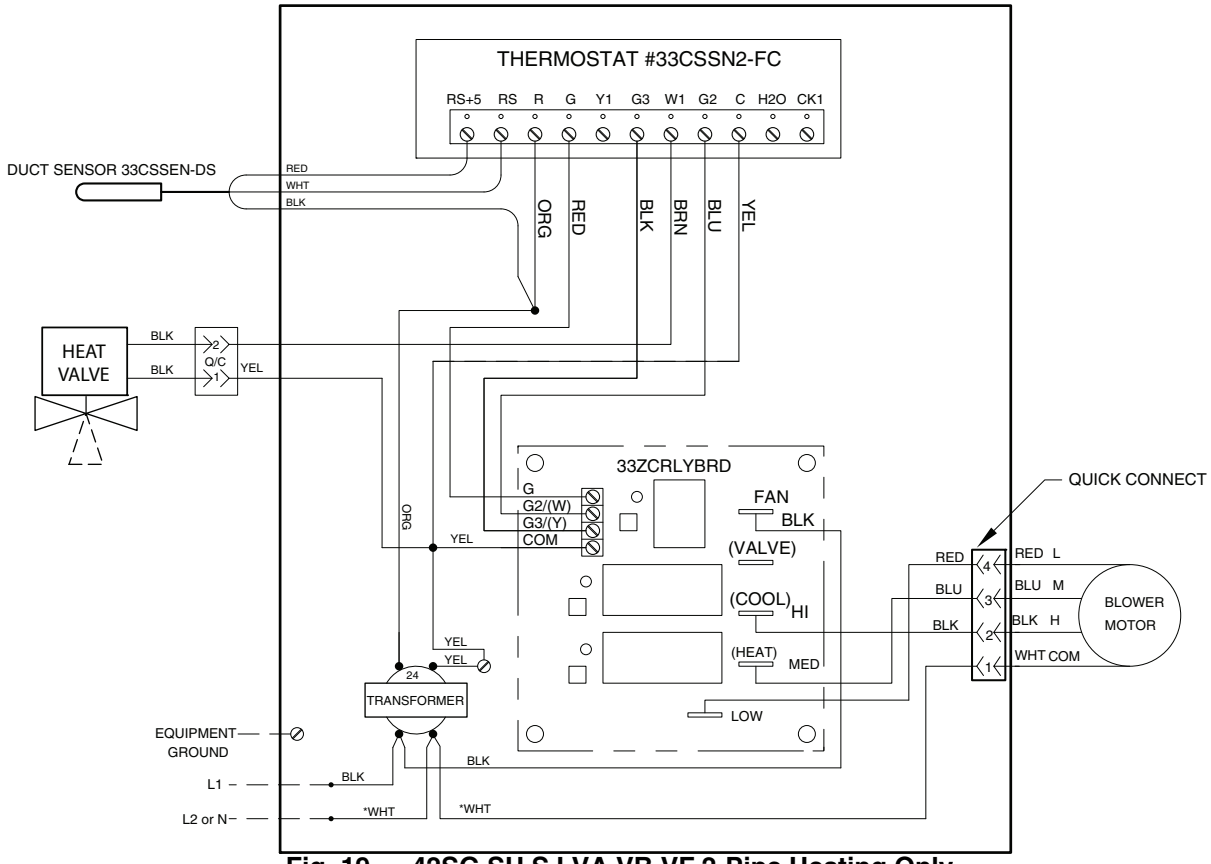


Fig. 19 — 42SG,SH,SJ,VA,VB,VF 2-Pipe Heating Only — Unit-Mounted Debonair® Thermostat (24-v) and Duct Sensor

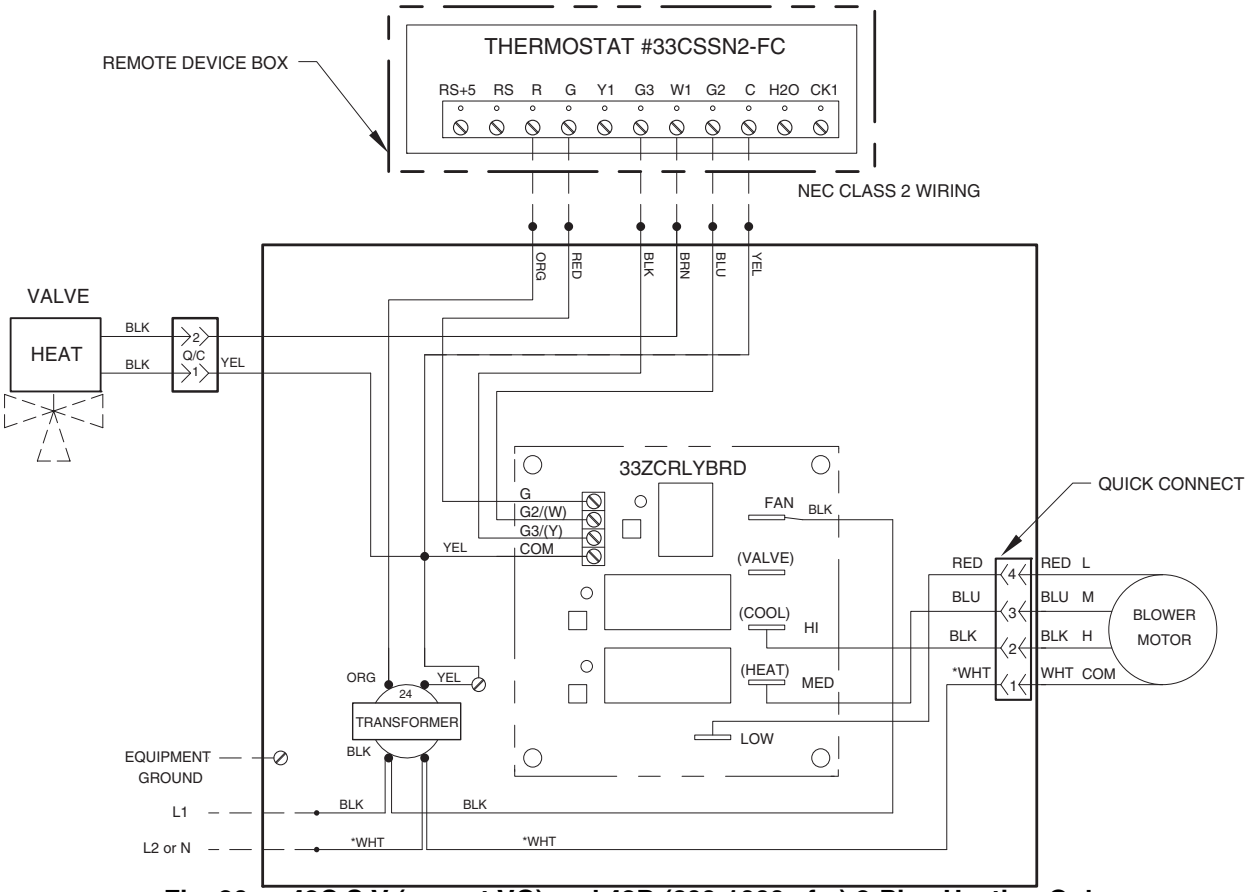


Fig. 20 — 42C,S,V (except VG) and 42D (600-1000 cfm) 2-Pipe Heating Only — Remote/Wall-Mounted Debonair Thermostat (24-v)

NEC CLASS 2 WIRING

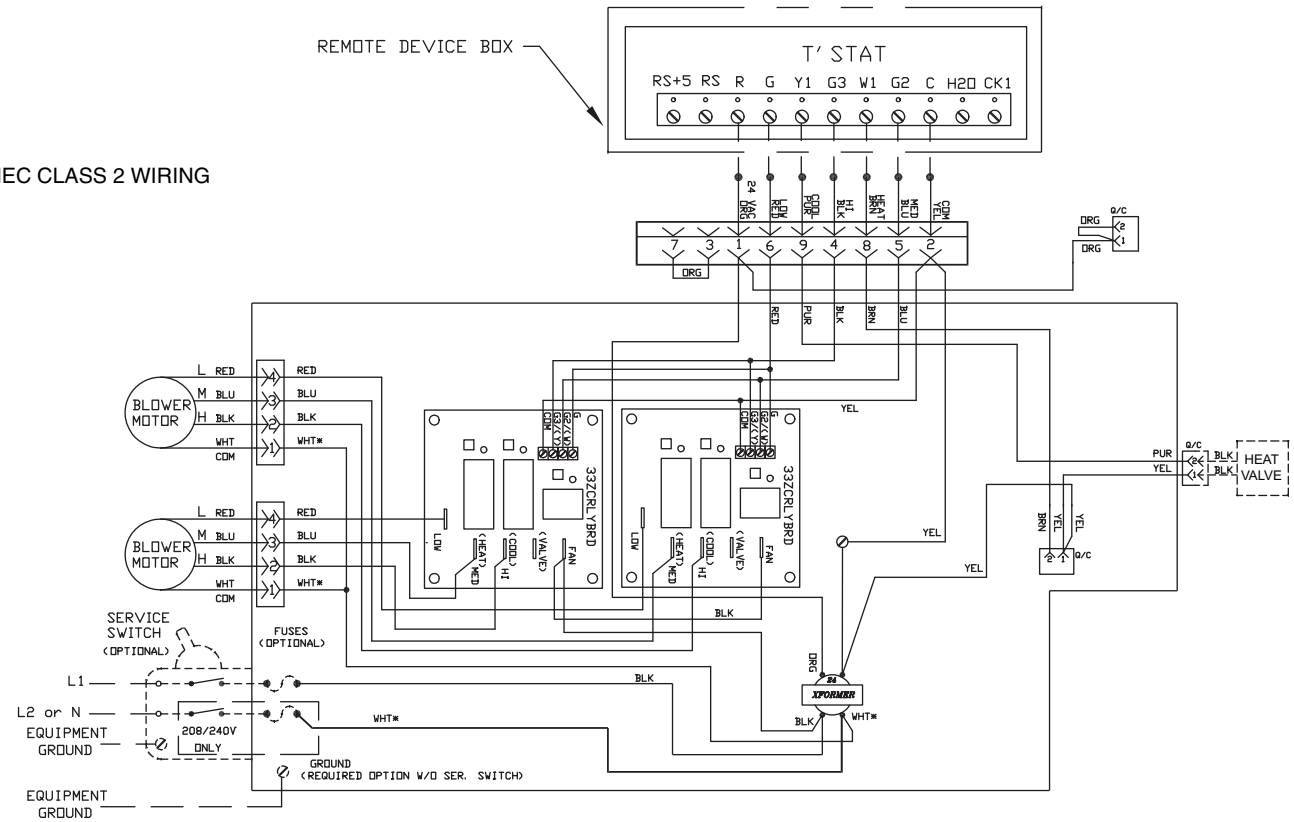


Fig. 21 — 42D (1200-2000) 2-Pipe Heating Only — Remote/Wall-Mounted Debonair Thermostat (24-v)

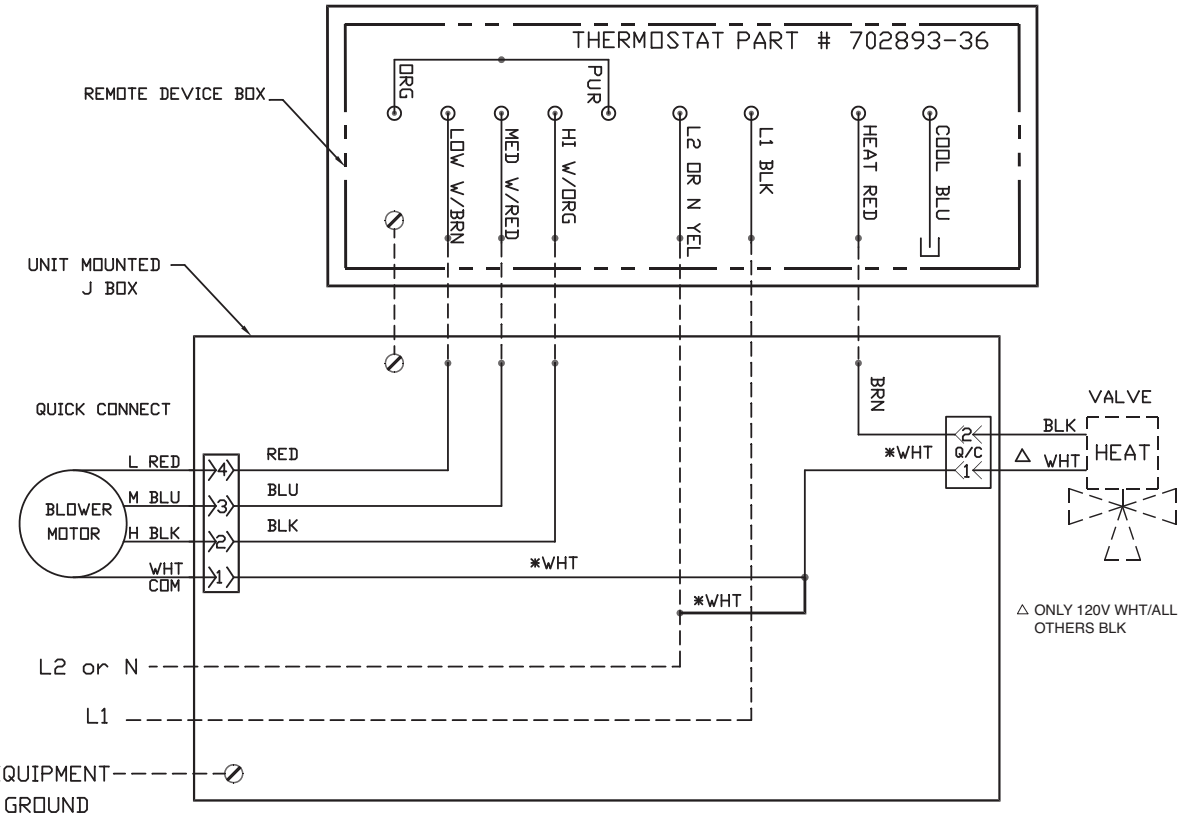


Fig. 22 — 42C,S,V and 42D (600-100 cfm) 2-Pipe Heating Only — Remote/Wall-Mounted Thermostat (Line Voltage)

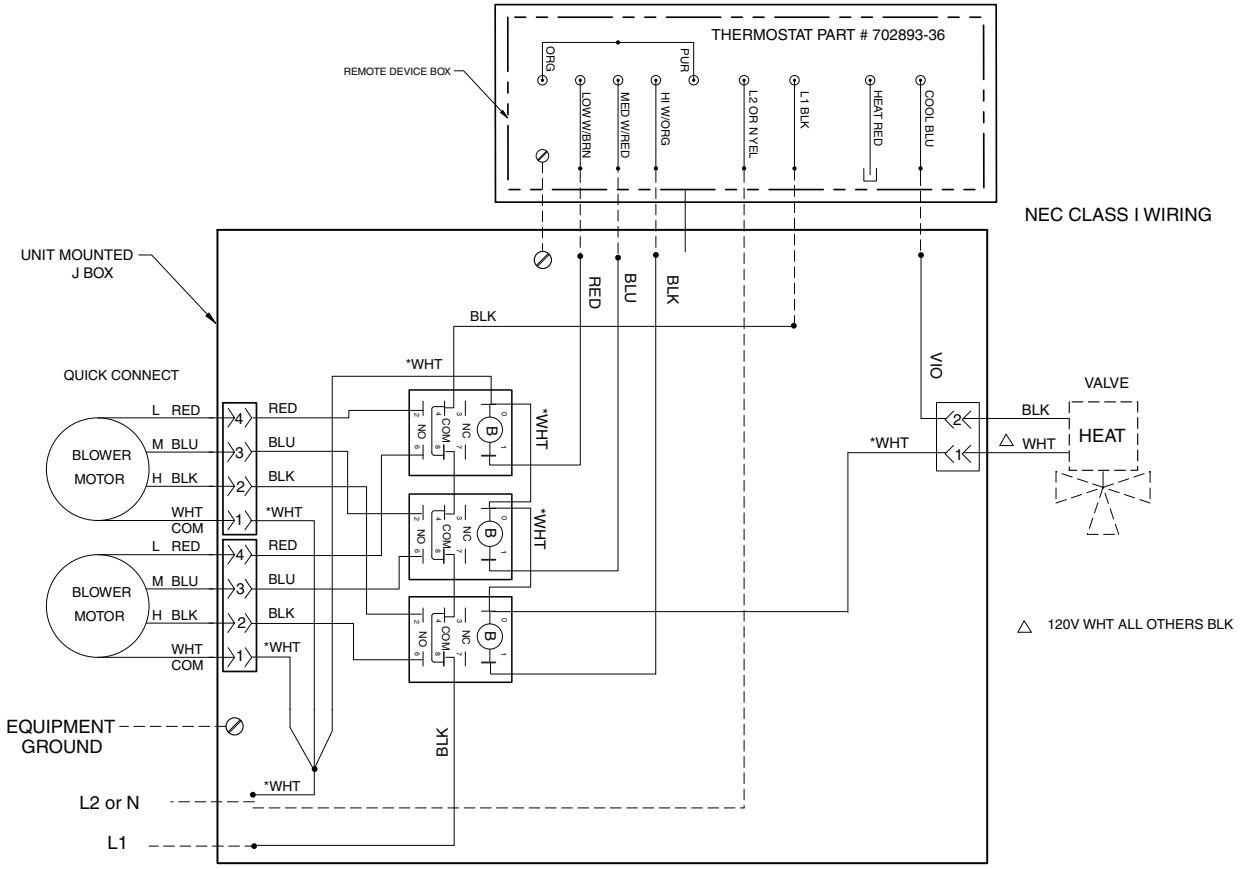


Fig. 23 — 42D (1200-2000) 2-Pipe Heating Only — Remote/Wall-Mounted Thermostat (Line Voltage)

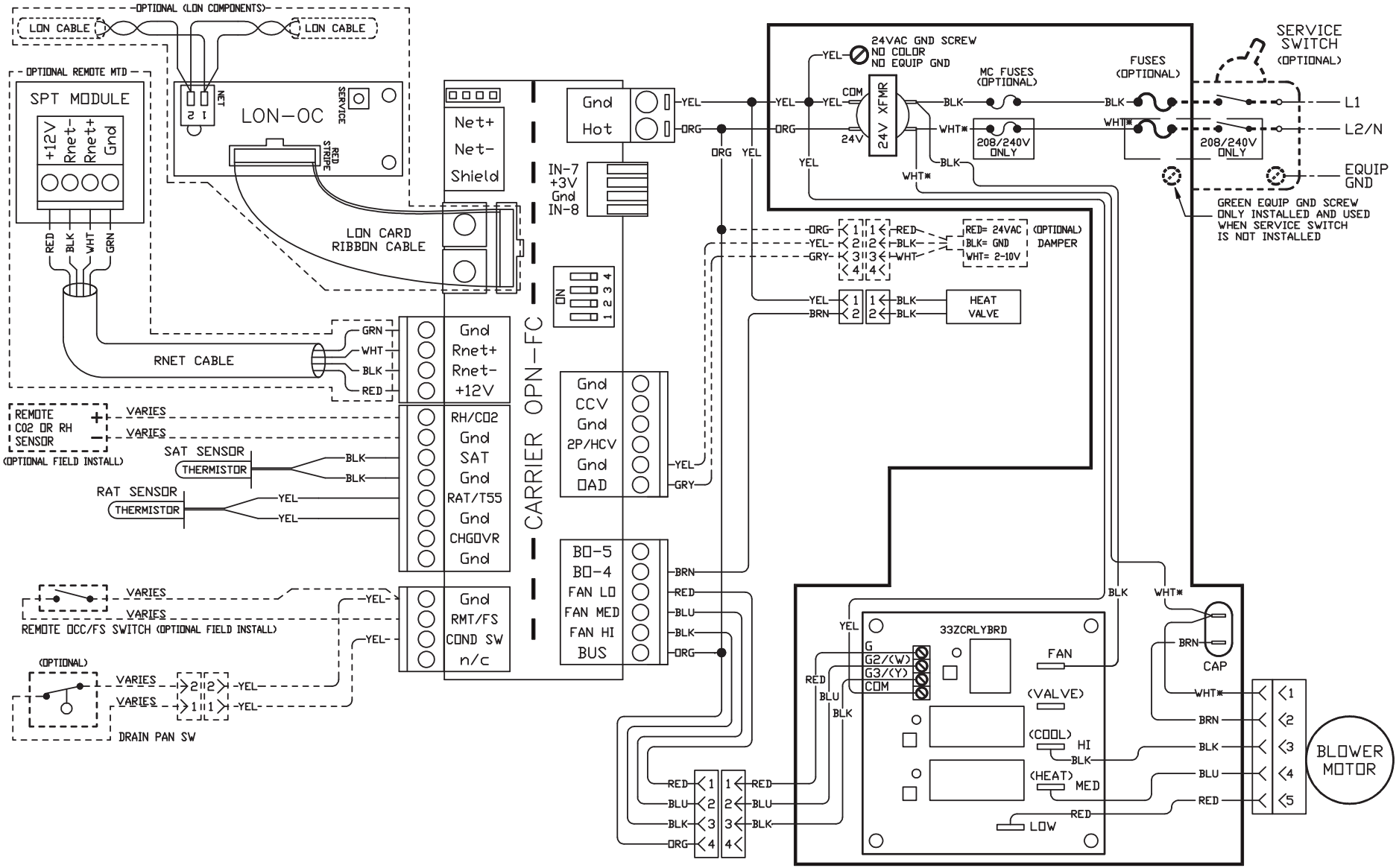


Fig. 24 — 42C,S,V (except VC, VE, VG) and 42D (600-1000 cfm) — 2-Pipe Heating Only — Open FC Controller (24-v) with Motorized Control Valve (2-Position)

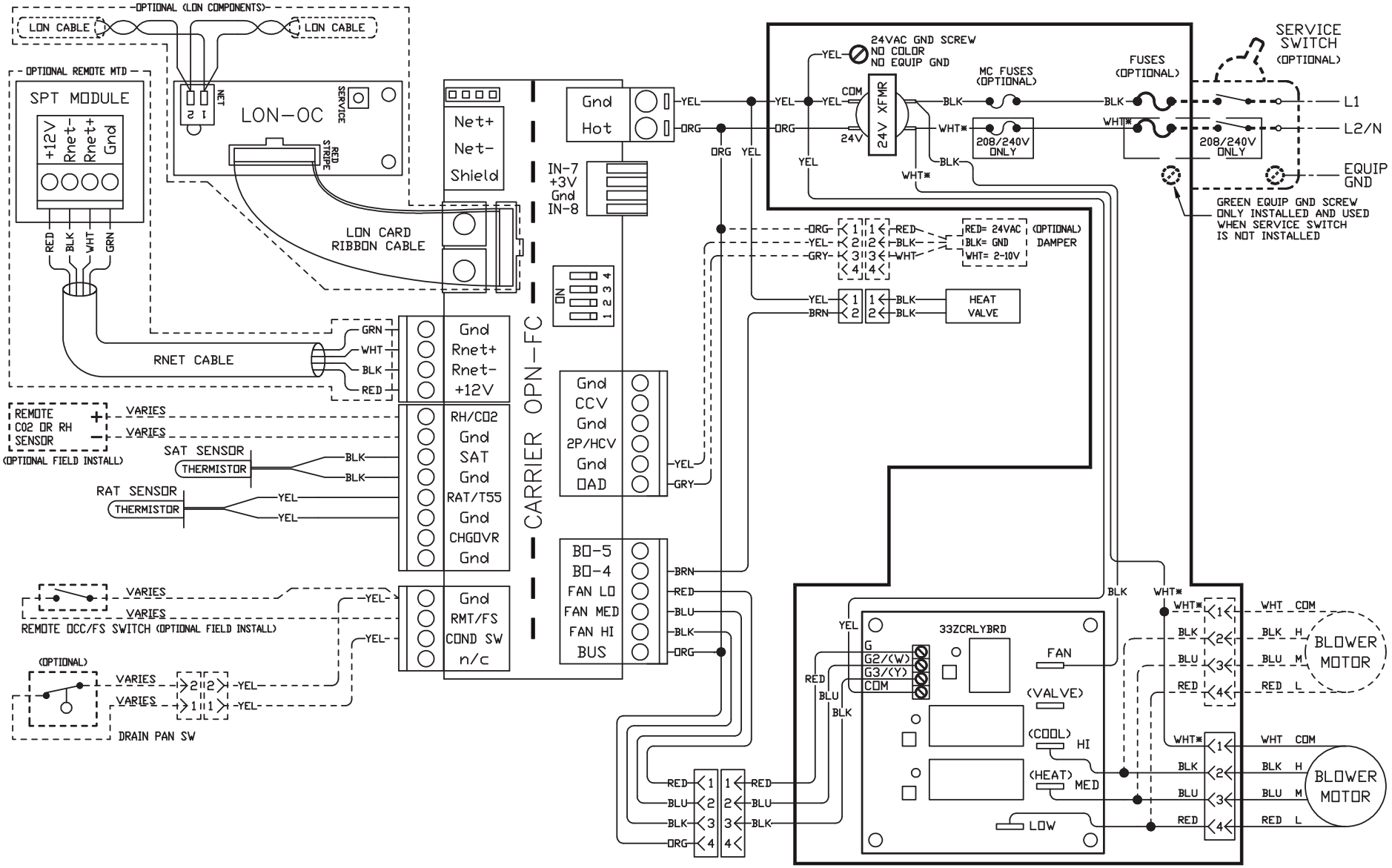


Fig. 25 — 42D (1200-2000 cfm) — 2-Pipe Heating Only — Open FC Controller (24-v) with Motorized Control Valve (2-Position)

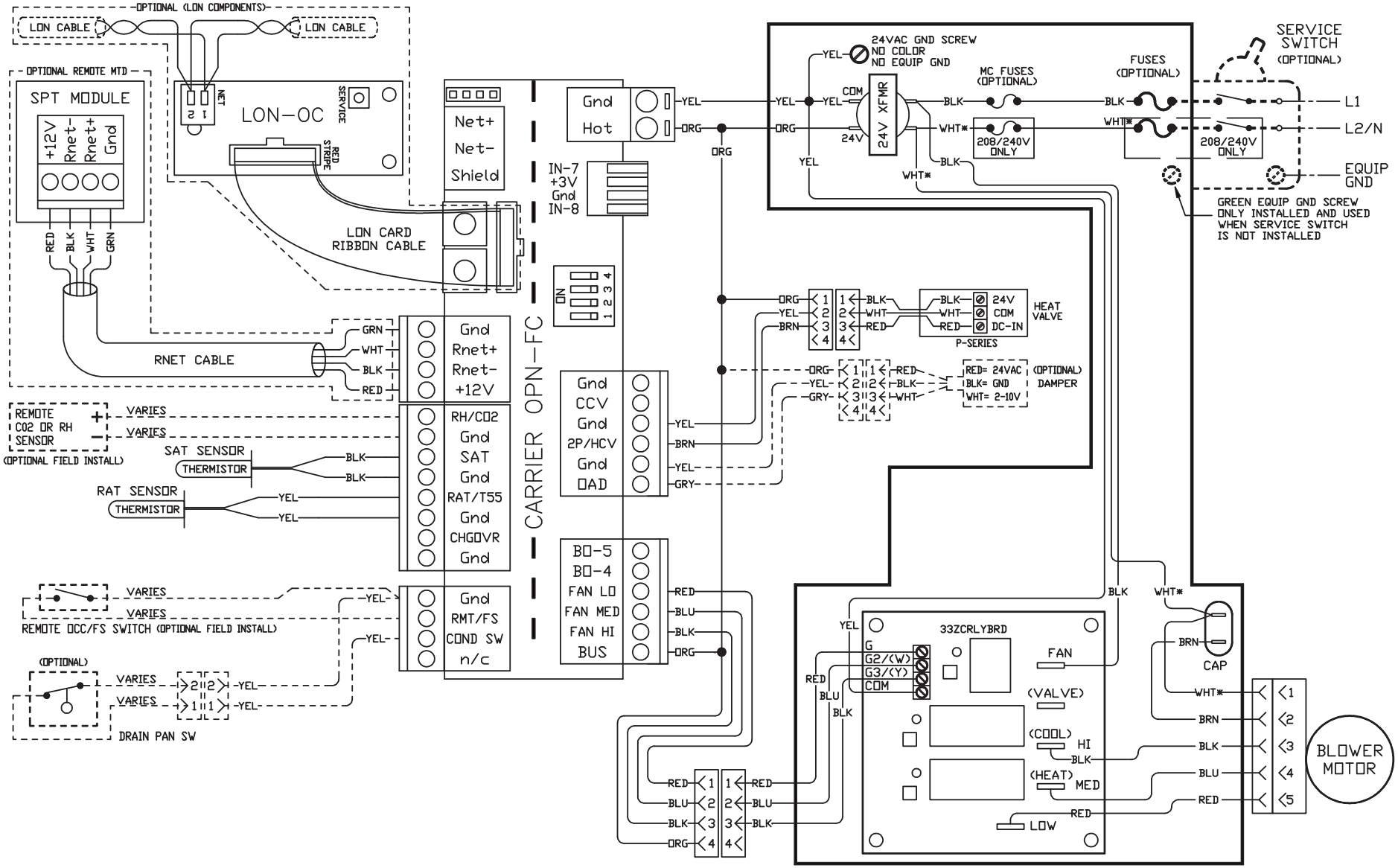


Fig. 26 — 42C,S,V (except VC, VE, VG) and 42D (600-1000 cfm) — 2-Pipe Heating Only — Open FC Controller (24-v) with Modulating Control Valve (0-10 vdc)

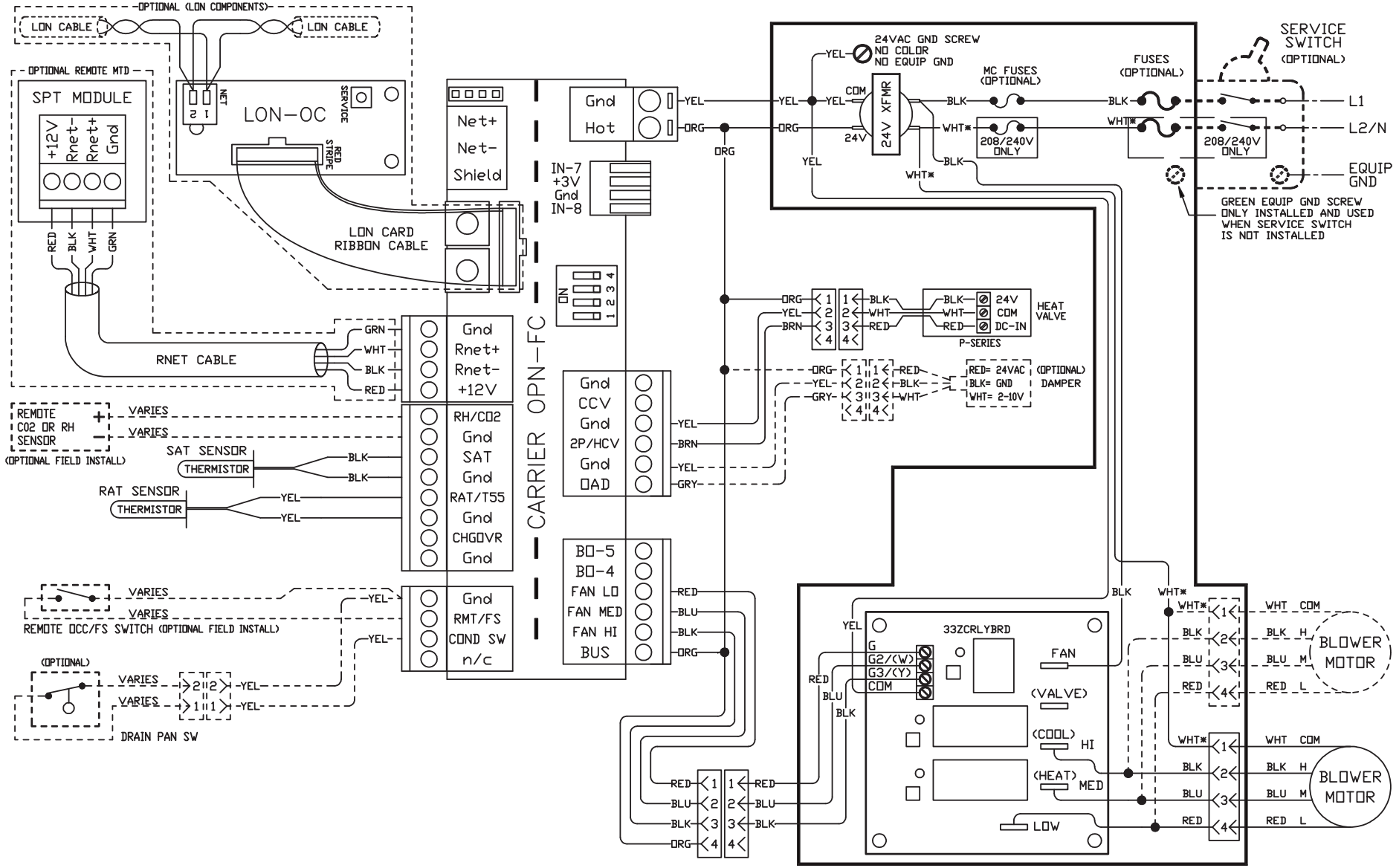


Fig. 27 — 42D (1200-2000 cfm) — 2-Pipe Heating Only — Open FC Controller (24-v) with Modulating Control Valve (0-10 vdc)

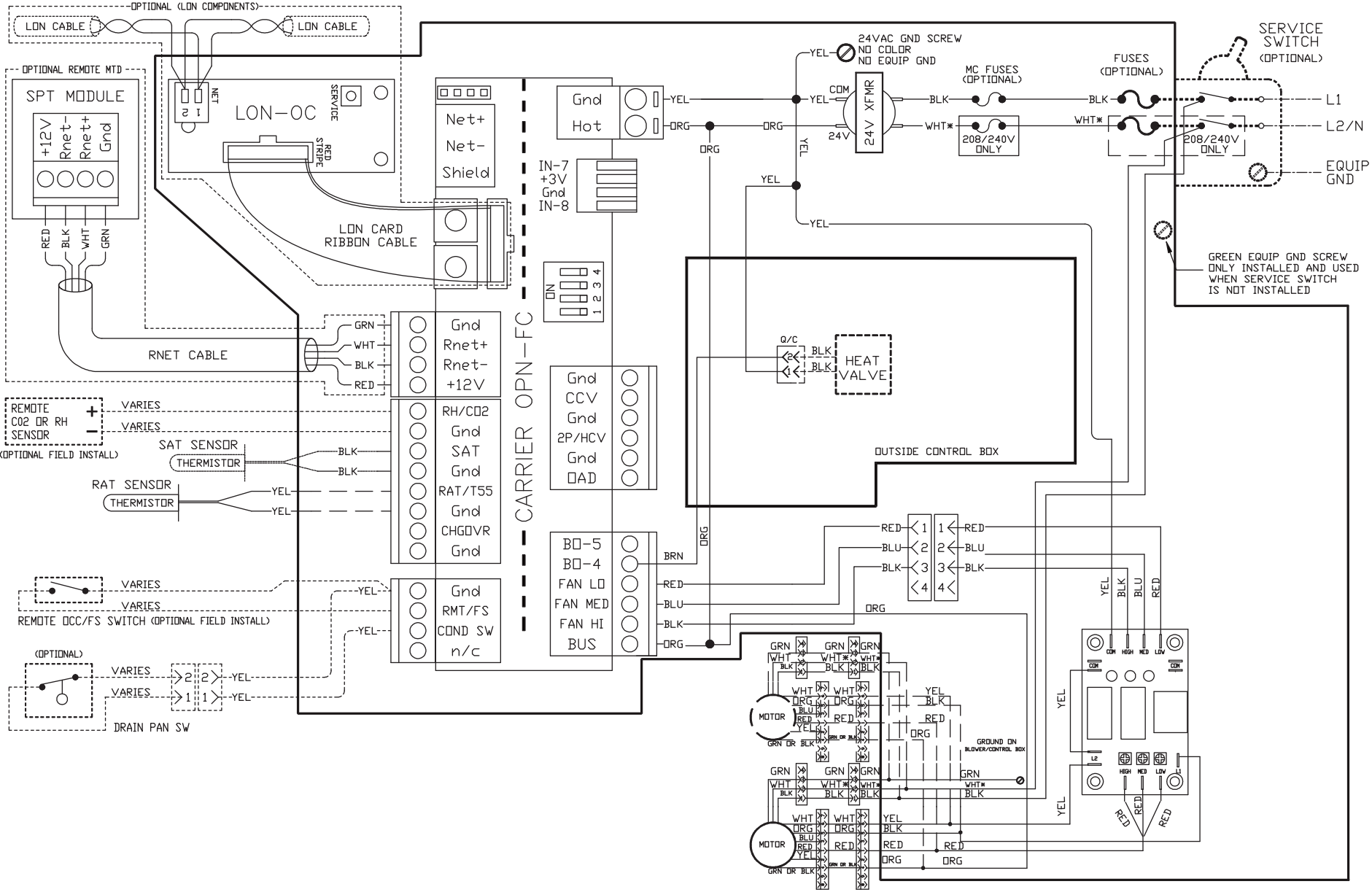


Fig. 28 — 42C,S,V (except VG) and 42D 2-Pipe Heating Only — Open FC Controller (24-v) with ECM, 3-Discrete Speed Input, Potentiometer Field Speed Adjustment

NEC CLASS 2 WIRING

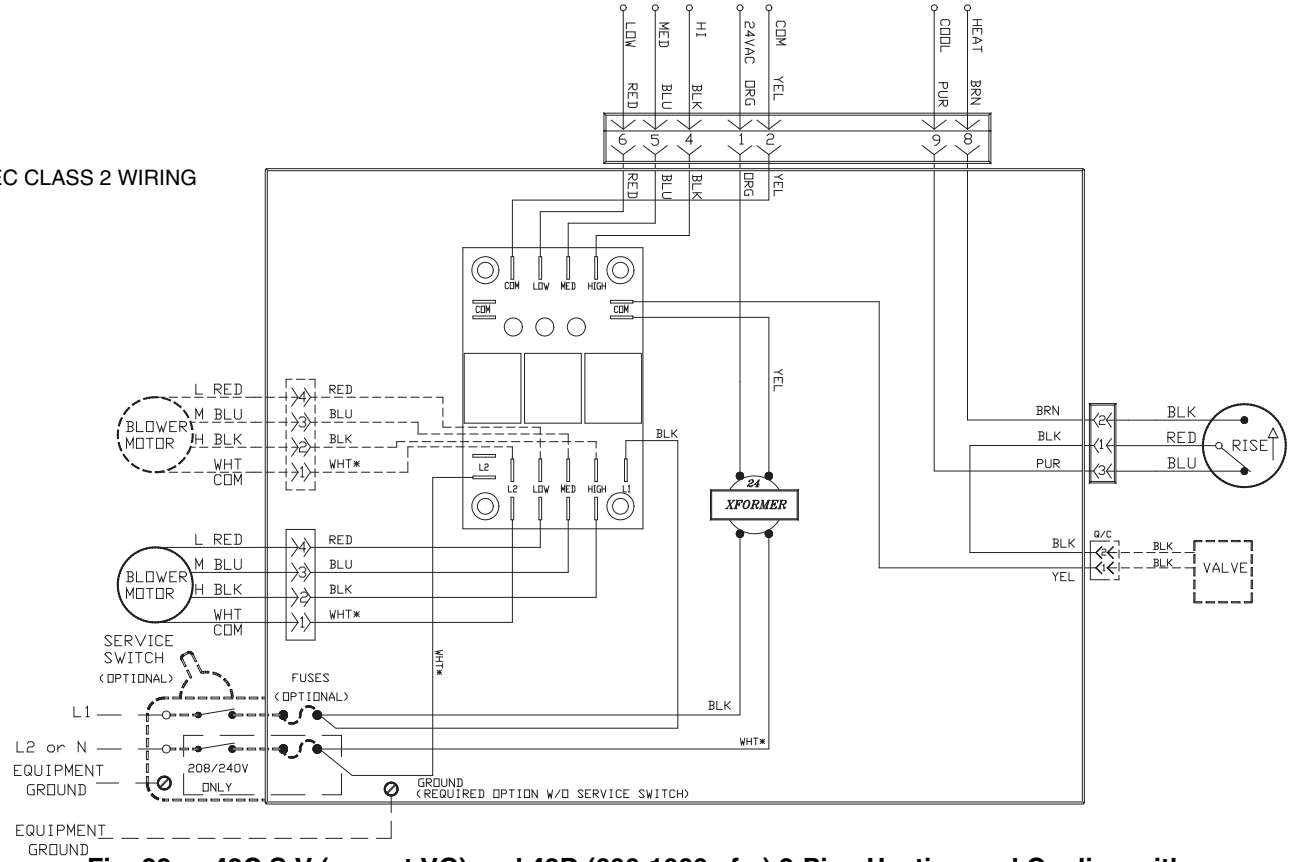


Fig. 29 — 42C,S,V (except VG) and 42D (600-1000 cfm) 2-Pipe Heating and Cooling with Automatic Changeover — 24-v Controls by Others

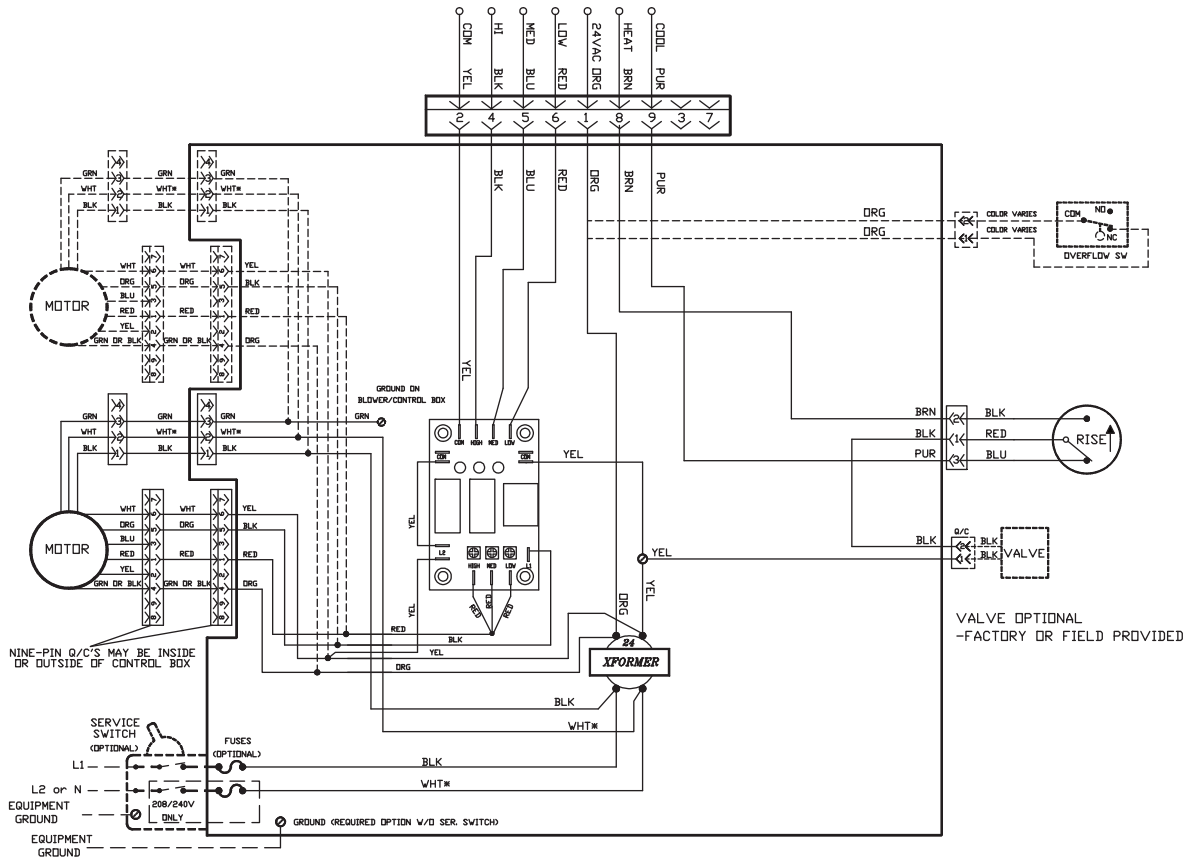


Fig. 30 — 42C,S,V (except VG) and 42D 2-Pipe Heating and Cooling with Automatic Changeover — 24-v Controls by Others (ECM, 3-Discrete Speed Input, Potentiometer Field Speed Adjustment)

