PTAC Control Board Kit RSKP0013
Installation Instructions

ATTENTION INSTALLING PERSONNEL

As a professional installer you have an obligation to know the product better than the customer. This includes all safety precautions and related items.

Prior to actual installation, thoroughly familiarize yourself with this Instruction Manual. Pay special attention to all safety warnings. Often during installation or repair it is possible to place yourself in a position which is more hazardous than when the unit is in operation.

Remember, it is your responsibility to install the product safely and to know it well enough to be able to instruct a customer in its safe use.

Safety is a matter of common sense...a matter of thinking before acting. Most dealers have a list of specific good safety practices... follow them.

The precautions listed in this Installation Manual are intended as supplemental to existing practices. However, if there is a direct conflict between existing practices and the content of this manual, the precautions listed here take precedence.

RECOGNIZE THIS SYMBOL AS A SAFETY PRECAUTION

WARNING

Only personnel that have been trained to install, adjust, service or repair (hereinafter, "service") the equipment specified in this manual should service the equipment. The manufacturer will not be responsible for any injury or property damage arising from improper service or service procedures. If you service this unit, you assume responsibility for any injury or property damage which may result. In addition, in jurisdictions that require one or more licenses to service the equipment specified in this manual, only licensed personnel should service the equipment. Improper installation, adjustment, servicing or repair of the equipment specified in this manual, or attempting to install, adjust, service or repair the equipment specified in this manual without proper training may result in product damage, property damage, personal injury or death.

PROP 65 WARNING
FOR CALIFORNIA CONSUMERS

WARNING

Cancer and Reproductive Harm -
www.P65Warnings.ca.gov

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DESCRIPTION

Control board installation procedures are described in detail in these instructions. Read and follow these instructions carefully before replacing the control board. Failure to do so may result in control board damage. Pages 3 through 5 are procedures for programming the control board and the diagnostic codes for the control board.

WARNING

HIGH VOLTAGE
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

IMPORTANT NOTE:

Damage to the control board can occur from failure to disconnect power supply or failure to set the master switch (located on the control board) to OFF before removing the low voltage terminal strip cover from an installed control board. Damage to this board by not following these instructions is considered misuse and not covered under either the standard unit warranty or any extended service contract.

IMPORTANT NOTE:

All warranty replaced boards must be returned to the parts source from which they were purchased to insure proper warranty credit.

ELECTROSTATIC DISCHARGE (ESD) PRECAUTIONS

Before removing the new control board from the static wrap, it is very important to discharge any static electricity. This can be accomplished in two methods. Servicer can wear a ground strap or by touching the metal chassis before replacing the board.

EXISTING CONTROL BOARD REMOVAL PROCEDURES

1. Disconnect electrical power to the unit.
2. Remove front cover.
3. Remove the two mounting screws, one on each side of control board cover. **Lift the cover up to gain access to the ribbon connector. Unplug ribbon connector from control board and remove cover completely.** Remove the screw on right side of the control panel.

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4. If a remote thermostat or any low voltage accessory is being used, remove the low voltage pin connector from the low voltage terminal strip.
5. Remove the wires from the control board and unplug the thermistors from the control board. Remove the four screws that secure the control board to the control panel and remove the existing control board.

NEW CONTROL BOARD REMOVAL PROCEDURES

WARNING

HIGH VOLTAGE

DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

6. Set the new control board in place and reattach to control panel with the four screws removed in Step 5.
7. Re Reconnect the wires across the top terminals of the control board (Refer to Figure 1). They are as follows: RED 33 to Line 1 (either terminal), BROWN 34 to Heater 1, BROWN 34 to Heater 2, Power cord or BLACK 18 to Line 2 (either terminal), VIOLET 12 to Compressor, BLACK 16 to ID Fan High, RED 17 to ID Fan Low and BLACK 19 to Rev Valve.

   IMPORTANT NOTE: If installing on a unit with previous board refer to wiring diagrams for appropriate wiring beginning on page 8.

   IMPORTANT NOTE: If unit has a 2 speed relay, Remove the relay and all wires associated with it from the unit.

Note: Refer to the Serial Plate for voltage information.

8. Install high and low voltage wires from the transformer to the control board. GREY 21 from 230v or 265v to line 1, GREY 22 from COM to Line 2, BLACK 37 from LOAD to 24V Transformer Terminal and the second BLACK 37 from LOAD to the remaining 24V Transformer Terminal.
9. If Reconnect the thermistors to the control board. The BLACK thermistor connects to the IAT BLACK terminal and the RED Thermistor connects to the ICT RED terminal on the control board. The YELLOW Thermistor connects to the IDT YELLOW terminal on the control board.

   Note: If the unit is a heat pump, the BLUE Thermistor connects to the OCT BLUE terminal.
10. If a remote thermostat or any low voltage accessory is being used connect the low voltage pin connector to low voltage terminal strip. If replacing a previous version board you will need to use the 10 pin connector supplied with the board for low voltage accessories. Wires supplied with this kit have terminal ends on the wires. Insert the terminal end into the correctly labeled slot, push in and it will lock in place. After loading pin connector use the wire nuts supplied with the kit to wire nut the new wires onto the existing wires supplied for low voltage accessories. See Figure 2 on page 3.
11. The control board cover is now ready to be installed. The ribbon for the touch pad will need to be reconnected to the control board. **Use caution not to bend or fold the ribbon** (See Figure 1 for ribbon connection). Ensure that no wires are pinched or caught between the cover and the panel and then reinstall the screws removed in Step 3.

CRITICAL STEP

This service control ***will not operate*** until it has been configured to control a heat pump or cooler. As long as the display shows Eo, the unit ***will not operate***.
Follow the directions on Pages 3 and 4 to set feature codes C3 and "dd". *Failure to set "C3" and "dd" configuration codes correctly will cause the unit to not operate properly.*
For C3, select option H if the unit is a heat pump or option C if the unit is a cooler with or without electric heat.
For HE* and 32* models, configuration code "dd" must be set to correct cooling capacity: 7,000, 9,000, 12,000 15,000 or 17,000 btu's.

12. Set the master switch to the ON position, restore electrical power and verify that the unit is functioning correctly.

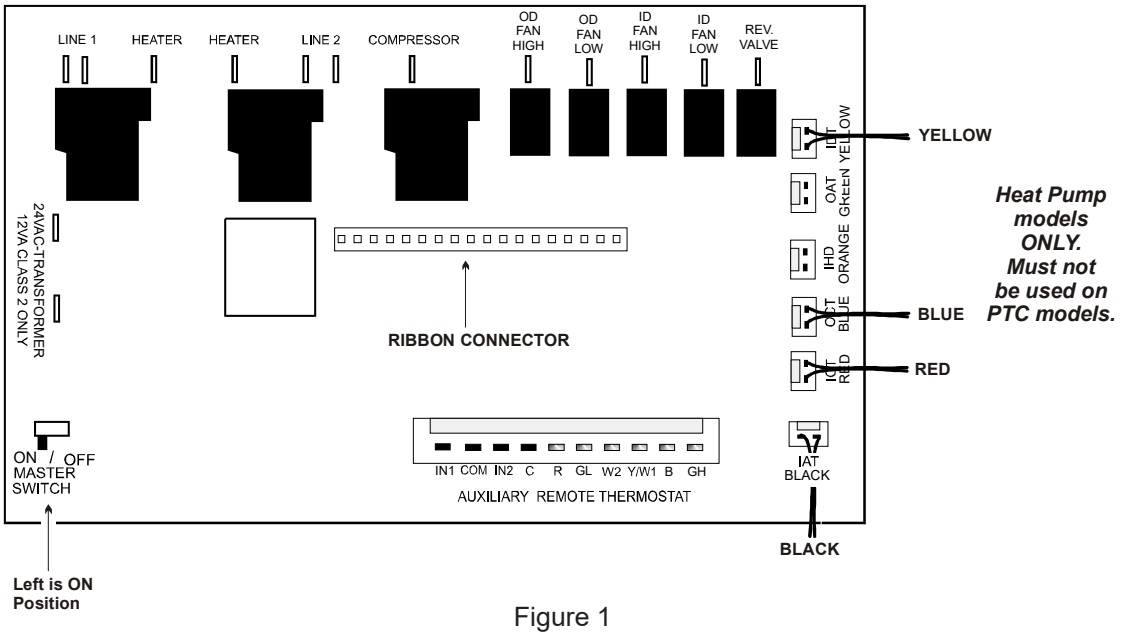
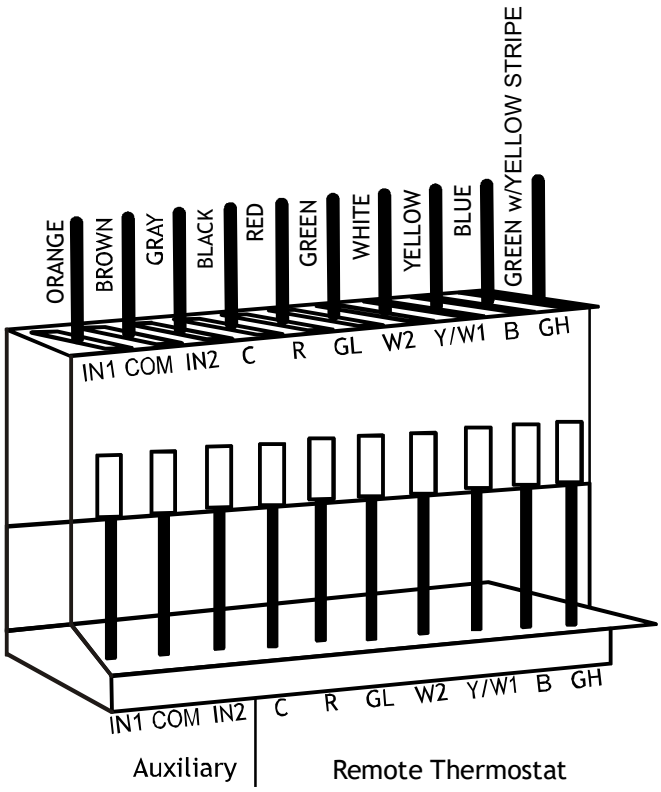


Figure 1



*Only load wires needed for accessories attached to unit.

