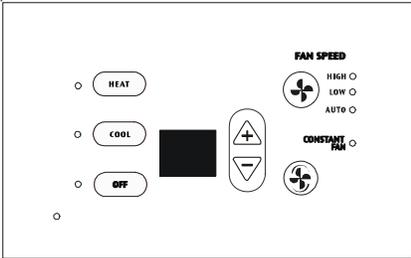
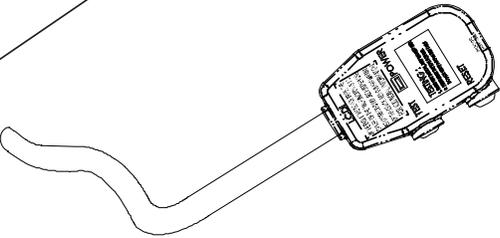
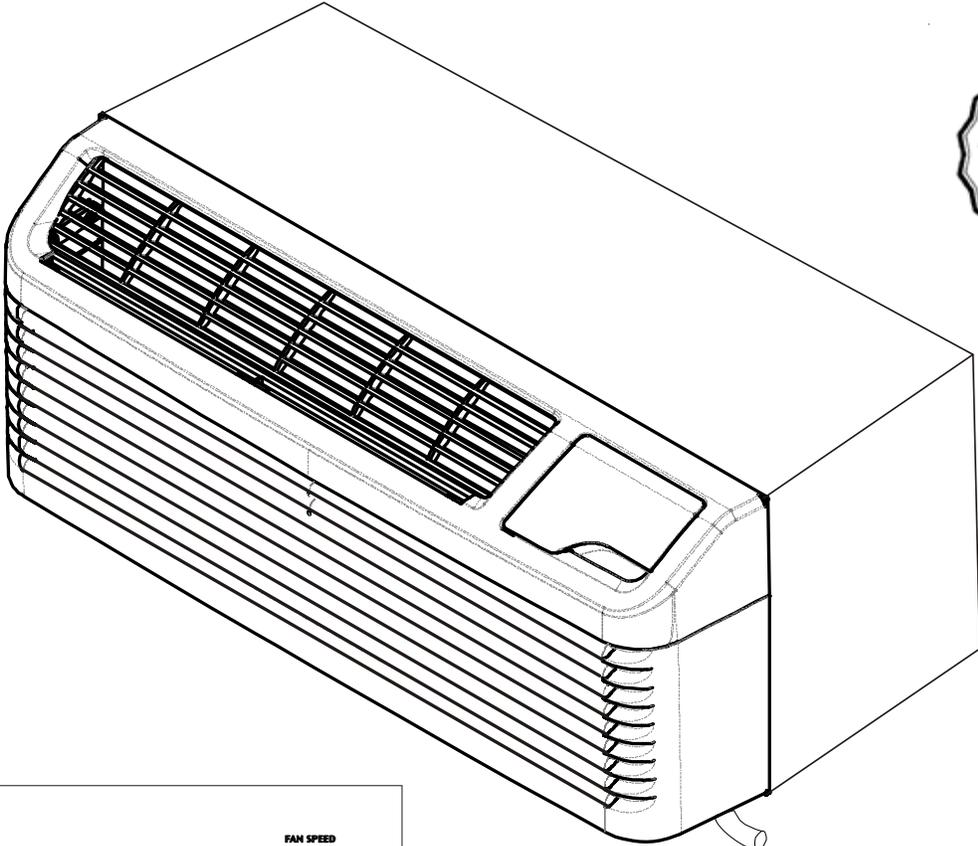


# Service Instructions



## PACKAGE TERMINAL AIR CONDITIONER/HEAT PUMP

*Standard and Remote Applications with LED Control  
with R-410A*



This manual is to be used by qualified, professionally trained HVAC technicians only. Goodman does not assume any responsibility for property damage or personal injury due to improper service procedures or services performed by an unqualified person.

RS4200004r7  
November 2012

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## IMPORTANT INFORMATION

Pride and workmanship go into every product to provide our customers with quality products. It is possible, however, that during its lifetime a product may require service. Products should be serviced only by a qualified service technician who is familiar with the safety procedures required in the repair and who is equipped with the proper tools, parts, testing instruments and the appropriate service manual. **REVIEW ALL SERVICE INFORMATION IN THE APPROPRIATE SERVICE MANUAL BEFORE BEGINNING REPAIRS.**

### IMPORTANT NOTICES FOR CONSUMERS AND SERVICERS



**RECOGNIZE SAFETY SYMBOLS, WORDS AND LABELS**



#### **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.**



#### **WARNING**

**INSTALLATION AND REPAIR OF THIS UNIT SHOULD BE PERFORMED ONLY BY INDIVIDUALS MEETING (AT A MINIMUM) THE REQUIREMENTS OF AN "ENTRY LEVEL TECHNICIAN" AS SPECIFIED BY THE AIR-CONDITIONING, HEATING AND REFRIGERATION INSTITUTE (AHRI). ATTEMPTING TO INSTALL OR REPAIR THIS UNIT WITHOUT SUCH BACKGROUND MAY RESULT IN PRODUCT DAMAGE, PERSONAL INJURY OR DEATH.**

**! WARNING**

THIS AIR CONDITIONER IS NOT MEANT TO PROVIDE UNATTENDED COOLING OR LIFE SUPPORT FOR PERSONS OR ANIMALS WHO ARE UNABLE TO REACT TO THE FAILURE OF THIS PRODUCT.

THE FAILURE OF AN UNATTENDED AIR CONDITIONER MAY RESULT IN EXTREME HEAT IN THE CONDITIONED SPACE CAUSING OVERHEATING OR DEATH OF PERSONS OR ANIMALS.

PRECAUTIONS MUST BE TAKEN TO WARN OF OR GUARD AGAINST SUCH AN OCCURENCE.

**! WARNING**

**HIGH VOLTAGE**  
DISCONNECT ALL POWER BEFORE SERVICING. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH. DO NOT SERVICE THIS UNIT WITHOUT FIRST SHUTTING OFF POWER TO THE UNIT FROM THE CIRCUIT BREAKER AND/OR REMOVING THE UNIT CORD SET PLUG FROM THE WALL OUTLET. LINE VOLTAGE WILL BE PRESENT AT THE CONTROL BOARD, TERMINALS L1 AND L2 WHENEVER POWER IS APPLIED TO THE UNIT REGARDLESS OF THE MASTER SWITCH POSITION.