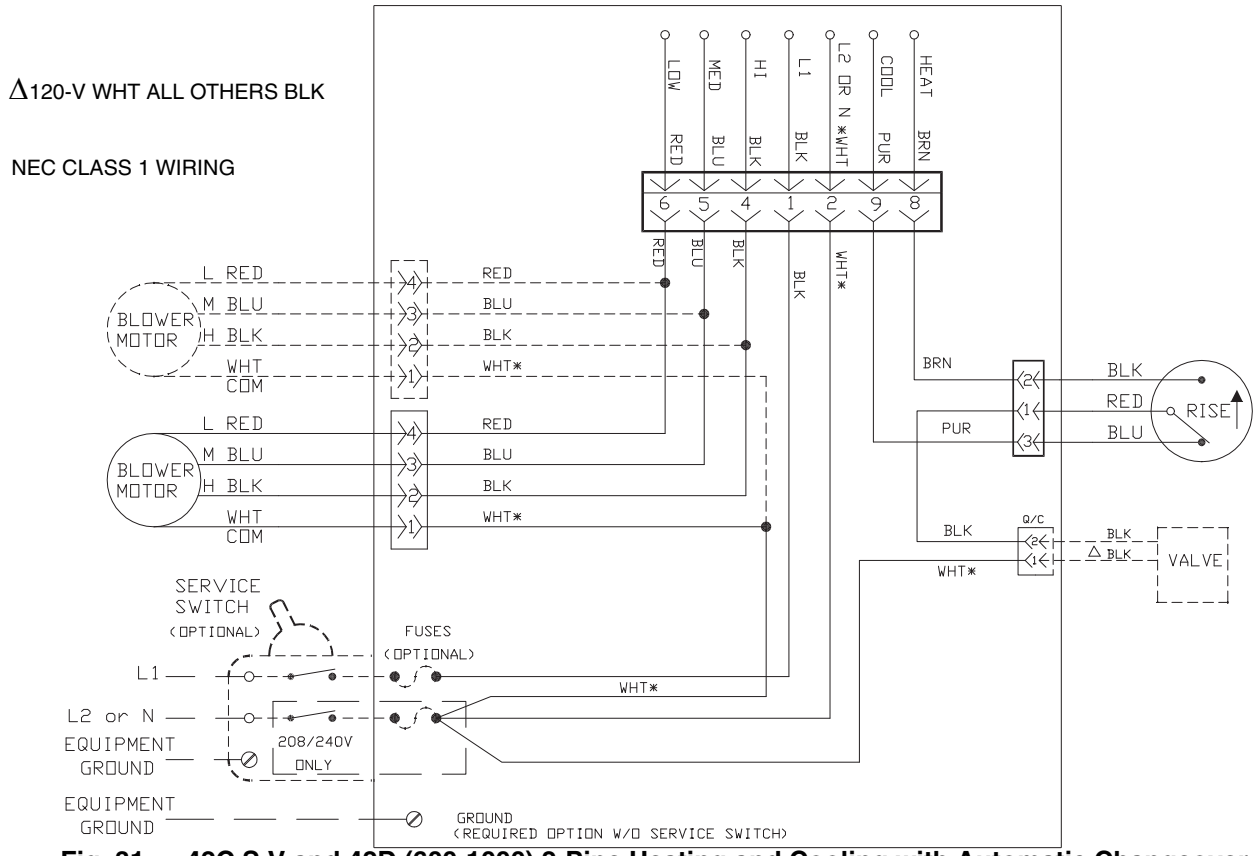


Fig. 31 — 42C,S,V and 42D (600-1000) 2-Pipe Heating and Cooling with Automatic Changeover — Line Voltage Controls by Others

RELAY COIL LETTER REFERS TO
RELAY P/N 706654-XX

VOLTS	A	B
24	01	06
120	02	07
208	03	08
240	04	09
277	05	10

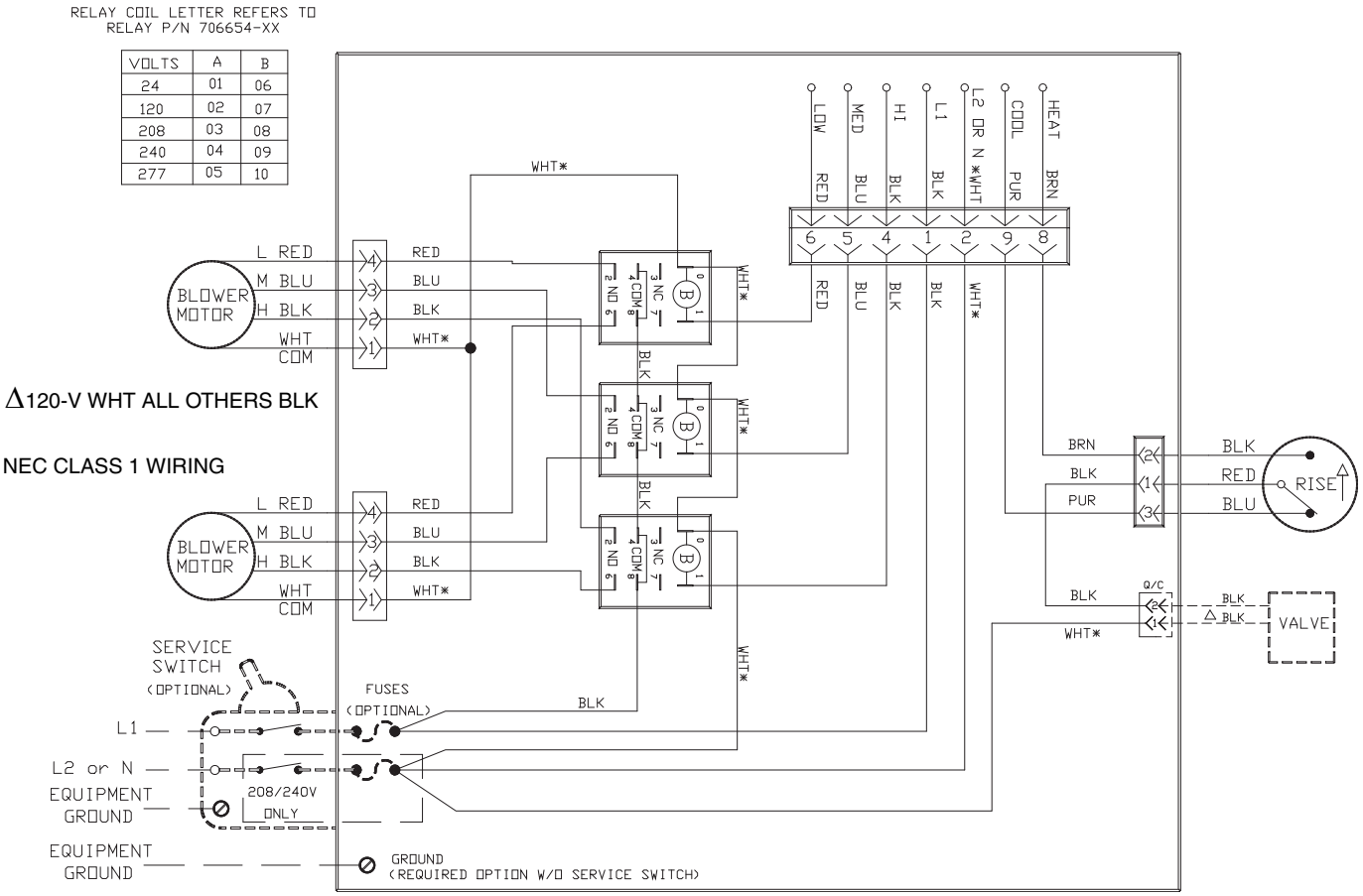


Fig. 32 — 42D (1200-2000) 2-Pipe Heating and Cooling with Automatic Changeover — Field-Supplied and Installed Controls (Line Voltage and Control Valves)

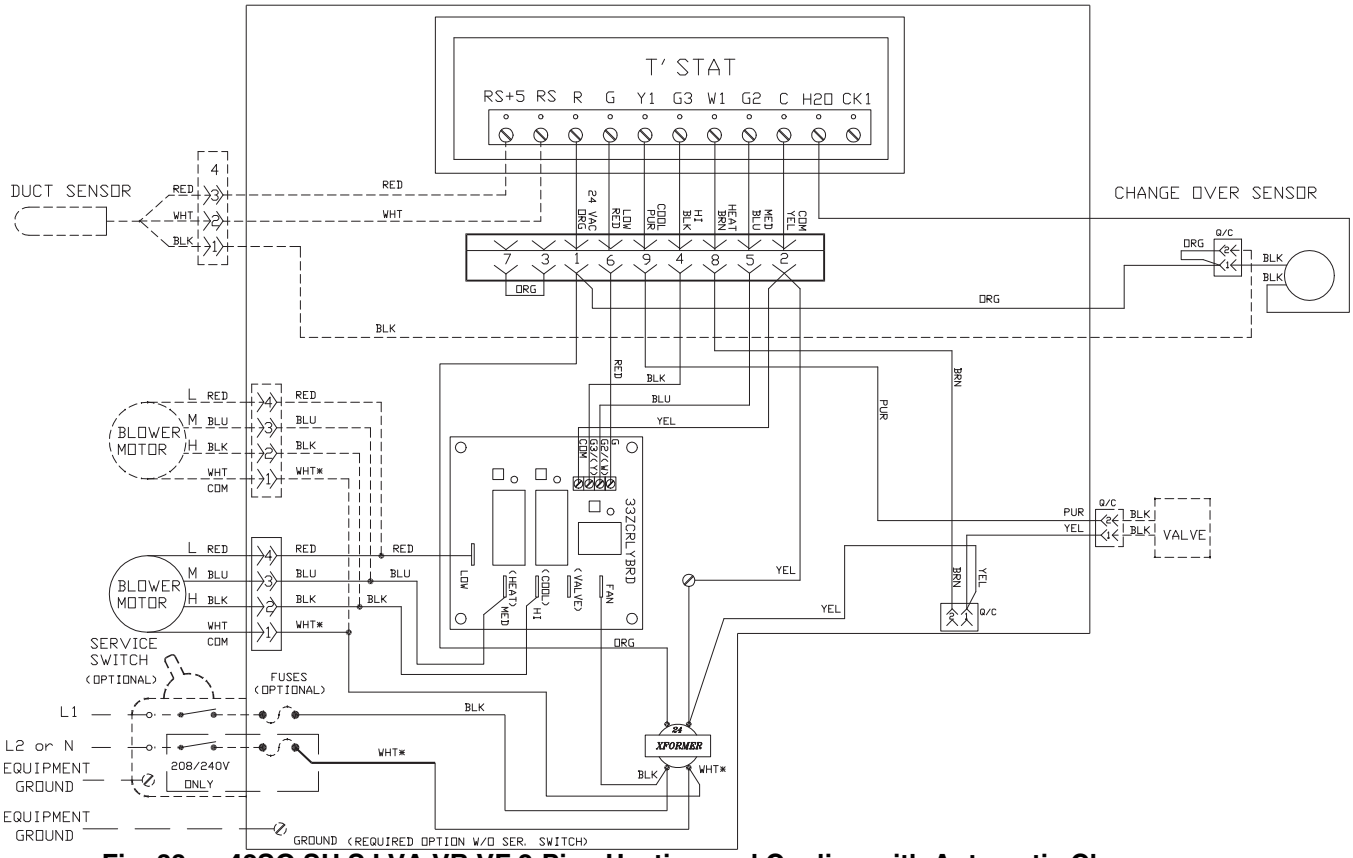


Fig. 33 — 42SG,SH,SJ,VA,VB,VF 2-Pipe Heating and Cooling with Automatic Changeover — Unit-Mounted Debonair® Thermostat (24-v), Duct Sensor

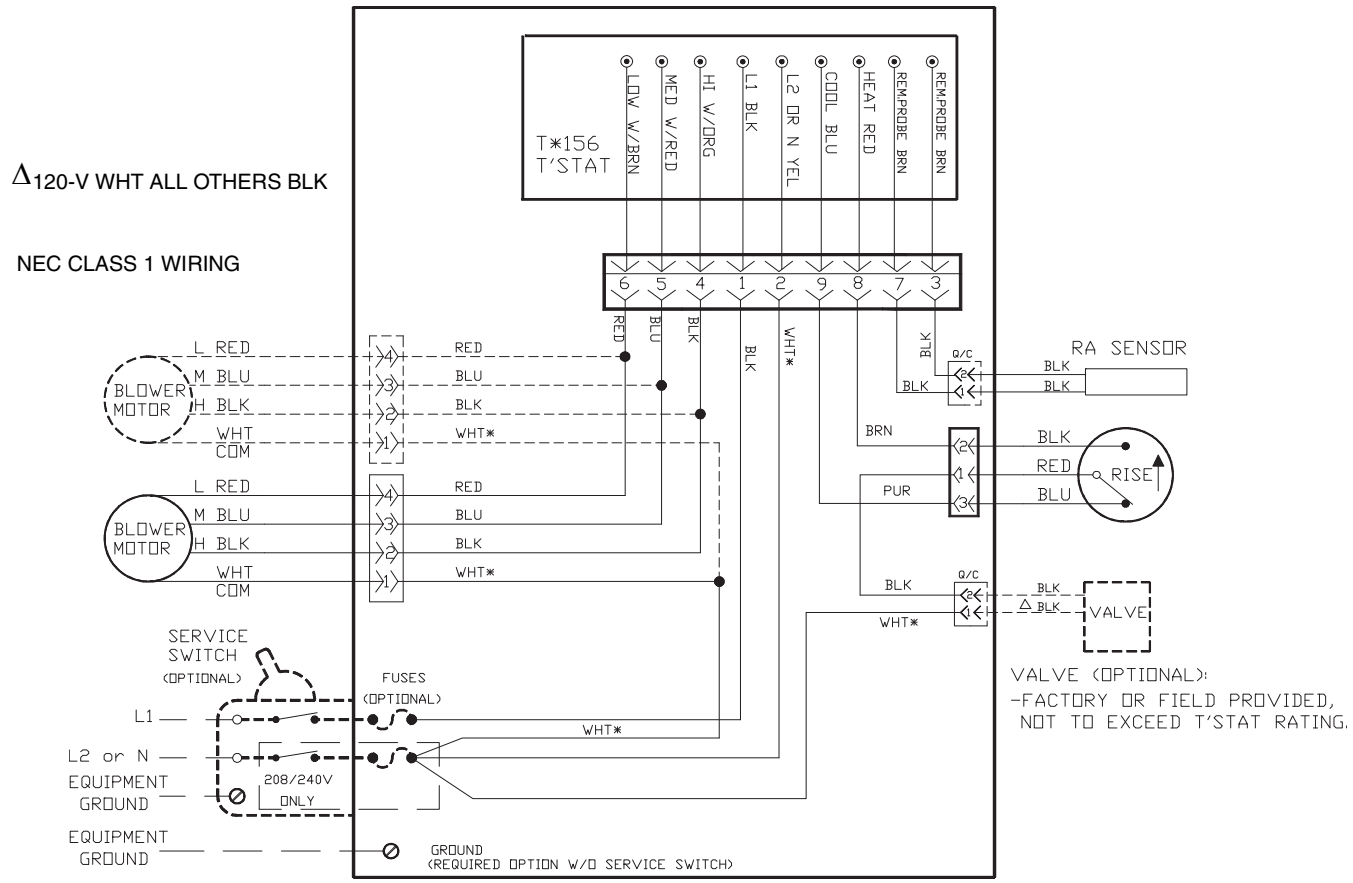


Fig. 34 — 42SG,SH,SJ,VA,VB,VC,VE,VF 2-Pipe Heating and Cooling with Automatic Changeover — Unit-Mounted Thermostat (Line Voltage)

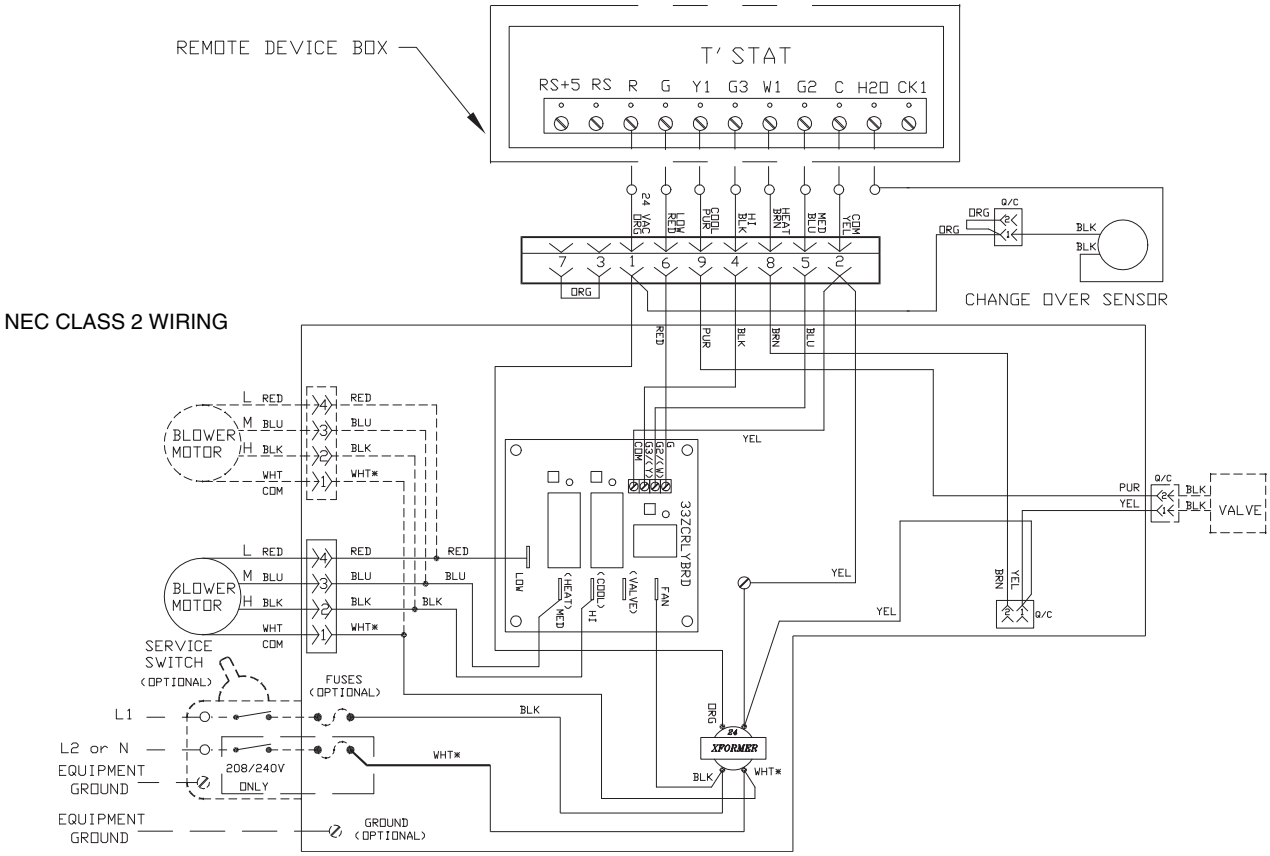


Fig. 35 — 42C,S,V (except VG) and 42D (600-1000 cfm) 2-Pipe Heating and Cooling with Automatic Changeover — Remote/Wall-Mounted Debonair® Thermostat (24-v)

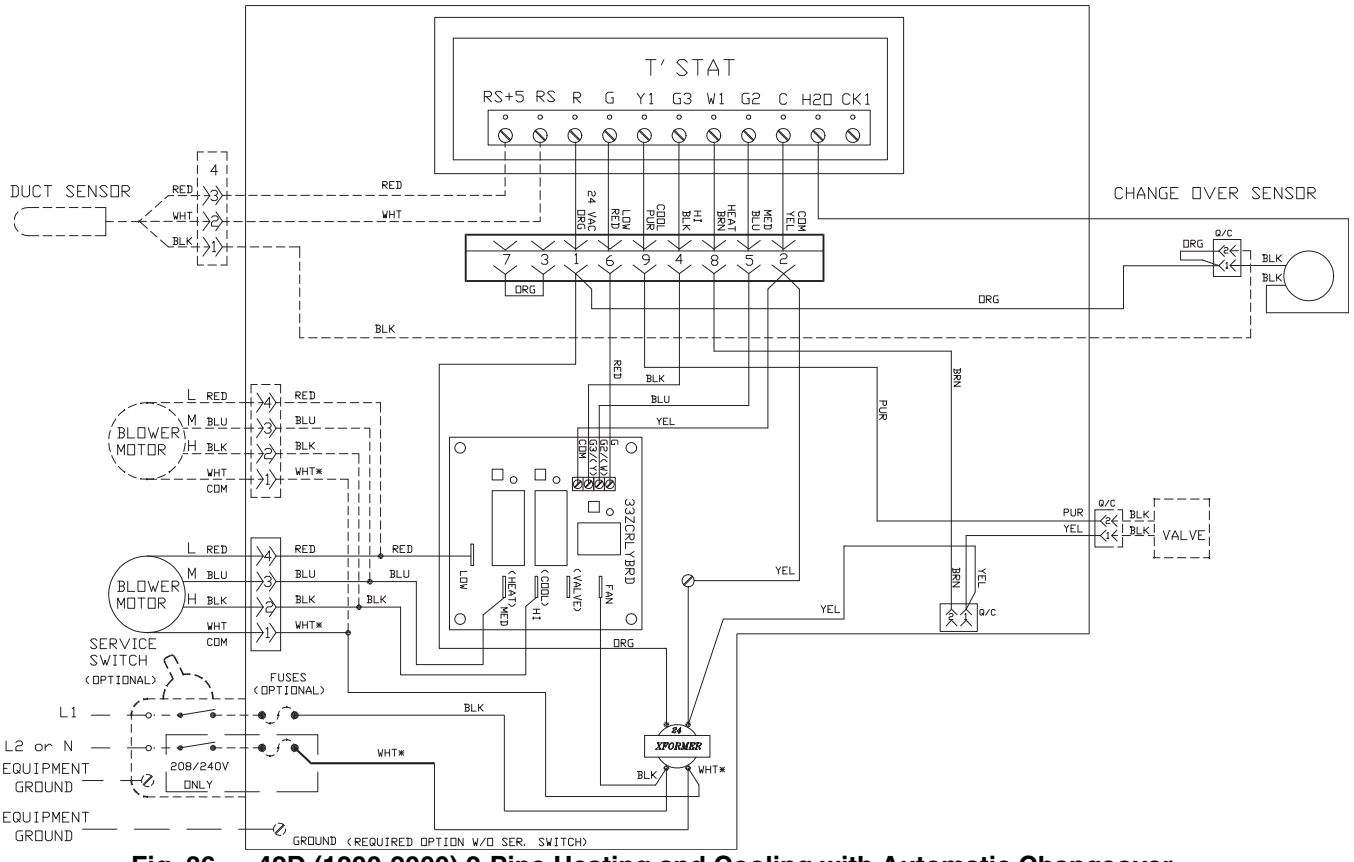


Fig. 36 — 42D (1200-2000) 2-Pipe Heating and Cooling with Automatic Changeover — Remote/Wall-Mounted Debonair Thermostat 24-v

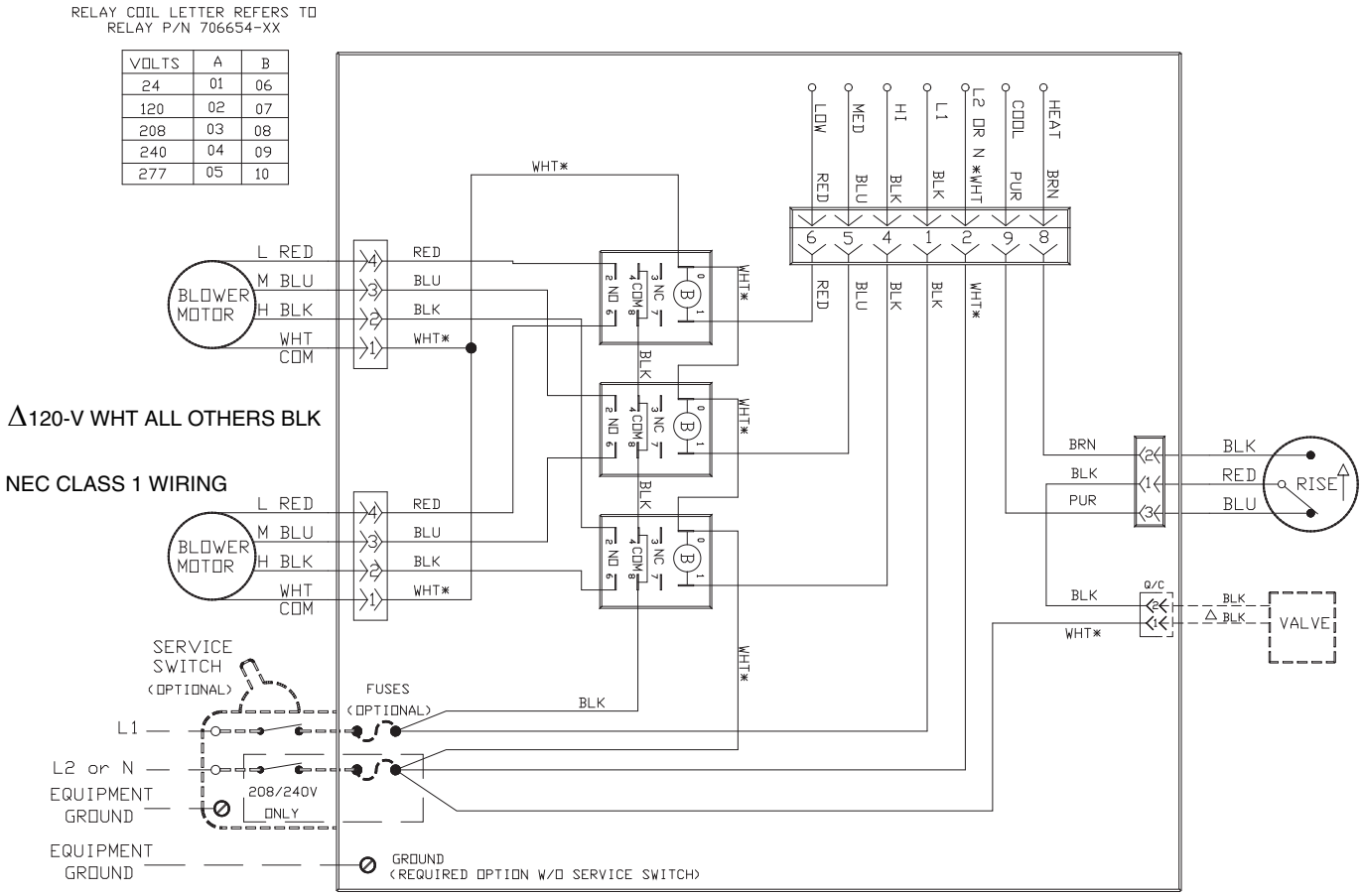


Fig. 37 — 42C,S,V and 42D 2-Pipe Heating and Cooling with Automatic Changeover — Remote/Wall-Mounted Thermostat (Line Voltage)

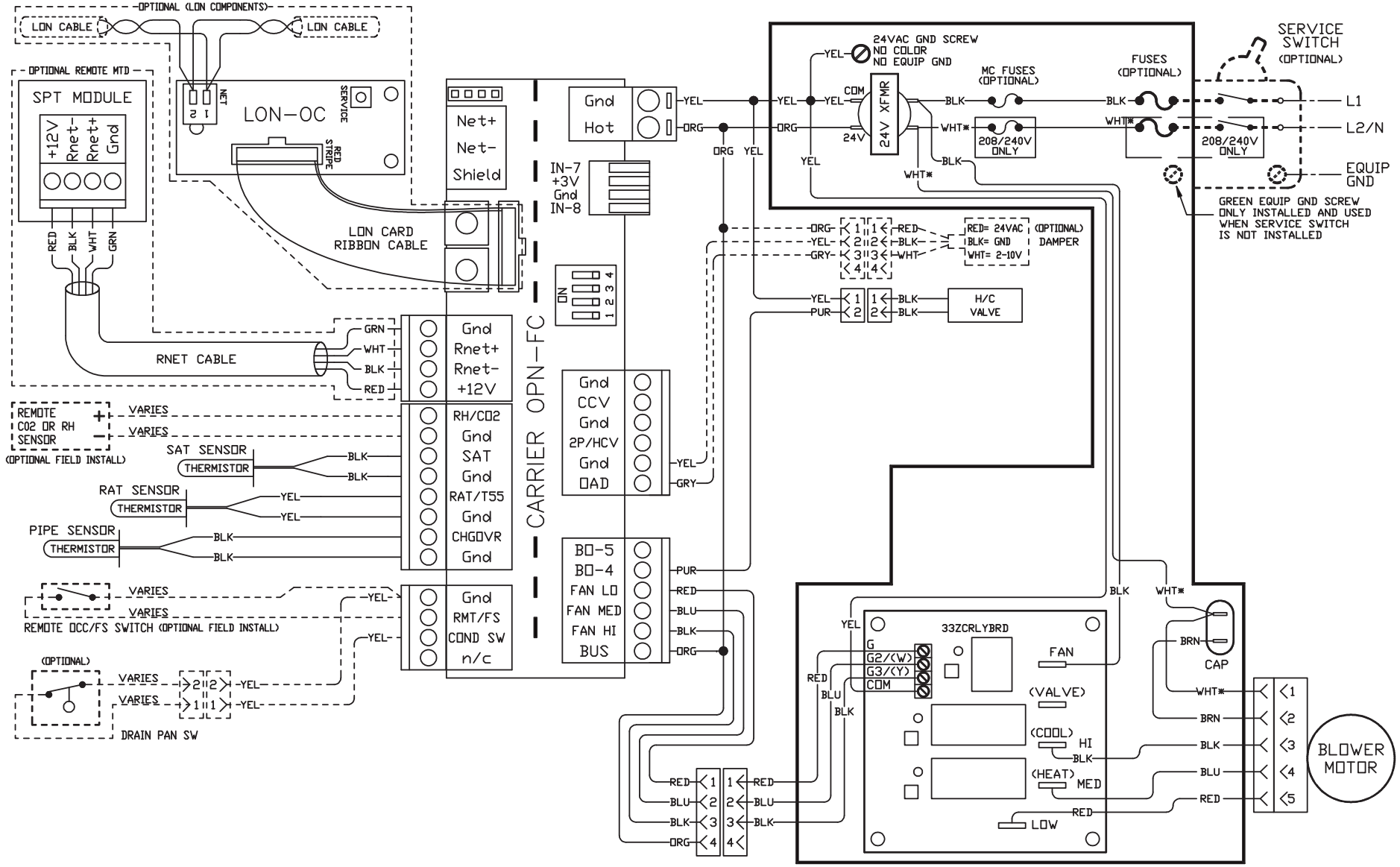


Fig. 38 — 42C,S,V (except VC, VE, VG) and 42D (600-1000 cfm) — 2-Pipe Heating and Cooling with Automatic Changeover — Open FC Controller (24-v) with Motorized Control Valve (2-Position)

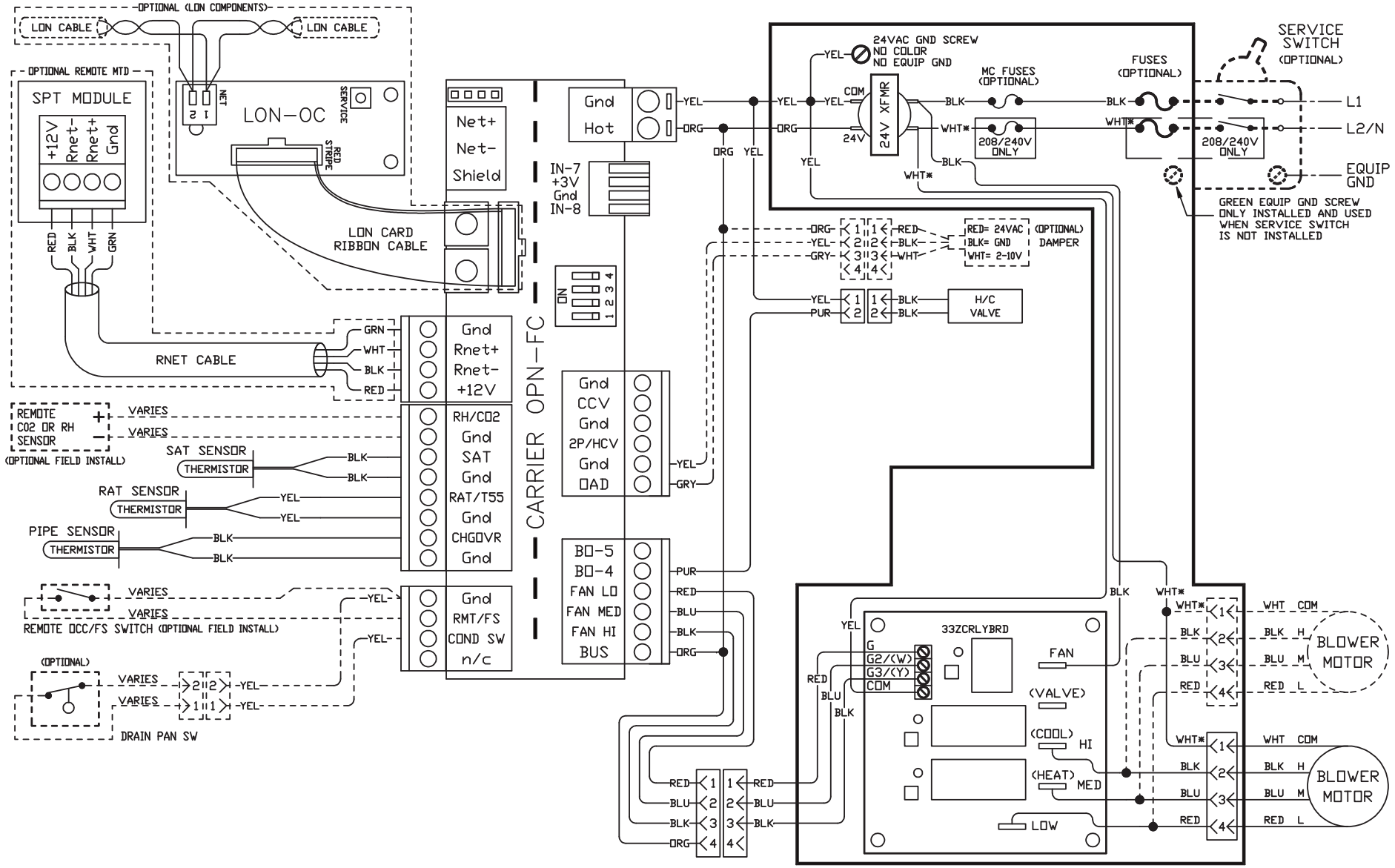


Fig. 39 — 42D (1200-2000 cfm) — 2-Pipe Heating and Cooling with Automatic Changeover — Open FC Controller (24-v) with Motorized Control Valve (2-Position)

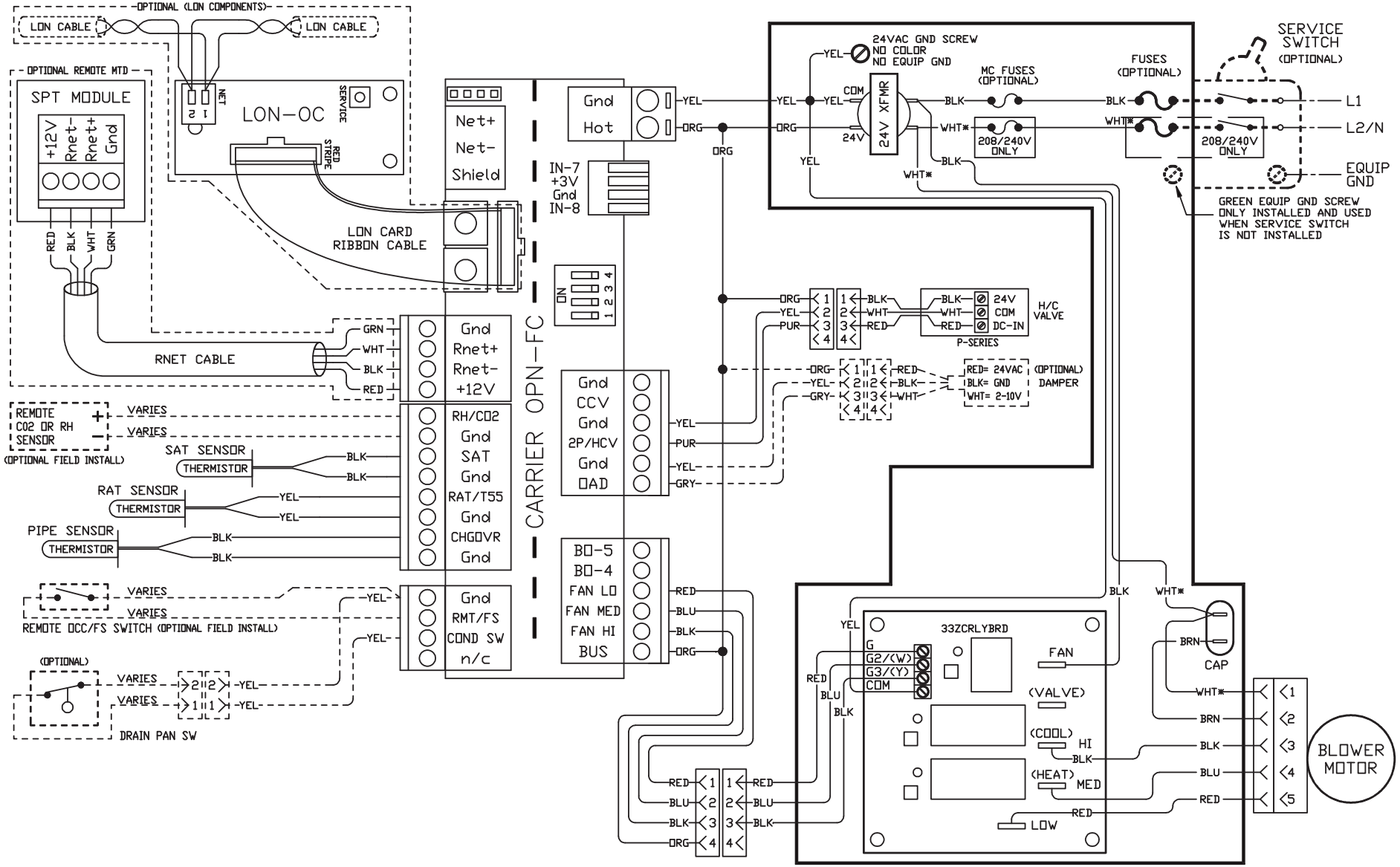


Fig. 40 — 42C,S,V (except VC, VE, VG) and 42D (600-1000 cfm) — 2-Pipe Heating and Cooling with Automatic Changeover — Open FC Controller (24-v) with Modulating Control Valve (0-10 vdc)

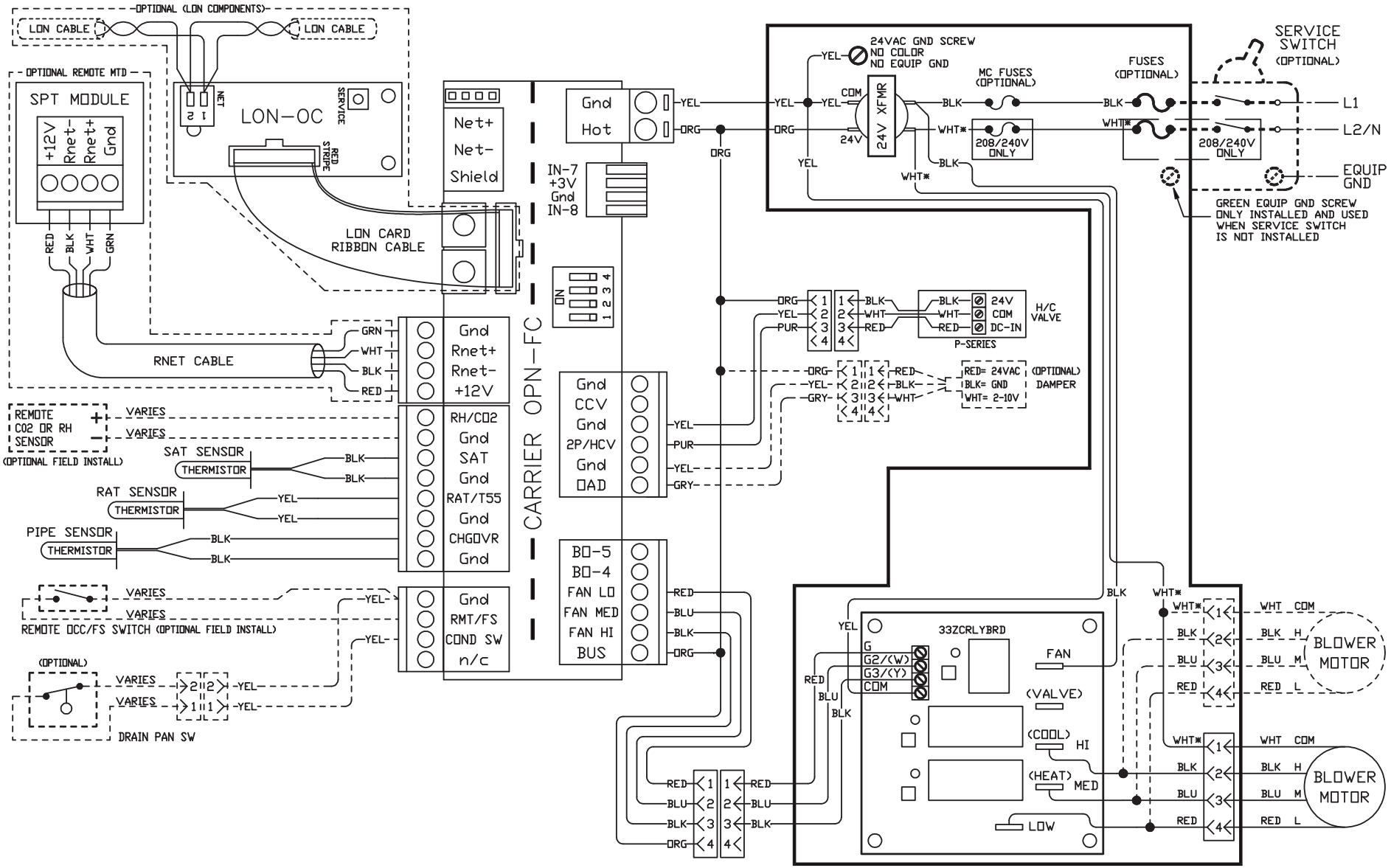


Fig. 41 — 42D (1200-2000 cfm) — 2-Pipe Heating and Cooling with Automatic Changeover — Open FC Controller (24-v) with Modulating Control Valve (0-10 vdc)