Figure 1

INITIAL BOARD PROGRAMMING

Press and **continue to hold down** the plus (+) and minus (-) keys at the same time. While holding the keys down, push the **OFF** button t**wo (2) times, within a two (2) second time frame.** The display will show two (2) dash lines and a flashing dot (- - .).

Release the plus (+) and minus (-) keys and press the **HEAT** button three (3) times. The display will alternate between **C3** and **O**.

Press the plus (+) or minus (-) key until the display reads H (for models PTH*) or **C** (for models PTC*). Please check the serial plate of the PTAC to make sure you select the correct code. Once **H** or **C** is selected, press the **OFF** key to exit the programming.

CONFIGURATION SETTINGS

The control can be configured to operate a wide range of options. The options listed on the CONFIGURATION SETTINGS chart with the * are the factory default settings. If these are acceptable, then the unit does not require any additional configuration and is fully operable. To configure the unit, first select the configuration feature code setting and then an option code to change from the factory default setting.

To enter configuration feature mode:

1. Press and continue to hold the up and down arrow keys and quickly press the OFF key twice within a two (2) second time frame. The display will alternate between displaying the feature code C1, for example, and the option code 0 (factory default setting). The lower right dot on the display will flash.

   To select a configuration feature code, press the HEAT key until the desired configuration comes up. To scroll to a previously viewed configuration codes press the COOL key.

   Once you have scrolled to the correct feature, then to select the option code for your desired configuration, press either the up or down key to scroll through the options of the selected feature code.

To exit configuration mode:

1. Press the OFF key. Configuration feature mode will also exit if no keys are pressed for a period of two (2) minutes.

CONFIGURATION SETTINGS CHART

Configuration Code	Configuration Feature	Option Code	Option
C1	Interface	0 *	Chassis Membrane *
		L5	Wired Thermostat
		rE	Wireless Stat & 7-Button
		L0	Locked Membrane
C2	ID Fan Operation	Au	*do not use*
		On	*do not use*
		bP	Button present
		bA*	Revert to Cyclic
		A	Always run fan (even if Off)
		C	*do not use*
		bC	Revert to Continuous
C3	Model Prefix	C	PTC (Standard Cooler)
		H*	PTH (Standard Heat Pump)
		0	Service No Operation "Eo"
		dC	DRY (Dehumidification Cooler)
		dH	*do not use*
		uC	*do not use*
		uH	*do not use*
		AC	PMC (Cooler w/ Make-up Air)
		AH	PMH (Heat Pump w/ Make-up Air)
		EC	HEC (High Efficiency Cooler)
		EH	HEH (High Efficiency Heat Pump)
		3C	32C (R-32 Cooler)
		3H	32H (R-32 Heat Pump)
C4	Room I.D. Digit 1 & 2	00* - 99	00* - 99
C5	Room I.D. Digit 3 & 4	00* - 99	00* - 99
C6	Wired Occupancy	0*	Off*
		1	On
		18	18 Hour Automatic Entry
C8	Temp. Limiting Cool	60* - 80	60* - 80
C9	Temp. Limiting Heat	68 - 90, 80*	68 - 90, 80*
C0	T-stat B/O Term.	8*	B*
		0	O
c3	Un-rent Cooling Temp.	45 - 95, 79*	45 - 95, 79*
c4	Un-rent Heating Temp.	45 - 95, 63*	45 - 95, 63*
CA	Wireless Twin Unit	0*	Not Twinned*
		5	Twinned
Cd	English / Metric Temp	F*	Fahrenheit Scale*
		C	Celsius Scale
CE	Freeze Protection	L*	On, Low Fan*
		H	On, High Fan
		0	Off
d6	Sensorless Un-Occ. Time	1 - 32, 18*	1 - 32, 18*
d7	1st Un-Occ. Set Back Temp.	1 - 16, 2*	1 - 16, 2*
d8	1st Un-Occ. Set Back Time	.1, .5*, 1 - 24	.1 ,.5 ,1 - 24, .5*
d9	2nd Un-Occ. Set Back Temp.	1 - 16, 3*	1 - 16, 3*
dA	2nd Un-Occ. Set Back Time	.5, 1* - 24	(d8) - 24, 1*
db	3rd Un-Occ. Set Back Temp.	1 - 16, 6*	1 - 16, 6*
dC	3rd Un-Occ. Set Back Time	1 - 24, 3*	(dA) - 24, 3*
dd	Cooling Capacity	5 - 24	5,000 - 24,000 BTU
dF	Platform Group Code	00* - 99	00* - 99
dH	Electric Heater Size	00*, 15, 20, 25, 35, 50	00*, 15, 20, 25, 35, & 50
dJ	Operating Voltage	2, 3*, 4, 5	2, 3*, 4, 5
r4	Room Prefix	00* - 99	00* - 99
r5	Room Suffix	00* - 99	00* - 99
u3	Heat Protection	0*	Dis-enabled*
		78 - 99	78 - 99

*Indicates factory default

See manufacturer for additional configuration options.

CONFIGURATION SETTINGS CHART (CONT.)

Configuration Code	Configuration Feature	Option Code	Option
P0	Smart Vent Operation	0	Off
		1*	On only when ID fan runs
		2	On when ID fan runs & room occupied
		3	Runs continuously
		4	On when room is occupied
		E	Economizer
		EP	Economizer with compressor assist
P2	Vent Dehumid Make-up Air Kit Operation	0	Off
		1*	May be on anytime
		2	Allowed on except in Off mode
		3	Allowed on when indoor fan runs
		4	Allowed on if room is occupied
		5	Allowed on if room is not occupied
		6	Allowed on when indoor humidity is high
u8	Input Pins UN1 & COM	0*	Door Switch
		1	Motion Sensor
		2	Front Desk
		3	Wired Un-rented Set Back
		4	Emergency Hydronic
		5	Load Shedding
		6	Alarm Sensor
u9	Input Pins UN2 & COM	0*	Door Switch
		1	Motion Sensor
		2	Front Desk
		3	Wired Un-rented Set Back
		4	Emergency Hydronic
		5	Load Shedding
		6	Alarm Sensor
ub	Indoor Humidity Activation	0	Not used
		15-80, 25*	% RH above which kit may run
un	Vent Dehumid Outdoor Humidity Level	0	Not used
		15-60, 25*	% RH above which kit may run
uu	Vent Dehumidification Kit Fan Force	0	No affect on indoor fan
		1*	Indoor fan forced to run with Kit
uL	Config. Security Code	00* - 99	00* - 99

DIAGNOSTIC MAINTENANCE & STATUS REPORT

The Diagnostic Maintenance & Status Report provides detailed information on PTAC control operation and operational status including present modes, failures, airflow restriction warnings, operating temperatures, and past failures. The lower right hand dot on the center display flashes in this mode. In some cases the green LED located in the lower left hand corner of the touchpad below the OFF key will also be lit. This Green LED "Status Light" only illuminates if there is an status code that has been activated and should be reviewed. In most cases, this light indicates that the indoor room filter is dirty should be cleaned or replaced. **NOTE:** Dirty filters cause the unit to consume more energy than normally needed to condition a room. Once the filter has been cleaned or replaced, the LED should go out. If the LED is still illuminated after the filter has been cleaned, activate the Diagnostic and Status mode to view any active codes. The unit may need additional cleaning or maintenance of the evaporator or condenser coils. Please perform this step before calling a servicer. **A servicer should be called only if cleaning the filter or coils does not clear the status code or the code indicates that servicer should be called**.

DIAGNOSTIC STATUS REPORT MODE.

To enter Diagnostic Status Report mode, press and hold the up and down  arrows and, while holding, quickly press the COOL key  twice.

Active Failures.

- If there are no active failures or lockouts, the display will show a double dash, "- -". If there is a code listed, see the unit "Diagnostic Codes" chart for a list of definitions.

Operating Temperatures.

- If not in Diagnostic Status Report Mode, enter as instructed above and press the Fan Speed  key.
- If already in Diagnostic Status Report mode, press the Fan Speed  key. The display will show the temperature of the desired set point, **SP**; the temperature at the wireless thermostat, **rL**; the indoor ambient temperature behind the filter, **IA**; the indoor coil temperature, **IC**; the indoor discharge air temperature, **Id**; the outdoor coil temperature, **OC**; the outdoor ambient temperature, **OA**; and the spare probe temperature, **IH**. If any of the probes are not populated the display will show the corresponding failure code.

Past Failure Log

- If not in Diagnostic Status Report Mode, enter as instructed above and press the Fan Speed  key twice.
- If already in Diagnostic Status Report mode, press the Fan Speed  key. While the display is showing operating temperatures, the last 10 failure codes active or past can be requested by pressing the Fan Speed  key again. The codes are displayed last entry first followed subsequently by each preceding code.

Note that modes F1 and Fd are also displayed in the normal control operation (see "Diagnostic Codes" chart).

To exit Diagnostic Status Report mode, press the OFF  key.