**! WARNING**

GOODMAN WILL NOT BE RESPONSIBLE FOR ANY INJURY OR PROPERTY DAMAGE ARISING FROM IMPROPER SERVICE OR SERVICE PROCEDURES. IF YOU INSTALL OR PERFORM SERVICE ON THIS UNIT, YOU ASSUME RESPONSIBILITY FOR ANY PERSONAL INJURY OR PROPERTY DAMAGE WHICH MAY RESULT. MANY JURISDICTIONS REQUIRE A LICENSE TO INSTALL OR SERVICE HEATING AND AIR CONDITIONING EQUIPMENT.

To locate an authorized servicer, please consult your telephone book or the dealer from whom you purchased this product. For further assistance, please contact:

**CONSUMER INFORMATION LINE -  
AMANA® BRAND PRODUCTS TOLL FREE  
1-877-254-4729 (U.S. only)**  
email us at: [customerservice@goodmanmfg.com](mailto:customerservice@goodmanmfg.com)  
fax us at: (713) 856-1821  
(Not a technical assistance line for dealers.)

Outside the U.S., call 1-713-861-2500.  
(Not a technical assistance line for dealers.)  
Your telephone company will bill you for the call.



# PRODUCT IDENTIFICATION

PTC 07 3 E 35 A X X X

A A

**BASIC MODEL TYPE**  
 PTC = Standard Cooler PTAC  
 PTH = Standard Heat Pump PTHP  
 DRY = Dehumid Cooler PTAC

**COOLING CAPACITY**  
 07 = 7000 BTUH (60 Hz)  
 09 = 9000 BTUH (60 Hz)  
 10 = 10000 BTUH (50 Hz)  
 12 = 12000 BTUH (50 or 60 Hz)  
 15 = 14000 BTUH (60 Hz)

**RATED VOLTAGE**  
 2 = 115V 60Hz 1Ph  
 3 = 230/208V 60Hz 1Ph  
 4 = 265V 60Hz 1Ph  
 5 = 240/220V 50Hz 1Ph

**DESIGN SERIES**  
 E = R-410A  
 F = 2012 California (12,000 Btuh only)  
 G = 2012 R-410A

**HEATER SIZE**  
 00 = no electric heat  
 15 = 1.5 kW  
 25 = 2.5 kW  
 35 = 3.5 kw (230/208V)  
       = 3.7kW (265V)  
 50 = 5.0 kW

MAJOR/MINOR DESIGN REV.

**FEATURE CODE**  
 A = Standard Model  
 C = Corrosion Protection (Seacoast)  
 D = Power Door  
 F = Fuse Holder (230/208v only)  
 H = Hydronic Heat Capable  
 P = Condensate Pump (PTH only)  
 Q = Quiet STC 31 Chassis  
 R = R- Antenna  
 V = Power Vent  
 X = place holder  
 W = Hard Wired - PTQC  
 Use up to 4 as needed  
 In alphabetical order

Examples  
 PTC073E35A XXX  
 PTC073E50C XXX  
 PTC073E35CDXX  
 PTC073E35CQVX  
 PTC073E35CDQR

# SPECIFICATIONS

## COOLING - PTC

# PTC E SERIES

Model <sup>1, 6, 8, 9</sup>	PTC		PTC		PTC		PTC		PTC	
	073E***XX	093E***XX	123E***XX	153E***XX	074E***XX	094E***XX	124E***XX	154E***XX		
Voltage <sup>1, 3</sup>	230 / 208	230 / 208	230 / 208	230 / 208	265	265	265	265		
Capacity (BTU/h)	7,600 / 7,500	8,700 / 8,500	11,500 / 11,200	14,000 / 13,600	7,600	8,900	11,600	14,000		
Amps <sup>10</sup>	3.5 / 3.5	4.1 / 4.1	5.6 / 5.6	7.0 / 7.0	3.0	3.6	4.8	6.0		
Watts <sup>10</sup>	665 / 640	775 / 745	1,115 / 1,110	1,430 / 1,390	600	800	1,125	1,430		
EER	11.4 / 11.7	11.2 / 11.4	10.3 / 10.1	9.8 / 9.8	11.5	11.1	10.3	9.8		
<b>Unit without Electric Heater</b>										
Min. Circuit Amps <sup>2, 4, 10</sup>	4.2	4.9	6.8	8.5	3.6	4.4	5.9	7.4		
CFM (Cool/Wet Coil)	High	290	290	290	340	290	290	290	340	
	Low	264	264	264	314	264	264	264	314	
CFM (Dry Coil)	High	310	310	310	360	310	310	310	360	
	Low	282	282	282	332	282	282	282	332	
Ventilated Air, CFM (Fan Only)*	65*	65*	65*	65*	65*	65*	65*	65*		
Ventilated Air, CFM (Compressor & Fan)*	6*	6*	6*	6*	6*	6*	6*	6*		
Dehumidification (Pints/Hr.)	1.7	2.2	3.6	4.4	1.7	2.2	3.6	4.4		
Net Weight (lbs.)	99	103	106	117	99	103	106	116		
Ship Weight (lbs.)	114	118	123	134	114	118	123	133		

\* Actual vent CFM performance will vary due to application and installation conditions.

**Notes:**

- <sup>1</sup> All 265-volt models must use an Amana® brand sub-base (PTSB4\*\*E) or an Amana® brand hard-wire kit (PTPWHWK4).
- <sup>2</sup> Minimum Circuit Ampacity (MCA) ratings conform to the National Electric Code; however, local codes should apply.  
Minimum voltage on 230/208-volt models is 197 volts; maximum is 253 volts.
- <sup>3</sup> Minimum voltage on 265-volt models is 239 volts; maximum is 292 volts.
- <sup>4</sup> Overcurrent protection for all units without electric heaters is 15 amps. Overcurrent protection on 265-volt models must be cartridge-style time-delay fuses (included and factory-installed on all Amana® brand 265-volt chassis). See heater performance for total MCA.
- <sup>5</sup> Heating capacity and efficiency based on unit operation without condensate pump; unit automatically switches to electric heat at approximately 24°F outdoor ambient.
- <sup>6</sup> Specify two-digit heater kW size to complete model number.
- <sup>7</sup> R-410A refrigerant used in all systems.
- <sup>8</sup> All units meet or exceed ASHRAE 90.1 standards.
- <sup>9</sup> All units less than 250 volts have a Leak Current Detector Interrupter (LCDI) power cord and meet UL 484 standards.
- <sup>10</sup> Refer to electric heat performance data for total MCA and recommended overcurrent protection. Amps and Watts notation refers to compressor only.