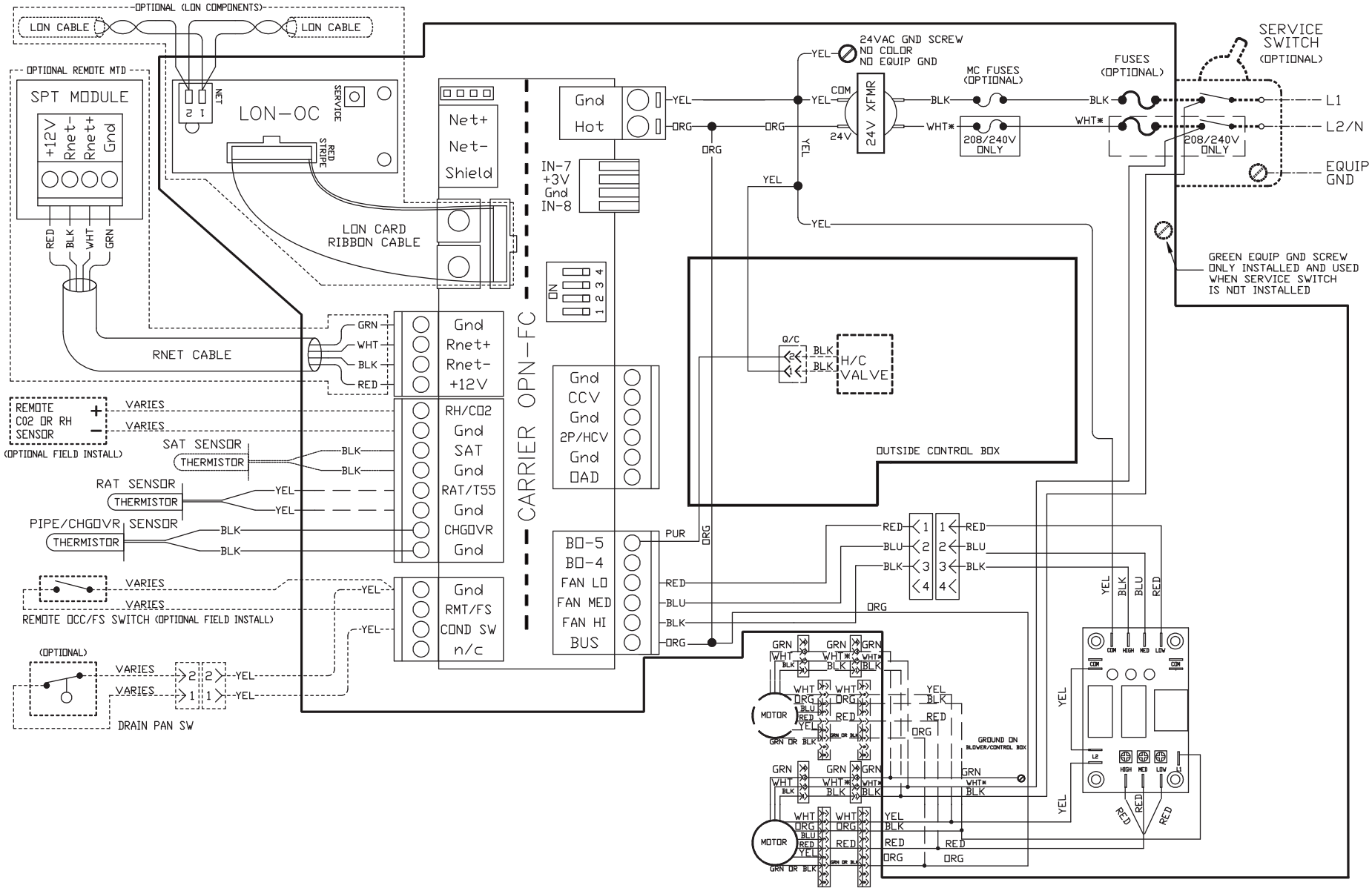


Fig. 42 — 42C,S,V (except VG) and 42D 2-Pipe Heating and Cooling with Automatic Changeover — Open FC Controller (24-v) with ECM, 3-Discrete Speed Input, Potentiometer Field Speed Adjustment

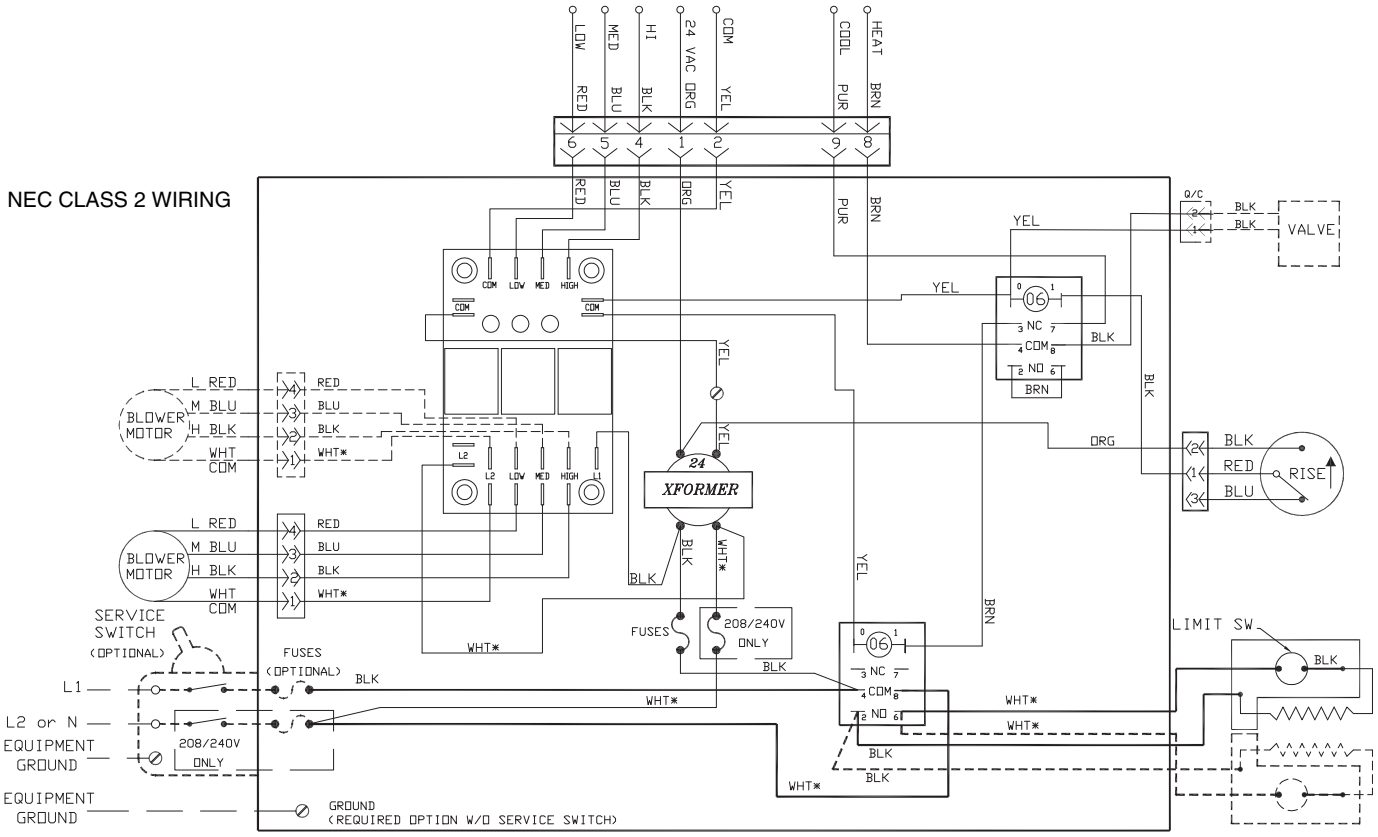


Fig. 43 — 42C,S,V (except VG) and 42D (600-1000 cfm) 2-Pipe Heating and Cooling with Auxiliary Heat — 24-v Controls by Others

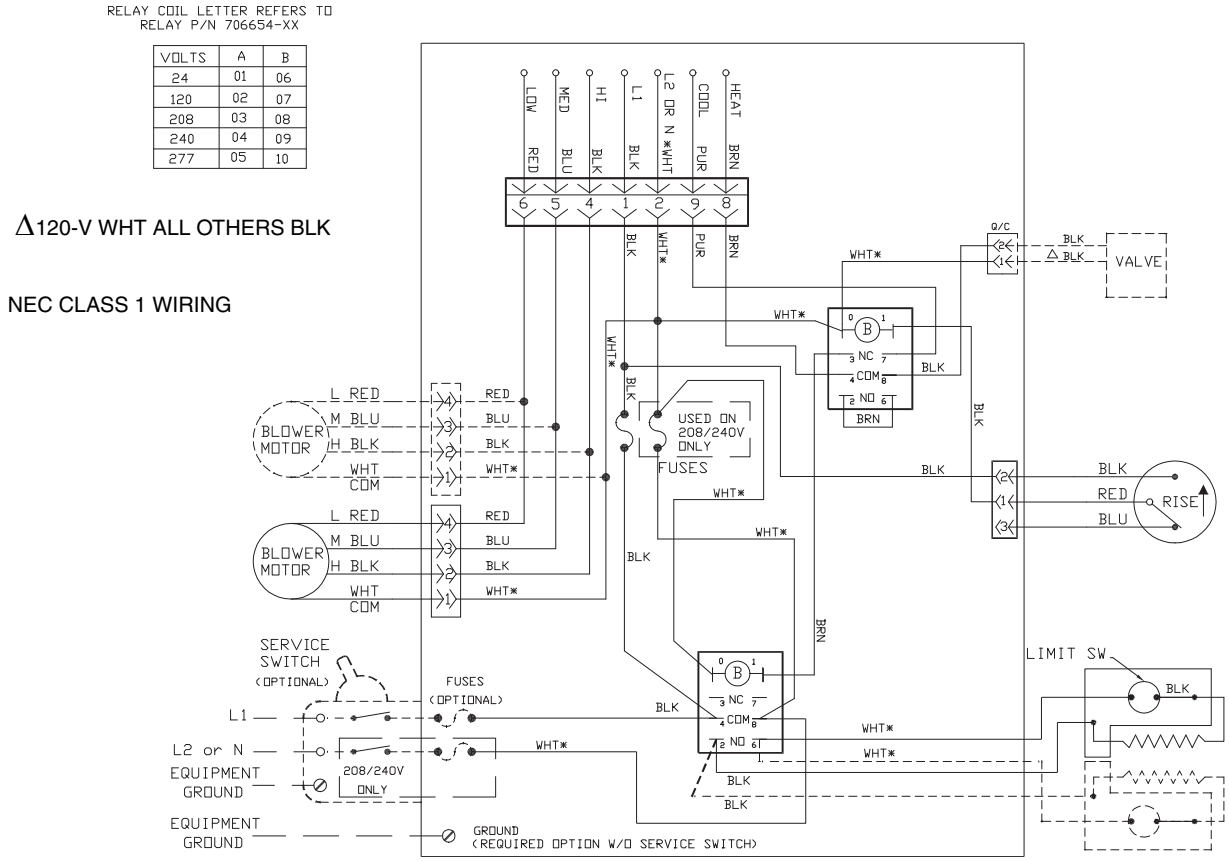


Fig. 44 — 42C,S,V (except VG) and 42D (600-1000 cfm) 2-Pipe Heating and Cooling with Auxiliary Heat — Line Voltage Controls by Others

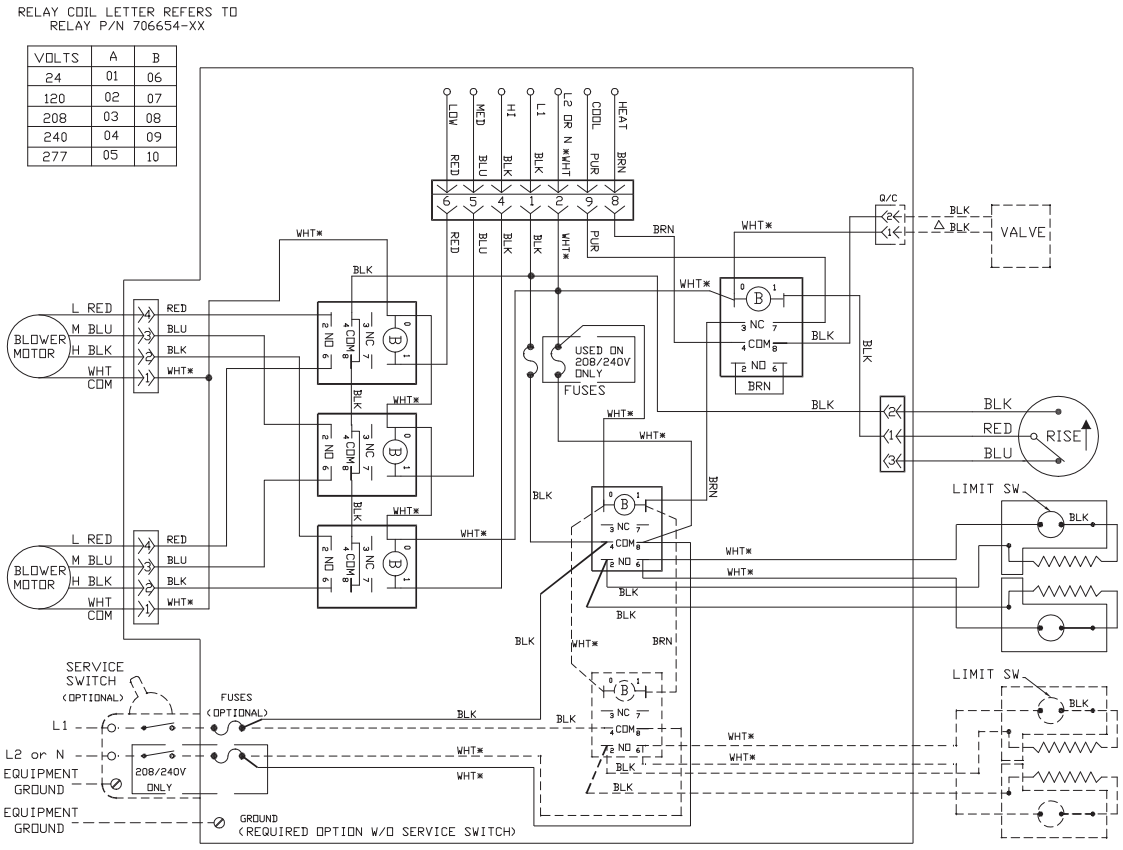


Fig. 45 — 42D (1200-2000) 2-Pipe Heating and Cooling with Auxiliary Heat — Field-Supplied and Installed Controls (Line Voltage and Control Valves or Electric Heat)

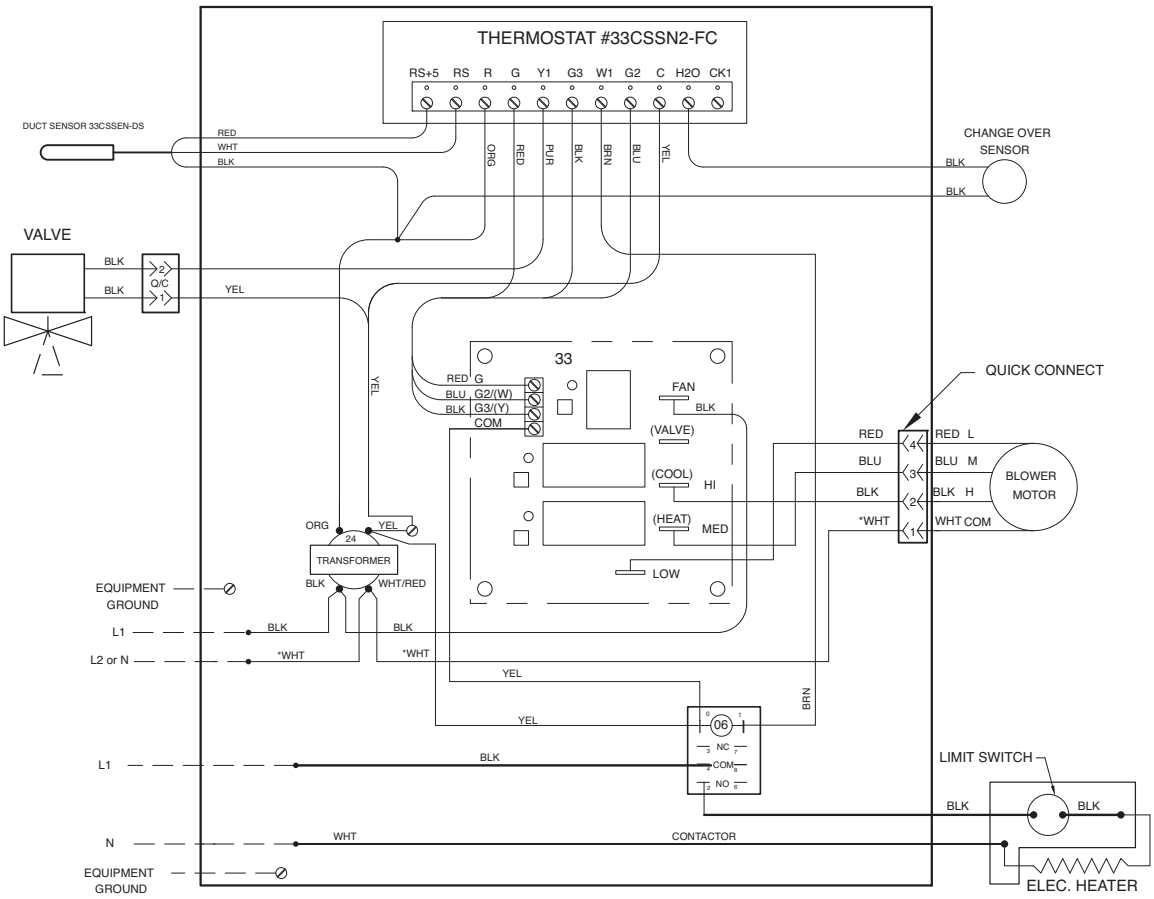


Fig. 46 — 42SG,SH,SJ,VA,VB,VC,VE,VF 2-Pipe Heating and Cooling with Auxiliary Heat — Unit-Mounted Debonair® Thermostat (24-v), Duct Sensor and Dual Power Source

NEC CLASS 2 WIRING

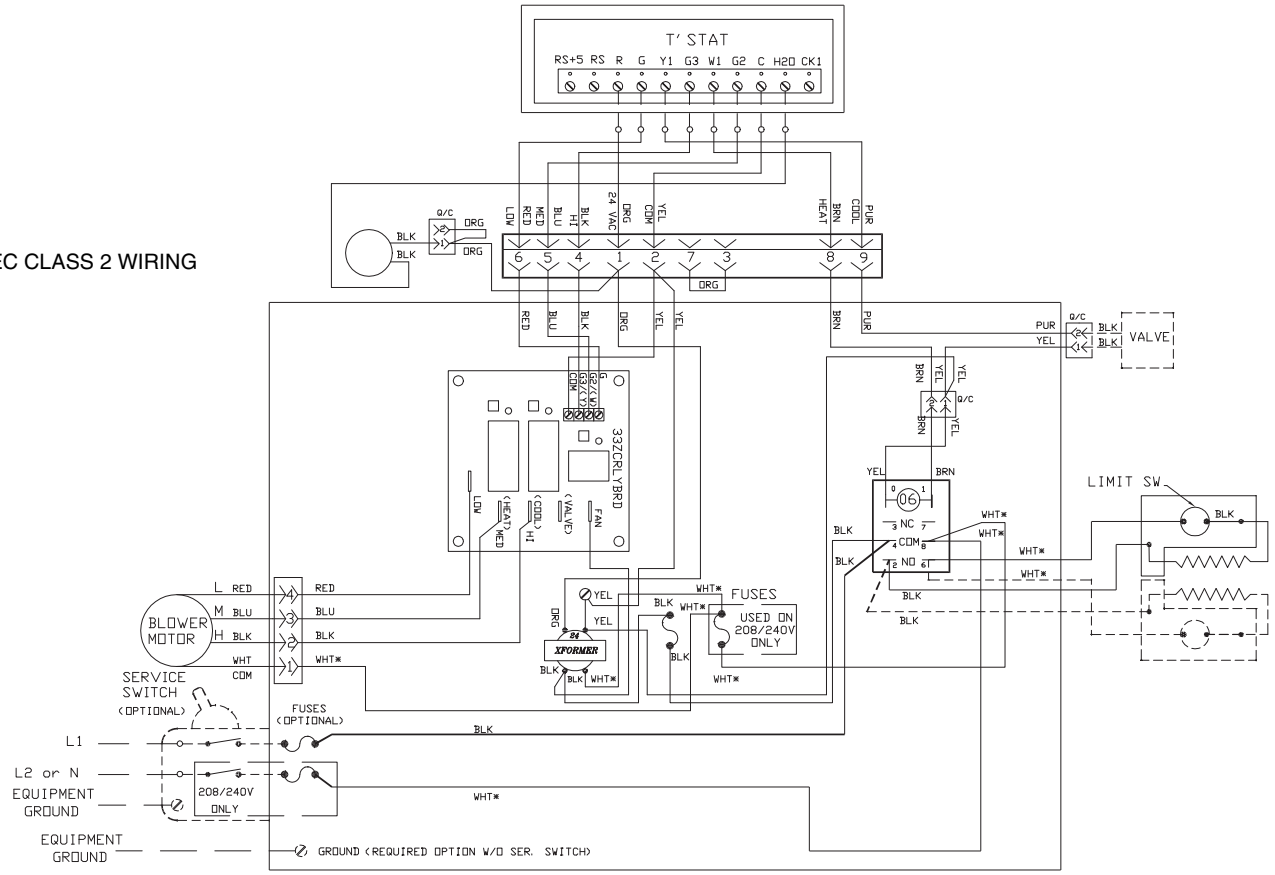


Fig. 47 — 42C,S,V (except VG) and 42D (600-1000 cfm) 2-Pipe Heating and Cooling with Auxiliary Heat — Remote/Wall-Mounted Debonair® Thermostat (24-v)

NEC CLASS 2 WIRING

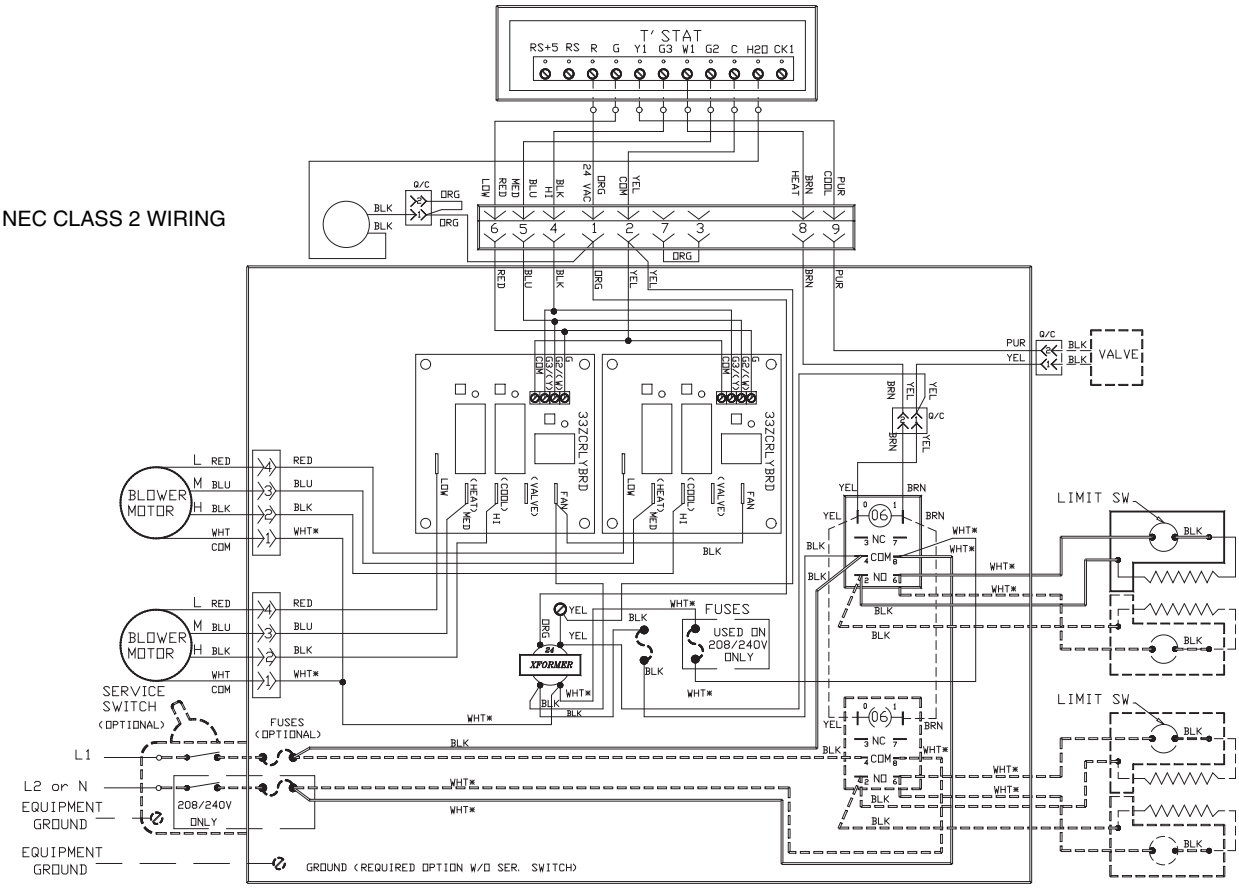


Fig. 48 — 42D (1200-2000) 2-Pipe Heating and Cooling with Auxiliary Heat — Remote/Wall-Mounted Debonair® Thermostat (24-v)

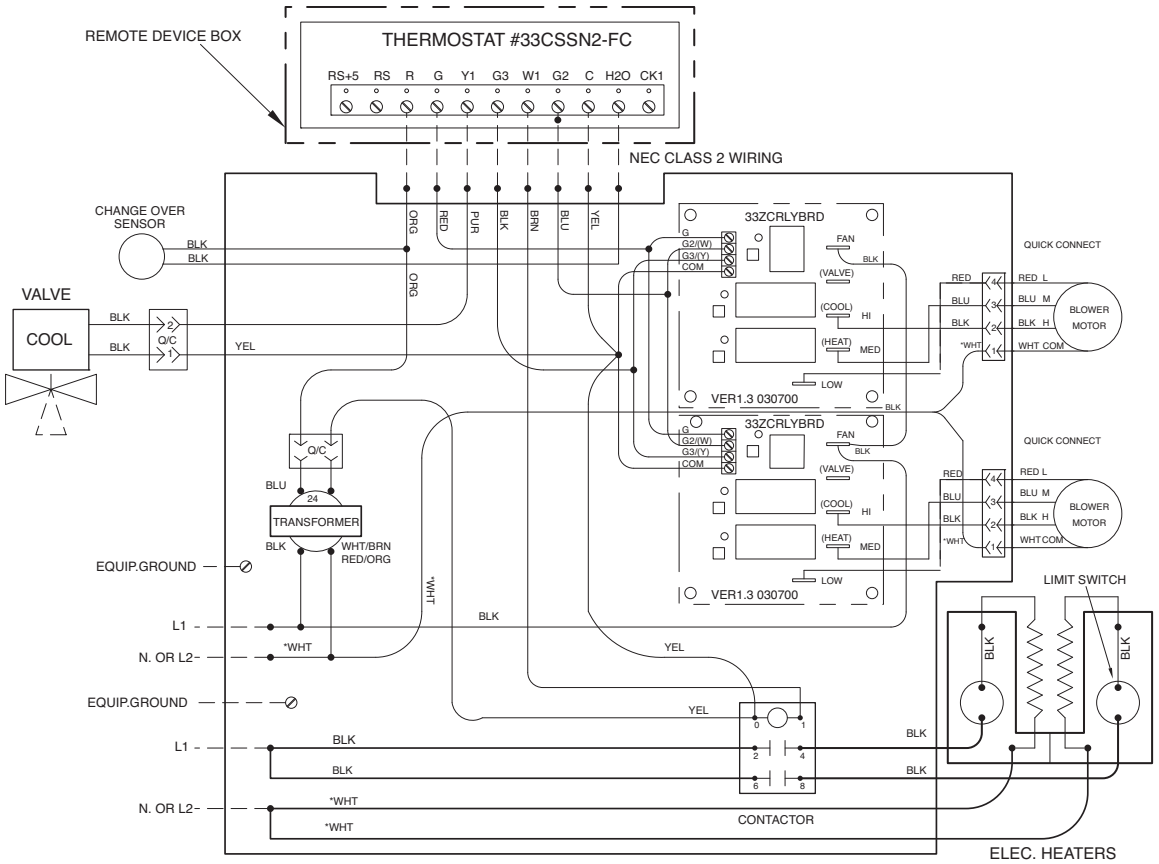


Fig. 49 — 42C,S,V (except VG) and 42D (600-1000 cfm) 2-Pipe Heating and Cooling with Auxiliary Heat — Remote/Wall-Mounted Debonair Thermostat (24-v) and Dual Power Source

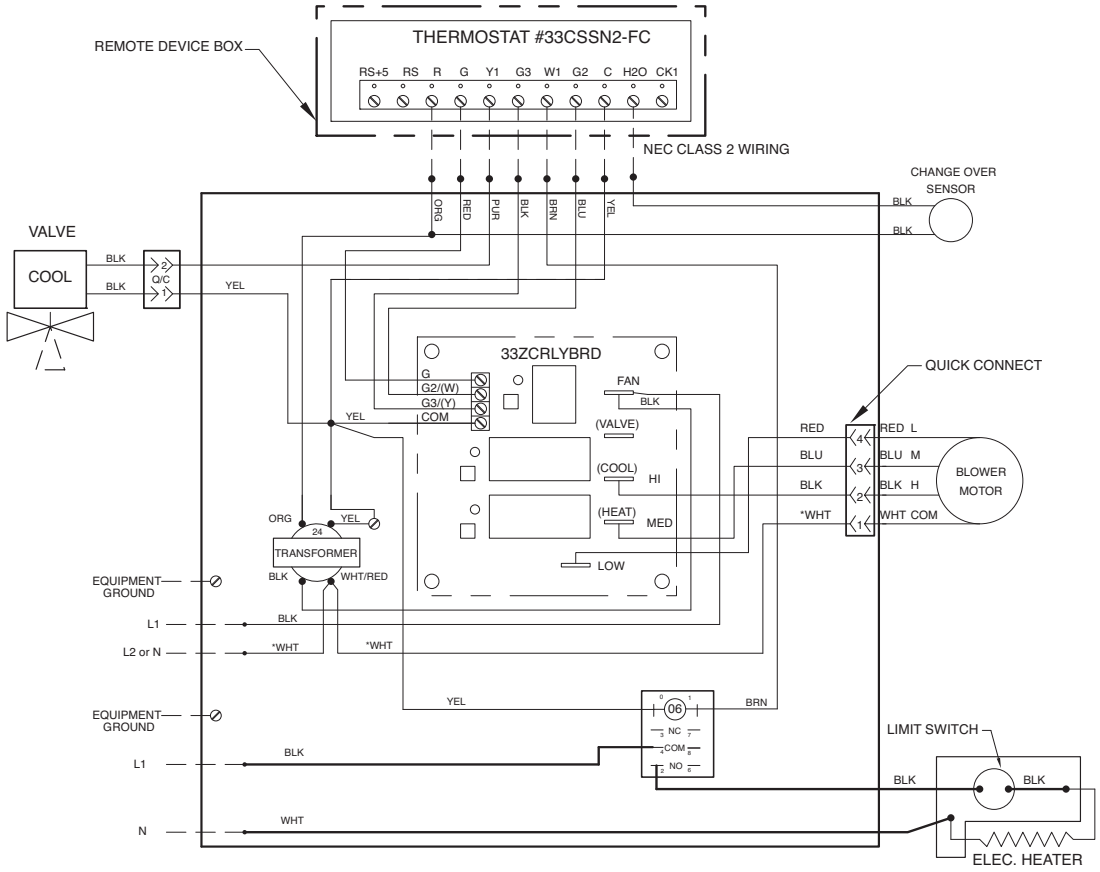


Fig. 50 — 42D (1200-2000) 2-Pipe Heating and Cooling with Auxiliary Heat — Remote/Wall-Mounted Debonair® Thermostat (24-v) and Dual Power Source

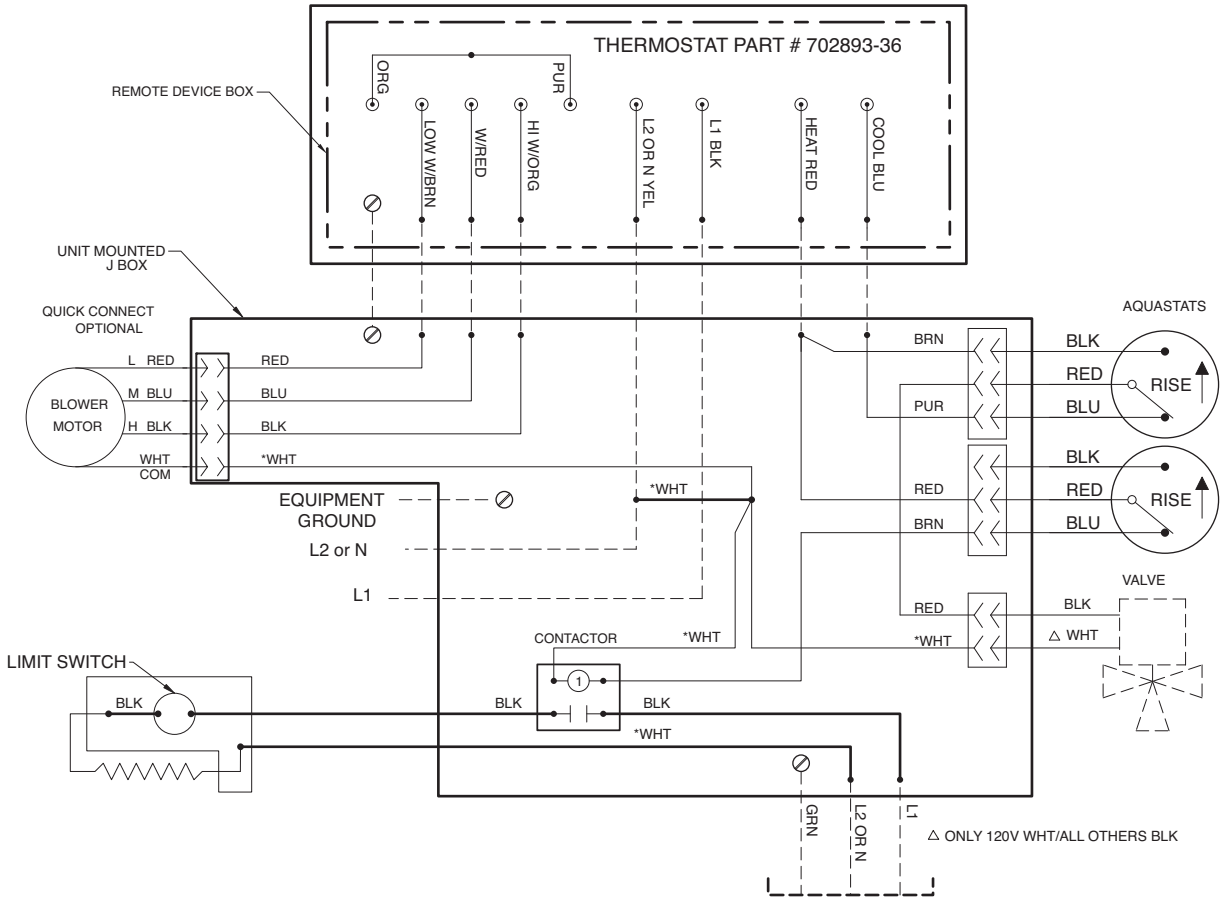


Fig. 51 — 42C,S,V (except VG) and 42D (600-1000 cfm) 2-Pipe Heating and Cooling with Auxiliary Heat — Remote/Wall-Mounted Thermostat (Line Voltage) and Dual Power Source

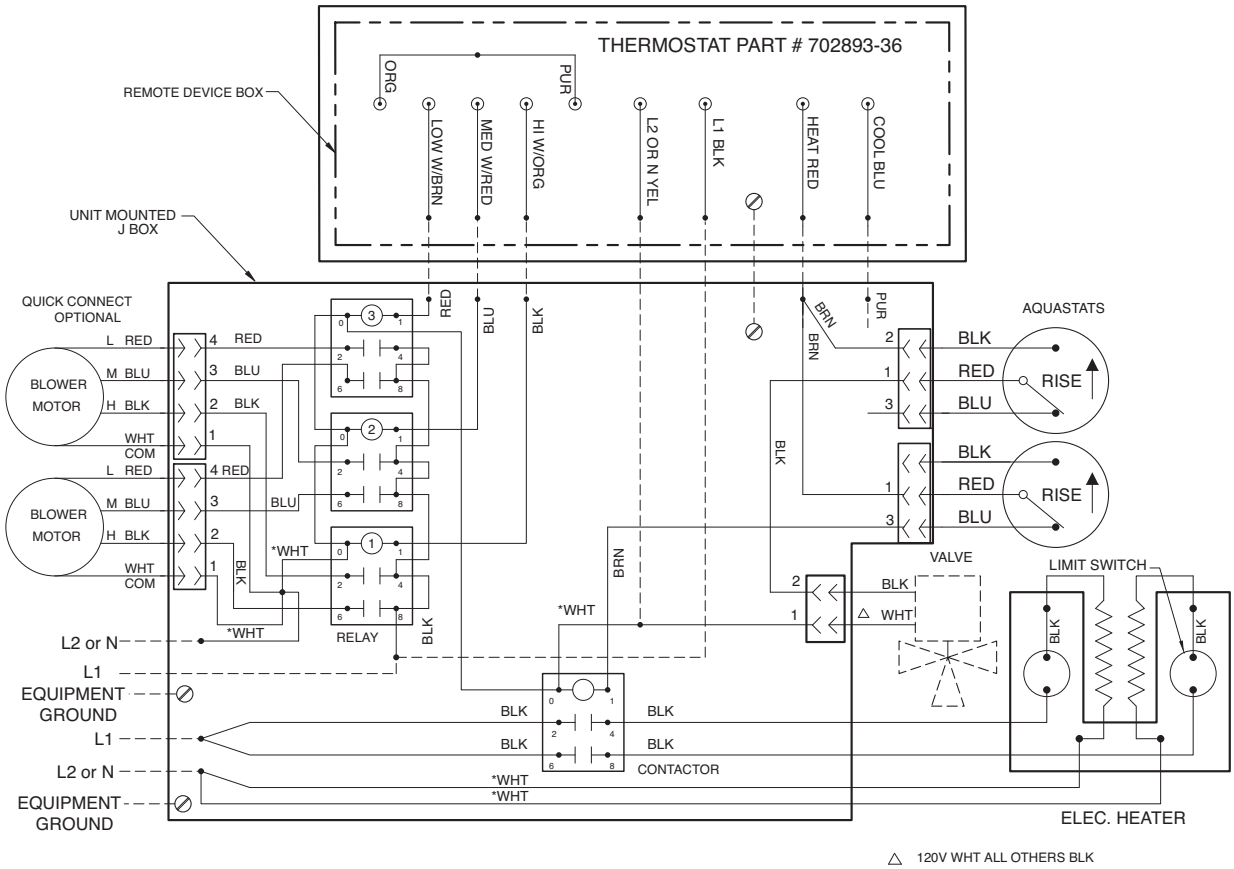


Fig. 52 — 42D (1200-2000) 2-Pipe Heating and Cooling with Auxiliary Heat — Remote/Wall-Mounted Thermostat (Line Voltage) and Dual Power Source