DIAGNOSTIC CODES

CODE		STATUS	DISPLAY	ERROR LIGHT	SUGGESTED ACTION
MODES	**FP**	Freeze Protection Engaged. The room temperature measured by the wireless remote thermostat or indoor ambient thermistor active sensor falls below 40°F.	Y	N	No Action required. This setting will disengage when the room temperature rises above 43°F.
	Fd	Front Desk switch is closed. All outputs are switched off.	Y	N	Open front desk switch to allow occupant unit operation.
	Eo	Un-Configured Service Board - All operation held awaiting configuration	Y	Y	Enter Configuration Menu and set "C3" to "C" for coolers with electric heat or "H" for heat pumps.
	EH	Emergency Hydronic Engaged. The EHH switch is closed. Compressor is switched off.	Y	N	Open front emergency hydronic switch to allow occupant unit operation.
	LS	Load Shedding Engaged. The LS switch is closed. Compressor and Electric heat is switched off.	Y	N	Open load shedding switch to allow occupant unit operation.
	On	Control is configured to respond to a wired thermostat	Y	N	No action if a wired thermostat is being used. Otherwise, see Configuration Settings.
	oP	Open Door Lockout (DS1 & DS2 open; wireless)	Y	Y	Close Room Door. Unit will not condition space with door open.
	nP	Window Switch Lockout - (LS & INN open)	Y	Y	Close Room Door or Window. Unit will not condition space with door or window open.
	HP	Heat Sentinel - (WIAT > u3)	Y	N	No action required. This setting will disengage when the room temperature falls.
	UR	Un-Rented Status (EHH & INN or wireless)	Y	N	Front Desk needs to set to Rented mode (if applicable).
MODES	**F1**	Indoor Ambient Thermistor reads outside the range -20°F to 200°F & the wireless thermostat is not communicating to the unit control or Indoor Ambient Thermistor (IAT) without a wireless remote thermostat reads outside the range -20°F to 200°F.	Y	Y	Replace black Indoor Ambient Thermistor or Wireless Remote Thermostat.
	F2	Wireless Remote Thermostat failure	N	N	Replace Wireless Thermostat.
	F3	Indoor Ambient Thermistor reads outside the range -20°F to 200°F	Y	N	Replace black Indoor Ambient Thermistor.
	F4	Indoor Coil Thermistor either above or below operating tolerances.	N	Y	Replace Red Indoor Coil Thermistor.
	F5	Wireless Thermostat failure.	N	Y	Attempt to rebind Wireless Thermostat or Replace Wireless Thermostat.
	F6	Indoor Discharge Thermistor either above or below operating tolerances.	N	Y	Replace Yellow Indoor Discharge Thermistor.
	Fb	Low Remote Battery Warning.	N	Y	Replace Batteries in Wireless Devices.
	H1	High Voltage Protection engaged. Power supply voltage is to high.	Y	N	Check for incoming power at correct voltage.
	br	Brown Out Protection engaged. Power was lost or voltage is low.	N	N	Check for incoming power at correct voltage.
MODES	**L6**	Discharge Air Too Hot.	N	Y	Clean Filter or Remove Air Blockage.
	LC	Outdoor Coil Thermistor temperature high.	N	Y	Clean Condenser Coils, Check Fan for fault. Code will reset after cleaning.
	C2	Indoor Air Recirculation. Large delta between thermostat and return.	N	Y	Clean Filter or Remove Air Blockage or Close Vent Door or Improve indoor to outdoor seal.
	C5	Outdoor Coil temperature too high for outdoor ambient temperature.	N	Y	Check for Blocked Outdoor Air or Clean Coil.
MODES	**C1**	Indoor Coil is freezing up.	N	Y	Clean filter, Check for fan and blower operation, Check for Refrigerant loss or Restricted capillary tube.
	C3	Indoor Coil is freezing up.	N	Y	Clean filter, Check for fan and blower operation, Check for Refrigerant loss or Restricted capillary tube.
	C4	Indoor Coil froze up.	N	Y	Clean filter, Check for fan and blower operation, Check for Refrigerant loss or Restricted capillary tube.
	C6	Poor Unit Performance.	N	Y	Check for blower motor, compressor, or electric heat operation.
	C7	Indoor Freezing Lockout (ICT - IAT > 20) +10 Min	N	Y	Clean filter, Check for fan and blower operation, Check for Refrigerant loss or Restricted capillary tube.

WIRING DIAGRAMS

SINGLE MOTOR

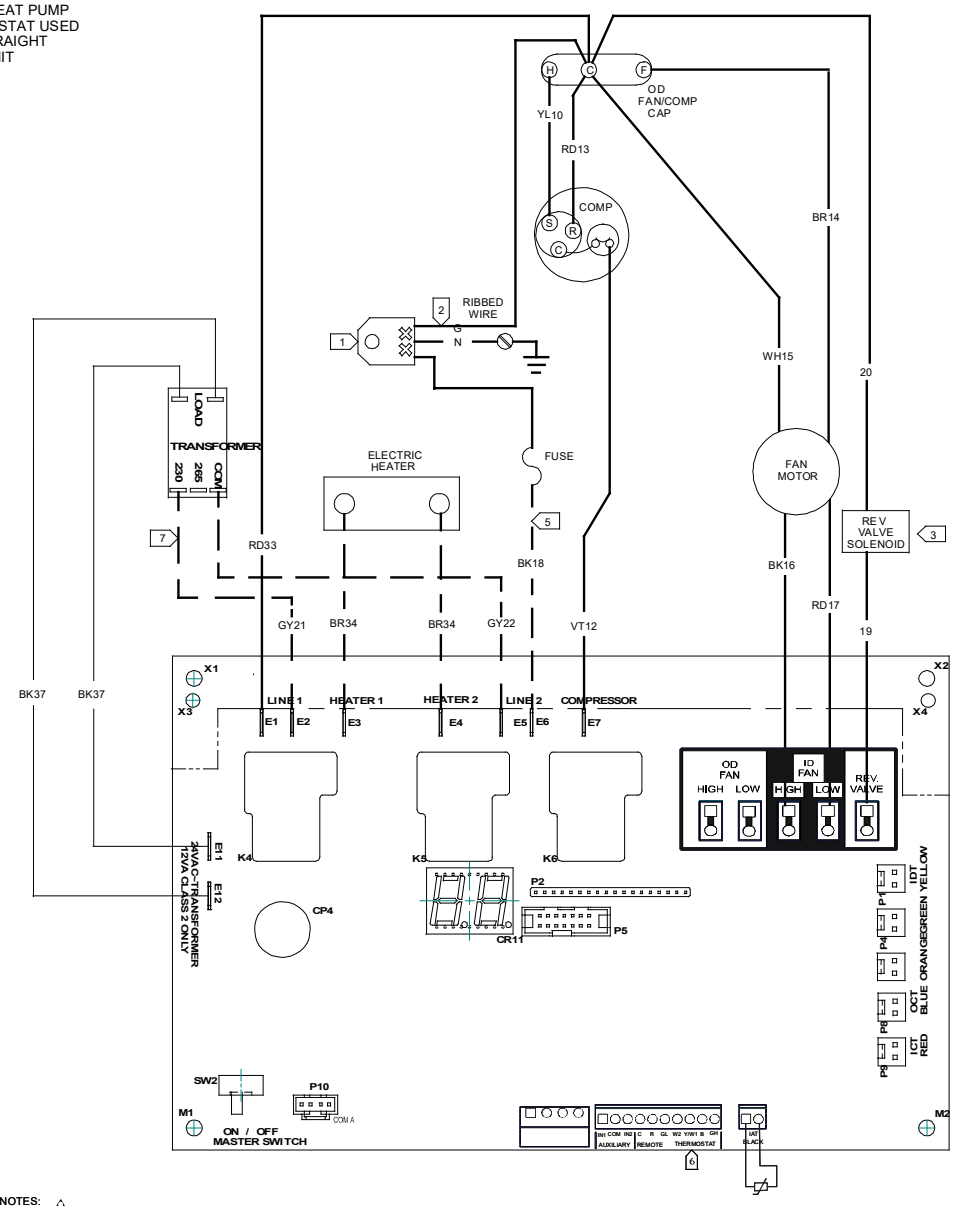
REMOTE THERMOSTAT OPERATION			
COOLING UNIT W/ELECTRIC HEAT		HEAT PUMP W/AUXILIARY ELECTRIC HEAT	
FUNCTION	CONNECT R TO:	FUNCTION	CONNECT R TO:
OFF	-----	OFF	-----
FAN	G	FAN	G
COOL	G, Y/W1	COOL	G, Y/W1
HEAT	G, W2 OR G,B,Y/W1 *	1ST STAGE HEAT	G,B,Y/W1
		2ND STAGE HEAT	G, W2

1ST STAGE ANTICIPATOR CURRENT: .1
2ND STAGE ANTICIPATOR CURRENT: .1

* FOR A HEAT PUMP THERMOSTAT USED ON A STRAIGHT COOL UNIT

HIGH VOLTAGE!
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

WARNING



NOTES:

1. ⚠ WARNING: DISCONNECT POWER BEFORE SERVICING. WIRING TO UNIT MUST BE PROPERLY POLARIZED (FOR 265V) AND GROUNDED.
2. RIBBED WIRE MUST BE CONNECTED AS SHOWN
3. ON HEAT PUMP MODELS ONLY.
4. ON UNITS WITH FRONT DESK CONTROL SWITCH.
5. BK18 ON LINE 2 WITH FUSE SHOWN CONNECTED FOR 265V. FOR 230V & 115V, CONNECT POWER CORD TO LINE 2.
6. FOR REMOTE OPERATION, SEE CONFIGURATION CHART.
7. IF SUPPLY VOLTAGE IS 208V/230V USE THE 230V TAP ON TRANSFORMER. IF SUPPLY VOLTAGE IS 265V USE THE 265V TAP ON TRANSFORMER. 115V TRANSFORMER NOT SHOWN.
8. FOR CONTINUOUS FAN OPERATION SEE CONFIGURATION CHART.