EER - Energy Efficiency Ratio per The Air-Conditioning, Heating, and Refrigeration Institute (AHRI) Test Procedures and Canadian Standards Association (CSA) Test Procedures.

COP - Coefficient of Performance per AHRI Test Procedures

# SPECIFICATIONS

## COOLING - PTC

# PTC G SERIES

Model <sup>1, 6, 8, 9</sup>	PTC 073G**XXX	PTC 093G**XXX	PTC 123G**XXX	PTC 153G**XXX	PTC 074G**XXX	PTC 094G**XXX	PTC 124G**XXX	PTC 154G**XXX
Voltage <sup>1, 3</sup>	230 / 208	230 / 208	230 / 208	230 / 208	265	265	265	265
Capacity (BTU/h)	7,700 / 7,700	9,000 / 9,000	11,700 / 11,500	15,000 / 14,700	7,700	9,000	12,000	14,800
Amps <sup>10</sup>	3.5 / 3.5	4.1 / 4.1	5.6 / 5.6	7.0 / 7.0	3.0	3.6	4.8	6.0
Watts <sup>10</sup>	670 / 660	805 / 785	1,135 / 1,105	1,500 / 1,470	670	795	1,165	1,480
EER	11.5 / 11.7	11.2 / 11.5	10.3 / 10.4	10.0 / 10.0	11.5	11.3	10.3	10.0
<b>Unit without Electric Heater</b>								
Min. Circuit Amps <sup>2, 4, 10</sup>	4.2	4.9	6.8	8.5	3.6	4.4	5.9	7.4
CFM (Cool/Wet Coil)	High	290	290	290	340	290	290	340
	Low	264	264	264	314	264	264	314
CFM (Dry Coil)	High	310	310	310	360	310	310	360
	Low	282	282	282	332	282	282	332
Ventilated Air, CFM (Fan Only)*	65*	65*	65*	65*	65*	65*	65*	65*
Ventilated Air, CFM (Compressor & Fan)*	6*	6*	6*	6*	6*	6*	6*	6*
Dehumidification (Pints/Hr.)	1.7	2.2	3.6	4.4	1.7	2.2	3.6	4.4
Net Weight (lbs.)	98	102	102	113	98	102	102	113
Ship Weight (lbs.)	113	117	119	130	113	117	119	130

\* Actual vent CFM performance will vary due to application and installation conditions.

**Notes:**

- <sup>1</sup> All 265-volt models must use an Amana® brand sub-base (PTSB4\*\*E) or an Amana® brand hard-wire kit (PTPWHWK4).
- <sup>2</sup> Minimum Circuit Ampacity (MCA) ratings conform to the National Electric Code; however, local codes should apply.  
Minimum voltage on 230/208-volt models is 197 volts; maximum is 253 volts.
- <sup>3</sup> Minimum voltage on 265-volt models is 239 volts; maximum is 292 volts.
- <sup>4</sup> Overcurrent protection for all units without electric heaters is 15 amps. Overcurrent protection on 265-volt models must be cartridge-style time-delay fuses (included and factory-installed on all Amana® brand 265-volt chassis). See heater performance for total MCA.
- <sup>5</sup> Heating capacity and efficiency based on unit operation without condensate pump; unit automatically switches to electric heat at approximately 24°F outdoor ambient.
- <sup>6</sup> Specify two-digit heater kW size to complete model number.
- <sup>7</sup> R-410A refrigerant used in all systems.
- <sup>8</sup> All units meet or exceed ASHRAE 90.1 standards.
- <sup>9</sup> All units less than 250 volts have a Leak Current Detector Interrupter (LCDI) power cord and meet UL 484 standards.
- <sup>10</sup> Refer to electric heat performance data for total MCA and recommended overcurrent protection. Amps and Watts notation refers to compressor only.

EER - Energy Efficiency Ratio per The Air-Conditioning, Heating, and Refrigeration Institute (AHRI) Test Procedures and Canadian Standards Association (CSA) Test Procedures.

COP - Coefficient of Performance per AHRI Test Procedures

# SPECIFICATIONS

# DRY E SERIES

## COOLING - DRY

Model <sup>1, 6, 8, 9</sup>		DRY 093E***XXX
Voltage <sup>1, 3</sup>		230 / 208
Capacity (BTU/h)		8800/8600
Amps <sup>10</sup>		4.2/4.2
Watts <sup>10</sup>		805/775
EER		10.9/11.1
<b>Unit without Electric Heater</b>		
Min. Circuit Amps <sup>2, 4, 10</sup>		5.1
CFM (Cool/Wet Coil)	High	280
	Low	260
CFM (Dry Coil)	High	310
	Low	280
Ventilated Air, CFM (Fan Only)*		65*
Ventilated Air, CFM (Compressor & Fan)*		6*
Dehumidification (Pints/Hr.)		2.8
Net Weight (lbs.)		103
Ship Weight (lbs.)		118

\* Actual vent CFM performance will vary due to application and installation conditions.

### Notes:

- <sup>1</sup> All 265-volt models must use an Amana® brand sub-base (PTSB4\*\*E) or an Amana® brand hard-wire kit (PTPWHWK4).
- <sup>2</sup> Minimum Circuit Ampacity (MCA) ratings conform to the National Electric Code; however, local codes should apply. Minimum voltage on 230/208-volt models is 197 volts; maximum is 253 volts.
- <sup>3</sup> Minimum voltage on 265-volt models is 239 volts; maximum is 292 volts.
- <sup>4</sup> Overcurrent protection for all units without electric heaters is 15 amps. Overcurrent protection on 265-volt models must be cartridge-style time-delay fuses (included and factory-installed on all Amana® brand 265-volt chassis). See heater performance for total MCA.
- <sup>5</sup> Heating capacity and efficiency based on unit operation without condensate pump; unit automatically switches to electric heat at approximately 24°F outdoor ambient.
- <sup>6</sup> Specify two-digit heater kW size to complete model number.
- <sup>7</sup> R-410A refrigerant used in all systems.
- <sup>8</sup> All units meet or exceed ASHRAE 90.1 standards.
- <sup>9</sup> All units less than 250 volts have a Leak Current Detector Interrupter (LCDI) power cord and meet UL 484 standards.
- <sup>10</sup> Refer to electric heat performance data for total MCA and recommended overcurrent protection. Amps and Watts notation refers to compressor only.