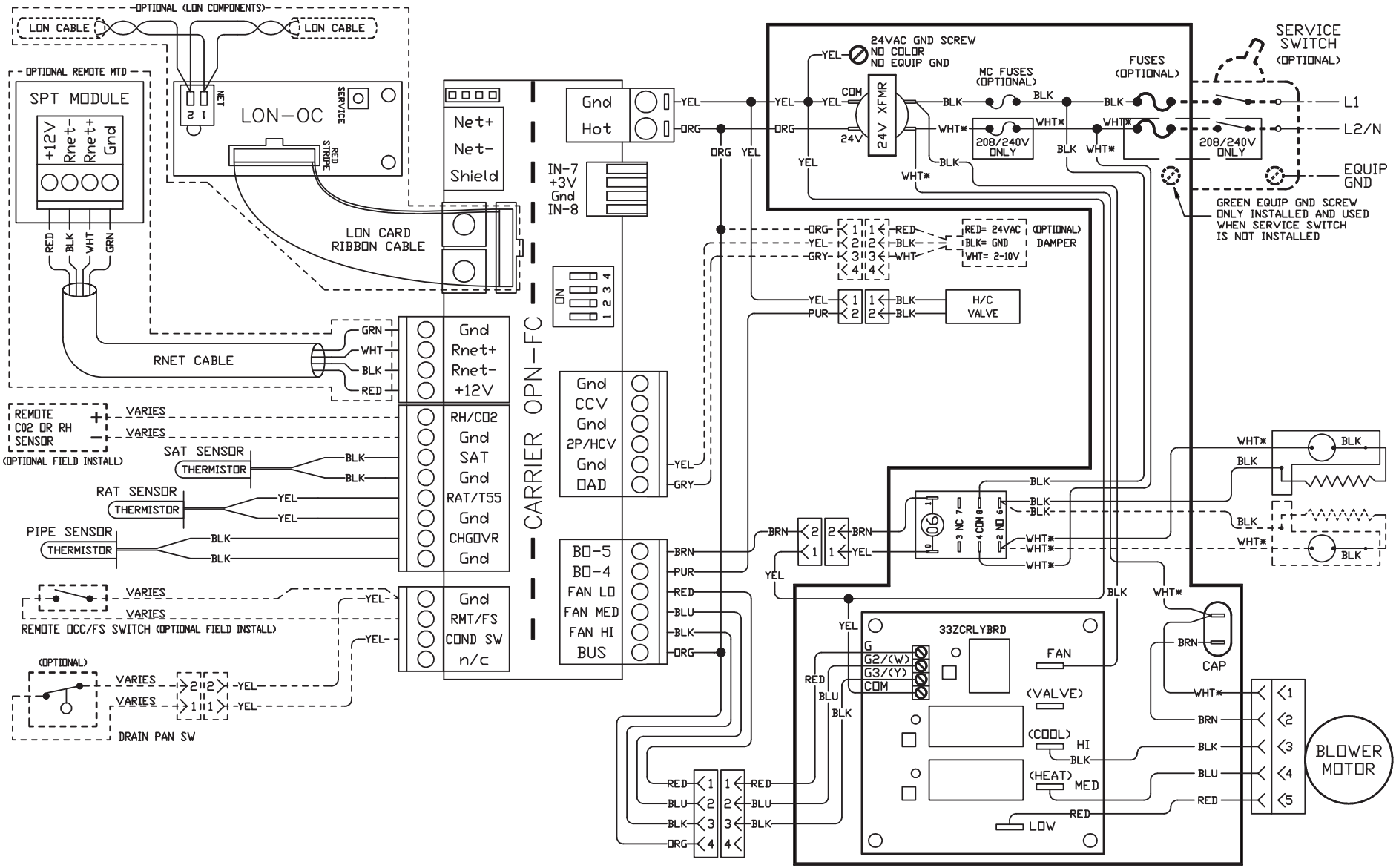


Fig. 53 — 42C,S,V (except VC, VE, VG) and 42D (600-1000 cfm) — 2-Pipe Heating and Cooling with Auxiliary Heat — Open FC Controller (24-v) with Motorized Control Valve (2-Position)

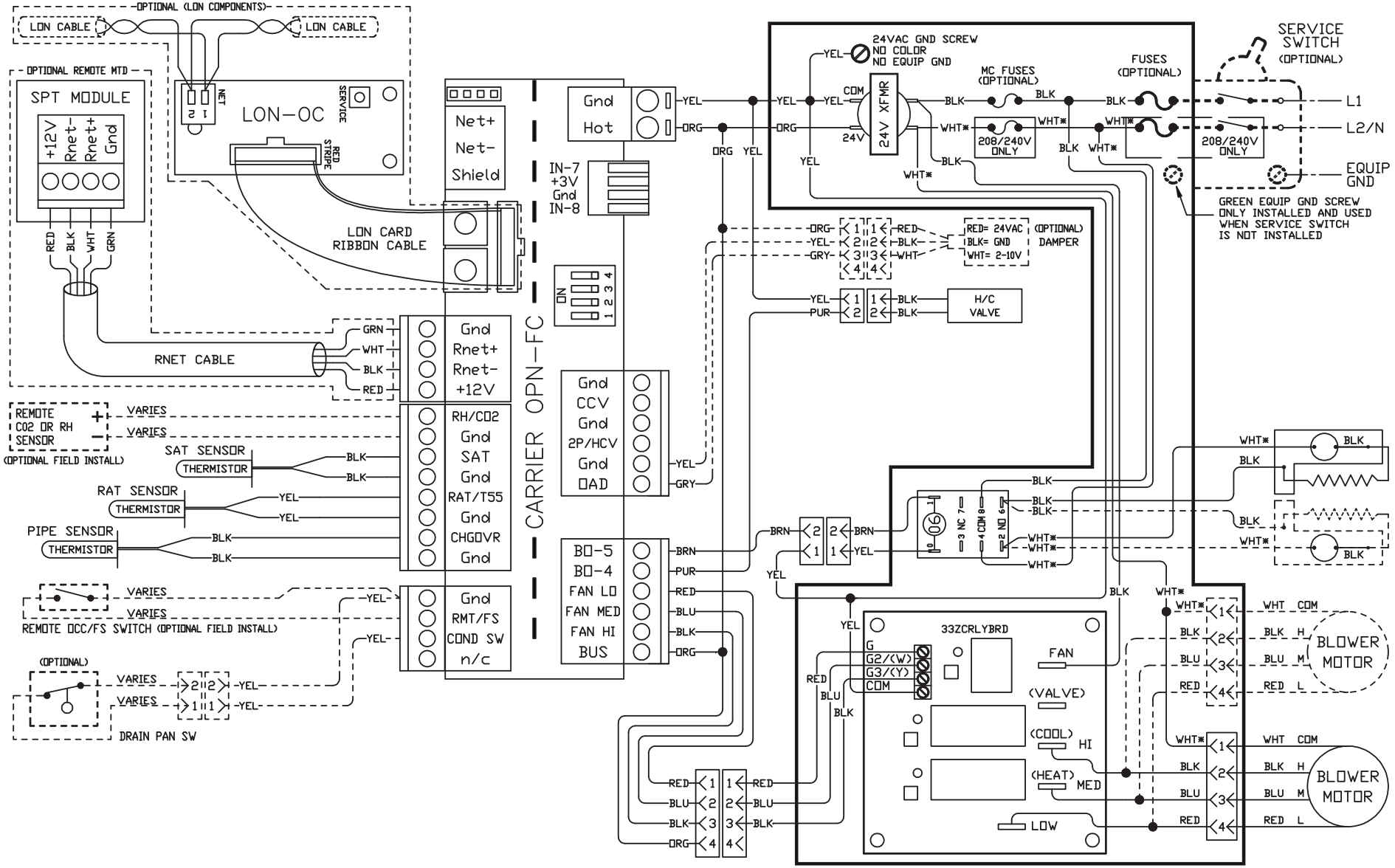


Fig. 54 — 42D (1200-2000 cfm) — 2-Pipe Heating and Cooling with Auxiliary Heat — Open FC Controller (24-v) with Motorized Control Valve (2-Position)

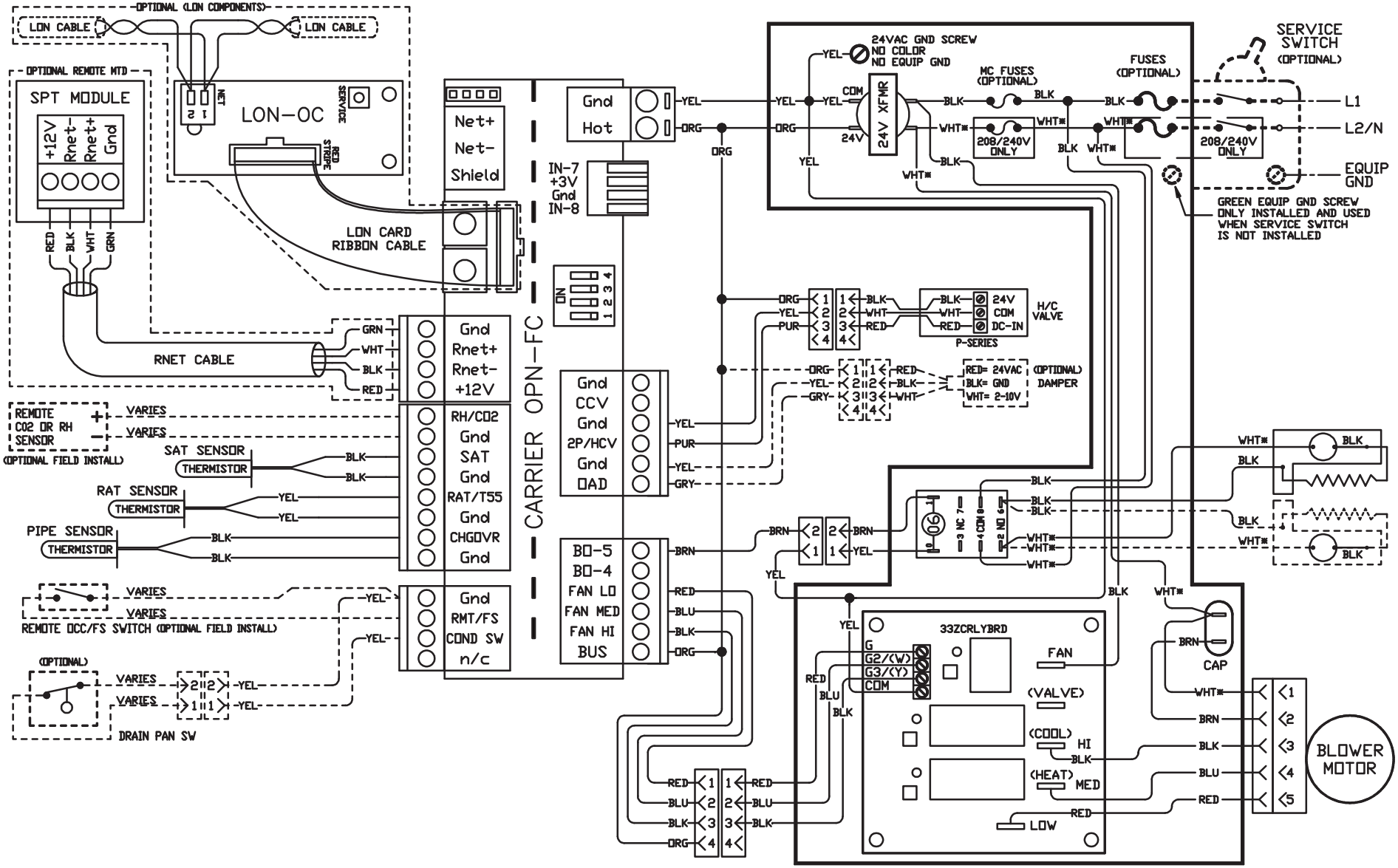


Fig. 55 — 42C,S,V (except VC, VE, VG) and 42D (600-1000 cfm) — 2-Pipe Heating and Cooling with Auxiliary Heat — Open FC Controller (24-v) with Modulating Control Valve (0-10 vdc)

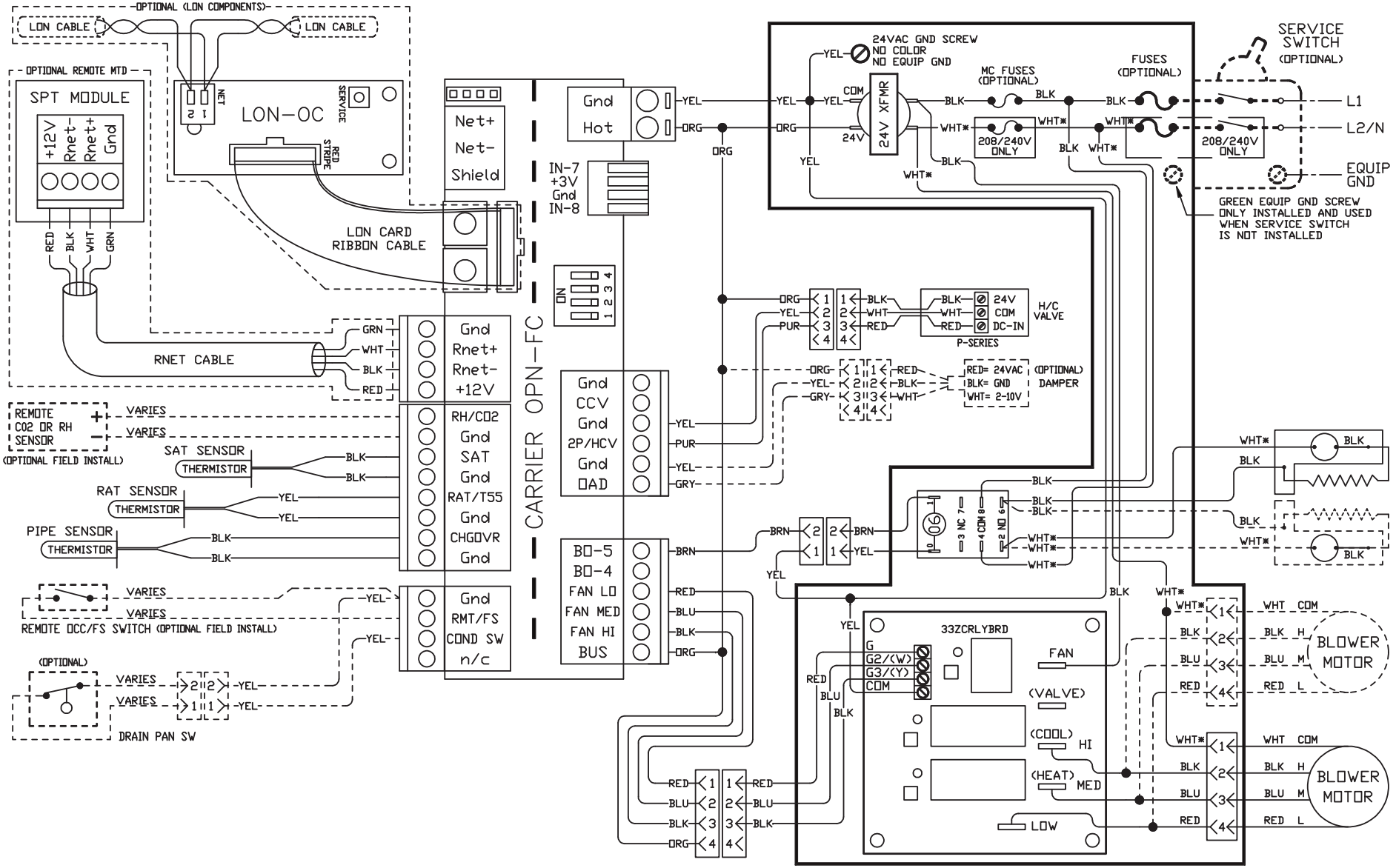


Fig. 56 — 42D (1200-2000 cfm) — 2-Pipe Heating and Cooling with Auxiliary Heat — Open FC Controller (24-v) with Modulating Control Valve (0-10 vdc)

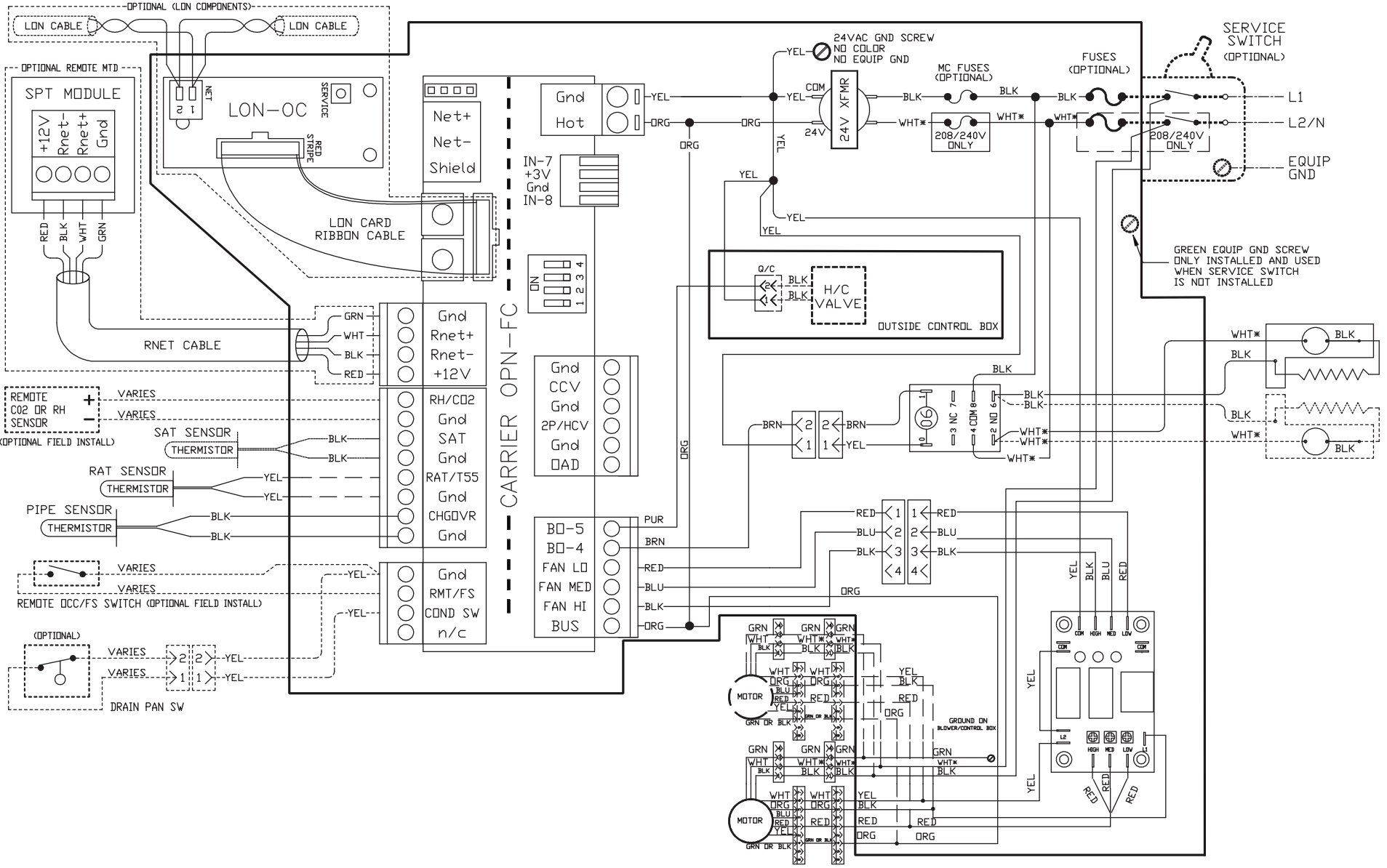


Fig. 57 — 42C,S,V (except VG) and 42D 2-Pipe Heating and Cooling with Auxiliary Electric Heat — Open FC Controller (24-v) With ECM, 3-Discrete Speed Input, Potentiometer Field Speed Adjustment

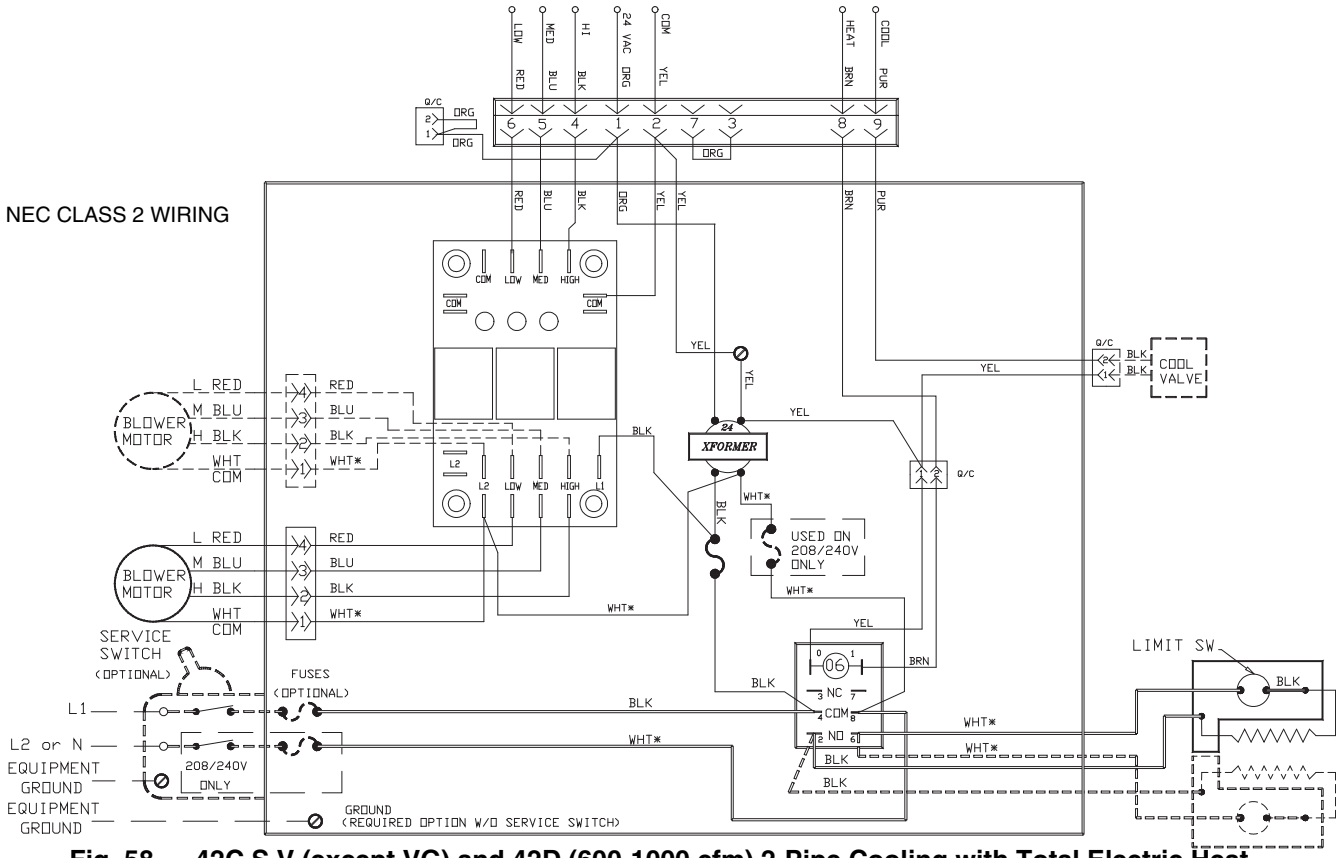


Fig. 58 — 42C,S,V (except VG) and 42D (600-1000 cfm) 2-Pipe Cooling with Total Electric Heat — 24-v Controls by Others

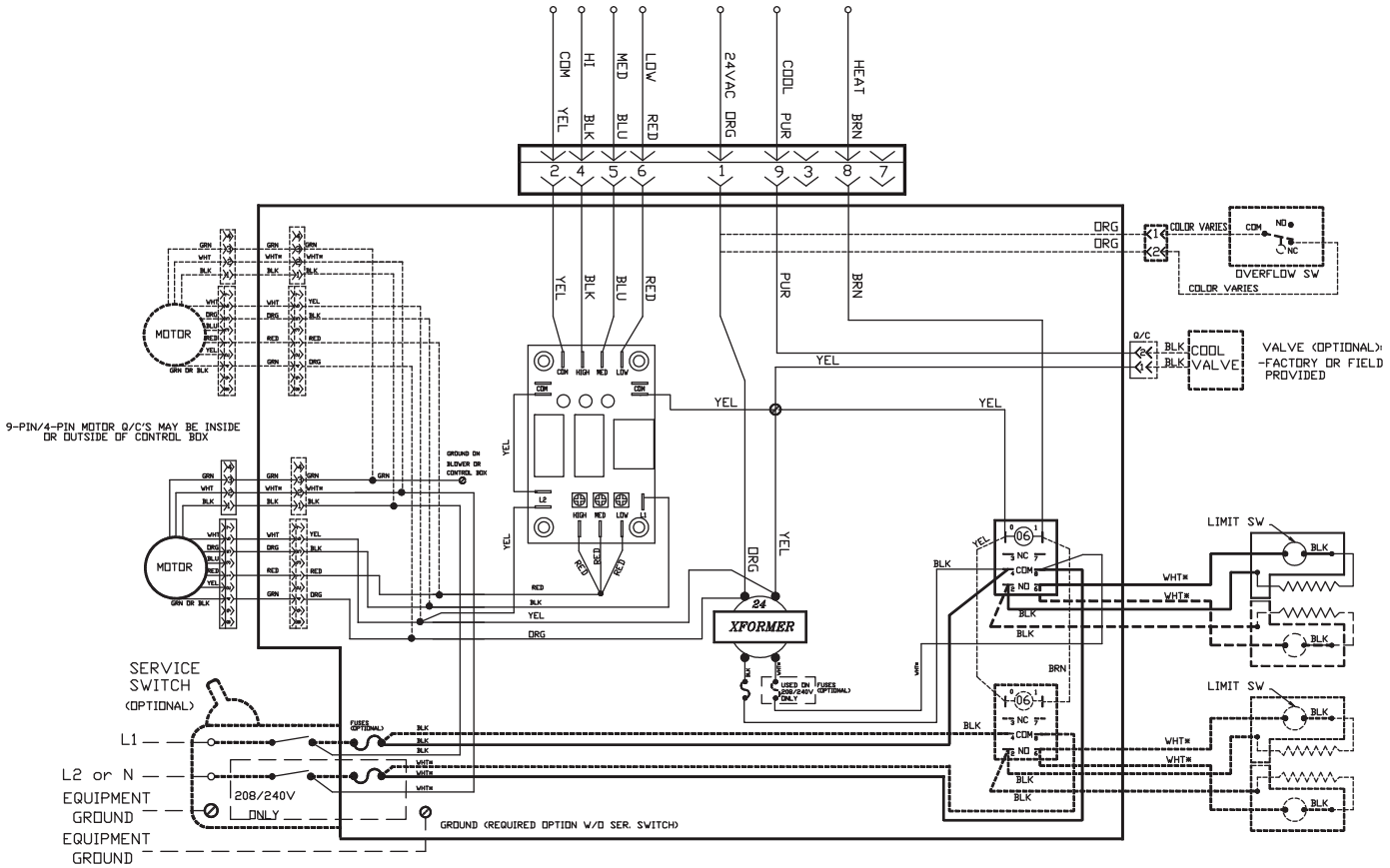


Fig. 59 — 42C,S,V (except VG) and 42D 2-Pipe Cooling with Total Electric Heat — 24-v Controls by Others (ECM, 3-Discrete Speed Input, Potentiometer Field Speed Adjustment)

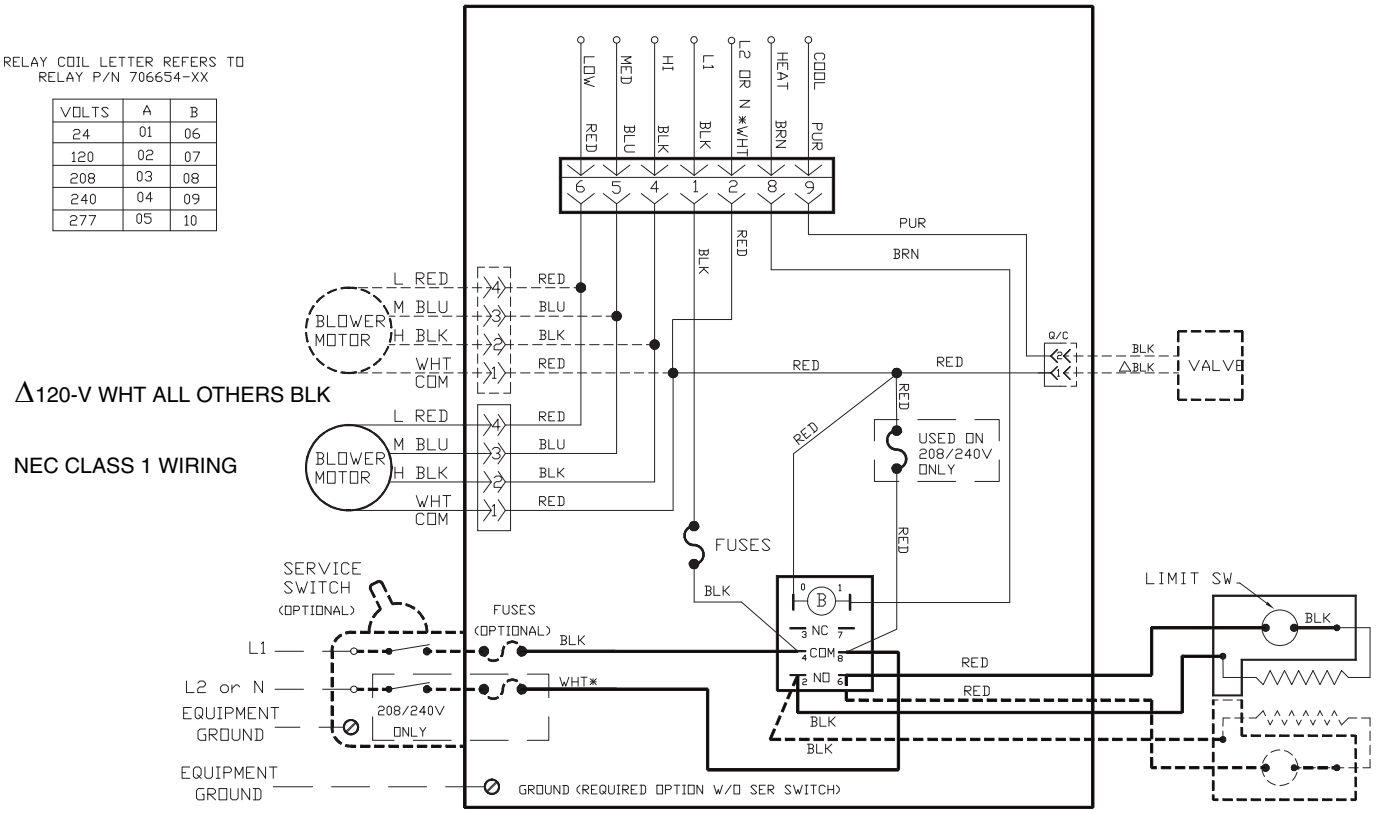


Fig. 60 — 42C,S,V (except VG) and 42D (600-1000 cfm) 2-Pipe Cooling with Total Electric Heat — Line Voltage Controls by Others

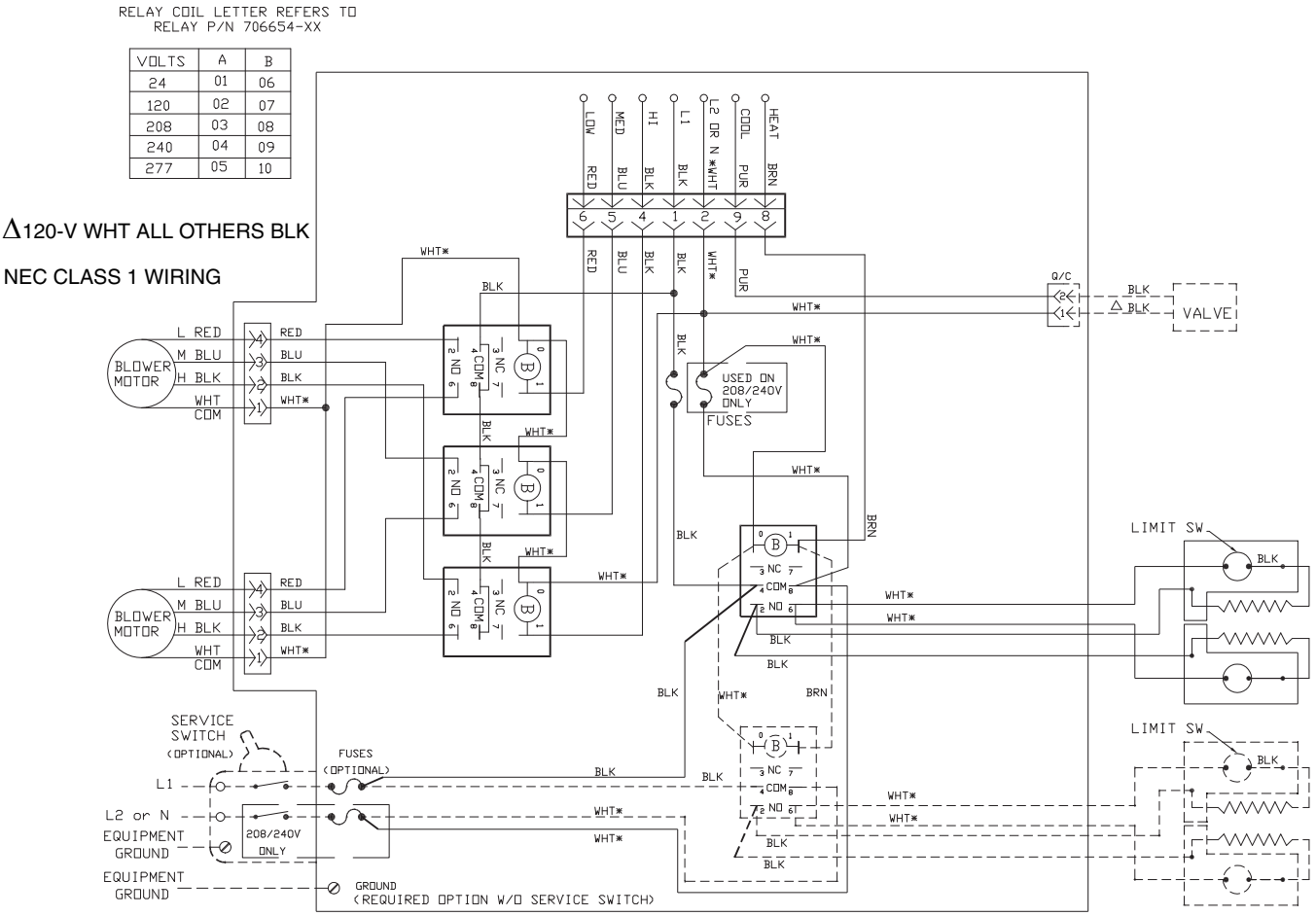


Fig. 61 — 42D (1200-2000) 2-Pipe Cooling with Total Electric Heat — Field-Supplied and Installed Controls (Line Voltage and Control Valves or Electric Heat)

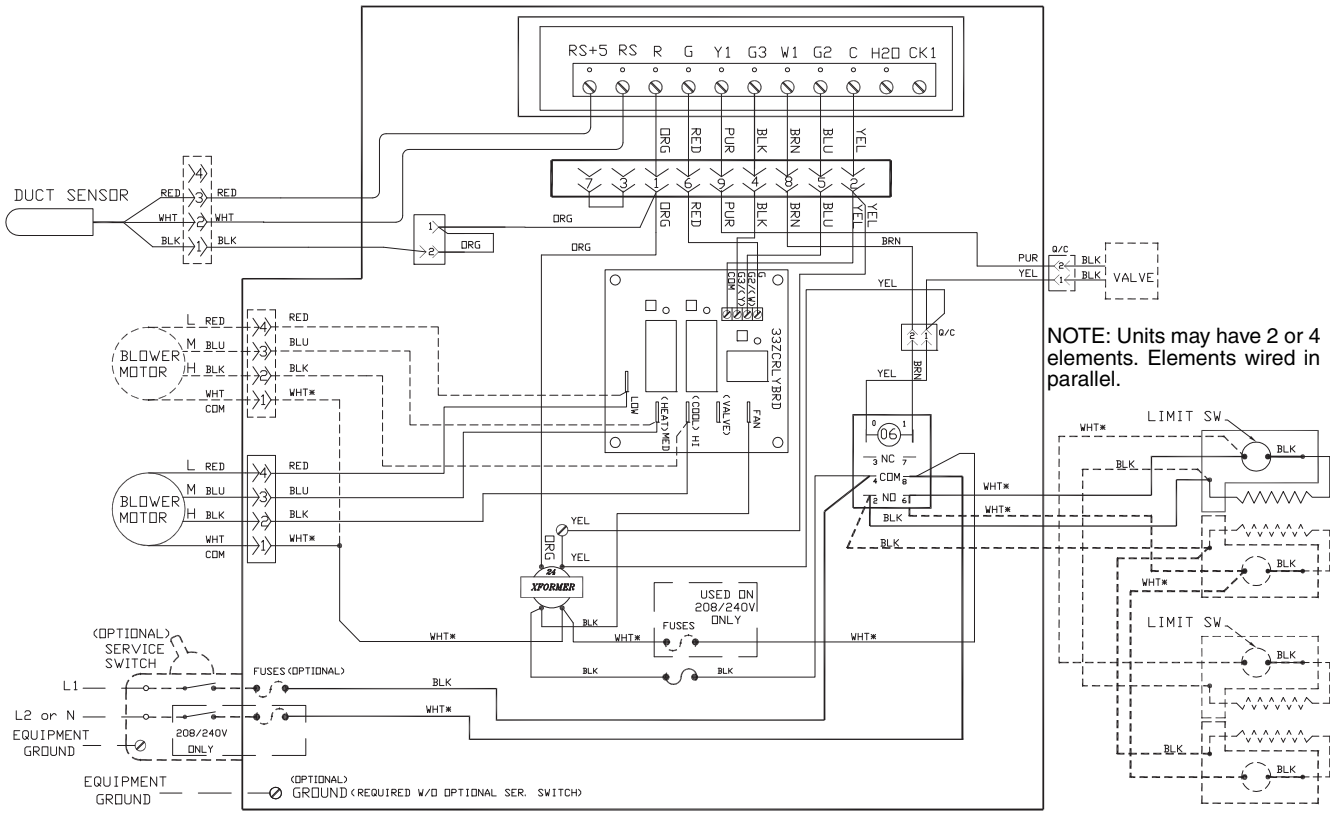


Fig. 62 — 42SG,SH,SJ,VA,VB,VC,VE,VF 2-Pipe Cooling with Total Electric Heat — Unit-Mounted Debonair® Thermostat (24-v) and Duct Sensor

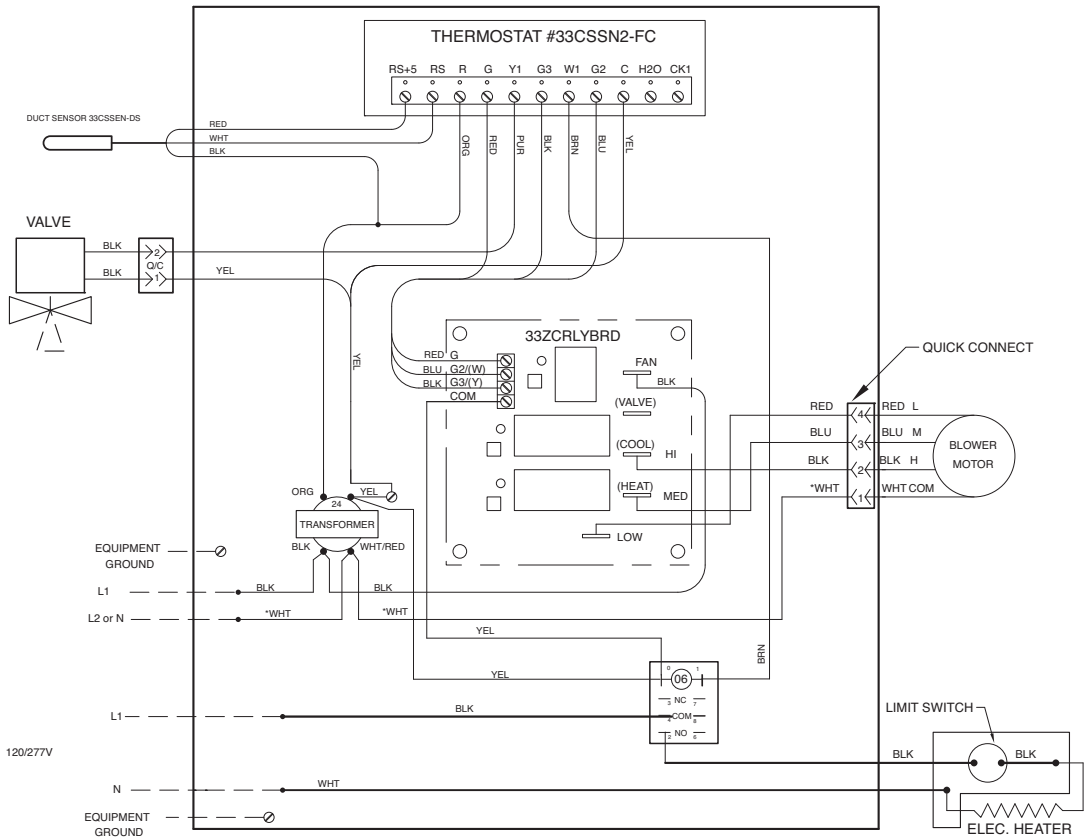


Fig. 63 — 42SG,SH,SJ,VA,VB,VC,VE,VF 2-Pipe Cooling with Total Electric Heat — Unit-Mounted Debonair Thermostat (24-v), Duct Sensor and Dual Power Source

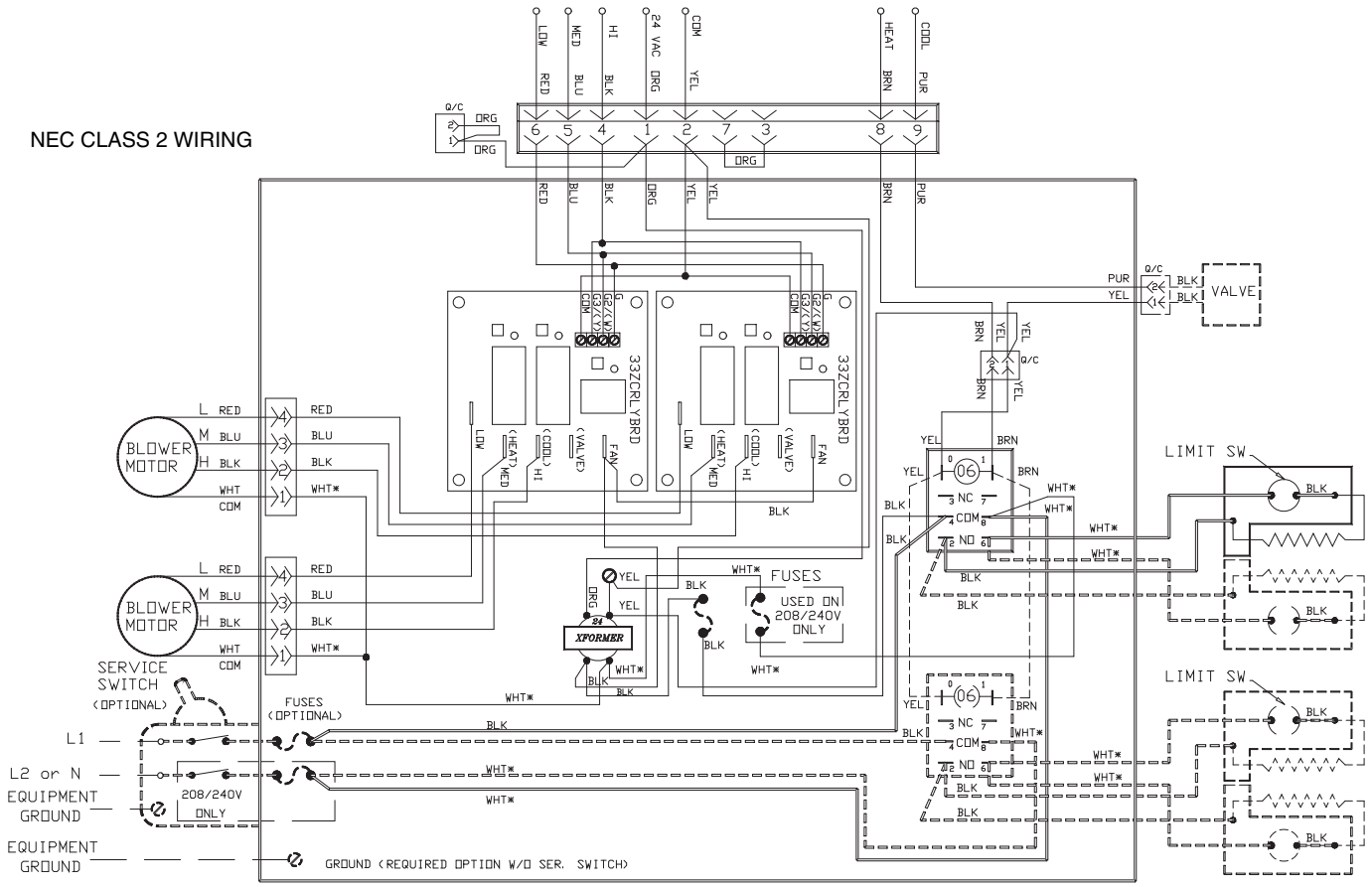


Fig. 64 — 42D (1200-2000) 2-Pipe Cooling with Total Electric Heat — Remote/Wall-Mounted Debonair® Thermostat (24-v)