USE COPPER CONDUCTORS ONLY

CHASSIS — GN 1 — CONTROL PANEL

WIRE LEGEND
HIGH VOLTAGE (FACTORY)
HIGH VOLTAGE (FACTORY OR FIELD)
LOW VOLTAGE (FACTORY OR FIELD)

WIRING DIAGRAMS

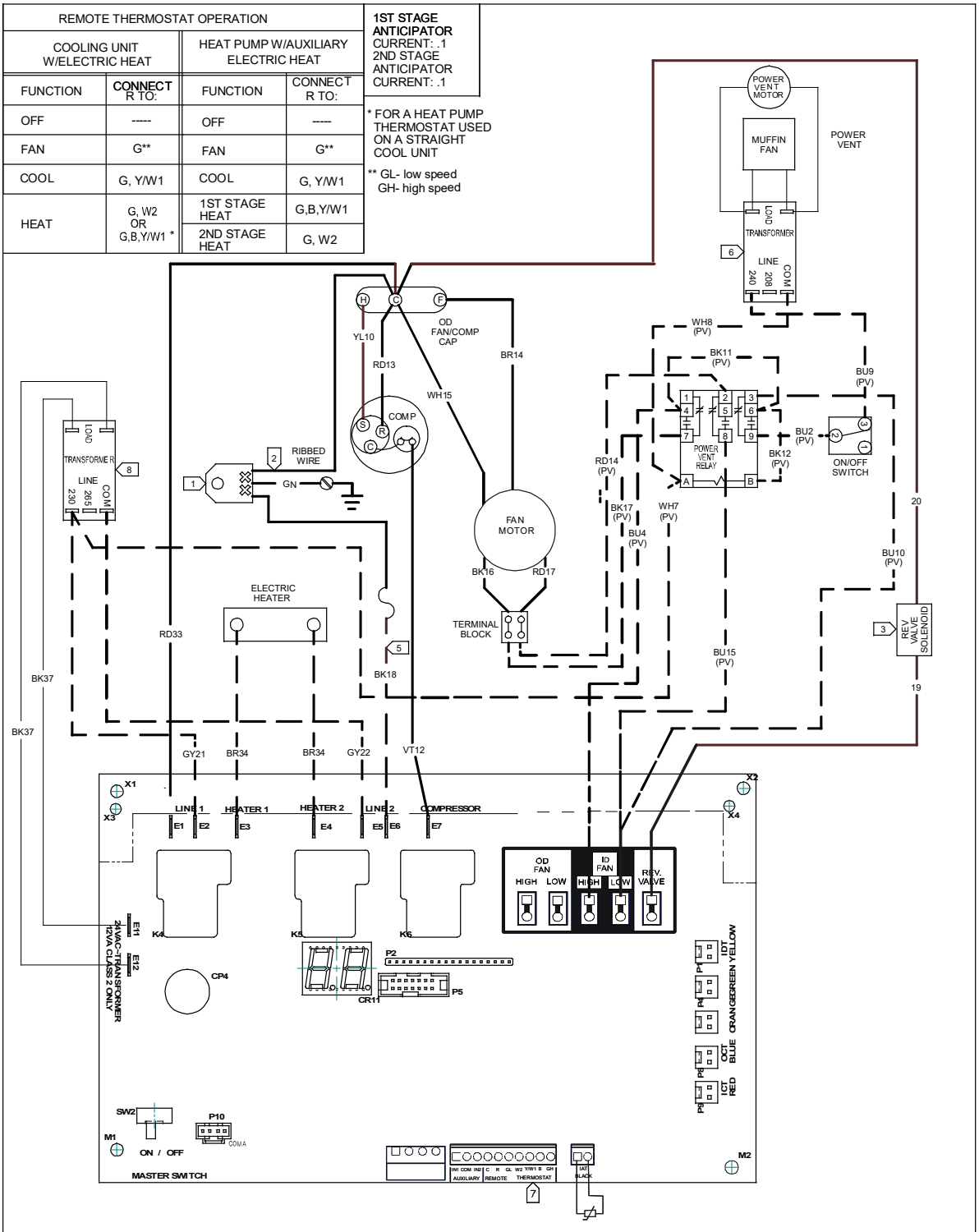
SINGLE MOTOR POWER VENT DOOR

REMOTE THERMOSTAT OPERATION			
COOLING UNIT W/ELECTRIC HEAT		HEAT PUMP W/AUXILIARY ELECTRIC HEAT	
FUNCTION	CONNECT R TO:	FUNCTION	CONNECT R TO:
OFF	-----	OFF	-----
FAN	G**	FAN	G**
COOL	G, Y/W1	COOL	G, Y/W1
HEAT	G, W2 OR G,B,Y/W1 *	1ST STAGE HEAT	G,B,Y/W1
		2ND STAGE HEAT	G, W2

1ST STAGE ANTICIPATOR CURRENT: .1
2ND STAGE ANTICIPATOR CURRENT: .1

* FOR A HEAT PUMP THERMOSTAT USED ON A STRAIGHT COOL UNIT

** GL- low speed
GH- high speed



NOTES:

1. WARNING: DISCONNECT POWER BEFORE SERVICING. WIRING TO UNIT MUST BE PROPERLY POLARIZED (FOR 265V) AND GROUNDED.
2. RIBBED WIRE MUST BE CONNECTED AS SHOWN.
3. ON HEAT PUMP MODELS ONLY.
4. ON UNITS WITH FRONT DESK CONTROL SWITCH.
5. BK18 ON LINE 2 WITH FUSE SHOWN CONNECTED FOR 265V. FOR 230V AND 115V, CONNECT POWER CORD TO LINE 2.
6. IF SUPPLY VOLTAGE IS 208V MOVE 240V LEAD TO 208V TAP ON TRANSFORMER. 265V AND 115V TRANSFORMER NOT SHOWN.
7. FOR REMOTE OPERATION, SEE CONFIGARATION CHART.
8. IF SUPPLY VOLTAGE IS 208V/230V USE THE 230V TAP ON TRANSFORMER. IF SUPPLY VOLTAGE IS 265V USE THE 265V TAP ON TRANSFORMER. 115V TRANSFORMER NOT SHOWN.
9. FOR CONTINUOUS FAN OPERATION SEE CONFIGURATION CHART.

USE COPPER CONDUCTORS ONLY

CHASSIS — GN 1 — CONTROL PANEL

WIRE LEGEND

- HIGH VOLTAGE (FACTORY)
- HIGH VOLTAGE (FACTORY OR FIELD)
- LOW VOLTAGE (FACTORY OR FIELD)

WARNING

HIGH VOLTAGE!
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

WIRING DIAGRAMS

SINGLE MOTOR CONDENSATE PUMP

REMOTE THERMOSTAT OPERATION			
COOLING UNIT W/ELECTRIC HEAT		HEAT PUMP W/AUXILIARY ELECTRIC HEAT	
FUNCTION	CONNECT R TO:	FUNCTION	CONNECT R TO:
OFF	-----	OFF	-----
FAN	G	FAN	G
COOL	G, Y/W1	COOL	G, Y/W1
HEAT	G, W2 OR G,B,Y/W1 *	1ST STAGE HEAT	G,B,Y/W1
		2ND STAGE HEAT	G, W2

1ST STAGE ANTICIPATOR CURRENT: .1
2ND STAGE ANTICIPATOR CURRENT: .1

* FOR A HEAT PUMP THERMOSTAT USED ON A STRAIGHT COOL UNIT

HIGH VOLTAGE!
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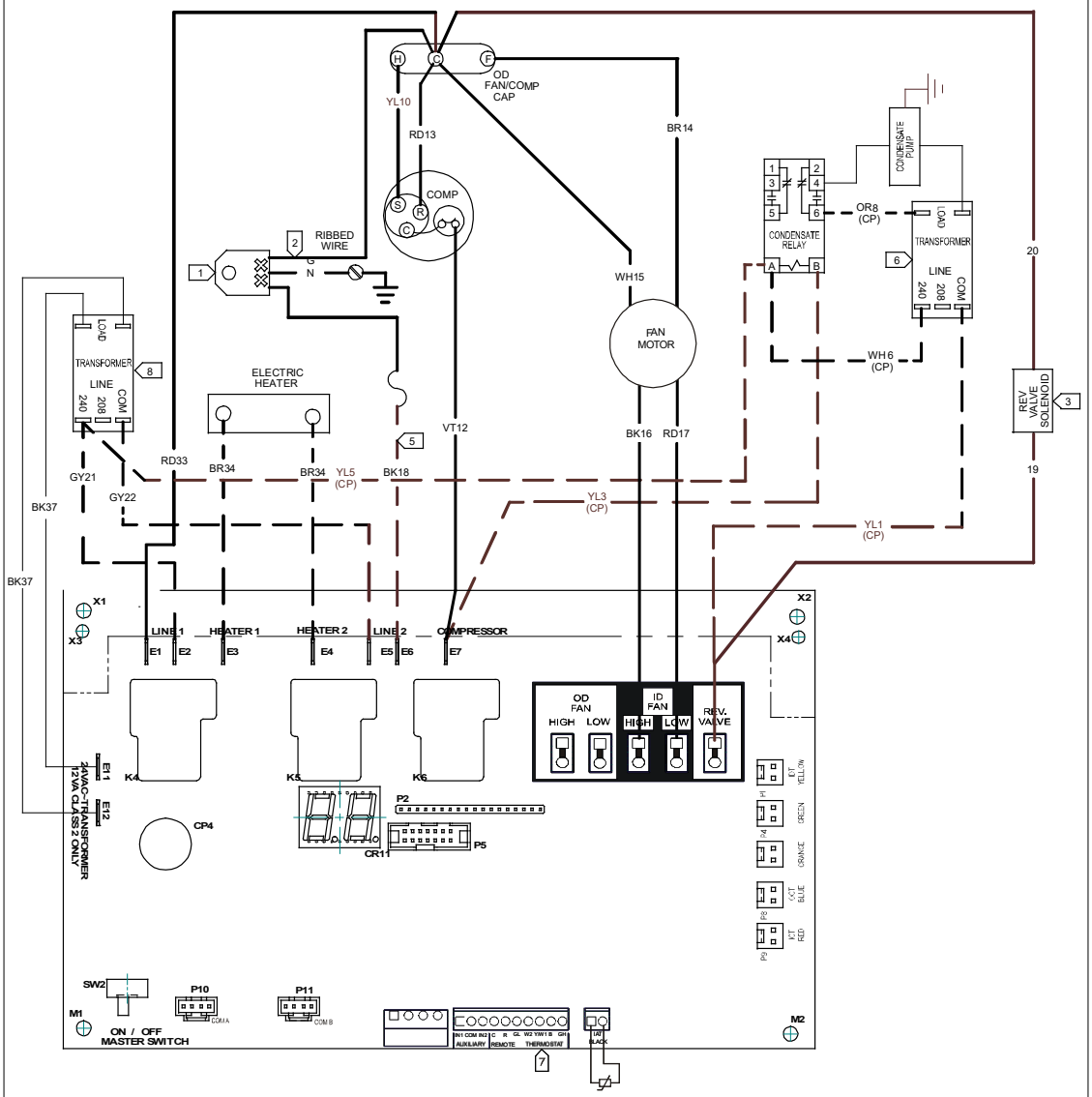
WARNING