EER - Energy Efficiency Ratio per The Air-Conditioning, Heating, and Refrigeration Institute (AHRI) Test Procedures and Canadian Standards Association (CSA) Test Procedures.

COP - Coefficient of Performance per AHRI Test Procedures

# SPECIFICATIONS

# DRY G SERIES

Model <sup>1, 6, 8, 9</sup>	DRY	DRY
	093G***XXX	094G***XXX
Voltage <sup>1, 3</sup>	230 / 208	265
Capacity (BTU/h)	8800/8600	8800
Amps <sup>10</sup>	4.7 / 4.7	4.3
Watts <sup>10</sup>	785 / 770	785
EER	11.2 / 11.2	11.2
<b>Unit without Electric Heater</b>		
Min. Circuit Amps <sup>2, 4, 10</sup>	5.6	5.1
CFM (Cool/Wet Coil)	High	280
	Low	260
CFM (Dry Coil)	High	310
	Low	280
Ventilated Air, CFM (Fan Only)*	65*	65*
Ventilated Air, CFM (Compressor & Fan)*	6*	6*
Dehumidification (Pints/Hr.)	2.8	2.8
Net Weight (lbs.)	103	103
Ship Weight (lbs.)	118	118

\* Actual vent CFM performance will vary due to application and installation conditions.

**Notes:**

- <sup>1</sup> All 265-volt models must use an Amana® brand sub-base (PTSB4\*\*E) or an Amana® brand hard-wire kit (PTPWHWK4).
- <sup>2</sup> Minimum Circuit Ampacity (MCA) ratings conform to the National Electric Code; however, local codes should apply. Minimum voltage on 230/208-volt models is 197 volts; maximum is 253 volts.
- <sup>3</sup> Minimum voltage on 265-volt models is 239 volts; maximum is 292 volts.
- <sup>4</sup> Overcurrent protection for all units without electric heaters is 15 amps. Overcurrent protection on 265-volt models must be cartridge-style time-delay fuses (included and factory-installed on all Amana® brand 265-volt chassis). See heater performance for total MCA.
- <sup>5</sup> Heating capacity and efficiency based on unit operation without condensate pump; unit automatically switches to electric heat at approximately 24°F outdoor ambient.
- <sup>6</sup> Specify two-digit heater kW size to complete model number.
- <sup>7</sup> R-410A refrigerant used in all systems.
- <sup>8</sup> All units meet or exceed ASHRAE 90.1 standards.
- <sup>9</sup> All units less than 250 volts have a Leak Current Detector Interrupter (LCDI) power cord and meet UL 484 standards.
- <sup>10</sup> Refer to electric heat performance data for total MCA and recommended overcurrent protection. Amps and Watts notation refers to compressor only.

EER - Energy Efficiency Ratio per The Air-Conditioning, Heating, and Refrigeration Institute (AHRI) Test Procedures and Canadian Standards Association (CSA) Test Procedures.

COP - Coefficient of Performance per AHRI Test Procedures

# SPECIFICATIONS

PTC\*\*\* (E, F, G) & PTH\*\*\* (E, F) Models

DRY\*\*\* (E, G) Models

## ELECTRIC HEAT PERFORMANCE

Voltage	Electric Heater Size (kW)	No. of Stages	Nominal Heating (BTU/h)			Total Watts <sup>6</sup>	Total Amps	Min. Circuit Ampacity <sup>2</sup>	MOD <sup>4</sup> (amps)	Power Cord
			@ 230V	@ 208V	@ 265V					
230/208V	2.5	1	8,500	6,800	--	2,570 / 2,115	11.2 / 10.1	14.0	15	6-15 P
230/208V	3.5	1	12,000	9,900	--	3,570 / 2,935	15.5 / 14.1	19.4	20	6-20 P
230/208V	5	1	17,100	14,000	--	5,070 / 4,160	22.1 / 20.0	27.5	30	6-30 P
265V	2.5	1	--	--	8,500	2,570	9.7	12.1	15	7-20 P
265V	3.7	1	--	--	12,600	3,770	14.2	17.8	20	7-20 P
265V	5	1	--	--	17,100	5,070	19.2	23.9	25	7-30 P

### Notes:

- <sup>1</sup> All 265-volt models must use an Amana® brand sub-base (PTSB4\*\*E) or an Amana® brand hard-wire kit (PTPWHWK4).
- <sup>2</sup> Minimum branch circuit ampacity ratings conform to the National Electric Code; however, local codes should apply.
- <sup>3</sup> Minimum voltage on 230/208-volt models is 197 volts; maximum is 253 volts.  
Minimum voltage on 265-volt models is 239 volts; maximum is 292 volts.
- <sup>4</sup> Overcurrent protection for all units without electric heaters is 15 amps. Overcurrent protection on 265-volt models must be cartridge-style time-delay fuses (included and factory-installed on all Amana® brand 265-volt chassis).
- <sup>5</sup> Heating capacity and efficiency based on unit operation without condensate pump; unit automatically switches to electric heat at approximately 24°F outdoor ambient.
- <sup>6</sup> Total watts for 15,000 BTU/h models; subtract 20 watts for PT07/09/12
- <sup>7</sup> Specify two-digit heater kW size to complete model number.
- <sup>8</sup> R-410A refrigerant used in all systems.
- <sup>9</sup> All units meet or exceed ASHRAE 90.1 standards.
- <sup>10</sup> All units less than 250 volts have a Leak Current Detector Interrupter (LCDI) power cord and meet UL 484 standards.

EER - Energy Efficiency Ratio per The Air-Conditioning, Heating, and Refrigeration Institute (AHRI) Test Procedures and Canadian Standards Association (CSA) Test Procedures.