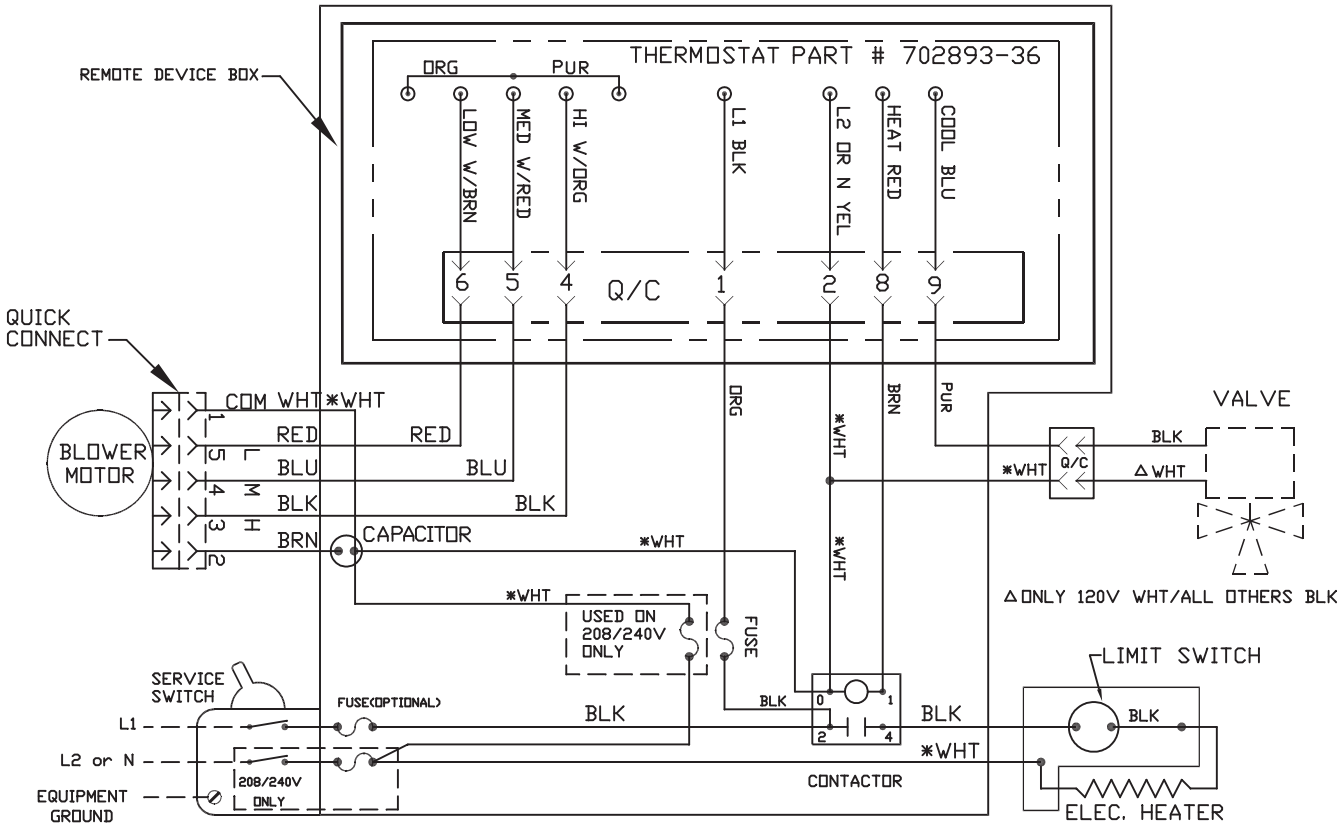


Fig. 65 — 42C,S,V (except VG) and 42D (600-1000 cfm) 2-Pipe Cooling with Total Electric Heat — Remote/Wall-Mounted Thermostat (Line Voltage)

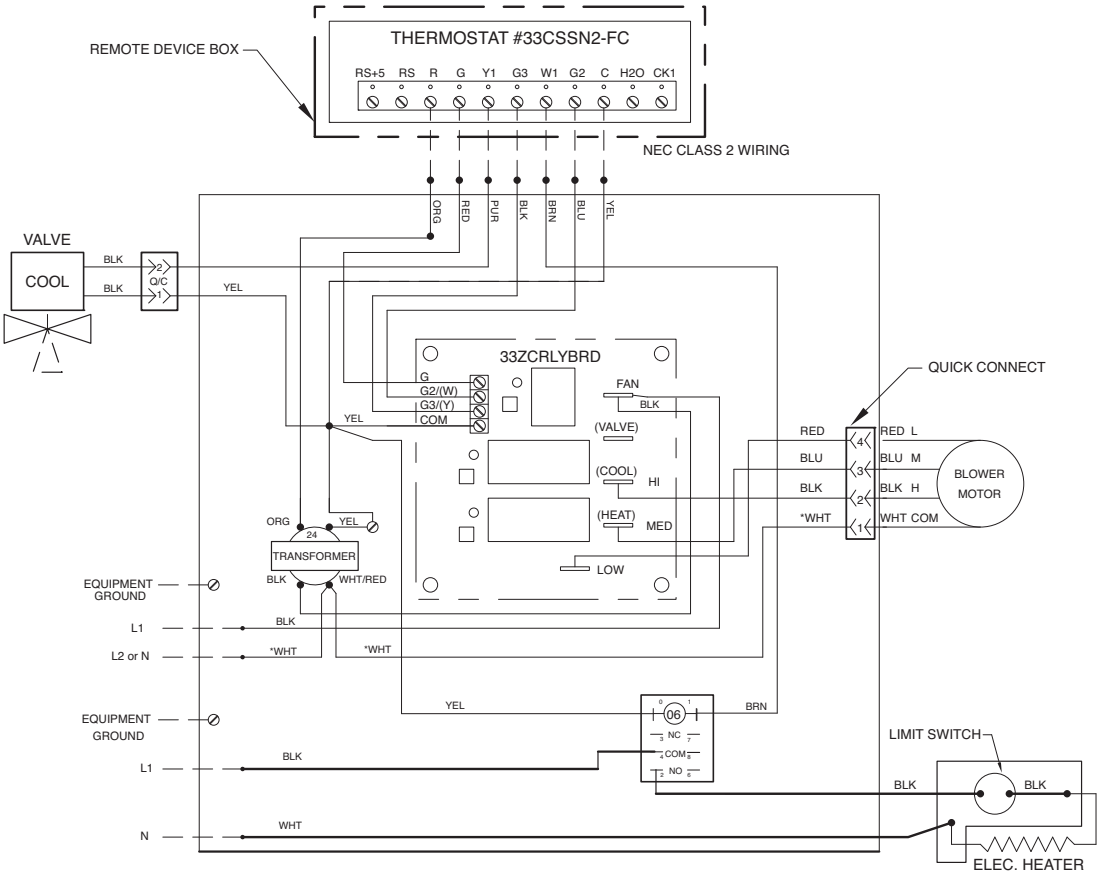


Fig. 66 — 42C,S,V (except VG) and 42D (600-1000 cfm) 2-Pipe Cooling with Total Electric Heat — Remote/Wall-Mounted Debonair® Thermostat (24-v) and Dual Power Source

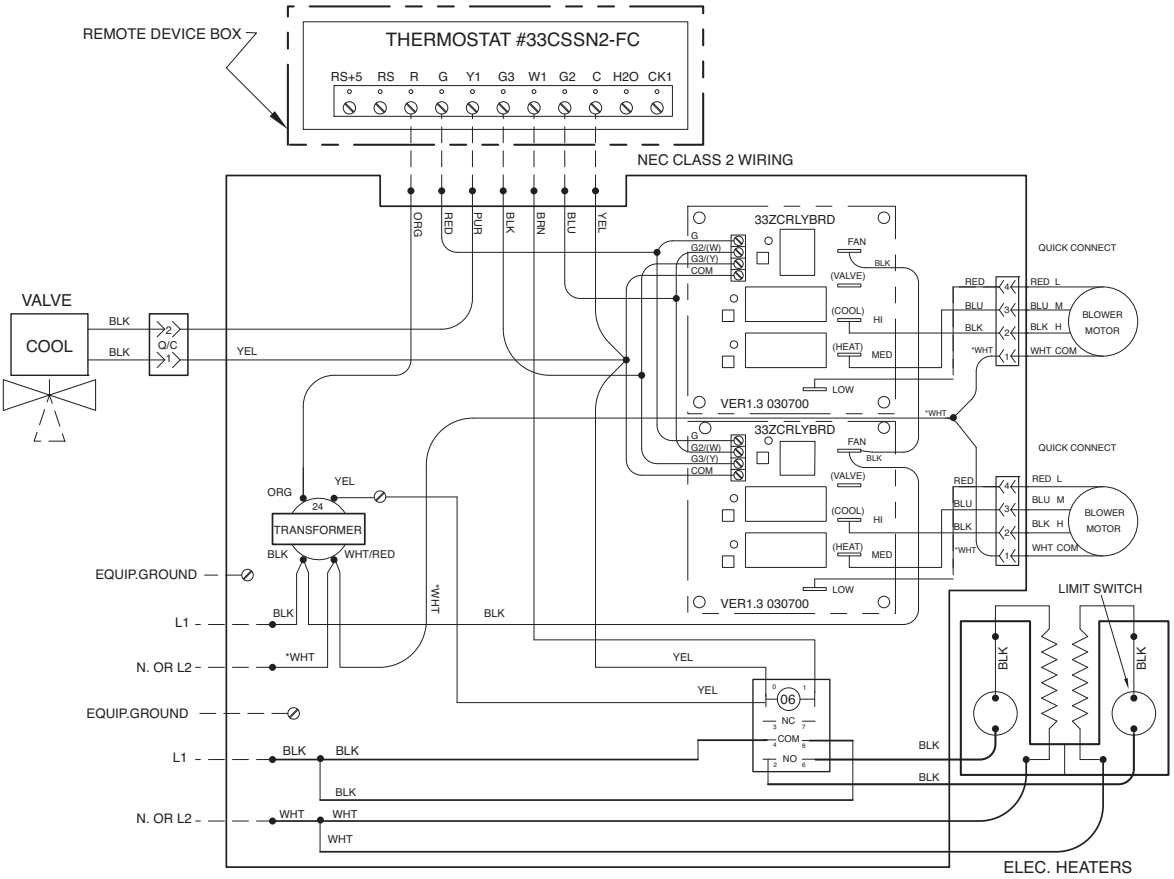


Fig. 67 — 42D (1200-2000) 2-Pipe Cooling with Total Electric Heat — Remote/Wall-Mounted Debonair Thermostat (24-v) and Dual Power Source

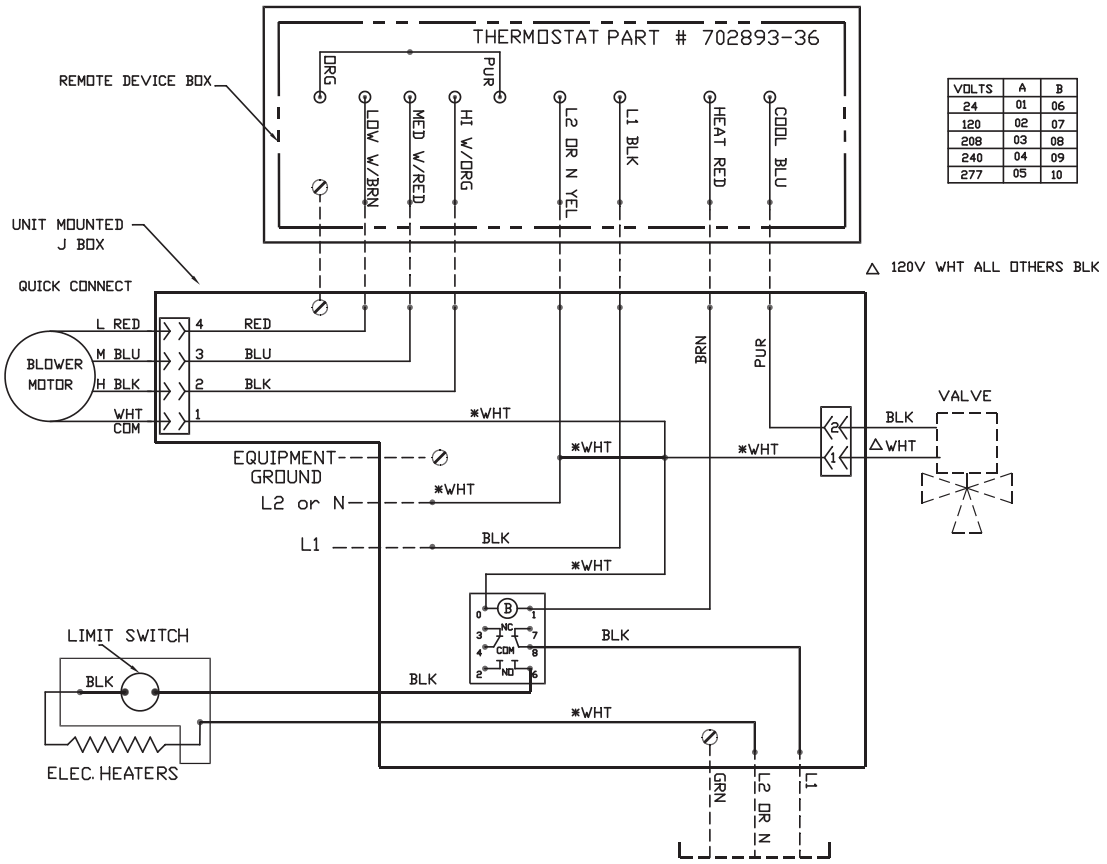


Fig. 68 — 42C,S,V (except VG) and 42D (600-1000 cfm) 2-Pipe Cooling with Total Electric Heat — Remote/Wall-Mounted Thermostat (Line Voltage) and Dual Power Source

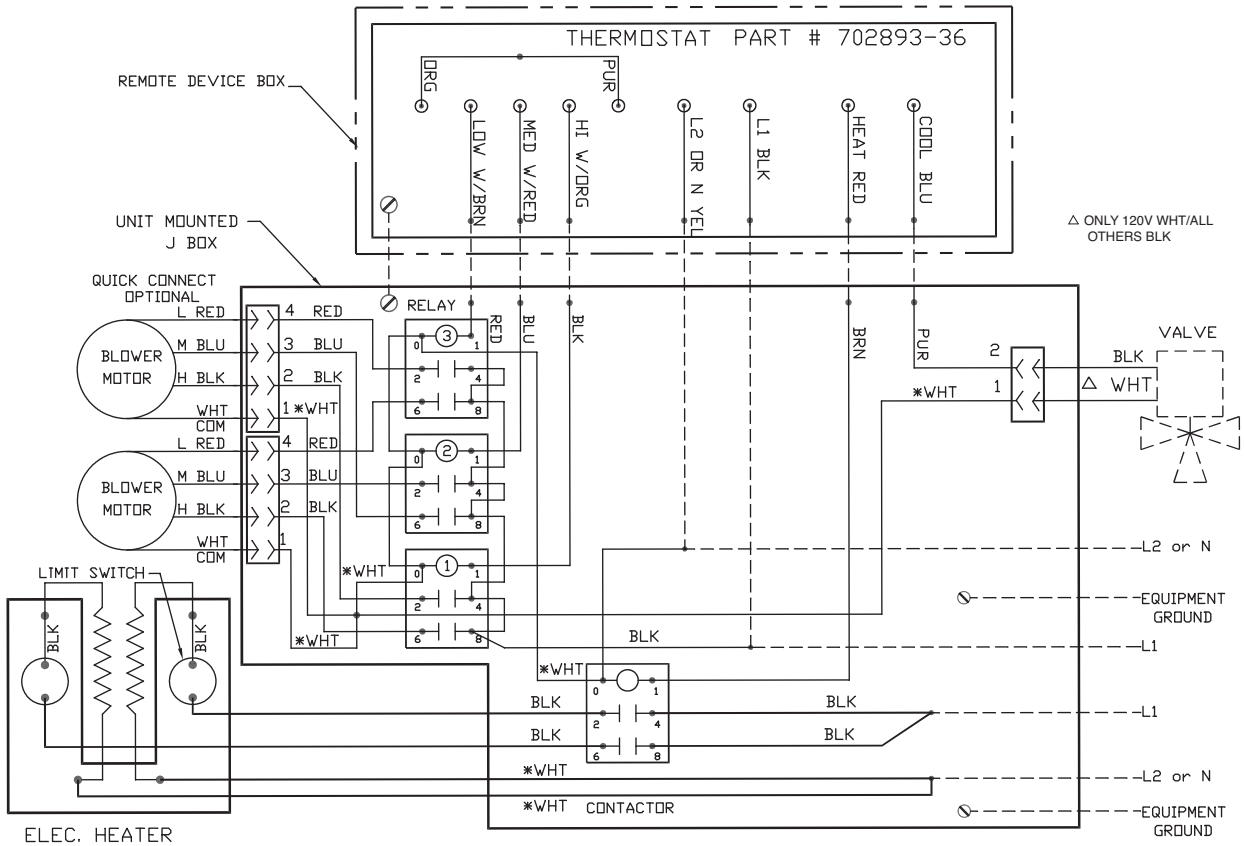


Fig. 69 — 42D (1200-2000) 2-Pipe Cooling with Total Electric Heat — Remote/Wall-Mounted Thermostat (Line Voltage) and Dual Power Source

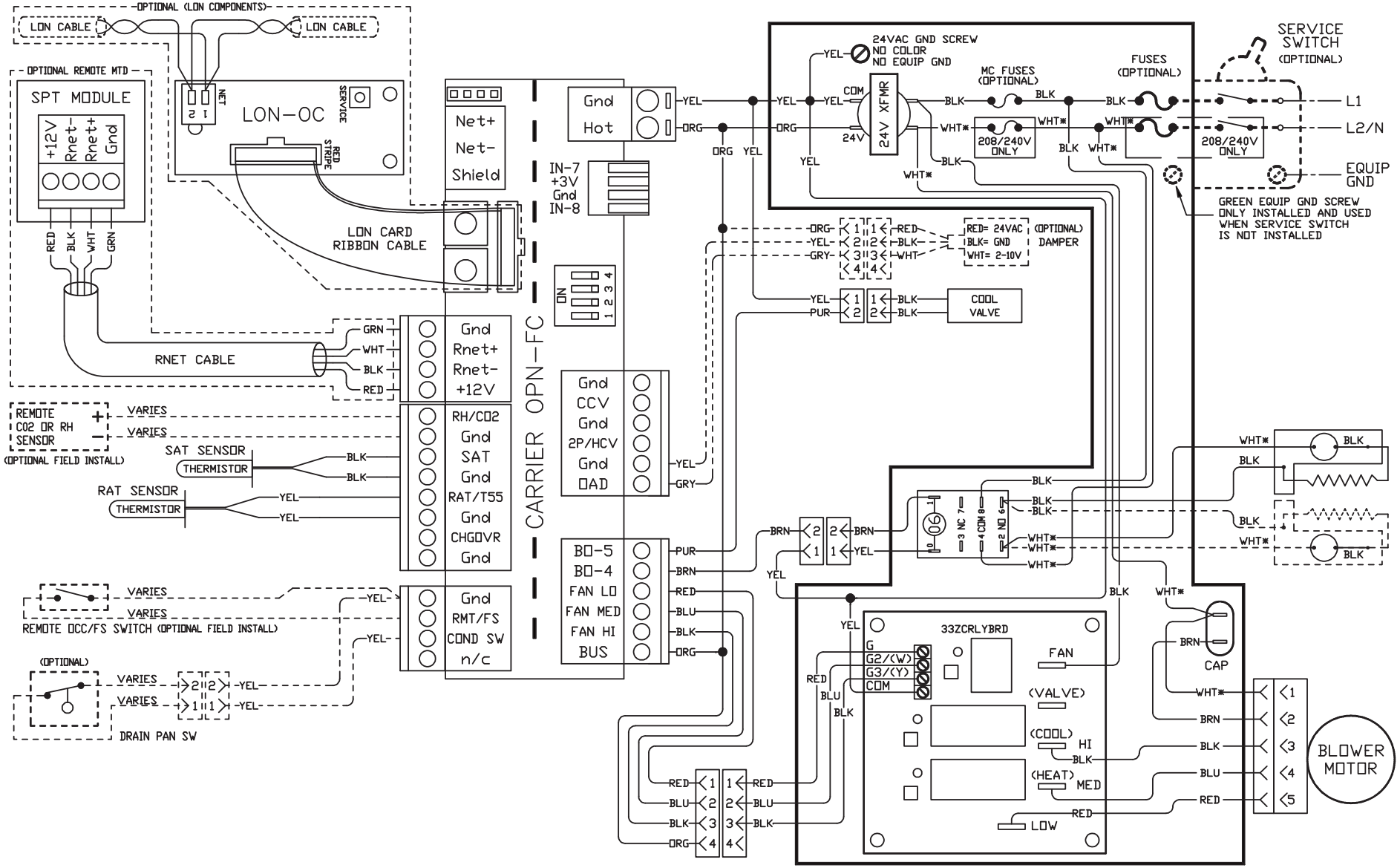


Fig. 70 — 42C,S,V (except VC, VE, VG) and 42D (600-1000 cfm) — 2-Pipe Cooling with Total Electric Heat — Open FC Controller (24-v) with Motorized Control Valve (2-Position)

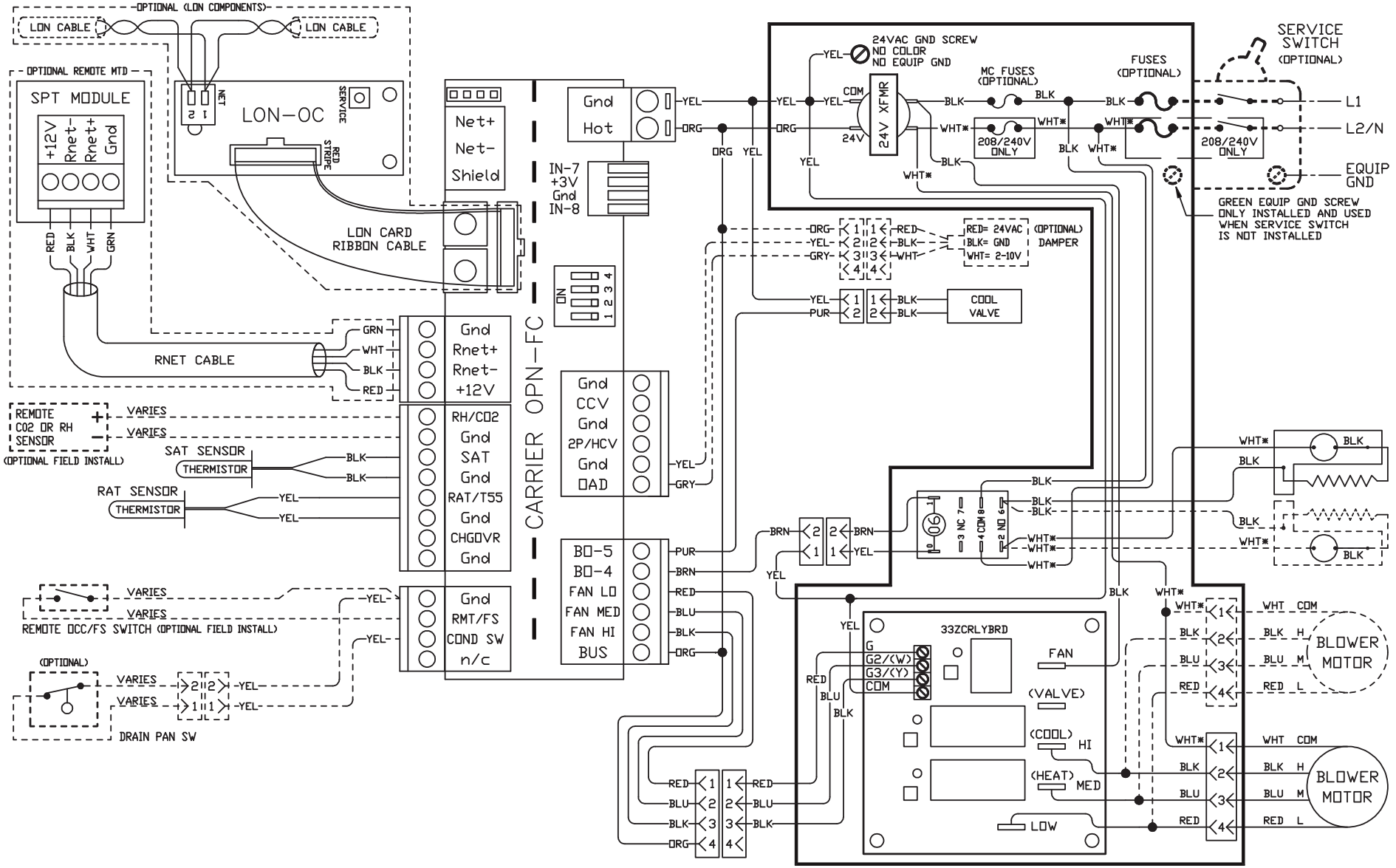


Fig. 71 — 42D (1200-2000 cfm) — 2-Pipe Cooling with Total Electric Heat — Open FC Controller (24-v) with Motorized Control Valve (2-Position)

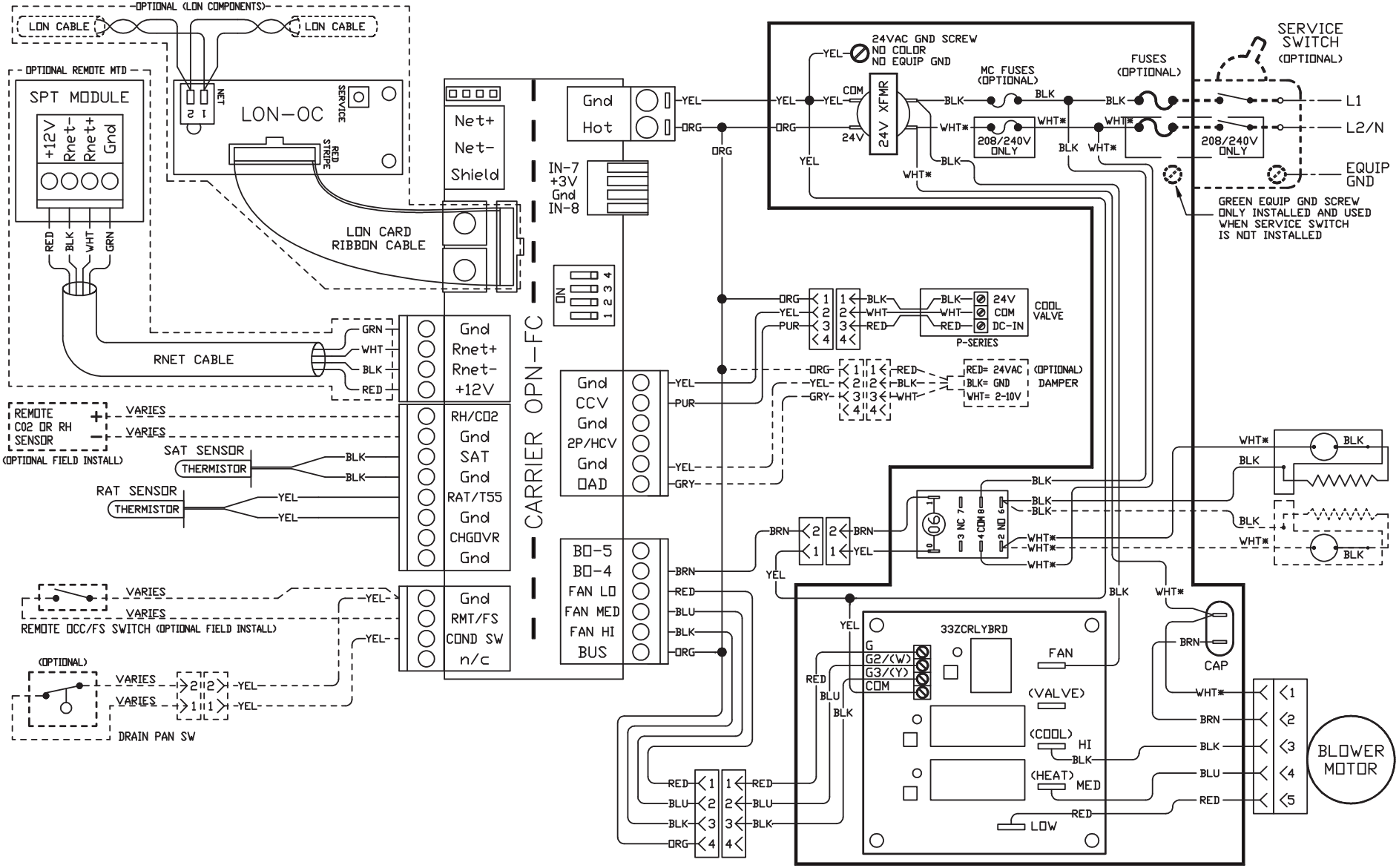


Fig. 72 — 42C,S,V (except VC,VE,VG) and 42D (600-1000 cfm) — 2-Pipe Cooling with Total Electric Heat — Open FC Controller (24-v) with Modulating Control Valve (0-10 vdc)

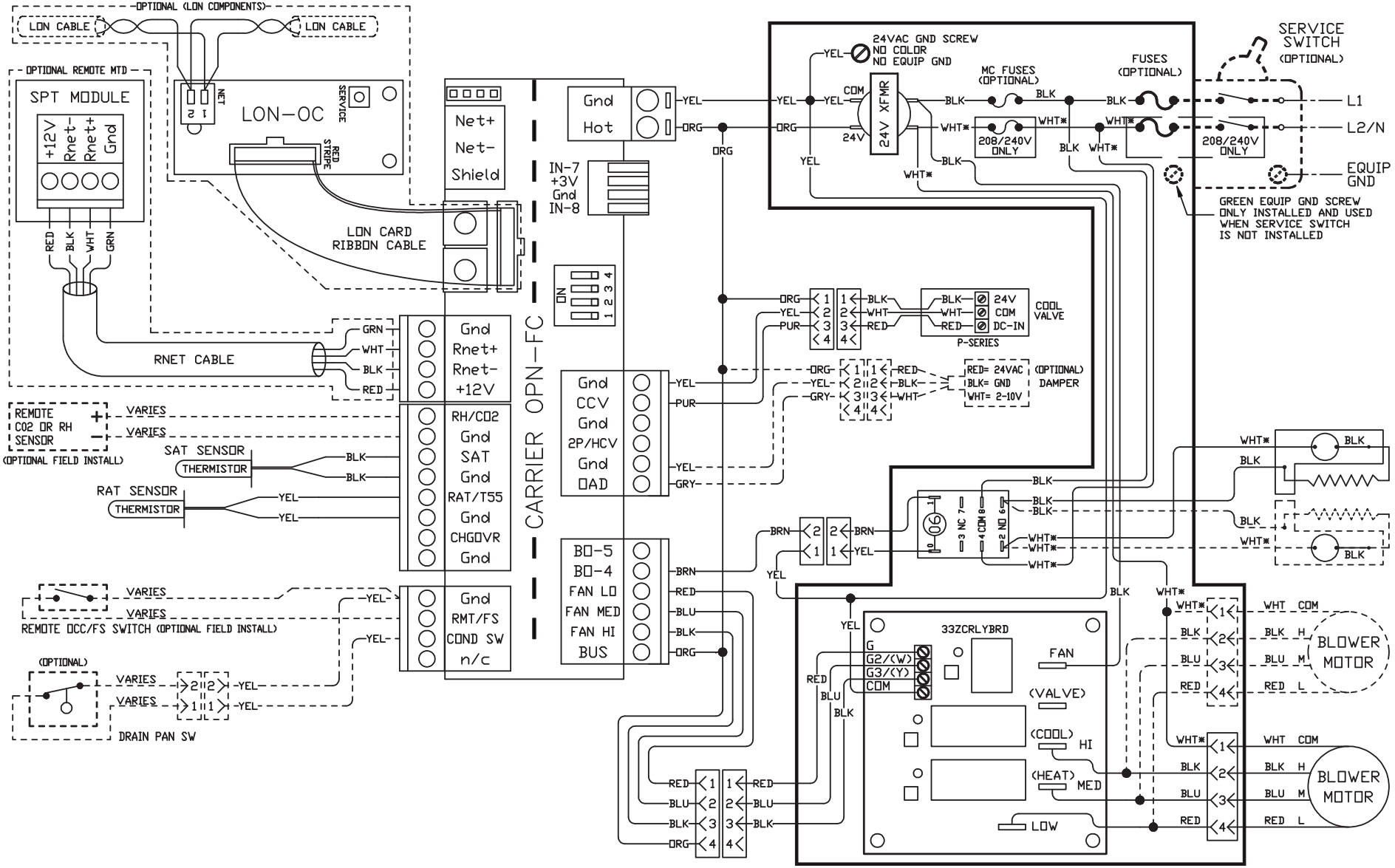


Fig. 73 — 42D (1200-2000 cfm) — 2-Pipe Cooling with Total Electric Heat — Open FC Controller (24-v) with Modulating Control Valve (0-10 vdc)

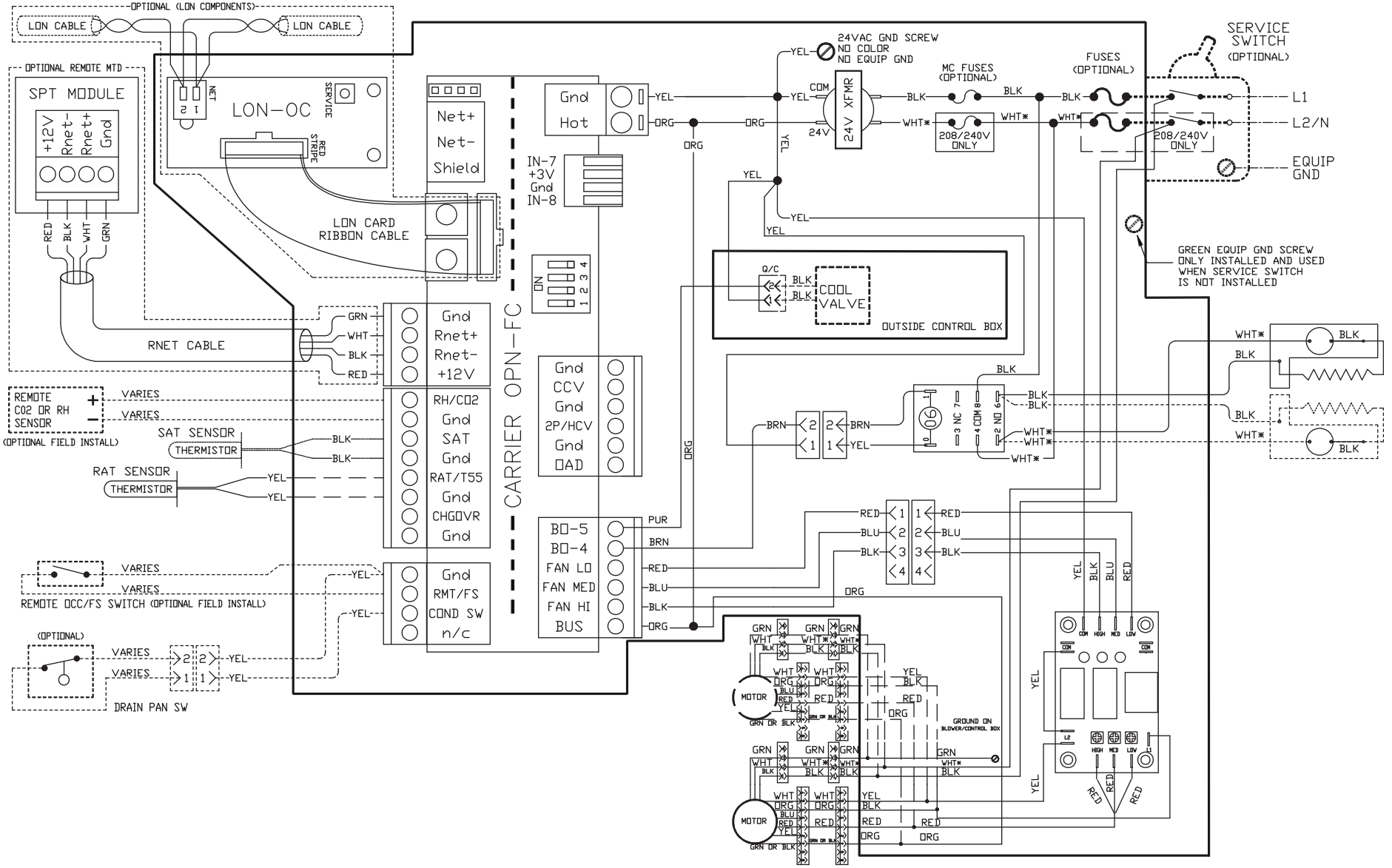


Fig. 74 — 42C,S,V (except VG) and 42D — 2-Pipe Cooling with Total Electric Heat — Open FC Controller (24-v) with ECM, 3-Discrete Speed Input, Potentiometer Field Speed Adjustment

NEC CLASS 2 WIRING

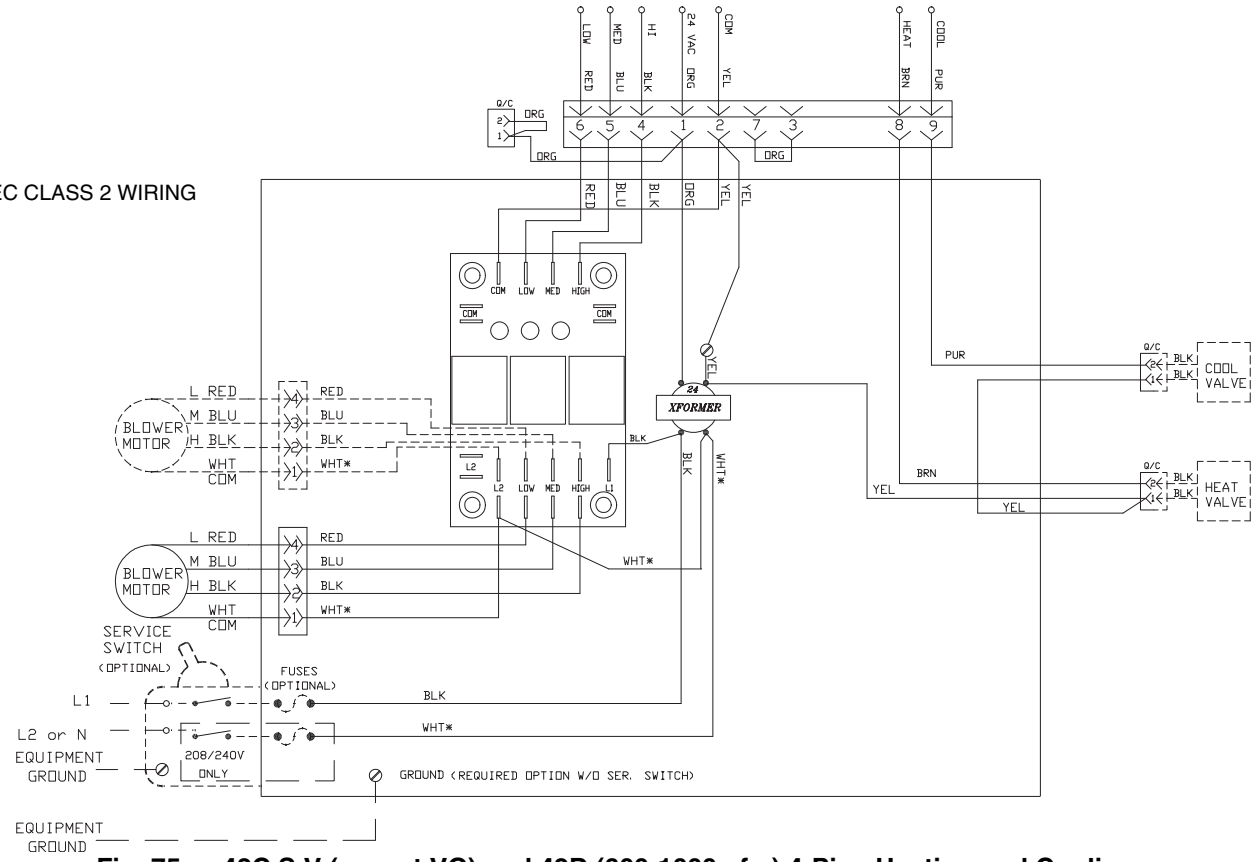


Fig. 75 — 42C,S,V (except VG) and 42D (600-1000 cfm) 4-Pipe Heating and Cooling — 24-v Control by Others