NOTES

1. WARNING: DISCONNECT POWER BEFORE SERVICING. WIRING TO UNIT MUST BE PROPERLY POLARIZED (FOR 265V) AND GROUNDED.
2. RIBBED WIRE MUST BE CONNECTED AS SHOWN.
3. ON HEAT PUMP MODELS ONLY.
4. ON UNITS WITH FRONT DESK CONTROL SWITCH.
5. BK18 ON LINE 2 WITH FUSE SHOWN CONNECTED FOR 265V. FOR 230V AND 115V, CONNECT POWER CORD TO LINE 2.
6. IF SUPPLY VOLTAGE IS 208V MOVE 240V LEAD TO 208V TAP ON TRANSFORMER. 265V AND 115V TRANSFORMER NOT SHOWN.
7. FOR REMOTE OPERATION, SEE CONFIGURATION CHART.
8. IF SUPPLY VOLTAGE IS 208V, MOVE 204V LEAD TO 208V TAP ON TRANSFORMER. 265V AND 115V TRANSFORMER NOT SHOWN.
9. FOR CONTINUOUS FAN OPERATION SEE CONFIGURATION CHART.

USE COPPER CONDUCTORS ONLY

CHASSIS — GN 1 — CONTROL PANEL

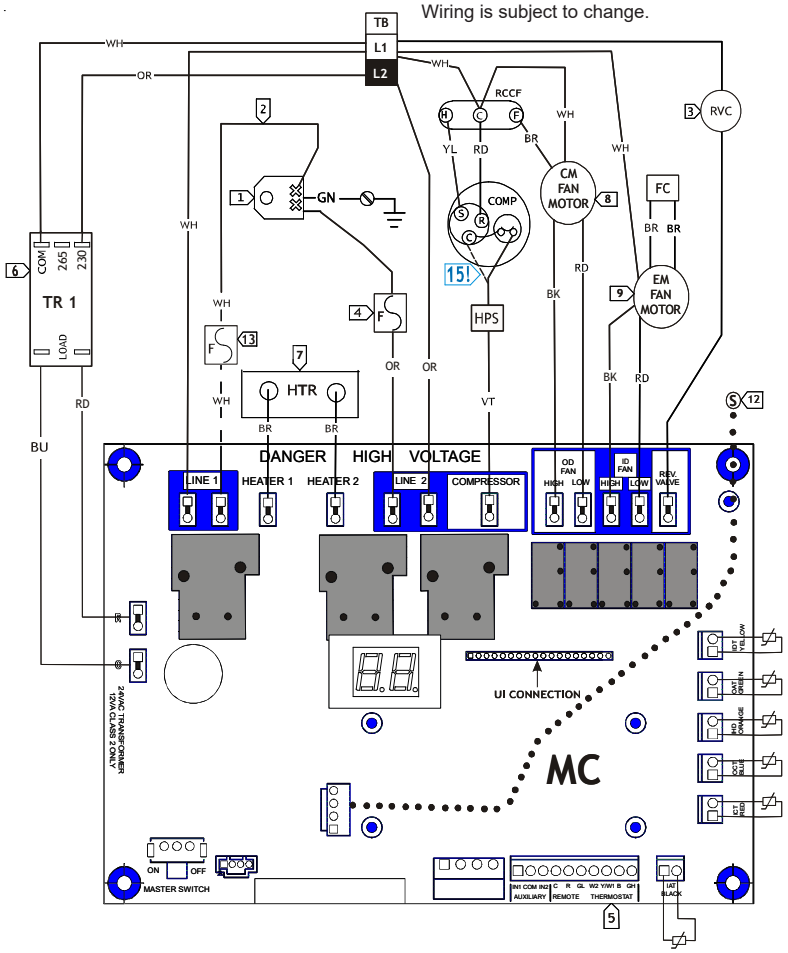
WIRE LEGEND

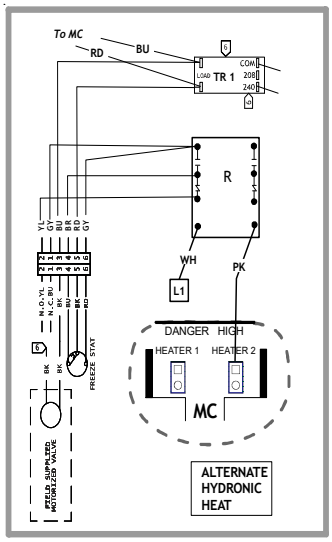
- HIGH VOLTAGE (FACTORY)
- HIGH VOLTAGE (FACTORY OR FIELD)
- LOW VOLTAGE (FACTORY OR FIELD)

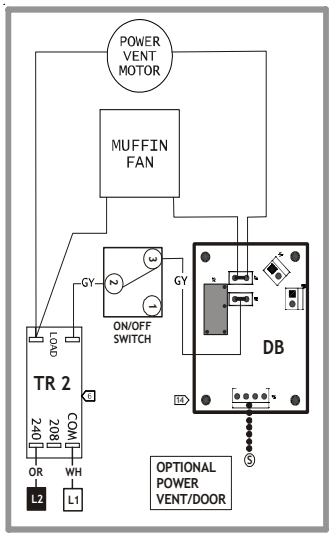
WIRING DIAGRAMS

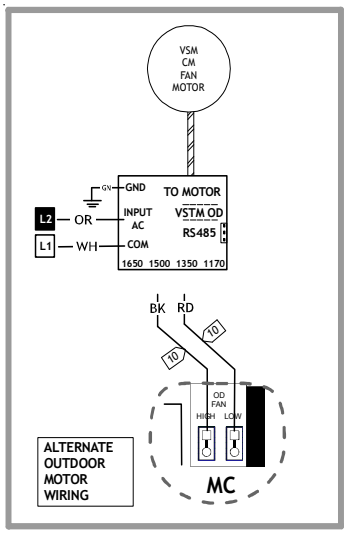
DUAL MOTOR

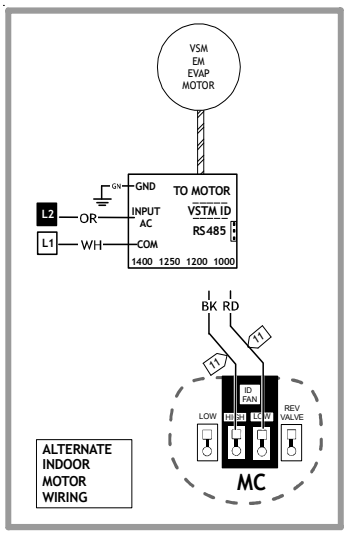
Wiring is subject to change.

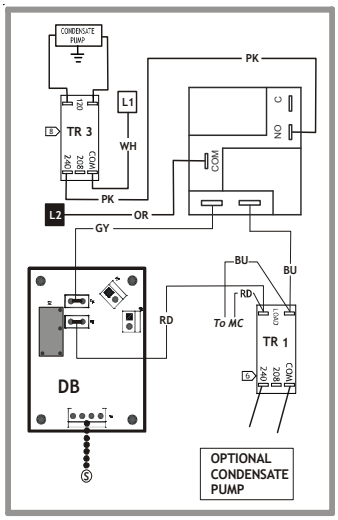












REMOTE THERMOSTAT OPERATION	
COOLING UNIT W/ELECTRIC HEAT	
FUNCTION	CONNECT R TO:
OFF	-----
FAN	G**
COOL	G, Y/W1
HEAT	G, W2 OR G,B,Y/W1*
HEAT PUMP W/AUXILIARY ELECTRIC HEAT	
FUNCTION	CONNECT R TO:
OFF	-----
FAN	G**
COOL	G, Y/W1
1ST STAGE HEAT	G,B,Y/W1
2ND STAGE HEAT	G, W2

* FOR A HEAT PUMP THERMOSTAT USED ON A STRAIGHT COOL UNIT.
** GL - LOW SPEED
GH - HIGH SPEED

NOTES :

1. ⚠ WARNING: DISCONNECT POWER BEFORE SERVICING. WIRING TO UNIT MUST BE PROPERLY POLARIZED (FOR 265V) AND GROUNDED.
2. WHITE WIRE MUST BE CONNECTED AS SHOWN.
3. ON HEAT PUMP MODELS ONLY.
4. "OR" ON LINE 2 WITH FUSE SHOWN CONNECTED FOR 265V. OPTIONAL FOR 230V & 115 V, CONNECT POWER CORD TO LINE 2.
5. FOR REMOTE OPERATION, SEE CONFIGURATION CHART.
6. IF SUPPLY VOLTAGE IS 208V/230V, USE THE 230V OR 240V TAP ON TRANSFORMER. IF SUPPLY VOLTAGE IS 265V, USE THE 265V TAP ON TRANSFORMER. IF 115V TRANSFORMER IS USED (NOT SHOWN) USE THE 115V TAP. THIS APPLIES TO PTC**2 MODELS ONLY
7. SEE OPTIONAL HYDRONIC HEAT DIAGRAM FOR HOT WATER STEAM HEAT.
8. SEE ALTERNATE WIRING FOR DC OUTDOOR MOTORS.
9. SEE ALTERNATE WIRING FOR DC INDOOR MOTORS.
10. SEE TABLE FOR OUTDOOR MOTOR SPEED SELECTION.
11. SEE TABLE FOR INDOOR MOTOR SPEED SELECTION.
12. SEE OPTIONAL WIRING DIAGRAMS FOR SERIAL CABLE CONNECTIONS.
13. OPTIONAL FOR 208/230V.
14. SET DIP SWITCHES PER TABLE.
15. PTC073G**BXXX, HEC073H**BXXX REQUIRE NO EXTERNAL OVERLOAD. HPS WILL WIRE STRAIGHT TO "C" TERMINAL ON COMPRESSOR