COP - Coefficient of Performance per AHRI Test Procedures

# SPECIFICATIONS

# PTH E SERIES

## HEAT PUMP - PTH

Model <sup>1, 6, 8, 9</sup>	PTH 073E**AXXX	PTH 093E**AXXX	PTH 123E**AXXX	PTH 153E**AXXX	PTH 074E**AXXX	PTH 094E**AXXX	PTH 124E**AXXX	PTH 154E**AXXX
Voltage <sup>1, 3</sup>	230 / 208	230 / 208	230 / 208	230 / 208	265	265	265	265
Capacity (BTU/h)	7,600 / 7,500	9,000 / 8,900	11,500 / 11,100	14,000 / 13,900	7,500	9,000	11,500	14,000
Amps <sup>10</sup>	3.5 / 3.5	4.1 / 4.1	5.6 / 5.6	7.0 / 7.0	3.0	3.6	4.8	6.0
Watts <sup>10</sup>	675 / 660	810 / 800	1,125 / 1,100	1,460 / 1,465	645	810	1,150	1,445
EER	11.3 / 11.4	11.1 / 11.1	10.2 / 10.1	9.6 / 9.5	11.6	11.1	10.0	9.7
<b>Unit without Electric Heater</b>								
Min. Circuit Amps <sup>2, 4, 10</sup>	4.2	4.9	6.8	8.5	3.6	4.4	5.9	7.4
CFM (Cool/Wet Coil)	High	290	290	290	340	290	290	340
	Low	264	264	264	314	264	264	314
CFM (Dry Coil)	High	310	310	310	360	310	310	360
	Low	282	282	282	332	282	282	332
Ventilated Air, CFM (Fan Only)*	65*	65*	65*	65*	65*	65*	65*	65*
Ventilated Air, CFM (Compressor & Fan)*	6*	6*	6*	6*	6*	6*	6*	6*
Dehumidification (Pints/Hr.)	1.7	2.2	3.6	4.4	1.7	2.2	3.6	4.4
Net Weight (lbs.)	108	112	115	126	108	112	115	125
Ship Weight (lbs.)	123	127	132	143	123	127	132	142

\* Actual vent CFM performance will vary due to application and installation conditions.

### Notes:

- All 265-volt models must use an Amana® brand sub-base (PTSB4\*\*E) or an Amana® brand hard-wire kit (PTPWHWK4).
- Minimum Circuit Ampacity (MCA) ratings conform to the National Electric Code; however, local codes should apply.  
Minimum voltage on 230/208-volt models is 197 volts; maximum is 253 volts.
- Minimum voltage on 265-volt models is 239 volts; maximum is 292 volts.
- Overcurrent protection for all units without electric heaters is 15 amps. Overcurrent protection on 265-volt models must be cartridge-style time-delay fuses (included and factory-installed on all Amana® brand 265-volt chassis). See heater performance for total MCA.
- Heating capacity and efficiency based on unit operation without condensate pump; unit automatically switches to electric heat at approximately 24°F outdoor ambient.
- Specify two-digit heater kW size to complete model number.
- R-410A refrigerant used in all systems.
- All units meet or exceed ASHRAE 90.1 standards.
- All units less than 250 volts have a Leak Current Detector Interrupter (LCDI) power cord and meet UL 484 standards.
- Refer to electric heat performance data for total MCA and recommended overcurrent protection. Amps and Watts notation refers to compressor only.

EER - Energy Efficiency Ratio per The Air-Conditioning, Heating, and Refrigeration Institute (AHRI) Test Procedures and Canadian Standards Association (CSA) Test Procedures.

COP - Coefficient of Performance per AHRI Test Procedures

# SPECIFICATIONS

# PTH F SERIES

## HEAT PUMP - PTH

Model <sup>1, 6, 8, 9</sup>	PTH 123F**AXXX	PTH 124F**AXXX
Voltage <sup>1, 3</sup>	230 / 208	265
Capacity (BTU/h)	11,500 / 11,300	11,600
Amps <sup>10</sup>	5.6 / 5.6	4.8
Watts <sup>10</sup>	1,125 / 1,095	1,125
EER	10.3 / 10.3	10.3
<b>Unit without Electric Heater</b>		
Min. Circuit Amps <sup>2, 4, 10</sup>	7.0	6.0
CFM (Cool/Wet Coil)	High	290
	Low	264
CFM (Dry Coil)	High	310
	Low	282
Ventilated Air, CFM (Fan Only)*	65*	65*
Ventilated Air, CFM (Compressor & Fan)*	6*	6*
Dehumidification (Pints/Hr.)	3.6	3.6
Net Weight (lbs.)	115	115
Ship Weight (lbs.)	132	132

\* Actual vent CFM performance will vary due to application and installation conditions.

**Notes:**

- <sup>1</sup> All 265-volt models must use an Amana® brand sub-base (PTSB4\*\*E) or an Amana® brand hard-wire kit (PTPWHWK4).
- <sup>2</sup> Minimum Circuit Ampacity (MCA) ratings conform to the National Electric Code; however, local codes should apply. Minimum voltage on 230/208-volt models is 197 volts; maximum is 253 volts.
- <sup>3</sup> Minimum voltage on 265-volt models is 239 volts; maximum is 292 volts.
- <sup>4</sup> Overcurrent protection for all units without electric heaters is 15 amps. Overcurrent protection on 265-volt models must be cartridge-style time-delay fuses (included and factory-installed on all Amana® brand 265-volt chassis). See heater performance for total MCA.
- <sup>5</sup> Heating capacity and efficiency based on unit operation without condensate pump; unit automatically switches to electric heat at approximately 24°F outdoor ambient.
- <sup>6</sup> Specify two-digit heater kW size to complete model number.
- <sup>7</sup> R-410A refrigerant used in all systems.
- <sup>8</sup> All units meet or exceed ASHRAE 90.1 standards.
- <sup>9</sup> All units less than 250 volts have a Leak Current Detector Interrupter (LCDI) power cord and meet UL 484 standards.
- <sup>10</sup> Refer to electric heat performance data for total MCA and recommended overcurrent protection. Amps and Watts notation refers to compressor only.

EER - Energy Efficiency Ratio per The Air-Conditioning, Heating, and Refrigeration Institute (AHRI) Test Procedures and Canadian Standards Association (CSA) Test Procedures.