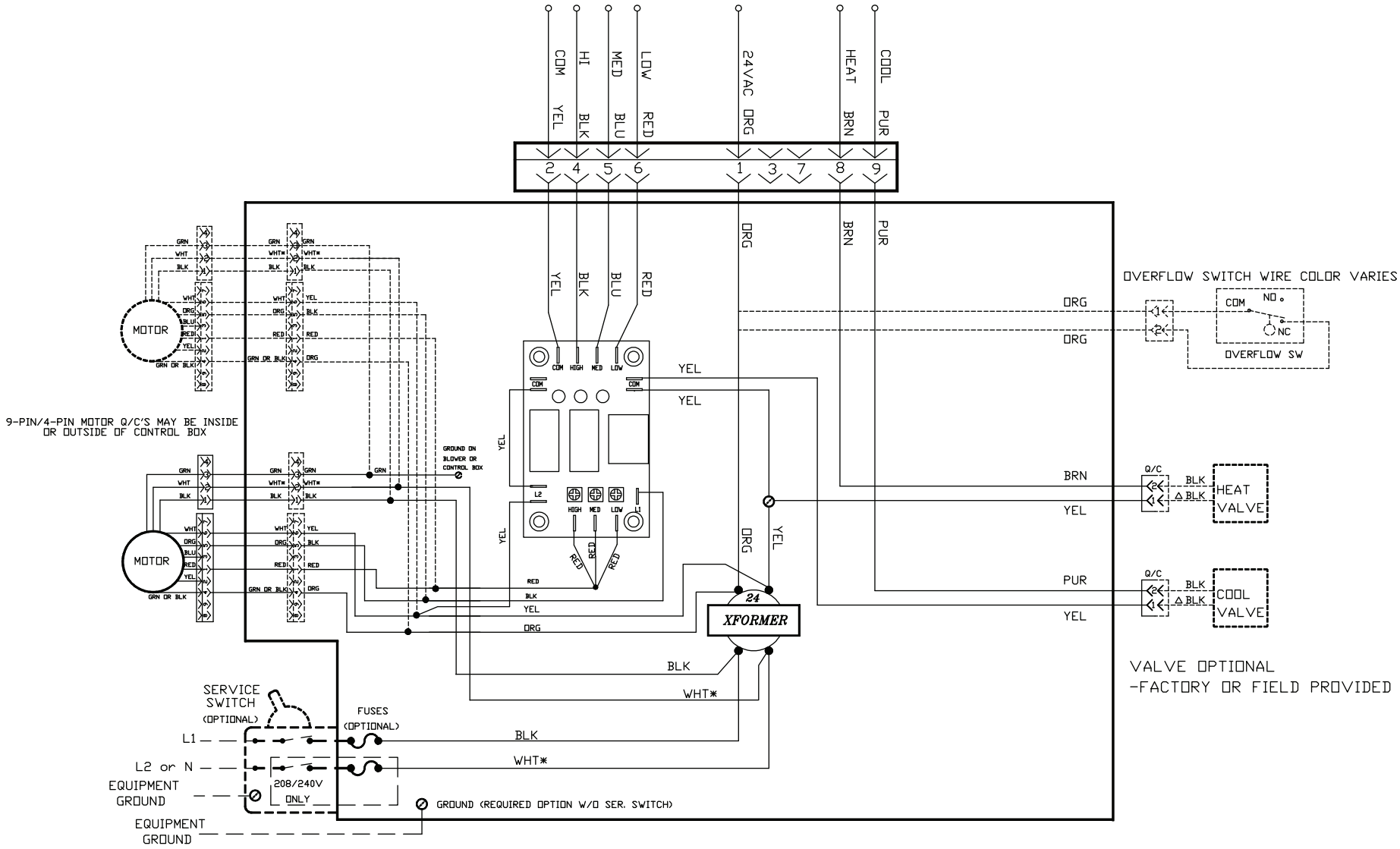


Fig. 76 — 42C,S,V (except VG) and 42D 4-Pipe Heating and Cooling — 24-v Controls by Others (ECM, 3-Discrete Speed Input, Potentiometer Field Speed Adjustment)

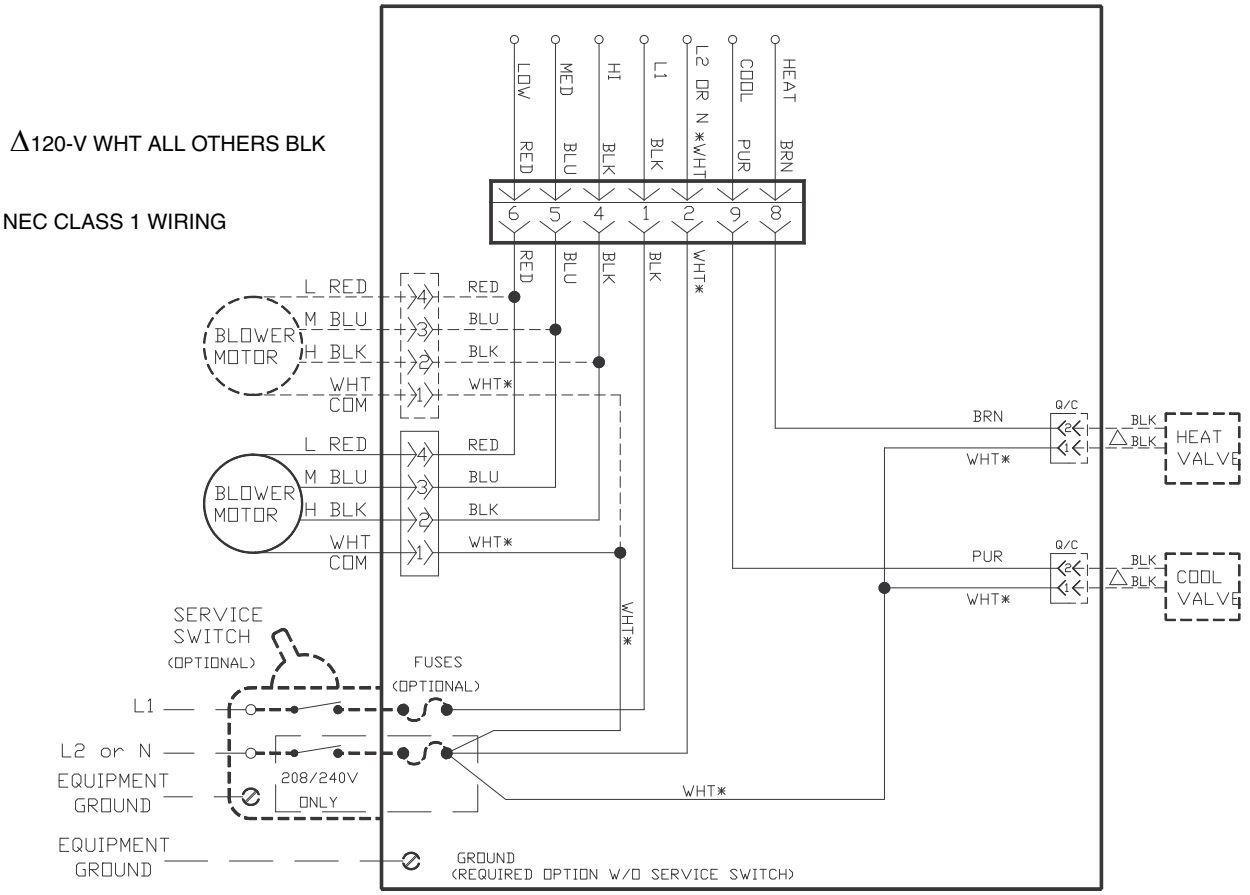


Fig. 77 — 42C,S,V (except VG) and 42D (600-1000 cfm) 4-Pipe Heating and Cooling — Line Voltage Control by Others

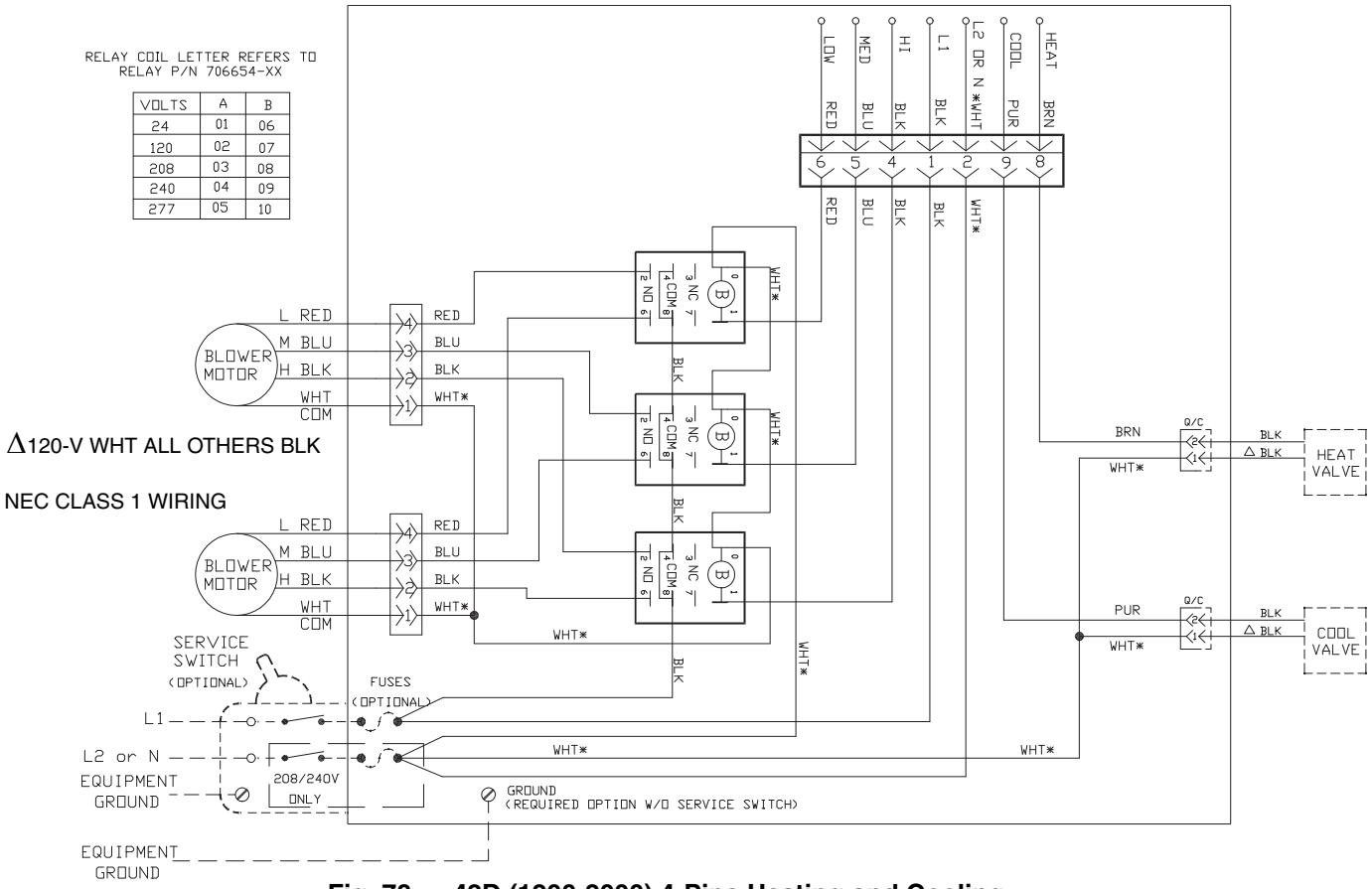


Fig. 78 — 42D (1200-2000) 4-Pipe Heating and Cooling — Field-Supplied and Installed Controls (Line Voltage and Control Valves)

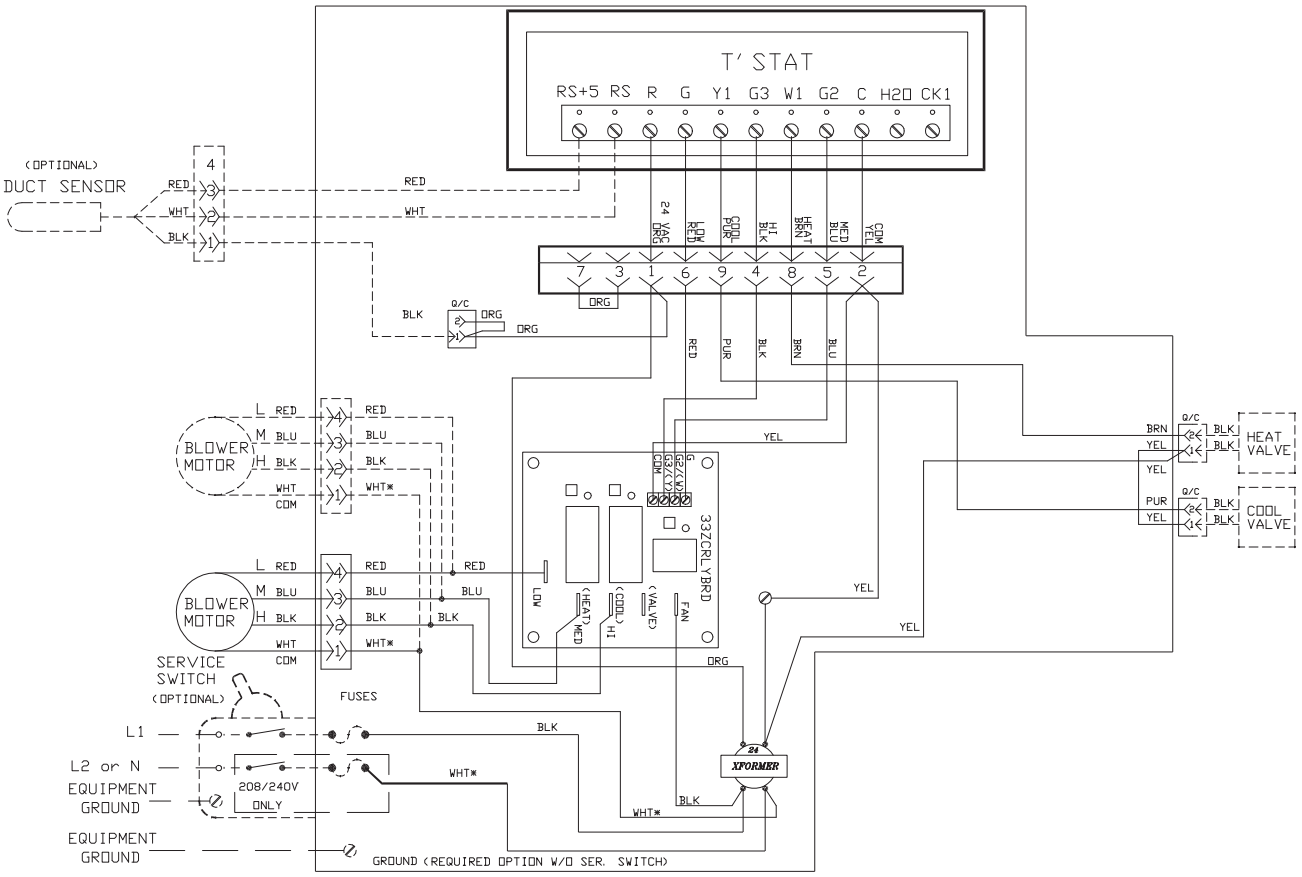


Fig. 79 — 42SG,SH,SJ,VA,VB,VC,VE,VF 4-Pipe Heating and Cooling — Unit-Mounted Debonair® Thermostat (24-v) and Duct Sensor

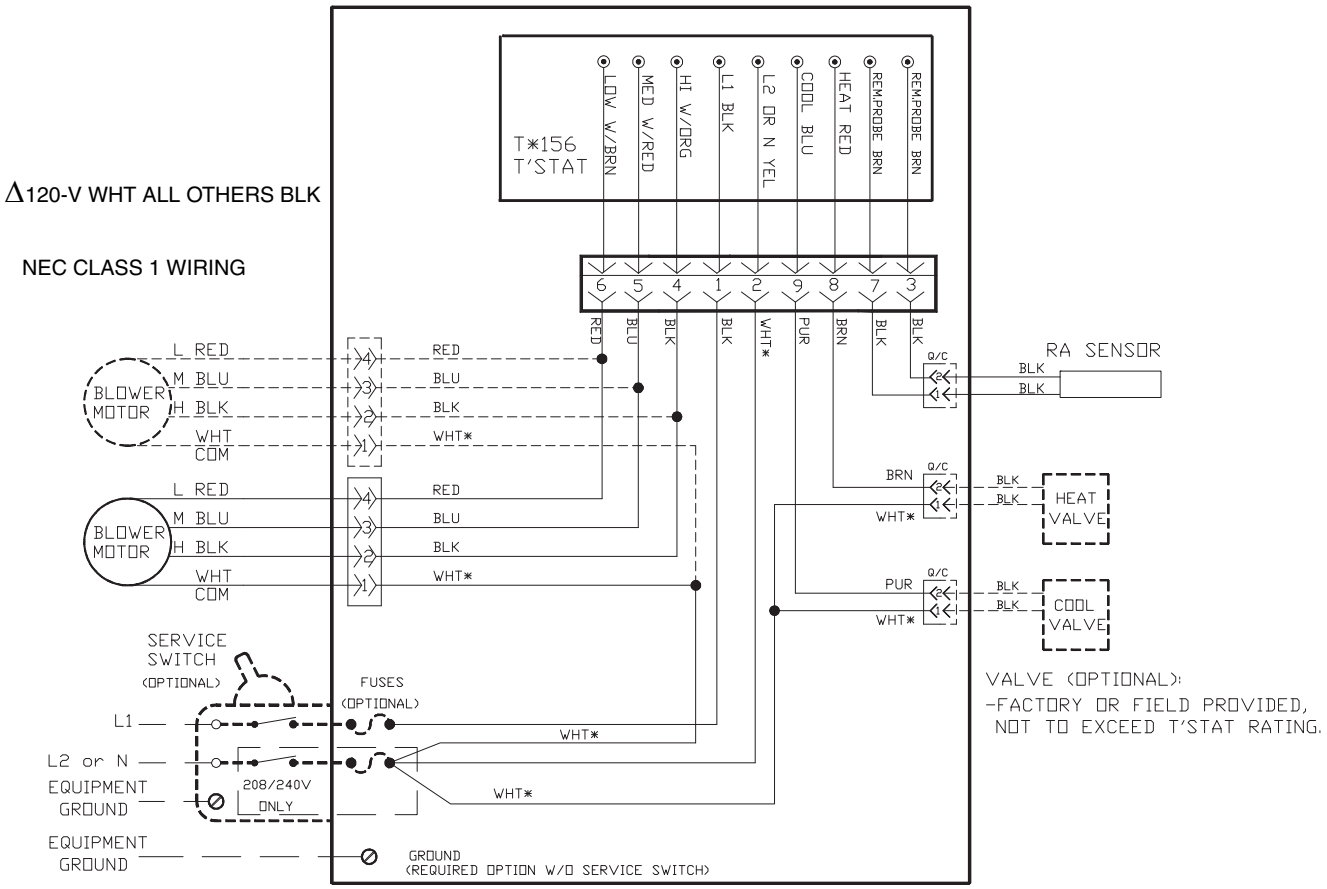


Fig. 80 — 42SG,SH,SJ,VA,VB,VC,VE,VF 4-Pipe Heating and Cooling — Unit-Mounted Thermostat (Line Voltage)

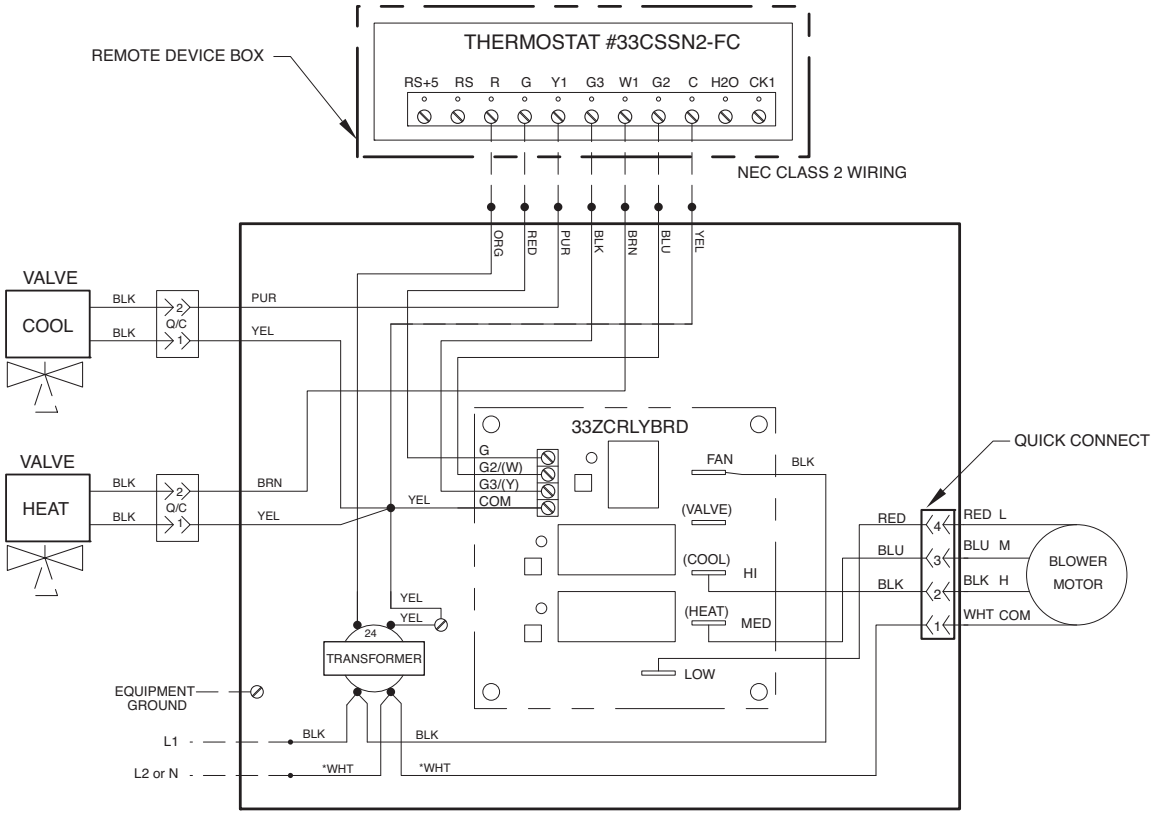


Fig. 81 — 42C,S,V (except VG) and 42D (600-1000 cfm) 4-Pipe Heating and Cooling — Remote/Wall-Mounted Debonair® Thermostat (24-v)

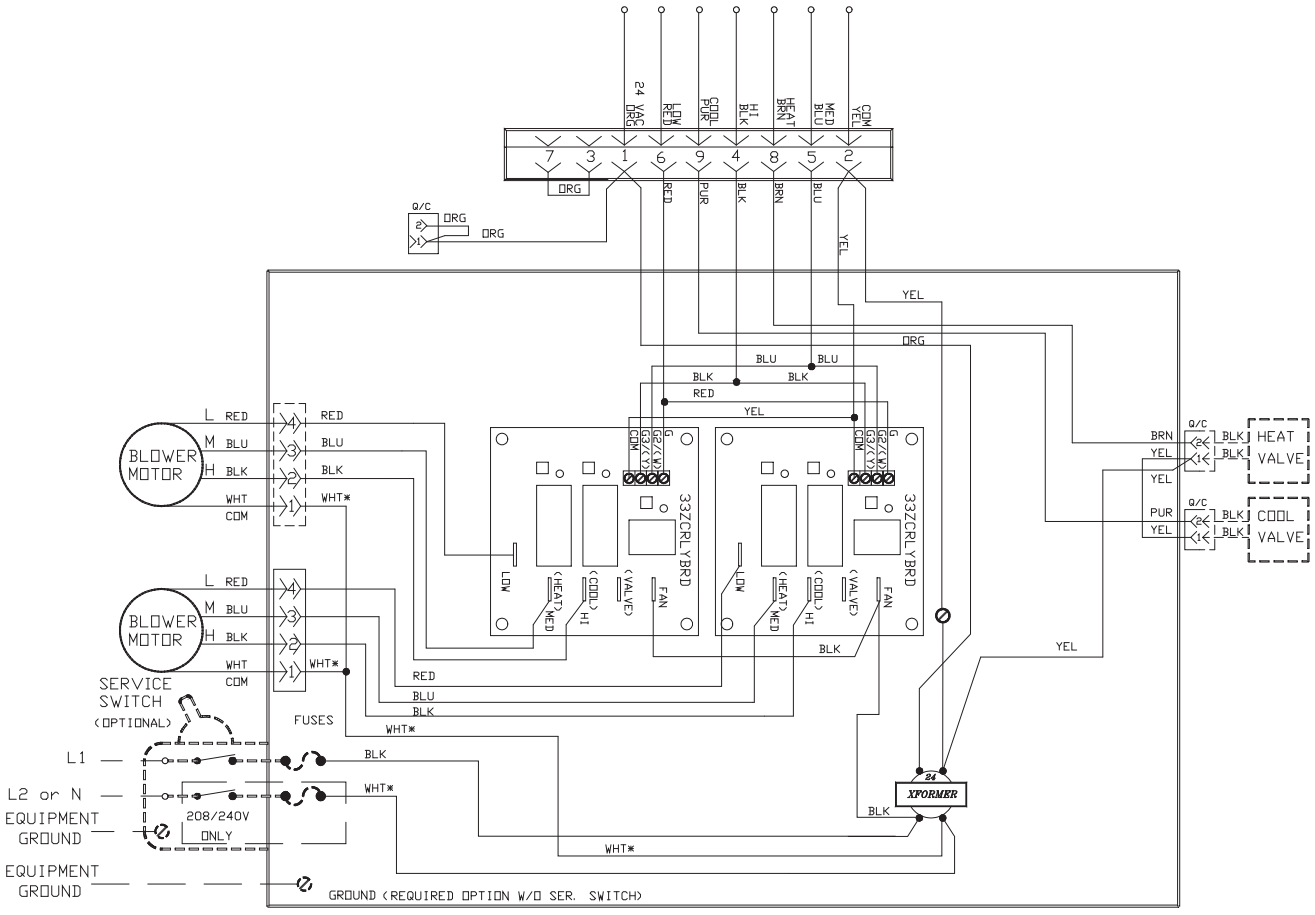


Fig. 82 — 42D (1200-2000) 4-Pipe Heating and Cooling — Remote/Wall-Mounted Debonair Thermostat (24-v)

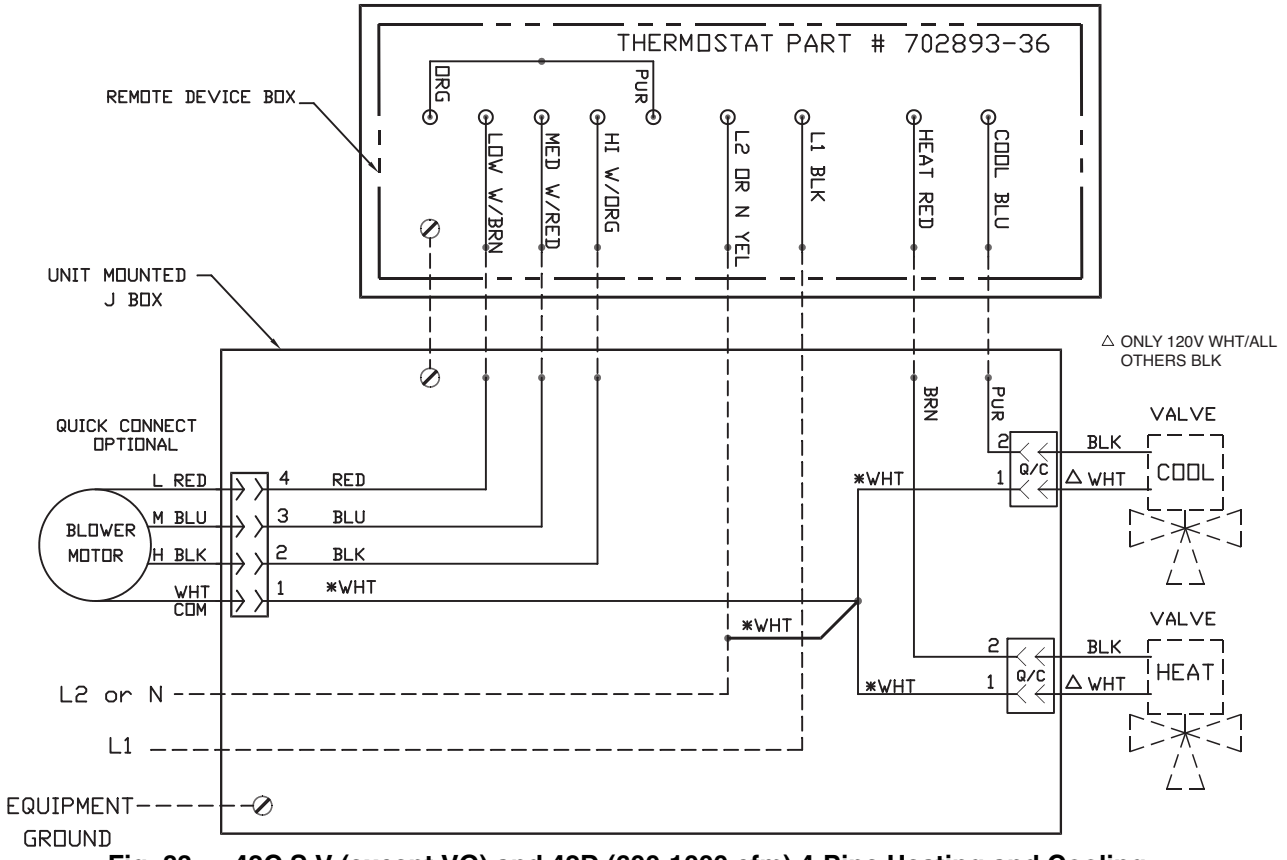


Fig. 83 — 42C,S,V (except VG) and 42D (600-1000 cfm) 4-Pipe Heating and Cooling — Remote/Wall-Mounted Thermostat (Line Voltage)

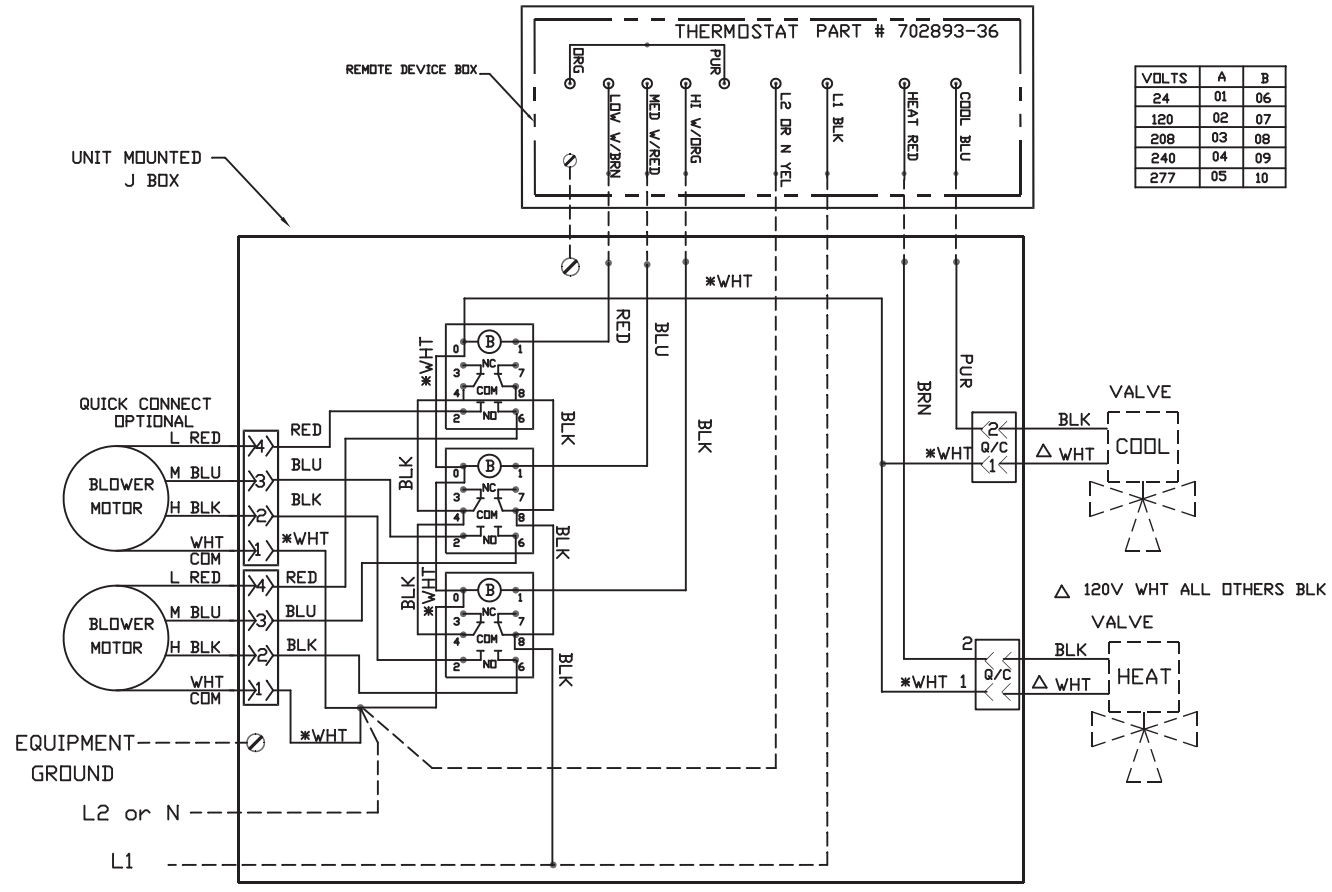


Fig. 84 — 42D (1200-2000) 4-Pipe Heating and Cooling — Remote/Wall-Mounted Thermostat (Line Voltage)

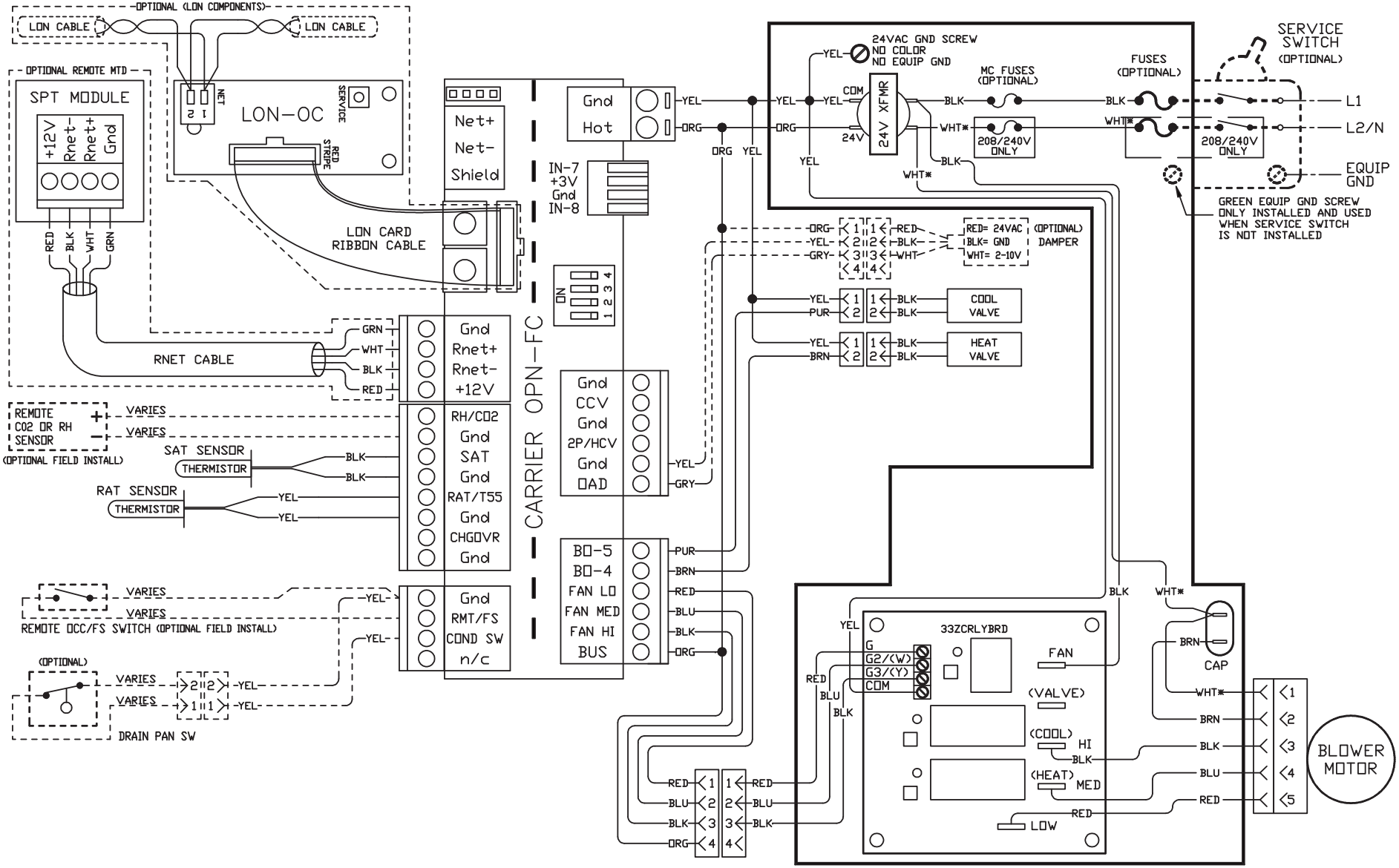


Fig. 85 — 42C,S,V (except VC,VE,VG) and 42D (600-1000 cfm) 4-Pipe Heating and Cooling — Open FC Controller (24-v) with Motorized Control Valve (2-Position)

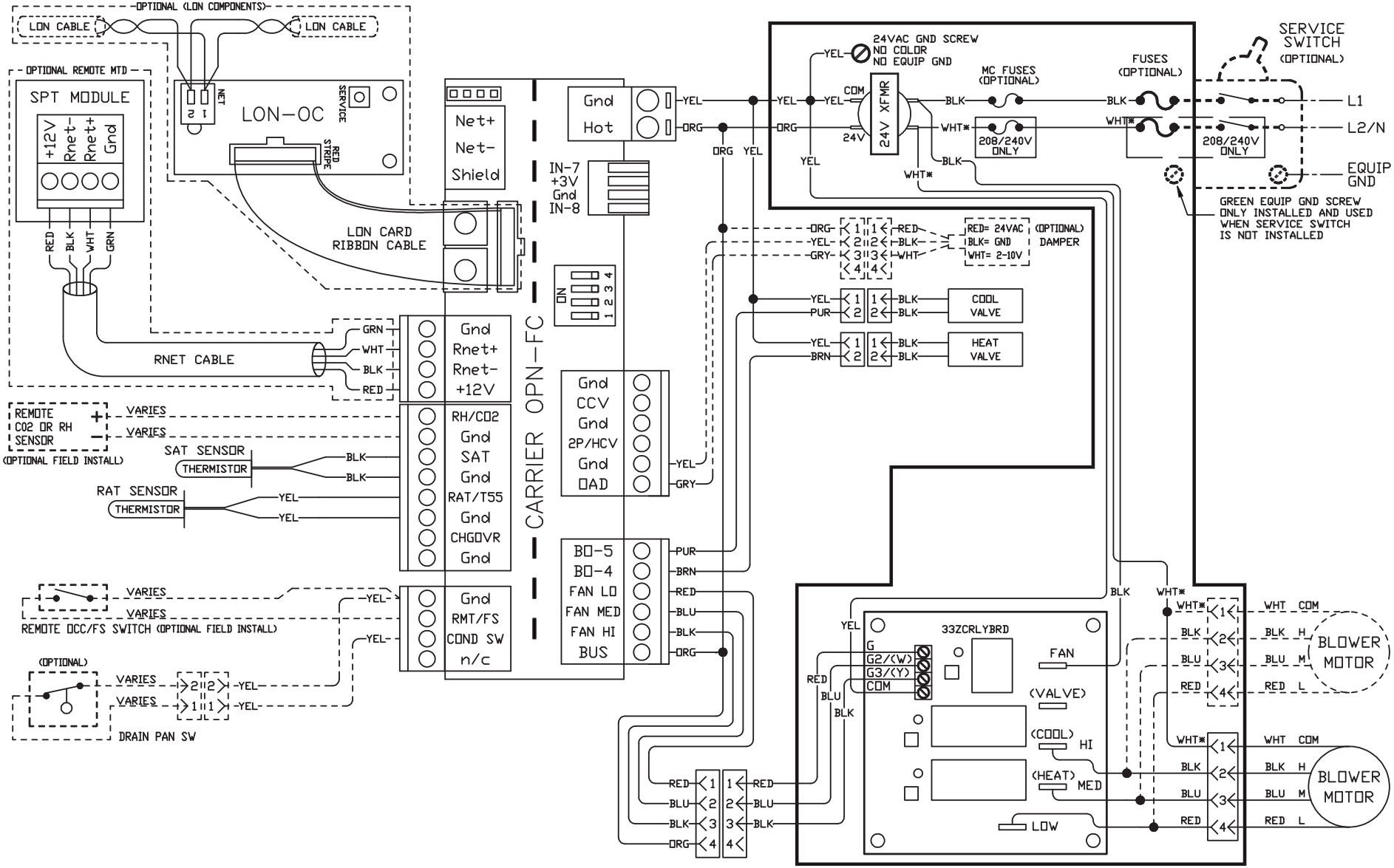


Fig. 86 — 42D (1200-2000 cfm) 4-Pipe Heating and Cooling — Open FC Controller (24-v) with Motorized Control Valve (2-Position)