CM	OUTDOOR FAN MOTOR
COMP	COMPRESSOR
DB	DAUGHTER BOARD
EM	EVAPORATOR MOTOR
FC	FAN CAPACITOR
F	FUSE
HPS	HIGH PRESSURE SWITCH
HTR	HEATER ELEMENT
MC	MAIN CONTROL
R	RELAY
RCCF	RUN CAPACITOR FOR COMPRESSOR AND FAN
RVC	REVERSING VALVE
TR	TRANSFORMER
TB	TERMINAL BLOCK
VSM	VARIABLE SPEED MOTOR
VSTM	VARIABLE SPEED TERMINAL BOARD

USE COPPER CONDUCTORS ONLY

CHASSIS — GN1 — CONTROL PANEL

WIRE LEGEND

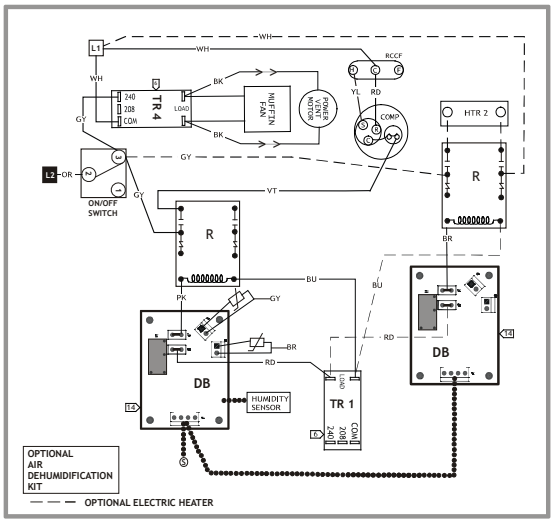
- HIGH VOLTAGE (FACTORY)
- HIGH VOLTAGE (FACTORY OR FIELD)
- LOW VOLTAGE (FACTORY OR FIELD)
- HIGH VOLTAGE DC HARNESS (FACTORY)

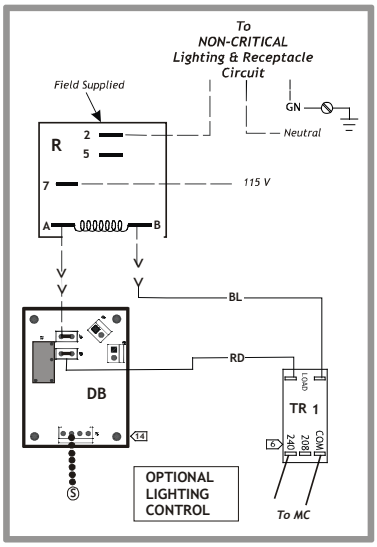
WARNING

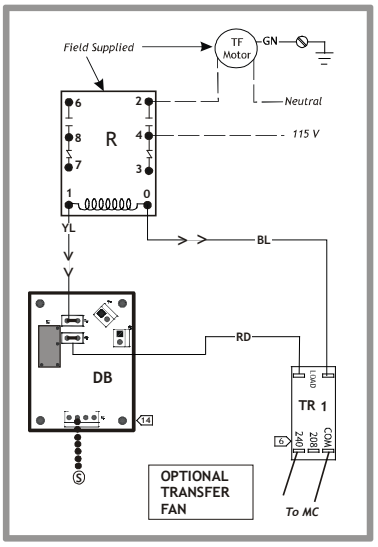
HIGH VOLTAGE!
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

WIRING DIAGRAMS

DUAL MOTOR (CONTINUED)







HIGH VOLTAGE!
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

WARNING

10

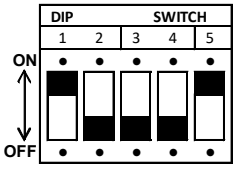
Outdoor Motor Speed Selection		
Model Starts With	**High Speed VSTM Tap (Black Wire)**	**Low Speed VSTM Tap (Red Wire)**
DRY093/DRY094	1350	1170
PTC173	1650	1450
HEC073/PTH073/PTH074	1350	1170
PMH094/HEC093/PTH093/PTH094	1350	1170
HEC123/PTH123/PTH124	1500	1350
PTH153/PTH154	1650	1500
PMH153/PMH154	1650	1500
PTC073/PTC074	1350	1170
PTC093/PTC094	1350	1170
PTC123/PTC124	1350	1170
PTC153/PTC154	1650	1500

11

Indoor Motor Speed Selection		
Model Starts With	**High Speed VSTM Tap (Black Wire)**	**Low Speed VSTM Tap (Red Wire)**
PTH07*G (00 to 35)	1350	1170
PMH07*G (00 to 35)	1650	1450
PMC07*G (00 to 35)	1350	1170
PMC09*G (00 to 35)	1350	1170
PMC12*G (00 to 35)	1500	1350
PMH074/PTH073H/PTH074H (00 to 35)	1650	1500
PMH094/PTH093H/PTH094H (00 to 35)	1650	1500
PMH124/PTH123H/PTH124H (00 to 35)	1350	1170
PTH153H/PTH154H (00 to 35)	1350	1170
PMC154/PMH153G/PMH154G (00 to 35)	1350	1170
PTC072G/PTC092G (00 to 35)	1650	1500

14

Daughter Board Device	Address	Switch 1	Switch 2	Switch 3	Switch 4	Switch 5
Smart Vent/Door operations for Power Door/Vent, Economizer and Economizer(+) Board	17	0	0	0	0	1
Transfer Fan	20	0	0	1	0	0
Condensate Pump	21	0	0	1	0	1
Lighting Control	24	0	1	0	0	0
DigiAIR™ Compressor	25	0	1	0	0	1
DigiAIR™ Heater	26	0	1	0	1	0
DigiAIR™ Fan	28	0	1	1	0	0



WIRING DIAGRAMS

DUAL MOTOR, 2 SPEED RELAY

REMOTE THERMOSTAT OPERATION	
COOLING UNIT W / ELECTRIC HEAT	
FUNCTION	CONNECT R TO:
OFF	----------
FAN	G **
COOL	G, Y / W1
HEAT	G, W2 OR G, B, Y / W1*
HEAT PUMP W / AUXILIARY ELECTRIC HEAT	
FUNCTION	CONNECT R TO:
OFF	----------
FAN	G **
COOL	G, Y / W1
1ST STAGE HEAT	G, B, Y / W1
2ND STAGE HEAT	G, W2

* FOR A HEAT PUMP, THERMOSTAT USED ON A STRAIGHT COOL UNIT

** GL - LOW SPEED
GH - HIGH SPEED

NOTES:
1. WARNING: DISCONNECT POWER BEFORE SERVICING. WIRING TO UNIT MUST BE PROPERLY POLARIZED (FOR 265V) AND GROUNDED.
2. WHITE WIRE MUST BE CONNECTED AS SHOWN.
3. ON HEAT PUMP MODELS ONLY
4. BK ON LINE 2 WITH FUSE SHOWN CONNECTED FOR 265V FOR 230 V &115 V, CONNECTED POWER CORD TO LINE 2
5. FOR REMOTE OPERATION, SEE CONFIGURATION CHART.
6. IF SUPPLY VOLTAGE IS 208V / 230V, USE THE 230V TAP ON TRANSFORMER.
   IF SUPPLY VOLTAGE IS 265V, USE THE 265V TAP ON TRANSFORMER.
   115V TRANSFORMER NOT SHOWN.
7. BOARD SHOWS R AND C, PLEASE IGNORE.