COP - Coefficient of Performance per AHRI Test Procedures

# SPECIFICATIONS

# PTH G SERIES

## HEAT PUMP - PTH

Model <sup>1, 6, 8, 9</sup>	PTH 073G**AXXX	PTH 093G**AXXX	PTH 123G**AXXX	PTH 153G**AXXX	PTH 074G**AXXX	PTH 094G**AXXX	PTH 124G**AXXX	PTH 154G**AXXX
Voltage <sup>1, 3</sup>	230 / 208	230 / 208	230 / 208	230 / 208	265	265	265	265
Capacity (BTU/h)	7,600 / 7,600	9,000 / 9,000	12,000 / 12,000	14,200 / 14,200	7,600	9,100	12,000	14,200
Amps <sup>10</sup>	3.9 / 3.9	4.2 / 4.2	5.8 / 5.8	7.0 / 7.0	3.1	3.7	5.0	6.1
Watts <sup>10</sup>	650 / 650	785 / 785	1,125 / 1,100	1,465 / 1,445	650	790	1,120	1,465
EER	11.7 / 11.7	11.5 / 11.5	10.7 / 10.7	9.7 / 9.7	11.7	11.5	10.7	9.7
<b>Unit without Electric Heater</b>								
Min. Circuit Amps <sup>2, 4, 10</sup>	4.7	5.1	7.1	8.5	3.8	4.5	6.1	7.4
CFM (Cool/Wet Coil)	High	340	330	340	390	340	330	340
	Low	245	245	245	340	245	245	245
CFM (Dry Coil)	High	370	360	370	410	370	360	370
	Low	270	270	270	370	270	270	270
Ventilated Air, CFM (Fan Only)*	65*	65*	65*	65*	65*	65*	65*	65*
Ventilated Air, CFM (Compressor & Fan)*	40*	40*	40*	40*	40*	40*	40*	40*
Dehumidification (Pints/Hr.)	1.7	2.2	3.6	4.4	1.7	2.2	3.6	4.4
Net Weight (lbs.)	108	112	115	126	108	112	115	125
Ship Weight (lbs.)	123	127	132	143	123	127	132	142

\* Actual vent CFM performance will vary due to application and installation conditions.

### Notes:

- All 265-volt models must use an Amana® brand sub-base (PTSB4\*\*E) or an Amana® brand hard-wire kit (PTPWHWK4).
- Minimum Circuit Ampacity (MCA) ratings conform to the National Electric Code; however, local codes should apply.  
Minimum voltage on 230/208-volt models is 197 volts; maximum is 253 volts.
- Minimum voltage on 265-volt models is 239 volts; maximum is 292 volts.
- Overcurrent protection for all units without electric heaters is 15 amps. Overcurrent protection on 265-volt models must be cartridge-style time-delay fuses (included and factory-installed on all Amana® brand 265-volt chassis). See heater performance for total MCA.
- Heating capacity and efficiency based on unit operation without condensate pump; unit automatically switches to electric heat at approximately 24°F outdoor ambient.
- Specify two-digit heater kW size to complete model number.
- R-410A refrigerant used in all systems.
- All units meet or exceed ASHRAE 90.1 standards.
- All units less than 250 volts have a Leak Current Detector Interrupter (LCDI) power cord and meet UL 484 standards.
- Refer to electric heat performance data for total MCA and recommended overcurrent protection. Amps and Watts notation refers to compressor only.

EER - Energy Efficiency Ratio per The Air-Conditioning, Heating, and Refrigeration Institute (AHRI) Test Procedures and Canadian Standards Association (CSA) Test Procedures.

COP - Coefficient of Performance per AHRI Test Procedures

# SPECIFICATIONS

# PTH E SERIES

## HEAT PUMP HEATING DATA

Heating Capacity <sup>1</sup>	PTH 073E**AXXX	PTH 093E**AXXX	PTH 123E**AXXX	PTH 153E**AXXX	PTH 074E**AXXX	PTH 094E**AXXX	PTH 124E**AXXX	PTH 154E**AXXX
Voltage <sup>1, 3</sup>	230 / 208	230 / 208	230 / 208	230 / 208	265	265	265	265
BTU/h <sup>5</sup>	6,800 / 6,800	8,300 / 8,100	10,900 / 10,500	13,500 / 13,300	6,800	8,200	11,000	13,500
Amps <sup>10</sup>	3.5 / 3.5	4.1 / 4.1	5.6 / 5.6	7.0 / 7.0	3.0	3.6	4.8	6.0
Watts <sup>10</sup>	605 / 605	735 / 720	1040 / 1020	1365 / 1345	585	730	1040	1365
COP <sup>5</sup>	3.3 / 3.3	3.3 / 3.3	3.1 / 3.1	2.9 / 2.9	3.4	3.3	3.1	2.9
CFM (Dry)	310	310	310	360	310	310	310	360

COP = Coefficient of Performance; per AHRI Test Procedures, units are rated for capacities and efficiencies.

### Notes:

- <sup>1</sup> All 265-volt models must use an Amana® brand sub-base (PTSB4\*\*E) or an Amana® brand hard-wire kit (PTPWHWK4).
- <sup>2</sup> Minimum Circuit Ampacity (MCA) ratings conform to the National Electric Code; however, local codes should apply. Minimum voltage on 230/208-volt models is 197 volts; maximum is 253 volts.
- <sup>3</sup> Minimum voltage on 265-volt models is 239 volts; maximum is 292 volts.
- <sup>4</sup> Overcurrent protection for all units without electric heaters is 15 amps. Overcurrent protection on 265-volt models must be cartridge-style time-delay fuses (included and factory-installed on all Amana® brand 265-volt chassis). See heater performance for total MCA.
- <sup>5</sup> Heating capacity and efficiency based on unit operation without condensate pump; unit automatically switches to electric heat at approximately 24°F outdoor ambient.
- <sup>6</sup> Specify two-digit heater kW size to complete model number.
- <sup>7</sup> R-410A refrigerant used in all systems.
- <sup>8</sup> All units meet or exceed ASHRAE 90.1 standards.
- <sup>9</sup> All units less than 250 volts have a Leak Current Detector Interrupter (LCDI) power cord and meet UL 484 standards.
- <sup>10</sup> Refer to electric heat performance data for total MCA and recommended overcurrent protection. Amps and Watts notation refers to compressor only.