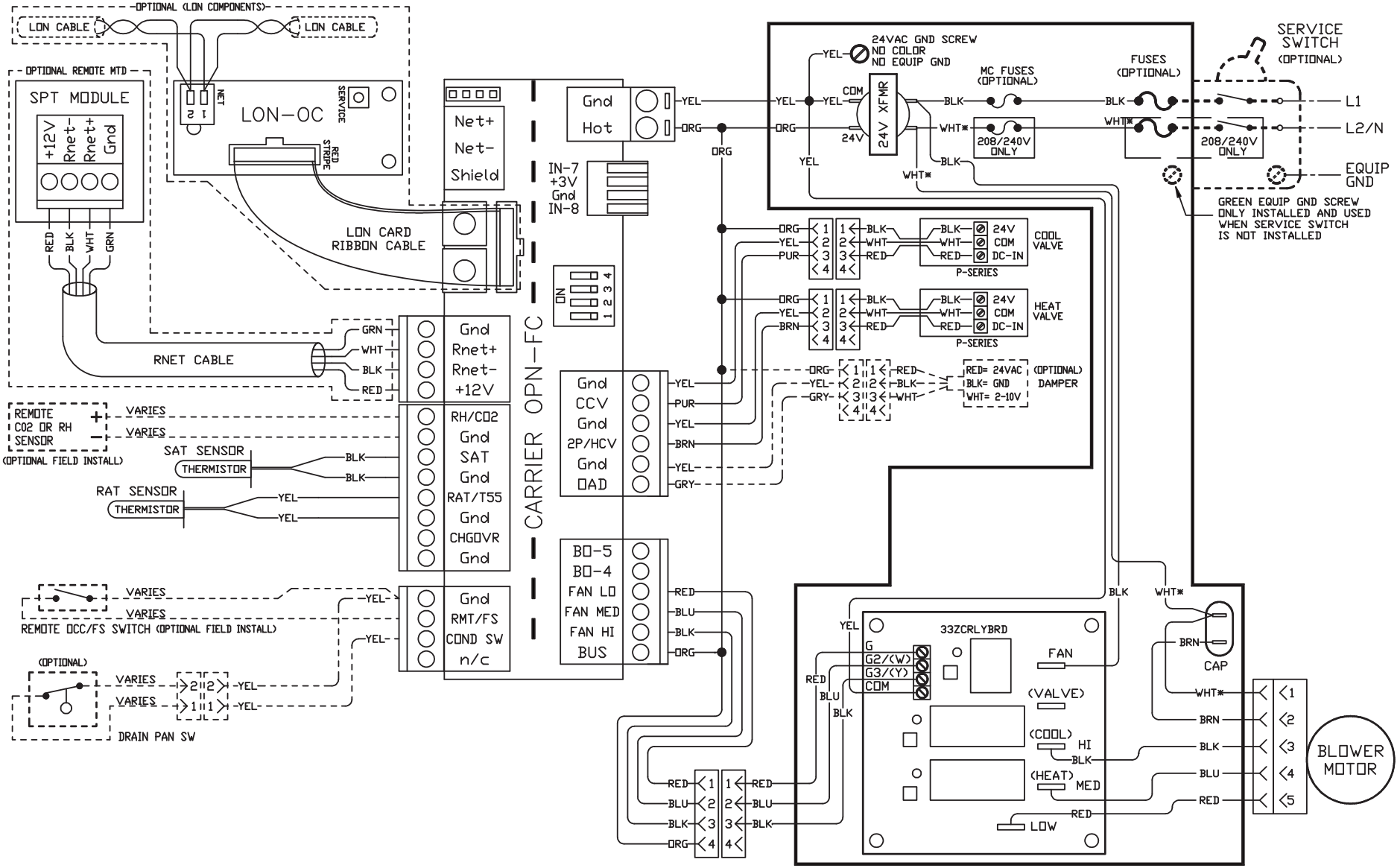


Fig. 87 — 42C,S,V (except VC,VE,VG) and 42D (600-1000 cfm) 4-Pipe Heating and Cooling — Open FC Controller (24-v) with Modulating Control Valve (0-10 vdc)

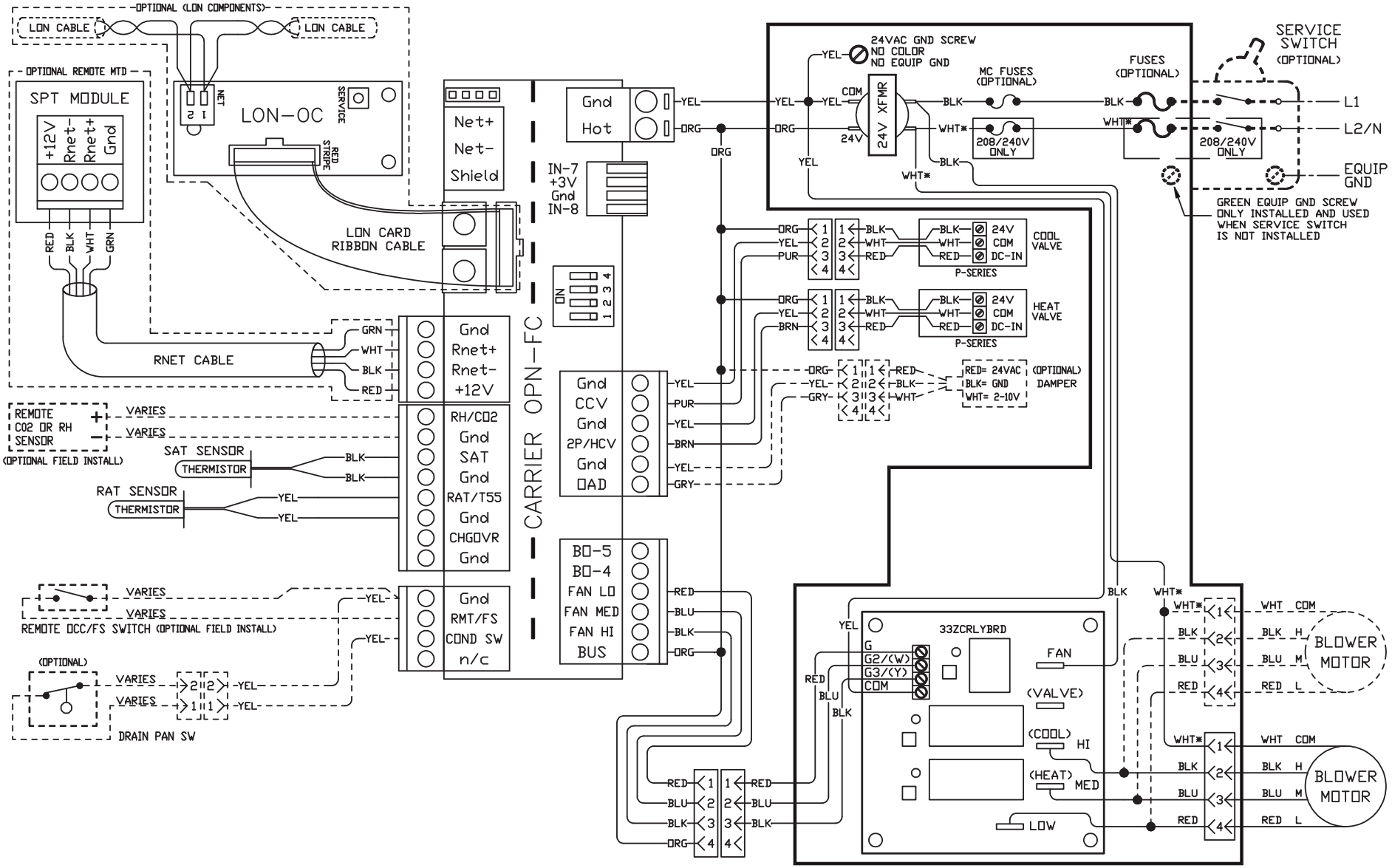


Fig. 88 — 42D (1200-2000 cfm) 4-Pipe Heating and Cooling — Open FC Controller (24-v) with Modulating Control Valve (0-10 vdc)

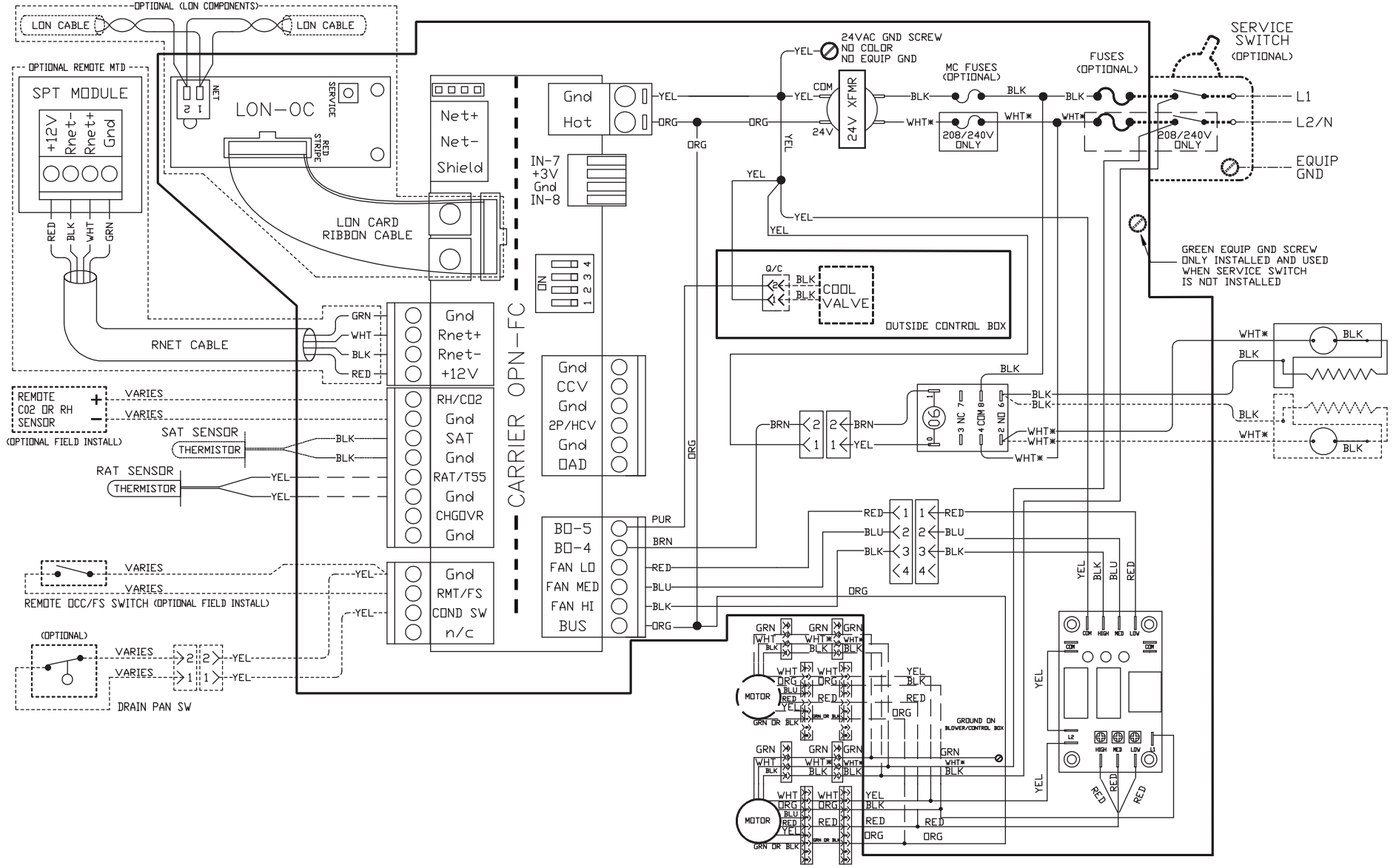


Fig. 89 — 42C,S,V (except VG) and 42D 4-Pipe Heating and Cooling — Open FC Controller (24-v) with ECM, 3-Discrete Speed Input, Potentiometer Field Speed Adjustment

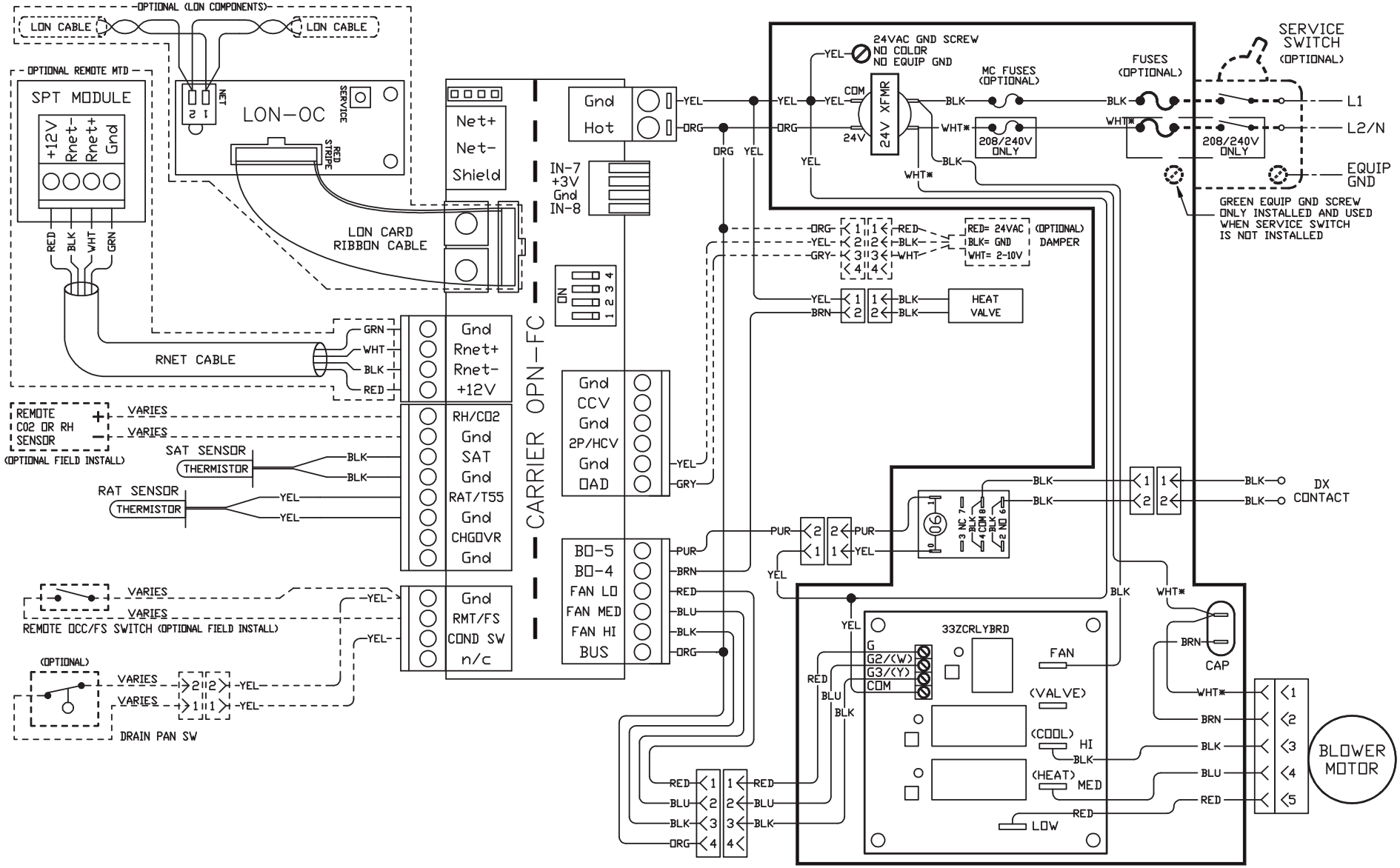


Fig. 90 — 42C,S,V (except VC,VE,VG) and 42D (600-1000 cfm) 4-Pipe Heating and DX Cooling — Open FC Controller (24-v) with Motorized Control Valve (2-Position)

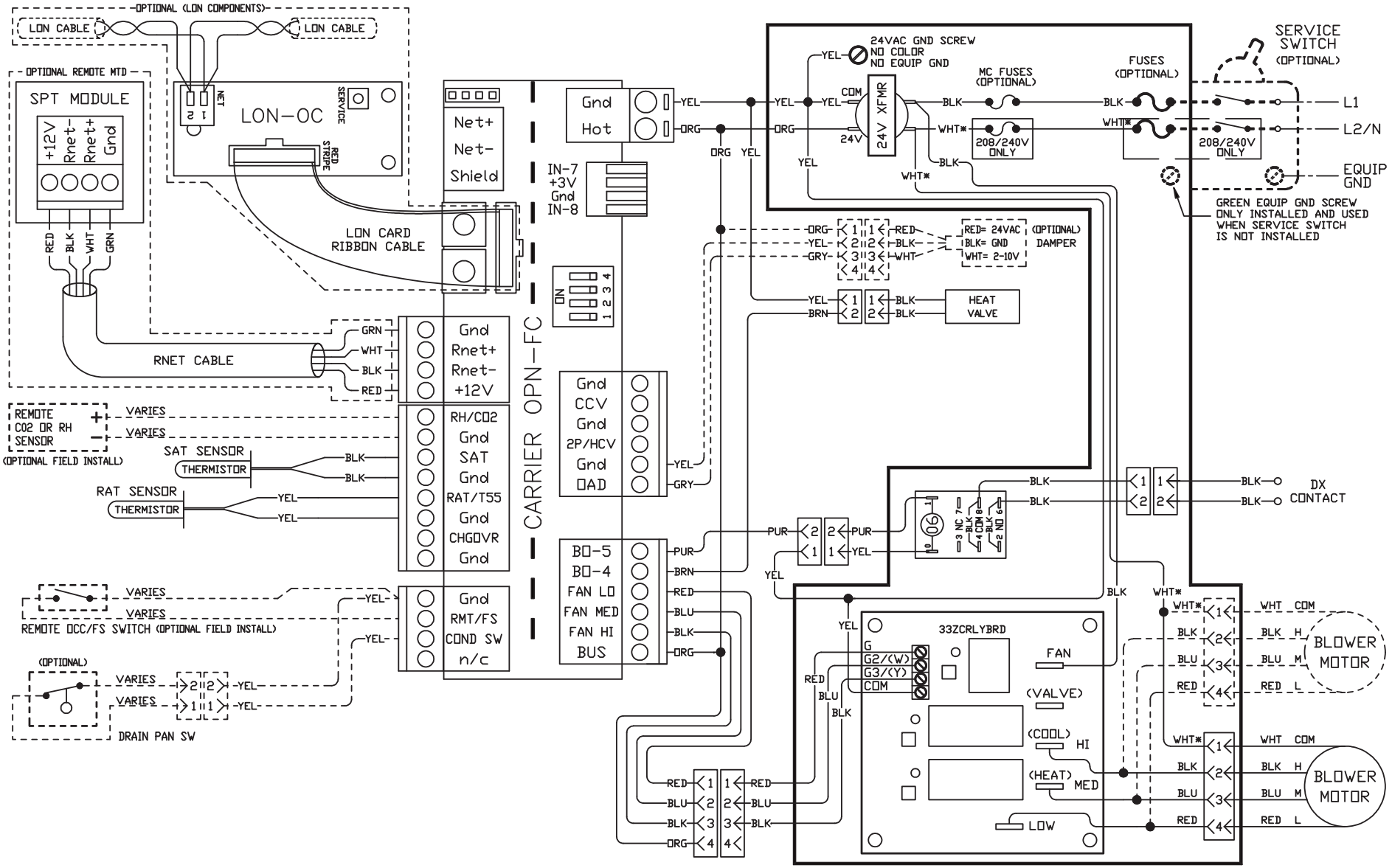


Fig. 91 — 42D (1200-2000 cfm) 4-Pipe Heating and DX Cooling — Open FC Controller (24-v) with Motorized Control Valve (2-Position)

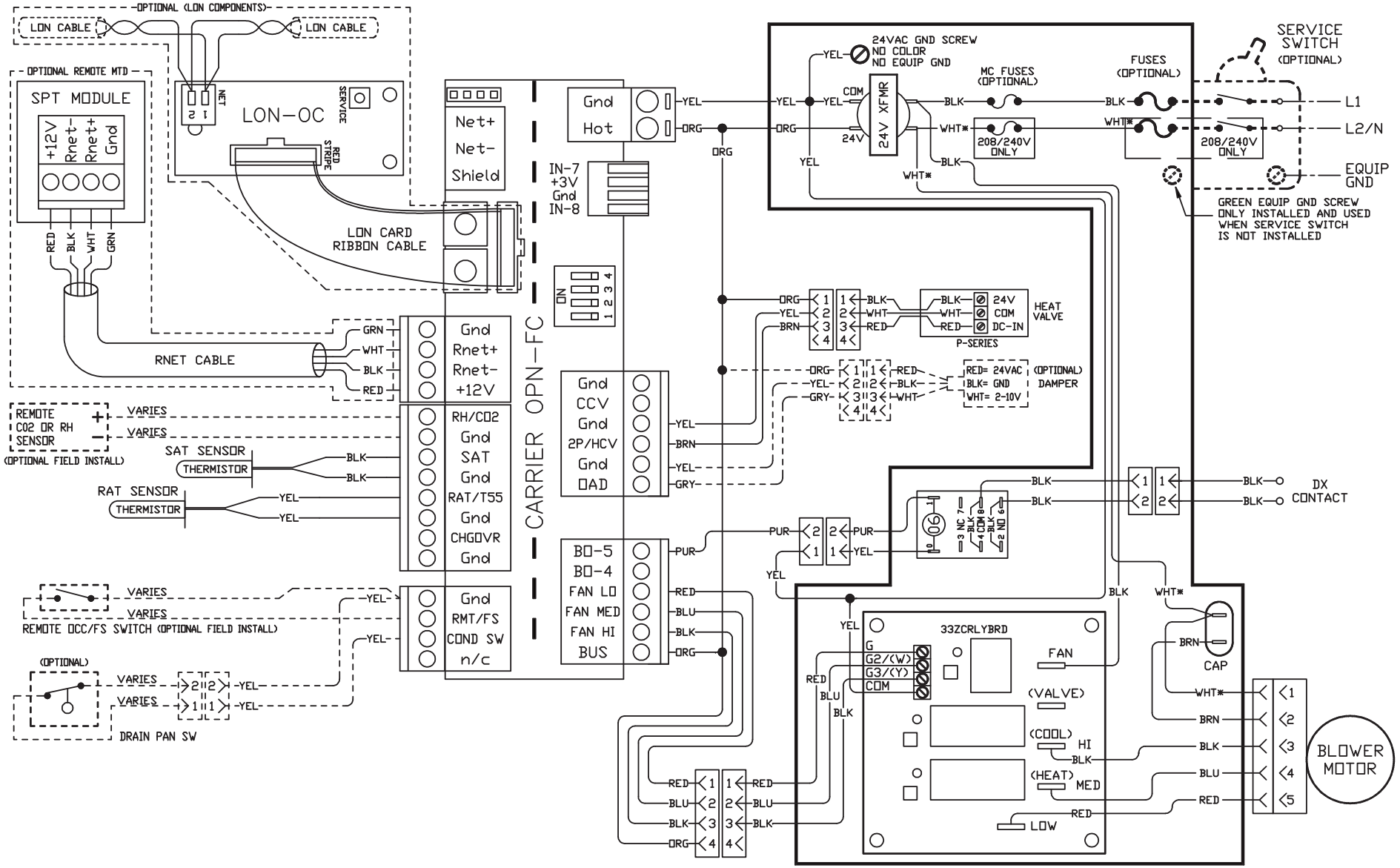


Fig. 92 — 42C,S,V (except VC,VE,VG) and 42D (600-1000 cfm) 4-Pipe Heating and DX Cooling — Open FC Controller (24-v) with Modulating Control Valve (0-10 vdc)

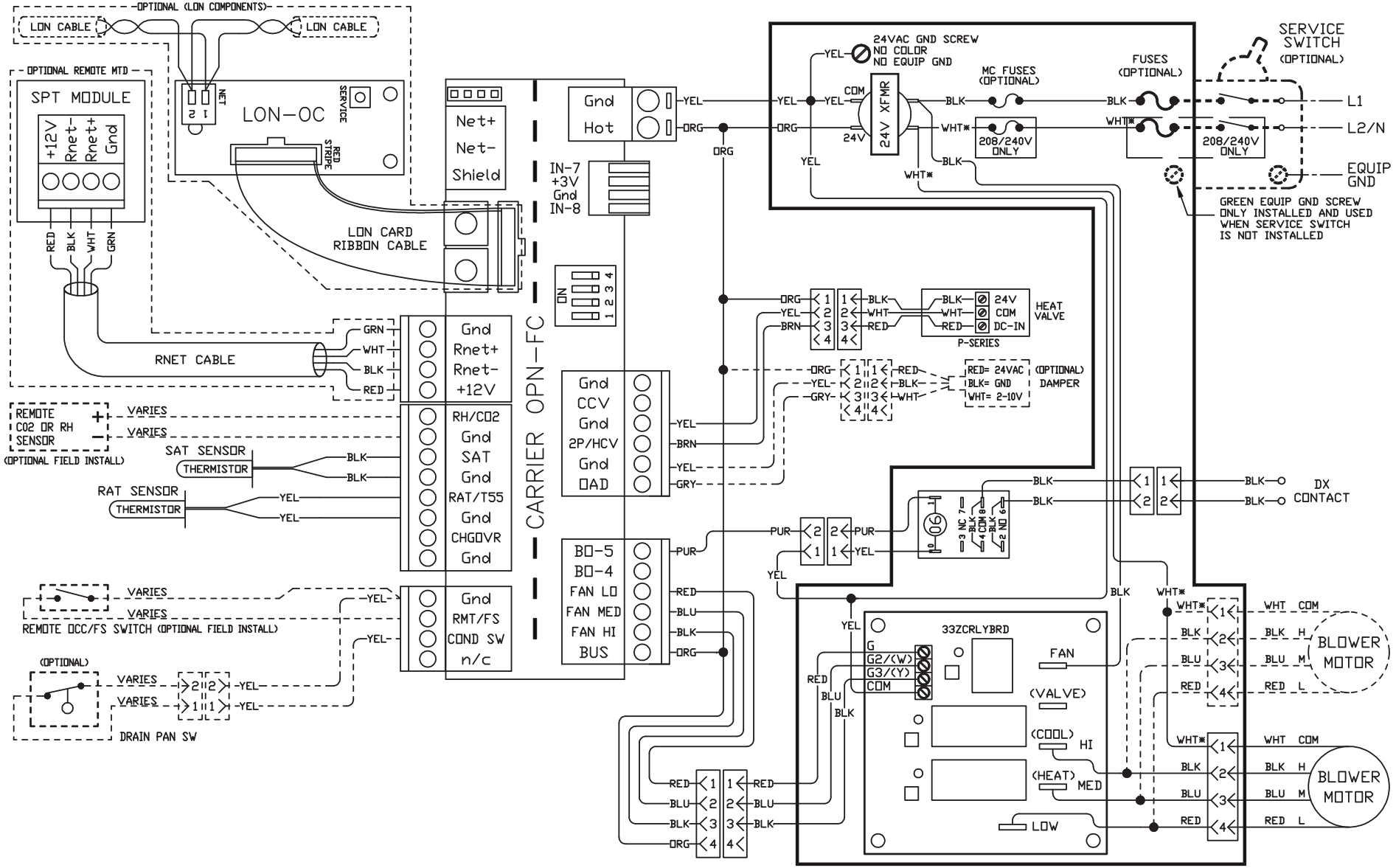


Fig. 93 — 42D (1200-2000 cfm) 4-Pipe Heating and DX Cooling — Open FC Controller (24-v) with Modulating Control Valve (0-10 vdc)

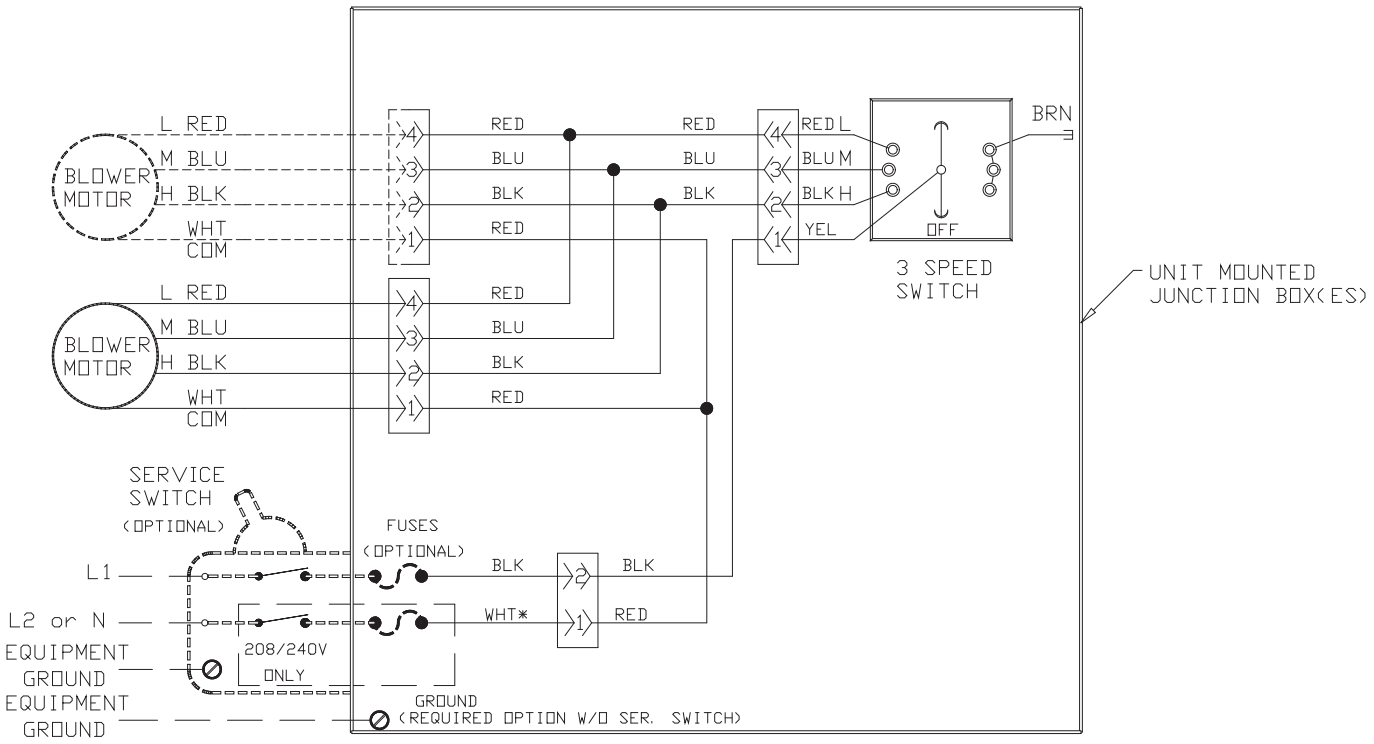


Fig. 94 — 42SG,SH,SJ,VA,VB,VC,VE,VF No Controls — Unit-Mounted 3-Speed Switch Only

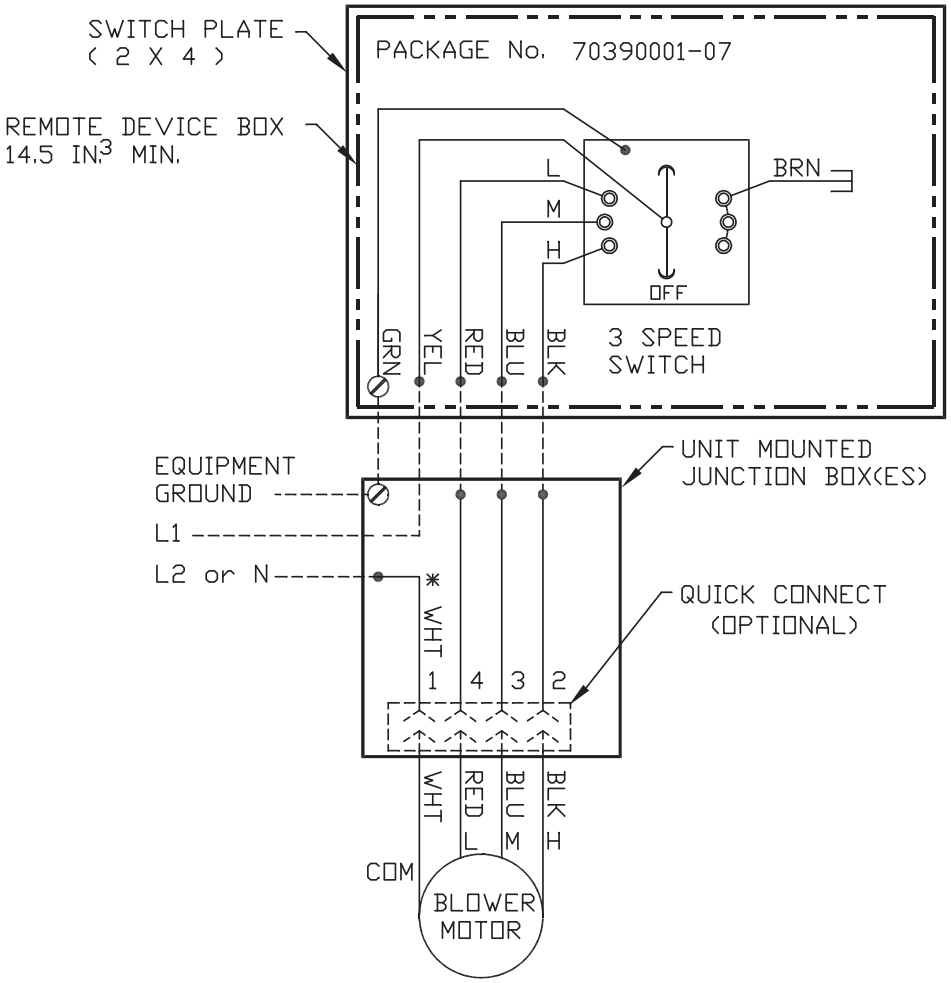


Fig. 95 — 42C,S,V and 42D (600-1000 cfm) No Controls — Wall-Mounted 3-Speed Switch Only

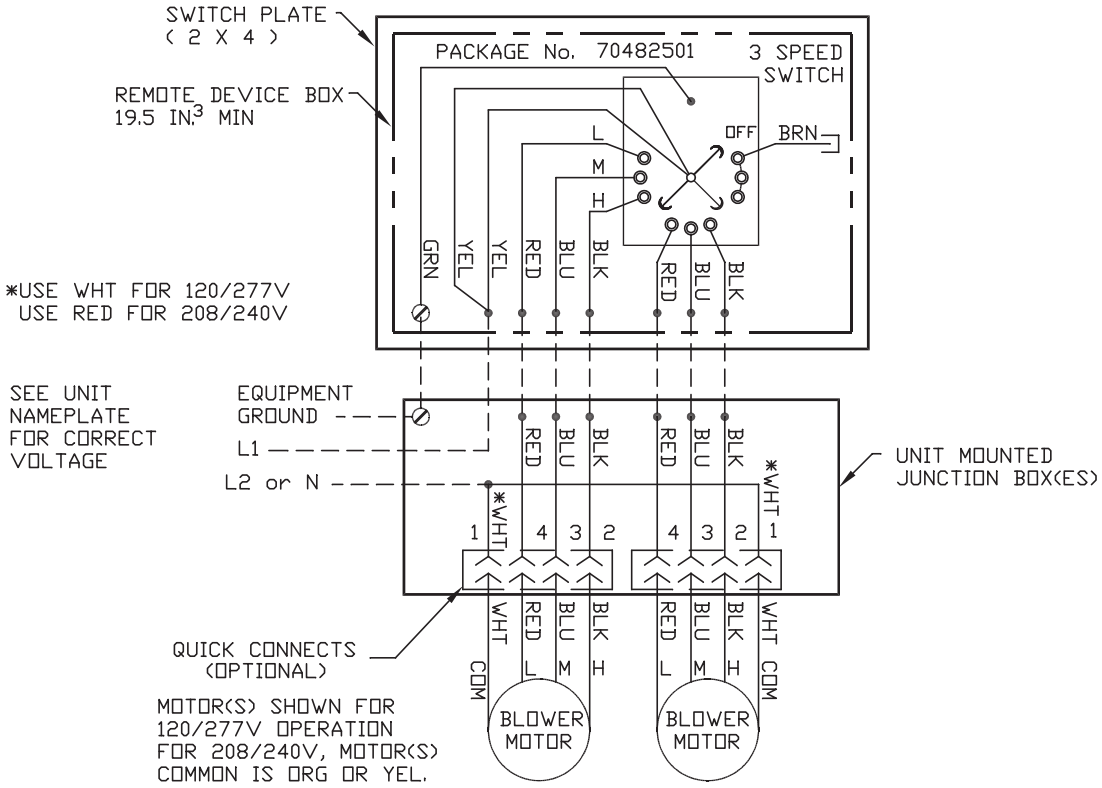


Fig. 96 — 42D (1200-2000) No Controls — Wall-Mounted 3-Speed Switch Only

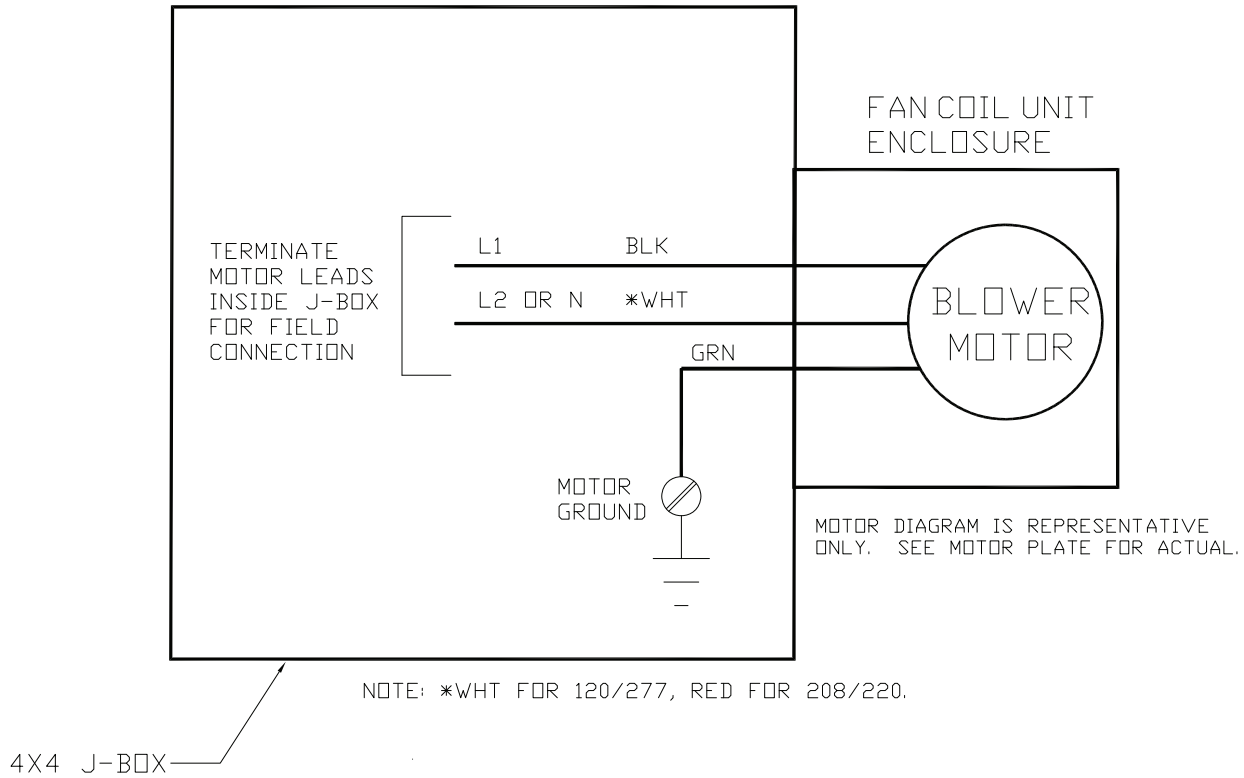


Fig. 97 — 42B No Controls — Single-Phase Unit

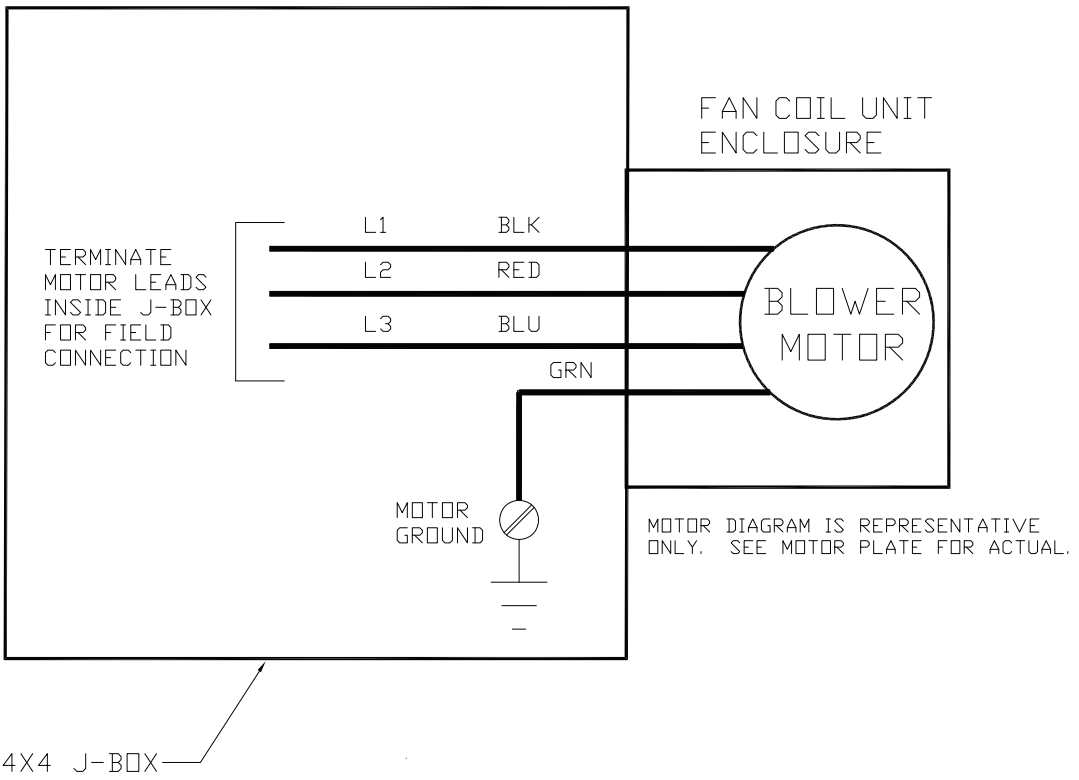
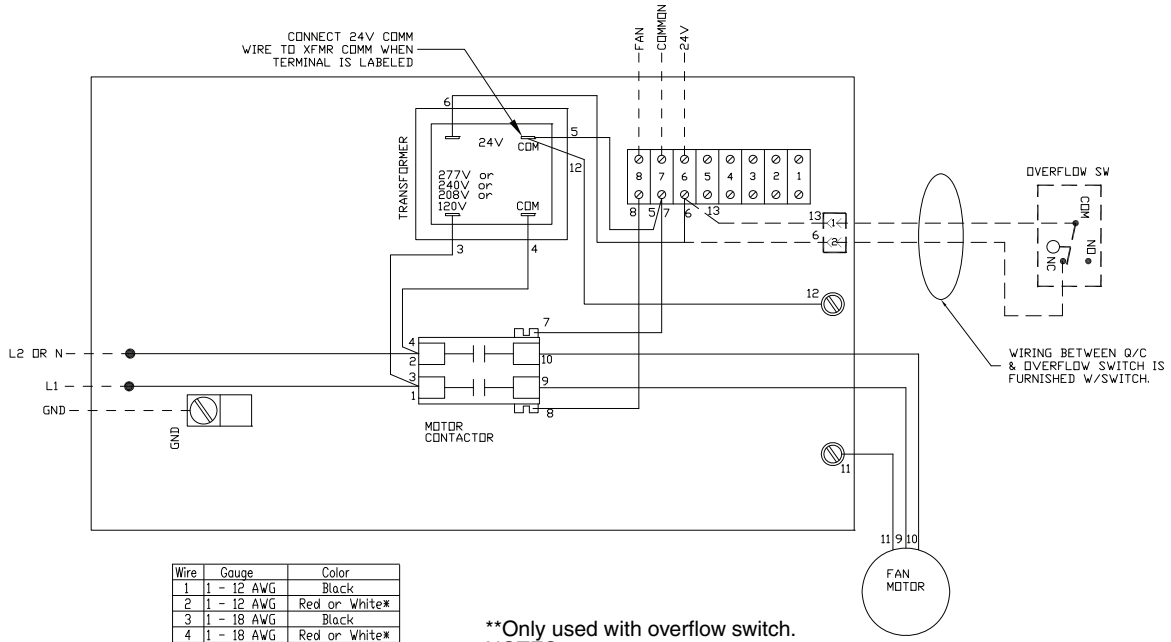


Fig. 98 — 42B No Controls — 3-Phase Unit



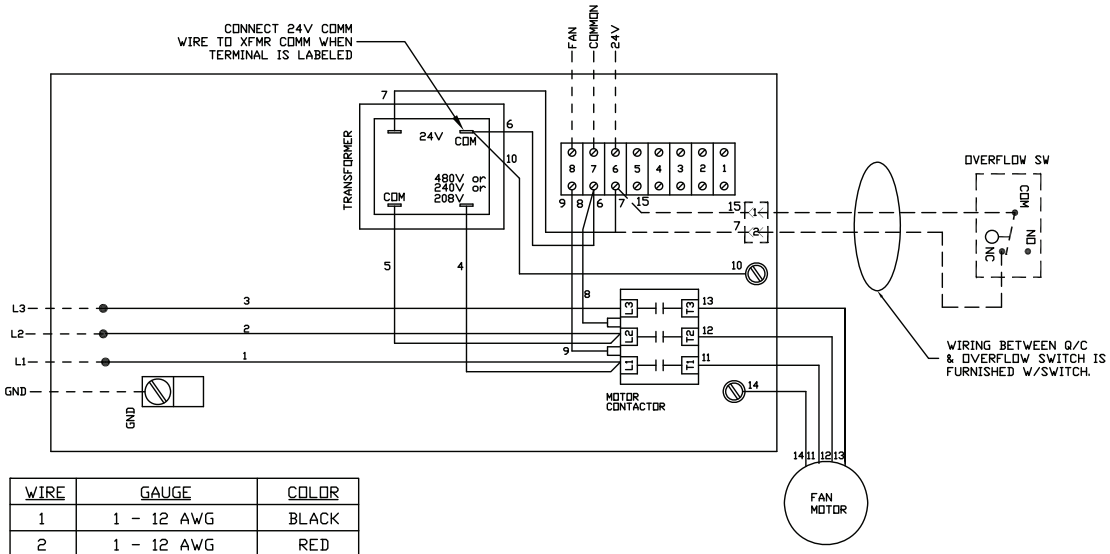
Wire	Gauge	Color
1	1 - 12 AWG	Black
2	1 - 12 AWG	Red or White*
3	1 - 18 AWG	Black
4	1 - 18 AWG	Red or White*
5	1 - 18 AWG	Yellow
6	1 - 18 AWG	Orange
7	1 - 18 AWG	Yellow
8	1 - 18 AWG	Gray
9	1 - 14 AWG	Black
10	1 - 14 AWG	Red
11	1 - 14 AWG	Green
12	1 - 18 AWG	Yellow
13	1 - 18 AWG	Orange **

*Red for 208/240, White for 120/277

**Only used with overflow switch.

NOTES:
1. This is a point-to-point electrical diagram.
2. Caution: Disconnect power before servicing.
3. See nameplate for correct voltage. Use 75 C minimum copper conductors only. Unit terminals are not designed to accept any other wiring.
4. Blower motor(s) thermally protected.
5. To ensure proper fan interlock and sequencing, external controller must energize heater stages in numerical order shown and deenergize stages in reverse order (first on, last off).
6. All contractor wiring must conform to electrical codes, national and local.