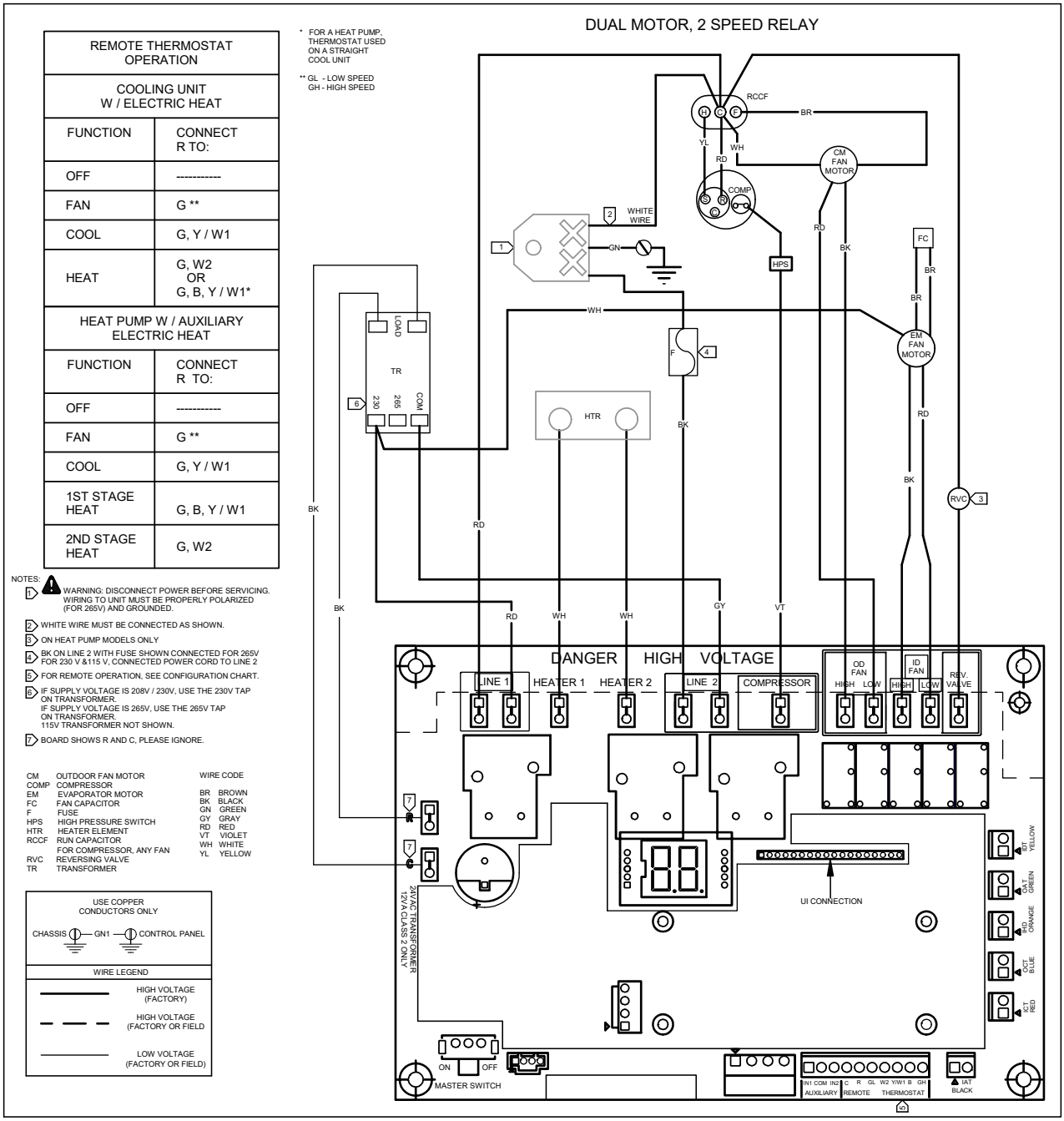
CM	OUTDOOR FAN MOTOR	WIRE CODE	
COMP	COMPRESSOR		
EM	EVAPORATOR MOTOR	BR	BROWN
FC	FAN CAPACITOR	BK	BLACK
F	FUSE	GN	GREEN
HPS	HIGH PRESSURE SWITCH	GY	GRAY
HTR	HEATER ELEMENT	RD	RED
RCCF	RUN CAPACITOR FOR COMPRESSOR, ANY FAN	VT	VIOLET
		WH	WHITE
RVC	REVERSING VALVE	YL	YELLOW
TR	TRANSFORMER		

USE COPPER CONDUCTORS ONLY

CHASSIS — GN1 — CONTROL PANEL

WIRE LEGEND

- HIGH VOLTAGE (FACTORY)
- HIGH VOLTAGE (FACTORY OR FIELD
- LOW VOLTAGE (FACTORY OR FIELD)



HIGH VOLTAGE!
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

WARNING

WIRING DIAGRAMS

DUAL MOTOR NO SPEED RELAY SINGLE SPEED CONDENSER FAN

REMOTE THERMOSTAT OPERATION	
COOLING UNIT W / ELECTRIC HEAT	
FUNCTION	CONNECT R TO:
OFF	----------
FAN	G **
COOL	G, Y / W1
HEAT	G, W2 OR G, B, Y / W1*
HEAT PUMP W / AUXILIARY ELECTRIC HEAT	
FUNCTION	CONNECT R TO:
OFF	----------
FAN	G **
COOL	G, Y / W1
1ST STAGE HEAT	G, B, Y / W1
2ND STAGE HEAT	G, W2

* FOR A HEAT PUMP, THERMOSTAT USED ON A STRAIGHT COOL UNIT

** GL - LOW SPEED
GH - HIGH SPEED

NOTES:

1. WARNING: DISCONNECT POWER BEFORE SERVICING. WIRING TO UNIT MUST BE PROPERLY POLARIZED (FOR 265V) AND GROUNDED.
2. WHITE WIRE MUST BE CONNECTED AS SHOWN.
3. ON HEAT PUMP MODELS ONLY
4. BK ON LINE 2 WITH FUSE SHOWN CONNECTED FOR 265V FOR 230 V &115 V, CONNECTED POWER CORD TO LINE 2
5. FOR REMOTE OPERATION, SEE CONFIGURATION CHART.
6. IF SUPPLY VOLTAGE IS 208V/230V, USE THE 230V TAP ON TRANSFORMER.
   IF SUPPLY VOLTAGE IS 265V, USE THE 265V TAP ON TRANSFORMER.
   115V TRANSFORMER NOT SHOWN.
7. BOARD SHOWS R AND C, PLEASE IGNORE.

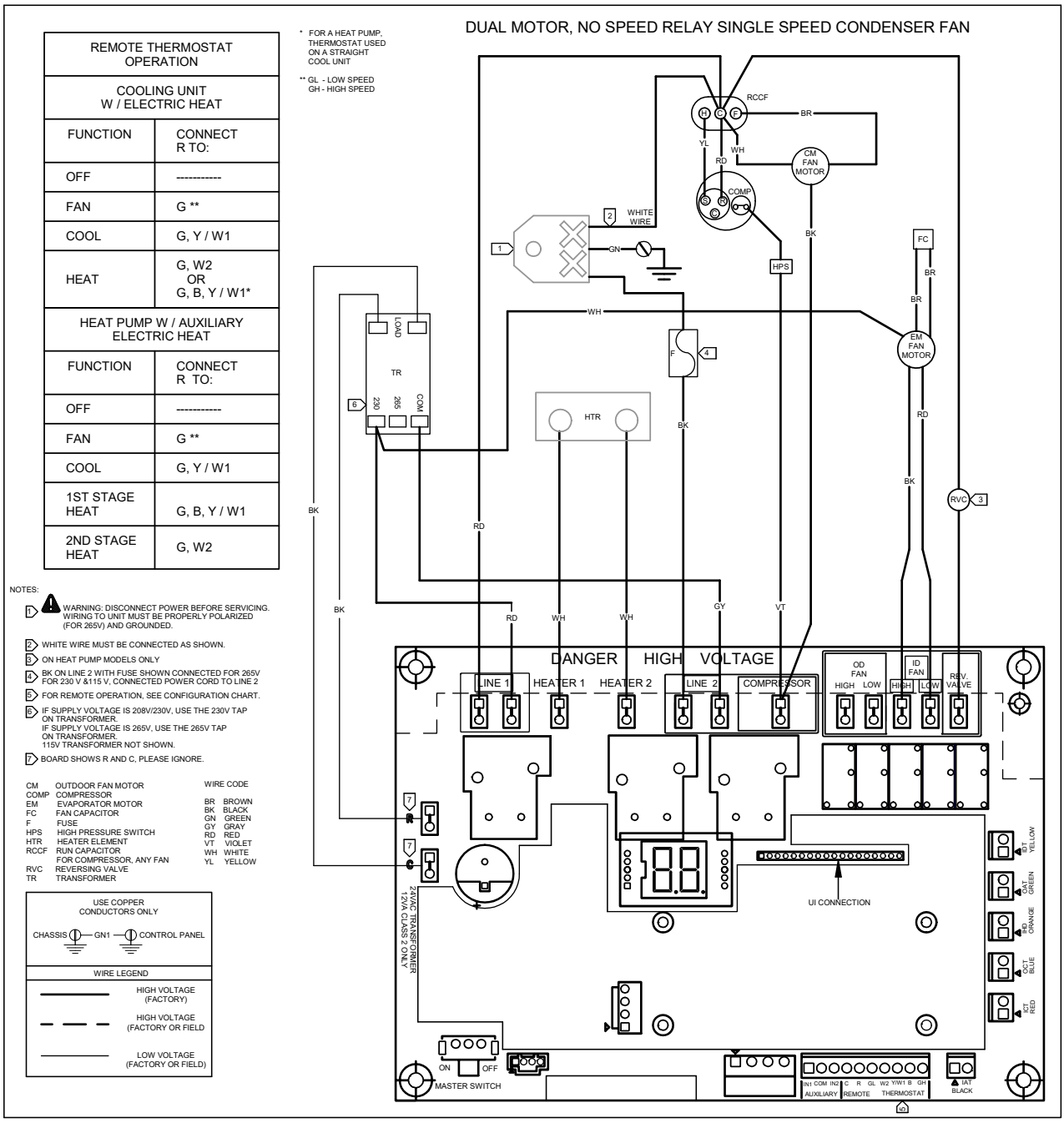
		WIRE CODE	
CM	OUTDOOR FAN MOTOR	BR	BROWN
COMP	COMPRESSOR	BK	BLACK
EM	EVAPORATOR MOTOR	GN	GREEN
FC	FAN CAPACITOR	GY	GRAY
F	FUSE	RD	RED
HPS	HIGH PRESSURE SWITCH	VT	VIOLET
HTR	HEATER ELEMENT	WH	WHITE
RCCF	RUN CAPACITOR FOR COMPRESSOR, ANY FAN	YL	YELLOW
RVC	REVERSING VALVE		
TR	TRANSFORMER		

USE COPPER CONDUCTORS ONLY

CHASSIS — GN1 — CONTROL PANEL

WIRE LEGEND

- HIGH VOLTAGE (FACTORY)
- HIGH VOLTAGE (FACTORY OR FIELD
- LOW VOLTAGE (FACTORY OR FIELD)