# PTH F SERIES

Heating Capacity <sup>1</sup>	PTH 123F**AXXX	PTH 124F**AXXX
Voltage <sup>1, 3</sup>	230 / 208	265
BTU/h <sup>5</sup>	10,900 / 10,500	11,000
Amps <sup>10</sup>	5.6 / 5.6	4.8
Watts <sup>10</sup>	1040 / 1020	1040
COP <sup>5</sup>	3.1 / 3.1	3.1
CFM (Dry)	310	310

COP = Coefficient of Performance; per AHRI Test Procedures, units are rated for capacities and efficiencies.

### Notes:

- <sup>1</sup> All 265-volt models must use an Amana® brand sub-base (PTSB4\*\*E) or an Amana® brand hard-wire kit (PTPWHWK4).
- <sup>2</sup> Minimum Circuit Ampacity (MCA) ratings conform to the National Electric Code; however, local codes should apply. Minimum voltage on 230/208-volt models is 197 volts; maximum is 253 volts.
- <sup>3</sup> Minimum voltage on 265-volt models is 239 volts; maximum is 292 volts.
- <sup>4</sup> Overcurrent protection for all units without electric heaters is 15 amps. Overcurrent protection on 265-volt models must be cartridge-style time-delay fuses (included and factory-installed on all Amana® brand 265-volt chassis). See heater performance for total MCA.
- <sup>5</sup> Heating capacity and efficiency based on unit operation without condensate pump; unit automatically switches to electric heat at approximately 24°F outdoor ambient.
- <sup>6</sup> Specify two-digit heater kW size to complete model number.
- <sup>7</sup> R-410A refrigerant used in all systems.
- <sup>8</sup> All units meet or exceed ASHRAE 90.1 standards.
- <sup>9</sup> All units less than 250 volts have a Leak Current Detector Interrupter (LCDI) power cord and meet UL 484 standards.
- <sup>10</sup> Refer to electric heat performance data for total MCA and recommended overcurrent protection. Amps and Watts notation refers to compressor only.

# SPECIFICATIONS

## HEAT PUMP HEATING DATA

# PTH G SERIES

Model	PTH	PTH	PTH	PTH	PTH	PTH	PTH	PTH
	073G**AXXX	093G**AXXX	123G**AXXX	153G**AXXX	074G**AXXX	094G**AXXX	124G**AXXX	154G**AXXX
Voltage <sup>1, 3</sup>	230 / 208	230 / 208	230 / 208	230 / 208	265	265	265	265
BTU/h <sup>5</sup>	6,800 / 6,800	8,300 / 8,100	11,500 / 11,300	13,800 / 13,600	6,800	8,300	11,400	13,700
Amps <sup>10</sup>	3.9 / 3.9	4.2 / 4.2	5.8 / 5.8	7.0 / 7.0	3.1	3.7	5.0	6.1
Watts <sup>10</sup>	585 / 570	715 / 700	1085 / 1035	1350 / 1330	570	715	1080	1340
COP <sup>5</sup>	3.4 / 3.5	3.4 / 3.4	3.1 / 3.2	3.0 / 3.0	3.5	3.4	3.1	3.0
CFM (Dry)	370	360	370	410	370	360	370	410

COP = Coefficient of Performance; per AHRI Test Procedures, units are rated for capacities and efficiencies.

### Notes:

- All 265-volt models must use an Amana® brand sub-base (PTSB4\*\*E) or an Amana® brand hard-wire kit (PTPWHWK4).
- Minimum Circuit Ampacity (MCA) ratings conform to the National Electric Code; however, local codes should apply. Minimum voltage on 230/208-volt models is 197 volts; maximum is 253 volts.
- Minimum voltage on 265-volt models is 239 volts; maximum is 292 volts.
- Overcurrent protection for all units without electric heaters is 15 amps. Overcurrent protection on 265-volt models must be cartridge-style time-delay fuses (included and factory-installed on all Amana® brand 265-volt chassis). See heater performance for total MCA.
- Heating capacity and efficiency based on unit operation without condensate pump; unit automatically switches to electric heat at approximately 24°F outdoor ambient.
- Specify two-digit heater kW size to complete model number.
- R-410A refrigerant used in all systems.
- All units meet or exceed ASHRAE 90.1 standards.
- All units less than 250 volts have a Leak Current Detector Interrupter (LCDI) power cord and meet UL 484 standards.
- Refer to electric heat performance data for total MCA and recommended overcurrent protection. Amps and Watts notation refers to compressor only.

EER - Energy Efficiency Ratio per The Air-Conditioning, Heating, and Refrigeration Institute (AHRI) Test Procedures and Canadian Standards Association (CSA) Test Procedures.

COP - Coefficient of Performance per AHRI Test Procedures

## ELECTRIC HEAT PERFORMANCE

# PTH G SERIES

Voltage	Electric Heater Size (kW)	No. of Stages	Nominal Heating (BTU/h)			Total Watts <sup>6</sup>	Total Amps	Min. Circuit Ampacity <sup>2</sup>	MOD <sup>4</sup> (amps)	Power Cord
			@ 230V	@ 208V	@ 265V					
230/208V	2.5	1	8,500	6,800	--	2,570 / 2,115	11.2 / 10.1	14.1	15	6-15 P
230/208V	3.5	1	12,000	9,900	--	3,570 / 2,935	15.5 / 14.1	19.5	20	6-20 P
230/208V	5	1	17,100	14,000	--	5,070 / 4,160	22.1 / 20.0	27.6	30	6-30 P
265V	2.5	1	--	--	8,500	2,570	9.7	12.2	15	7-20 P
265V	3.7	1	--	--	12,600	3,770	14.2	17.9	20	7-20 P
265V	5	1	--	--	17,100	5,070	19.2	23.9	25	7-30 P

### Notes:

- All 265-volt models must use an Amana® brand sub-base (PTSB4\*\*E) or an Amana® brand hard-wire kit (PTPWHWK4).
- Minimum branch circuit ampacity ratings conform to the National Electric Code; however, local codes should apply.
- Minimum voltage on 230/208-volt models is 197 volts; maximum is 253 volts. Minimum voltage on 265-volt models is 239 volts; maximum is 292 volts.
- Overcurrent protection for all units without electric heaters is 15 amps. Overcurrent protection on 265-volt models must be cartridge-style time-delay fuses (included and factory-installed on all Amana® brand 265-volt chassis).
- Heating capacity and efficiency based on unit operation without condensate pump; unit automatically switches to electric heat at approximately 24°F outdoor ambient.
- Total watts for 15,000 BTU/h models; subtract 20 watts for PT07/09/12
- Specify two-digit heater kW size to complete model number.
- R-410A refrigerant used in all systems.
- All units meet or exceed ASHRAE 90.1 standards.
- All units less than 250 volts have a Leak Current Detector Interrupter (LCDI) power cord and meet UL 484 standards.