Fig. 99 — 42B Motor Controls — Single-Phase Only

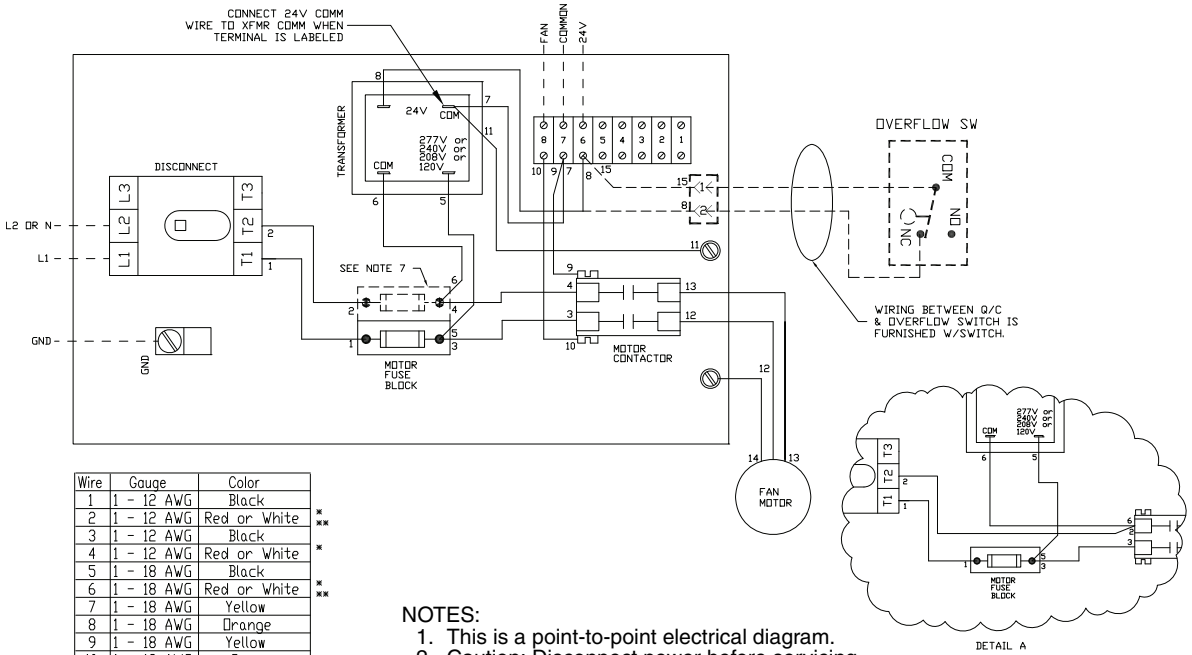


WIRE	GAUGE	COLOR
1	1 - 12 AWG	BLACK
2	1 - 12 AWG	RED
3	1 - 12 AWG	BLUE
4	1 - 18 AWG	BLACK
5	1 - 18 AWG	RED
6	1 - 18 AWG	YELLOW
7	1 - 18 AWG	ORANGE
8	1 - 18 AWG	YELLOW
9	1 - 18 AWG	GREY
10	1 - 18 AWG	YELLOW
11	1 - 14 AWG	BLACK
12	1 - 14 AWG	RED
13	1 - 14 AWG	BLUE
14	1 - 14 AWG	GREEN
15	1 - 18 AWG	ORANGE **

**ONLY USED WITH OVERFLOW SWITCH.

NOTES:
1. This is a point-to-point electrical diagram.
2. Caution: Disconnect power before servicing.
3. See nameplate for correct voltage. Use 75 C minimum copper conductors only. Unit terminals are not designed to accept any other wiring.
4. Blower motor(s) thermally protected.
5. To ensure proper fan interlock and sequencing, external controller must energize heater stages in numerical order shown and deenergize stages in reverse order (first on, last off).
6. All contractor wiring must conform to electrical codes, national and local.

Fig. 100 — 42B Motor Controls — 3-Phase Only

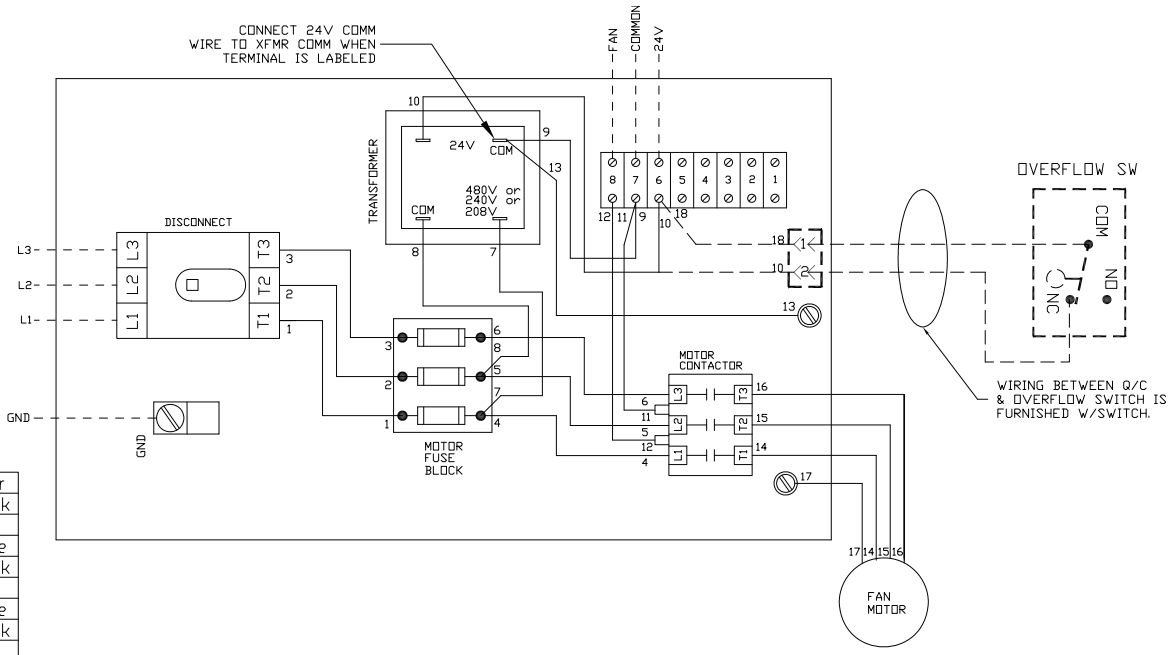


Wire	Gauge	Color	
1	1 - 12 AWG	Black	
2	1 - 12 AWG	Red or White	* **
3	1 - 12 AWG	Black	
4	1 - 12 AWG	Red or White	*
5	1 - 18 AWG	Black	
6	1 - 18 AWG	Red or White	* **
7	1 - 18 AWG	Yellow	
8	1 - 18 AWG	Orange	
9	1 - 18 AWG	Yellow	
10	1 - 18 AWG	Gray	
11	1 - 18 AWG	Yellow	
12	1 - 14 AWG	Black	
13	1 - 14 AWG	Red	
14	1 - 14 AWG	Green	
15	1 - 18 AWG	Orange	***

*RED FOR 208/240, WHITE FOR 120/277
**ONLY USED WITH FUSE.
***ONLY USED WITH OVERFLOW SWITCH.

NOTES:
1. This is a point-to-point electrical diagram.
2. Caution: Disconnect power before servicing.
3. See nameplate for correct voltage. Use 75 C minimum copper conductors only. Unit terminals are not designed to accept any other wiring.
4. Blower motor(s) thermally protected.
5. To ensure proper fan interlock and sequencing, external controller must energize heater stages in numerical order shown and deenergize stages in reverse order (first on, last off).
6. All contractor wiring must conform to electrical codes, national and local.
7. Wire as detail A for 120/277-v.

Fig. 101 — 42B Motor Controls — Single-Phase with Interlocking Disconnect



Wire	Gauge	Color
1	1 - 12 AWG	Black
2	1 - 12 AWG	Red
3	1 - 12 AWG	Blue
4	1 - 12 AWG	Black
5	1 - 12 AWG	Red
6	1 - 12 AWG	Blue
7	1 - 18 AWG	Black
8	1 - 18 AWG	Red
9	1 - 18 AWG	Yellow
10	1 - 18 AWG	Orange
11	1 - 18 AWG	Yellow
12	1 - 18 AWG	Gray
13	1 - 18 AWG	Yellow
14	1 - 14 AWG	Black
15	1 - 14 AWG	Red
16	1 - 14 AWG	Blue
17	1 - 14 AWG	Green
18	1 - 18 AWG	Orange **

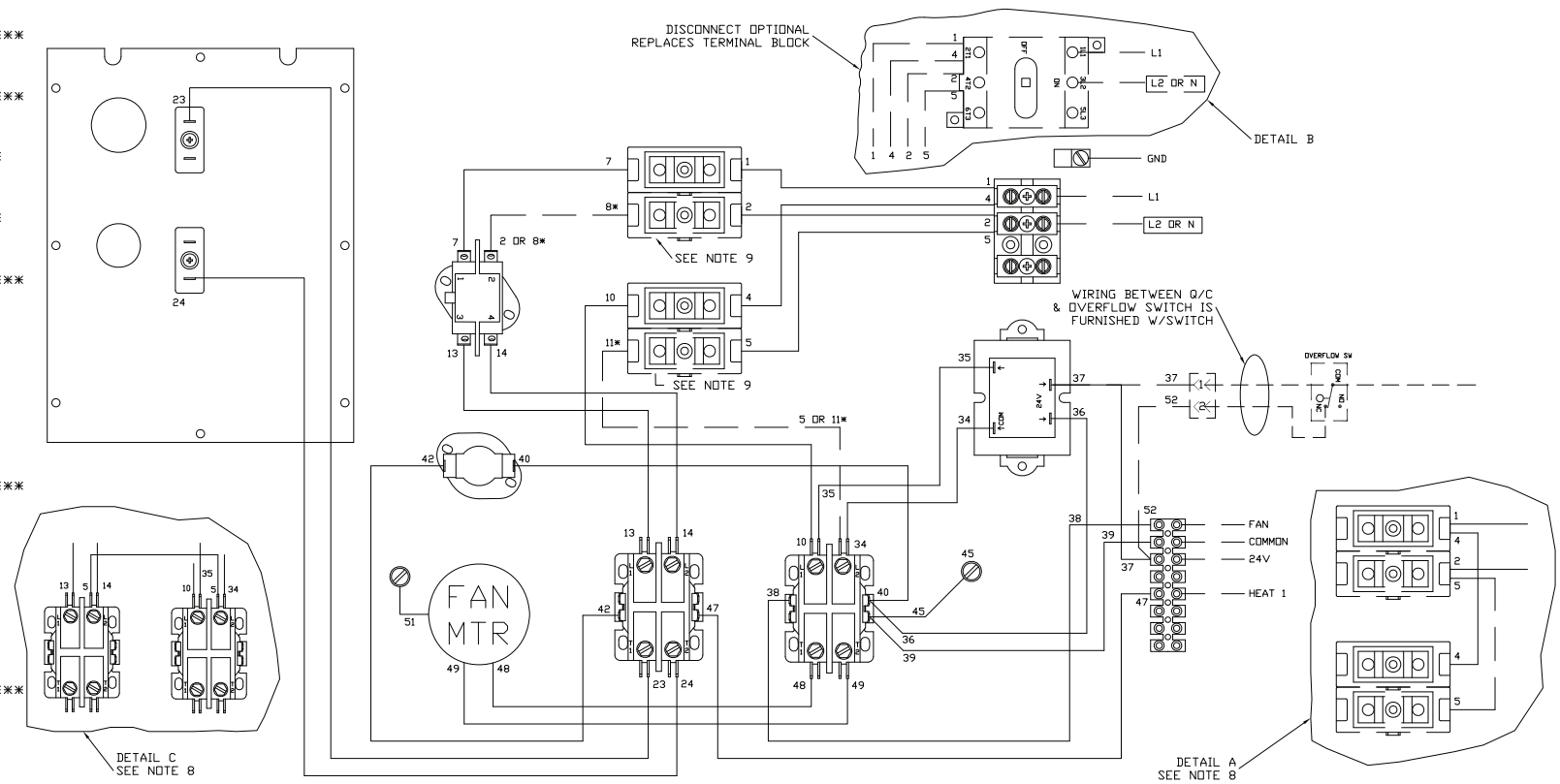
**ONLY USED WITH OVERFLOW SWITCH.

NOTES:
1. This is a point-to-point electrical diagram.
2. Caution: Disconnect power before servicing.
3. See nameplate for correct voltage. Use 75 C minimum copper conductors only. Unit terminals are not designed to accept any other wiring.
4. Blower motor(s) thermally protected.
5. To ensure proper fan interlock and sequencing, external controller must energize heater stages in numerical order shown and deenergize stages in reverse order (first on, last off).
6. All contractor wiring must conform to codes, national and local electrical.

Fig. 102 — 42B Motor Controls — 3-Phase with Interlocking Disconnect

Wire #	Ga.	Color	
1	8	BLACK	
2	8	RED OR WHT	***
3	–	N/A	
4	12	BLACK	
5	12	RED OR WHT	***
6	–	N/A	
7	8	BLACK	
8	8	RED	*
9	–	N/A	
10	12	BLACK	
11	12	RED	*
12	–	N/A	
13	8	BLACK	
14	8	RED OR WHT	***
15	–	N/A	
16	–	N/A	
17	–	N/A	
18	–	N/A	
19	–	N/A	
20	–	N/A	
21	–	N/A	
22	–	N/A	
23	12	BLACK	
24	12	RED OR WHT	***
25	–	N/A	
26	–	N/A	
27	–	N/A	
28	–	N/A	
29	–	N/A	
30	–	N/A	
31	–	N/A	
32	–	N/A	
33	–	N/A	
34	18	RED OR WHT	***
35	18	BLACK	
36	18	YELLOW	
37	18	ORANGE	
38	18	GRAY	
39	18	YELLOW	
40	18	YELLOW	
41	18	YELLOW	
42	18	YELLOW	
43	–	N/A	
44	–	N/A	
45	18	YELLOW	
46	–	N/A	
47	18	BROWN	
48	14	BLACK	
49	14	RED	
50	–	N/A	
51	14	GREEN	
52	18	ORANGE	**
53	–	N/A	

* ONLY USED WITH FUSE
** ONLY USED WITH OVERFLOW SWITCH
*** RED FOR 208/230, WHT FOR 120/277

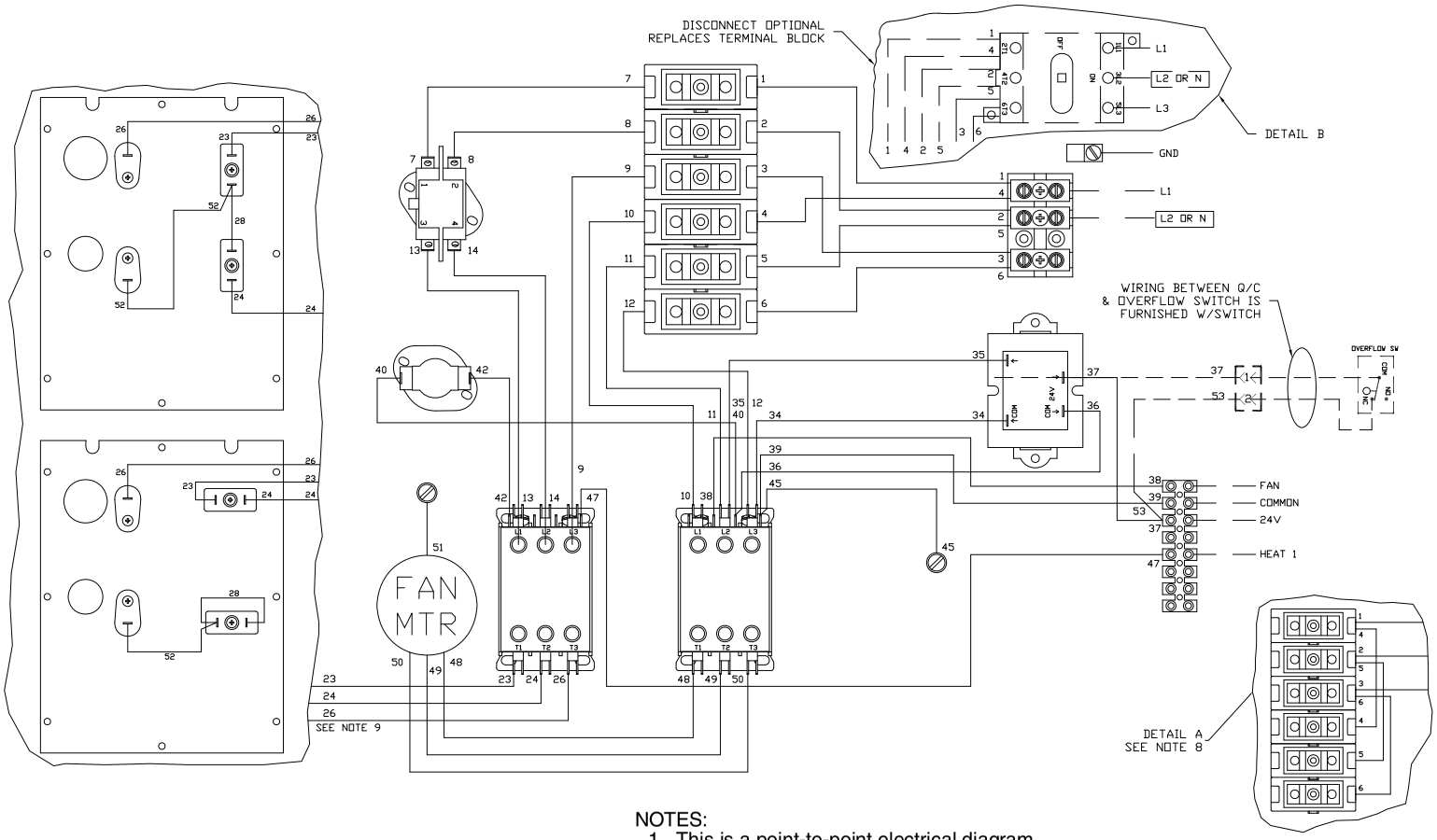


NOTES:
1. This is a point-to-point electrical diagram.
2. Caution: Disconnect power before servicing.
3. See nameplate for correct voltage. Use 75 C minimum copper conductors only. Unit terminals are not designed to accept any other wiring.
4. Blower motor thermally protected.
5. To ensure proper fan interlock and sequencing, external controller must energize heater stages in numerical order shown and deenergize stages in reverse order (i.e., first on will be last off).
6. All contractor wiring must conform to national and local electrical codes.
7. L2 or N label to be placed on bridge near terminal block or disconnect. Label to be oriented along path of incoming L2 or N.
8. Wires 4 and 5 to be installed as shown in detail A when using part number E035-50011401 disconnect switch, except wire 5 as shown in Detail C when 120/277-v. All other disconnect switches to be wired as shown in main diagram.
9. Only on 208-240-v.

Fig. 103 — 42B Motor Controls — Single-Phase with Interlocking Disconnect and Single-Stage Electric Heater

Wire#	Ga.	Color	
1	8	BLACK	
2	8	RED	
3	8	BLUE	
4	12	BLACK	
5	12	RED	
6	12	BLUE	
7	8	BLACK	
8	8	RED	
9	8	BLUE	
10	12	BLACK	
11	12	RED	
12	12	BLUE	
13	8	BLACK	
14	8	RED	
15	–	N/A	
16	–	N/A	
17	–	N/A	
18	–	N/A	
19	–	N/A	
20	–	N/A	
21	–	N/A	
22	–	N/A	
23	12	BLACK	
24	12	RED	
25	–	N/A	
26	12	BLUE	
27	–	N/A	
28	12	BLACK	
29	–	N/A	
30	–	N/A	
31	–	N/A	
32	–	N/A	
33	–	N/A	
34	18	BLUE	
35	18	RED	
36	18	YELLOW	
37	18	ORANGE	
38	18	GRAY	
39	18	YELLOW	
40	18	YELLOW	
41	–	N/A	
42	18	YELLOW	
43	–	N/A	
44	–	N/A	
45	18	YELLOW	
46	–	N/A	
47	18	BROWN	
48	14	BLACK	
49	14	RED	
50	14	BLUE	
51	14	GREEN	
52	12	BLACK	
53	18	ORANGE	**

**ONLY USED WITH OVERFLOW SWITCH.

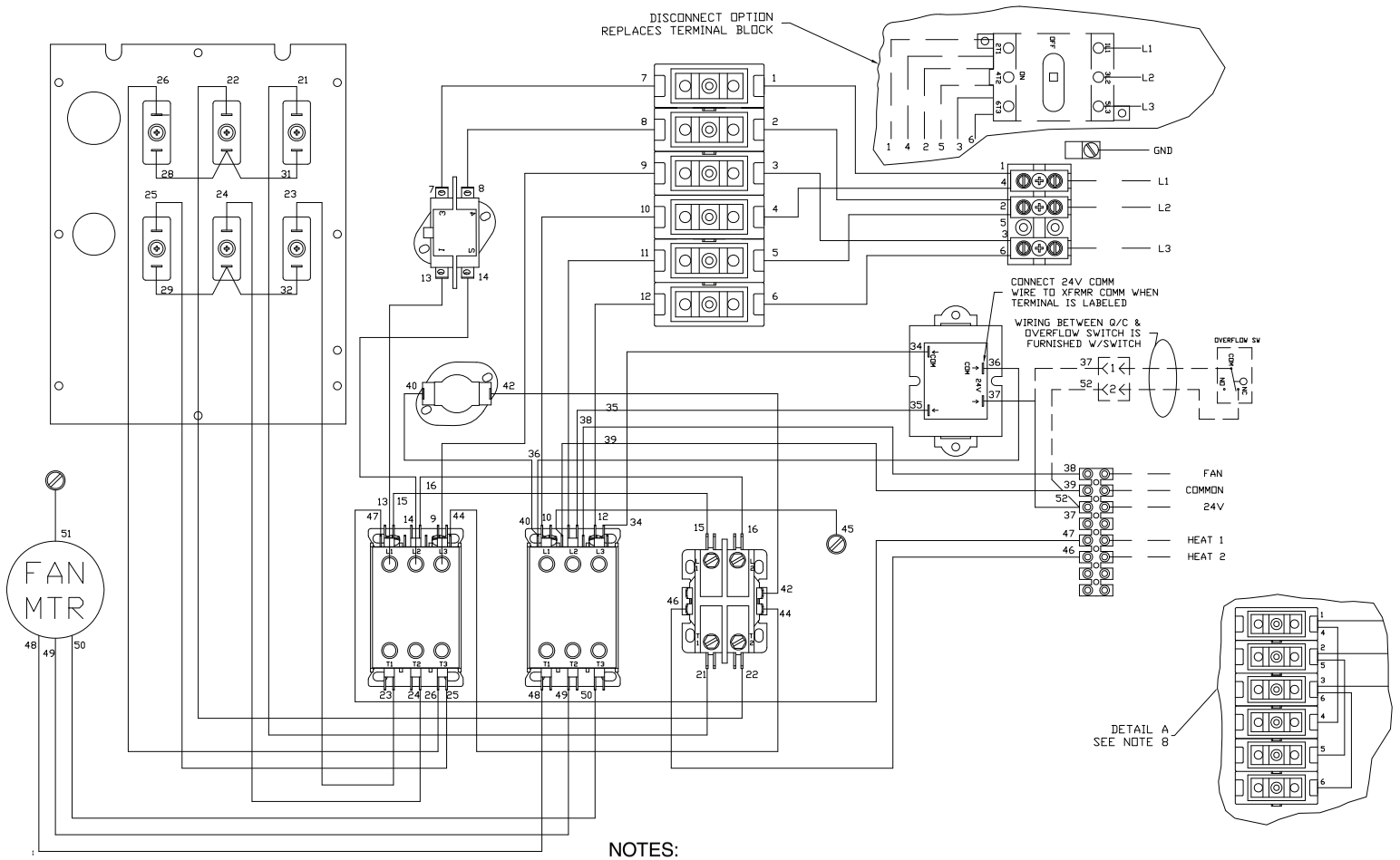


NOTES:
1. This is a point-to-point electrical diagram.
2. Caution: Disconnect power before servicing.
3. See nameplate for correct voltage. Use 75 C minimum copper conductors only. Unit terminals are not designed to accept any other wiring.
4. Blower motor thermally protected.
5. To ensure proper fan interlock and sequencing, external controller must energize heater stages in numerical order shown and deenergize stages in reverse order (i.e., first on will be last off).
6. All contractor wiring must conform to national and local electrical codes.
7. Wires 9, 13, and 14 will terminate inside contactor lug.
8. Wires 4, 5, and 6 to be installed as shown in Detail A when using part number E035-50011401 disconnect switch. All other disconnect switches to be wired as shown in the main diagram.
9. Use applicable heater configuration shown for proper connections.

Fig. 104 — 42B Motor Controls — 3-Phase with Interlocking Disconnect and Single-Stage Electric Heater

Wire #	Ga.	Color
1	8	BLACK
2	8	RED
3	8	BLUE
4	12	BLACK
5	12	RED
6	12	BLUE
7	8	BLACK
8	8	RED
9	8	BLUE
10	12	BLACK
11	12	RED
12	12	BLUE
13	8	BLACK
14	8	RED
15	10	BLACK
16	10	RED
17	–	N/A
18	–	N/A
19	–	N/A
20	–	N/A
21	12	BLACK
22	12	RED
23	12	BLACK
24	12	RED
25	12	BLUE
26	12	BLUE
27	–	N/A
28	12	BLACK
29	12	BLACK
30	–	N/A
31	12	BLACK
32	12	BLACK
33	–	N/A
34	18	BLUE
35	18	RED
36	18	YELLOW
37	18	ORANGE
38	18	GRAY
39	18	YELLOW
40	18	YELLOW
41	18	YELLOW
42	18	YELLOW
43	–	N/A
44	18	YELLOW
45	18	YELLOW
46	18	PURPLE
47	18	BROWN
48	14	BLACK
49	14	RED
50	14	BLUE
51	14	GREEN
52	18	ORANGE **

**ONLY USED WITH OVERFLOW SWITCH.

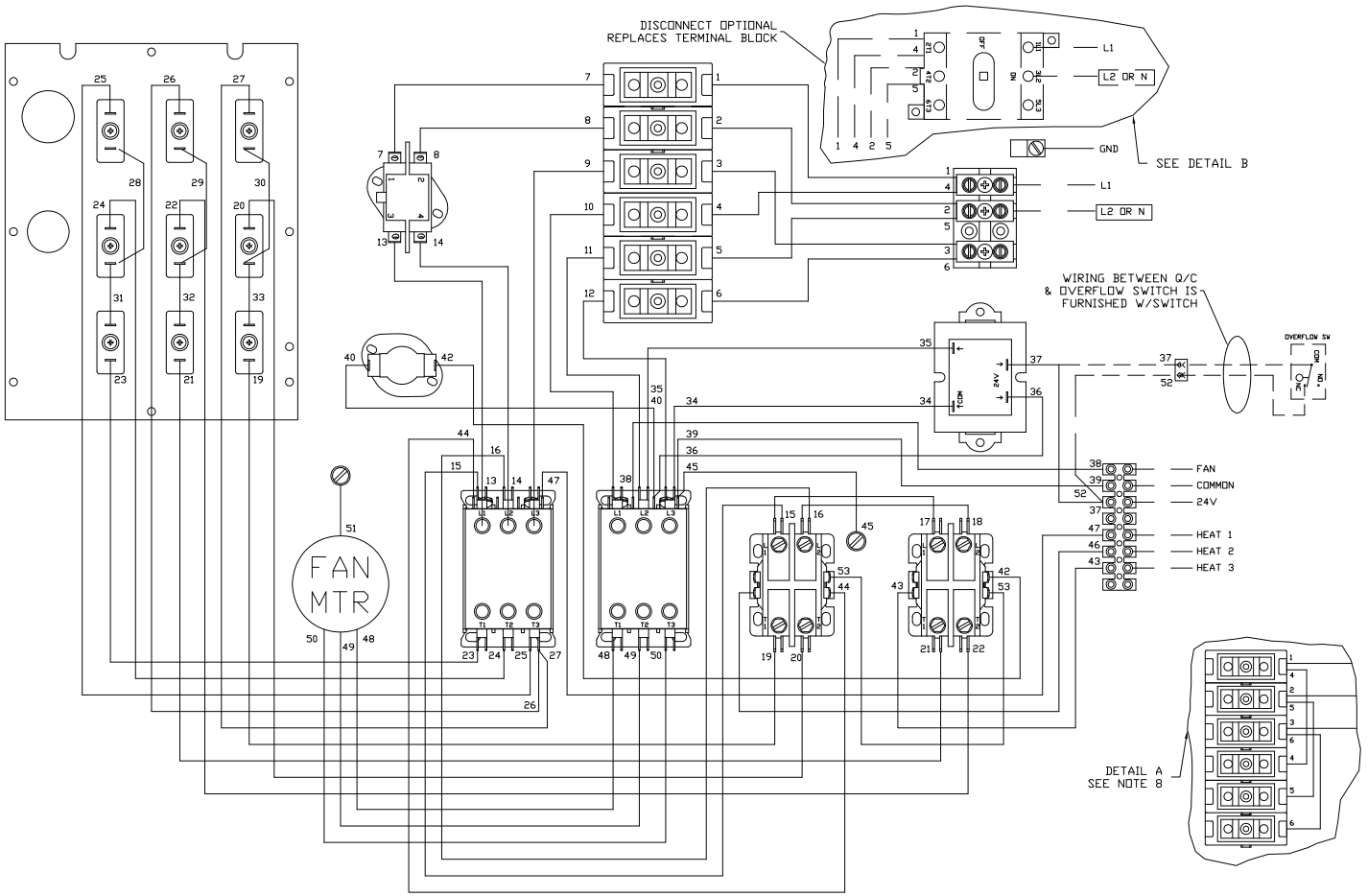


NOTES:
1. This is a point-to-point electrical diagram.
2. Caution: Disconnect power before servicing.
3. See nameplate for correct voltage. Use 75 C minimum copper conductors only. Unit terminals are not designed to accept any other wiring.
4. Blower motor thermally protected.
5. To ensure proper fan interlock and sequencing, external controller must energize heater stages in numerical order shown and deenergize stages in reverse order (i.e., first on will be last off).
6. All contractor wiring must conform to local and national electrical codes.
7. Wires 9, 13, and 14 will terminate inside contactor lug.
8. Wires 4, 5, and 6 to be installed as shown in Detail A when using part number E035-50011401 disconnect switch. All other disconnect switches to be wired as shown in the main diagram.

Fig. 105 — 42B Motor Controls — 3-Phase with Interlocking Disconnect and 2-Stage Electric Heater

Wire #	Ga.	Color	
1	8	BLACK	
2	8	RED	
3	8	BLUE	
4	12	BLACK	
5	12	RED	
6	12	BLUE	
7	8	BLACK	
8	8	RED	
9	8	BLUE	
10	12	BLACK	
11	12	RED	
12	12	BLUE	
13	8	BLACK	
14	8	RED	
15	10	BLACK	
16	10	RED	
17	10	BLACK	
18	10	RED	
19	12	BLACK	
20	12	RED	
21	12	BLACK	
22	12	RED	
23	12	BLACK	
24	12	RED	
25	12	BLUE	
26	12	BLUE	
27	12	BLUE	
28	12	BLACK	
29	12	BLACK	
30	12	BLACK	
31	12	BLACK	
32	12	BLACK	
33	12	BLACK	
34	18	BLUE	
35	18	RED	
36	18	YELLOW	
37	18	ORANGE	
38	18	GRAY	
39	18	YELLOW	
40	18	YELLOW	
41	18	YELLOW	
42	18	YELLOW	
43	18	PINK	
44	18	YELLOW	
45	18	YELLOW	
46	18	PURPLE	
47	18	BROWN	
48	14	BLACK	
49	14	RED	
50	14	BLUE	
51	14	GREEN	
52	18	ORANGE	**
53	18	YELLOW	

**ONLY USED WITH OVERFLOW SWITCH.



NOTES:
1. This is a point-to-point electrical diagram.
2. Caution: Disconnect power before servicing.
3. See nameplate for correct voltage. Use 75 C minimum copper conductors only. Unit terminals are not designed to accept any other wiring.
4. Blower motor thermally protected.
5. To ensure proper fan interlock and sequencing, external controller must energize heater stages in numerical order shown and deenergize stages in reverse order (i.e., first on will be last off).
6. All contractor wiring must conform to local and national electrical codes.
7. Wires 9, 13, and 14 will terminate inside contactor lug.
8. Wires 4, 5, and 6 to be installed as shown in Detail A when using part number E035-50011401 disconnect switch. All other disconnect switches to be wired as shown in the main diagram.

Fig. 106 — 42B Motor Controls — 3-Phase with Interlocking Disconnect and 3-Stage Electric Heater

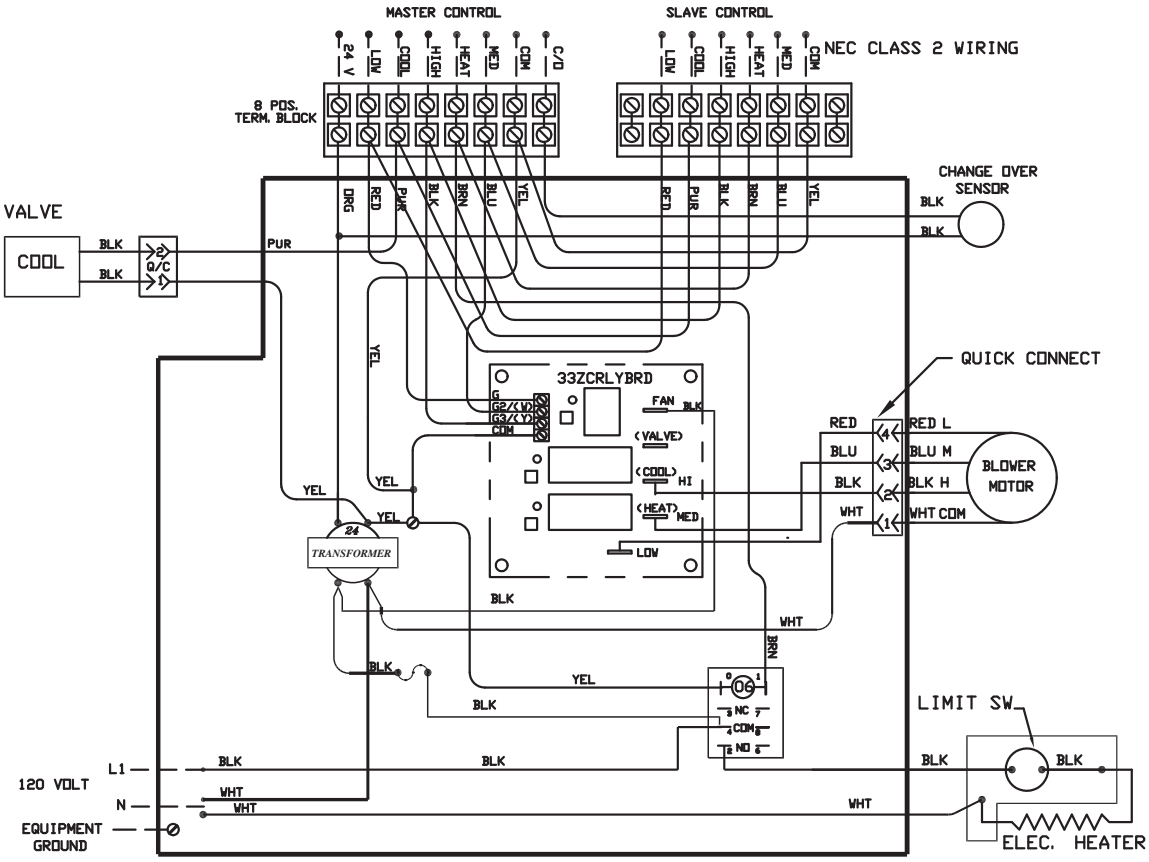


Fig. 107 —Master/Slave Wiring Diagram (Special Request) — Master Control Option

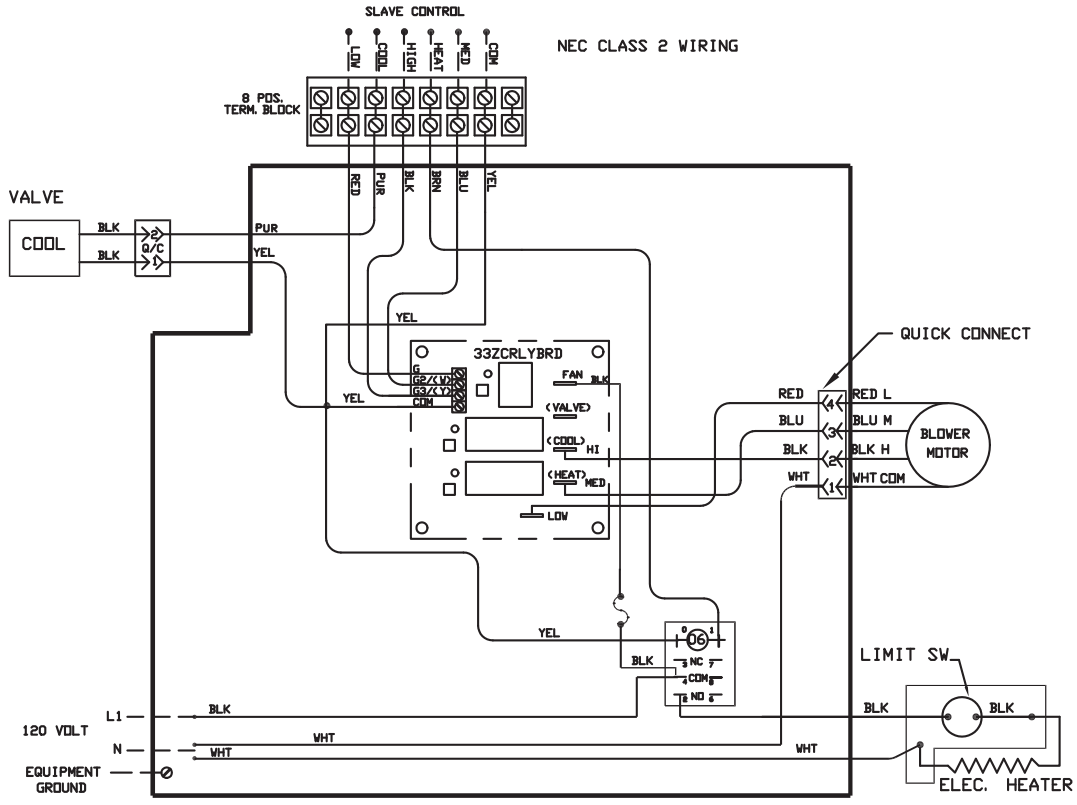


Fig. 108 — Master/Slave Wiring Diagram (Special Request) — Slave Control Option

Manufacturer reserves the right to discontinue, or change at any time, specifications or designs without notice and without incurring obligations.

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