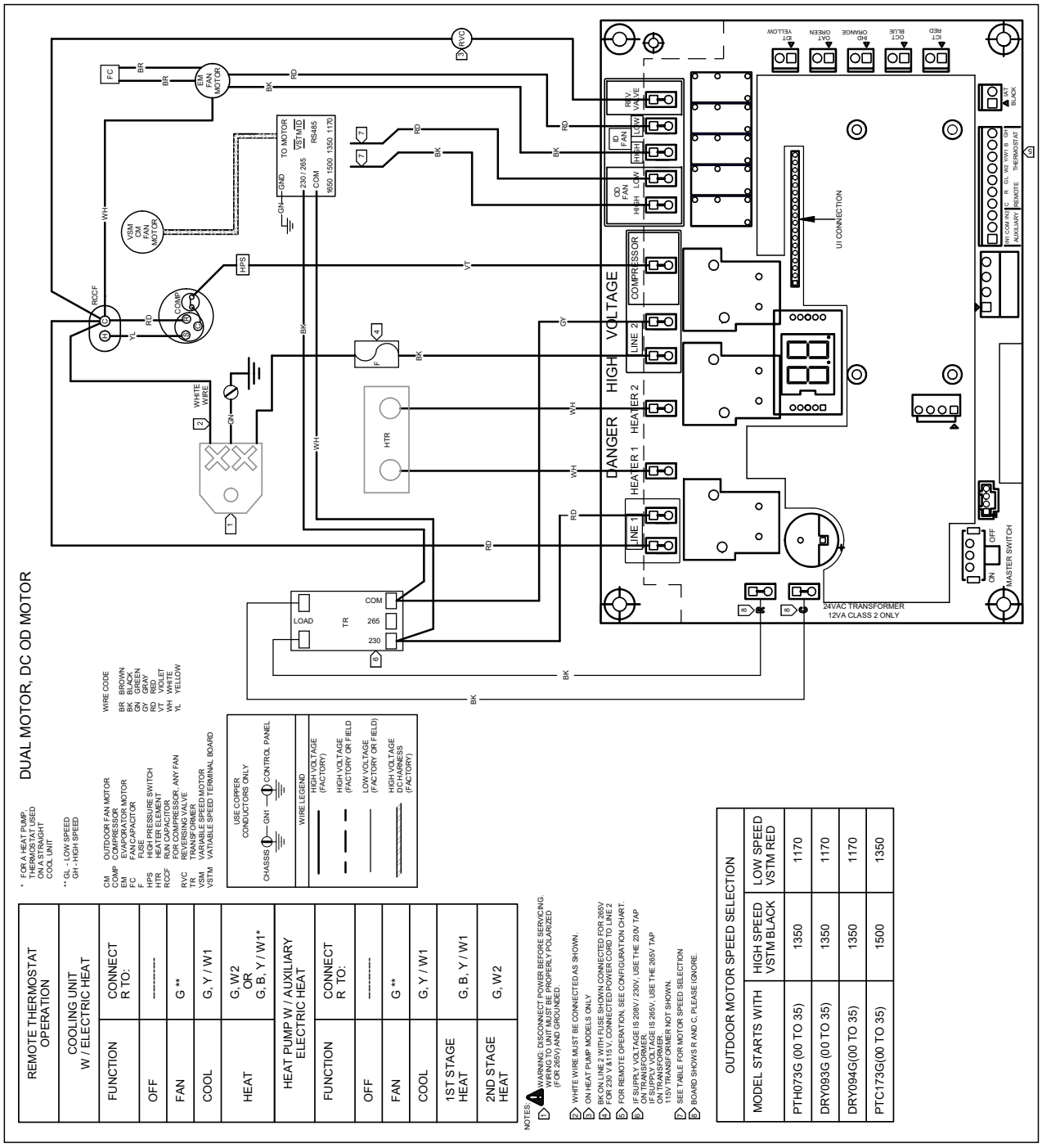


HIGH VOLTAGE!
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

WARNING

WIRING DIAGRAMS

DUAL MOTOR NO SPEED RELAY SINGLE SPEED CONDENSER FAN



REMOTE THERMOSTAT OPERATION						
COOLING UNIT W / ELECTRIC HEAT						
FUNCTION	CONNECT R TO:	OFF	FAN	COOL	1ST STAGE HEAT	2ND STAGE HEAT
OFF	--------					
FAN	G **					
COOL	G, Y / W1					
HEAT	G, W2 OR G, B, Y / W1*					
HEAT PUMP W / AUXILIARY ELECTRIC HEAT						
FUNCTION	CONNECT R TO:	OFF	FAN	COOL	1ST STAGE HEAT	2ND STAGE HEAT
OFF	--------					
FAN	G **					
COOL	G, Y / W1					
1ST STAGE HEAT	G, B, Y / W1					
2ND STAGE HEAT	G, W2					

OUTDOOR MOTOR SPEED SELECTION		
MODEL STARTS WITH	HIGH SPEED VSTM BLACK	LOW SPEED VSTM RED
PTH073G (00 TO 35)	1350	1170
DRY093G (00 TO 35)	1350	1170
DRY094G(00 TO 35)	1350	1170
PTC173G(00 TO 35)	1500	1350

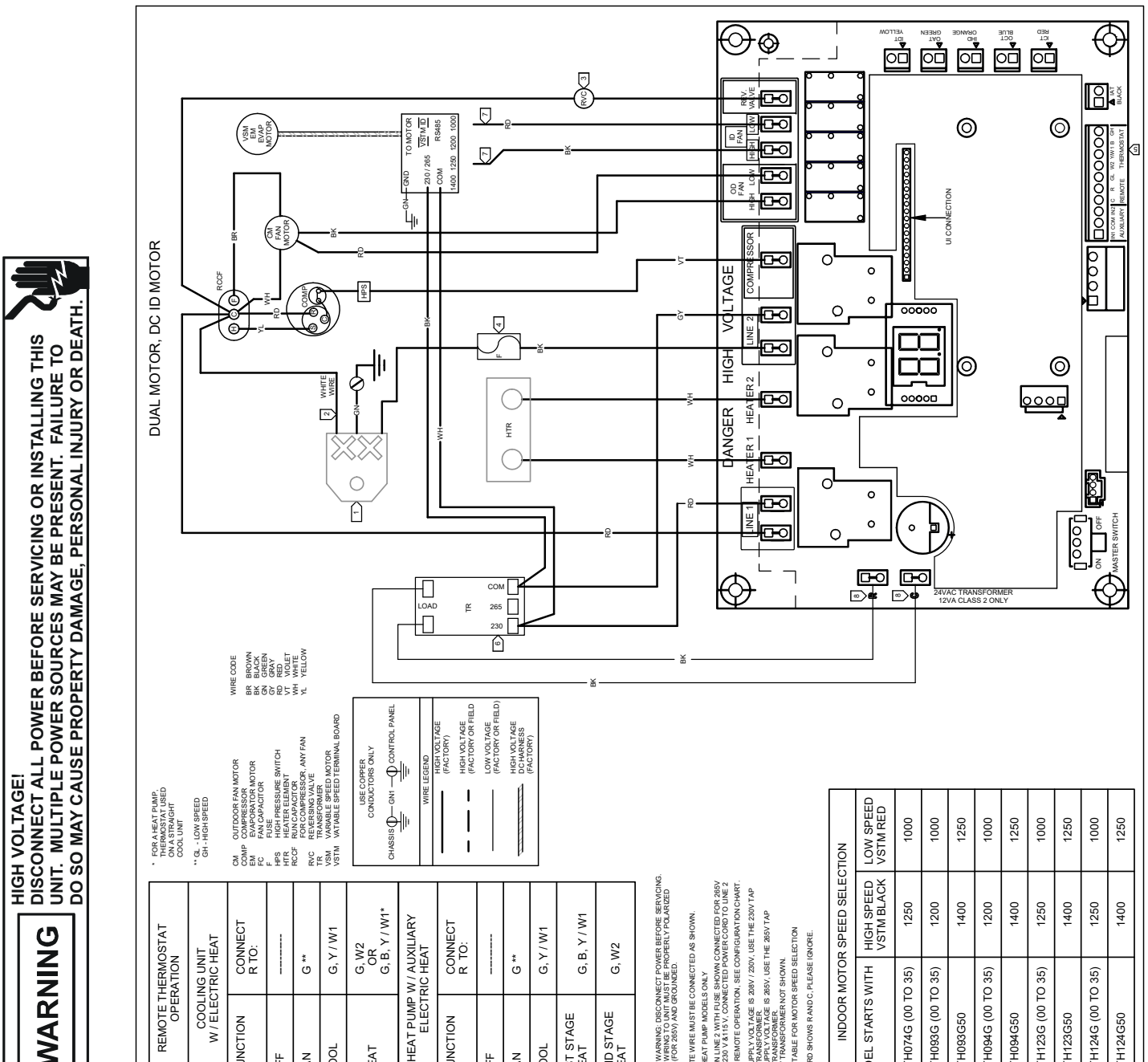
NOTES:
1. WARNING: DISCONNECT POWER BEFORE SERVICING. WIRING TO UNIT MUST BE PROPERLY POLARIZED (FOR 265V) AND GROUNDED.
2. WHITE WIRE MUST BE CONNECTED AS SHOWN.
3. ON HEAT PUMP MODELS ONLY
4. BK ON LINE 2 WITH FUSE SHOWN CONNECTED FOR 265V FOR 230 V & 115 V, CONNECTED POWER CORD TO LINE 2
5. FOR REMOTE OPERATION, SEE CONFIGURATION CHART.
6. IF SUPPLY VOLTAGE IS 208V / 230V, USE THE 230V TAP ON TRANSFORMER. IF SUPPLY VOLTAGE IS 265V, USE THE 265V TAP ON TRANSFORMER. 115V TRANSFORMER NOT SHOWN.
7. SEE TABLE FOR MOTOR SPEED SELECTION
8. BOARD SHOWS R AND C, PLEASE IGNORE.

WARNING

HIGH VOLTAGE!
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

WIRING DIAGRAMS

DUAL MOTOR NO SPEED RELAY SINGLE SPEED CONDENSER FAN



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