EER - Energy Efficiency Ratio per The Air-Conditioning, Heating, and Refrigeration Institute (AHRI) Test Procedures and Canadian Standards Association (CSA) Test Procedures.

COP - Coefficient of Performance per AHRI Test Procedures

# PROPER INSTALLATION

## OPERATING VOLTAGES



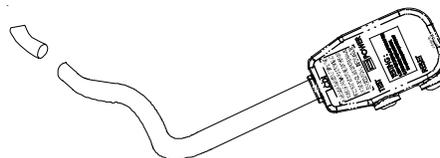
Use a voltmeter, check the voltage at the outlet.

The reading must be within the minimums and maximums shown below for the operating voltage.

Operating Voltages		
Operating Voltage	Minimum Voltage	Maximum Voltage
230/208	197	253
265	238	291

### NOTE:

1. All 265 volt models must use subbase or hard wire kit.
  2. Minimum branch circuit ampacity ratings conform to the National Electric Code. However, local codes should apply if in conflict.
  3. Minimum voltage on 230/208 volt models is 197 volts; maximum is 253 volts. Minimum on 265 volts is 238 volts; maximum is 291 volts.
  4. Overcurrent protection for all units without electric heaters is 15 amps. Overcurrent protection on 265 volt models must be cartridge-style time delay fuses (included and factory installed on chassis).
  5. Heating capacity and efficiency is based on unit operation without condensate pump. Unit automatically switches to electric heat at 25° F outdoor coil temperature.
  6. Total watts for 15,000 BTUH models; subtract 30 watts for PT\*12\*E\*\*\*\* and 70 watts for PT\*07/09\*E\*\*\*\*.
  7. Please specify 2-digit heater kW size to compete model number.
  8. Total amps for 12,000 and 15,000 BTUH models; subtract 0.2 amps for PT\*07/09\*E\*\*\*\*.
- LCDI or AFCI Power Cords - Underwrites Laboratories and the National Electric Code (NEC) now require power cords that sense current leakage and can open the electrical circuit to the unit on units rated at 250 volts or less. In the event that unit does not operate, check the reset button located on or near the head of the power cord as part of the normal troubleshooting procedure.



LCDI Power Cord

# PROPER INSTALLATION

## WALL SLEEVE INSTALLATION

**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.**

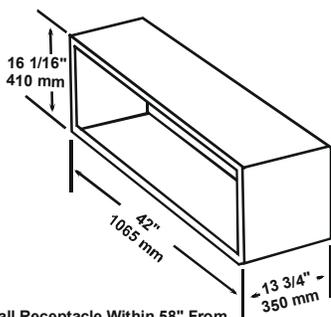


The wall sleeve must be installed before the air conditioner or heat pump chassis can be set in place. Read the instructions thoroughly before proceeding.

### Pre-installation Considerations

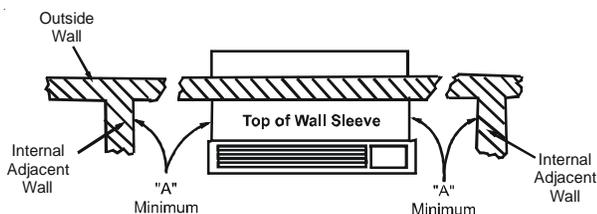
Before proceeding with the sleeve installation, ensure the following guidelines for locating the wall opening and sleeve are met:

- The wall opening must be the correct size. See the figures below for wall sleeve Dimensions and minimum wall opening size.



Wall Receptacle Within 58" From Bottom Right Side Corner on 208/230 VAC Units Only

### Wall Sleeve Dimensions

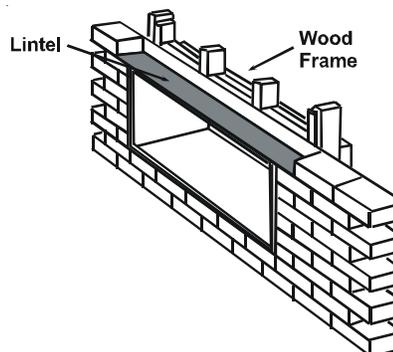


Allow Front Clearance (See Table 1)

### Minimum Unit Clearances

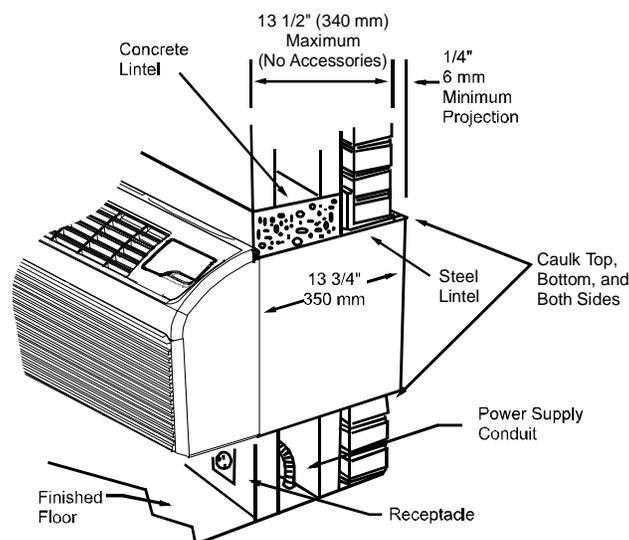
- The wall sleeve will need to be installed with minimum clearances to the floor and adjacent walls. Minimum projections of the sleeve into and out of the room will also have to be met. See Minimum Unit Clearances and Minimum Interior and Exterior Projections Figures as well as Minimum Clearances and Projections table for details.

- If installed in a concrete or masonry wall, a lintel must be provided in the wall opening for support. Do not use the wall sleeve as a lintel. See Framing with Lintel Figure for a typical lintel construction.



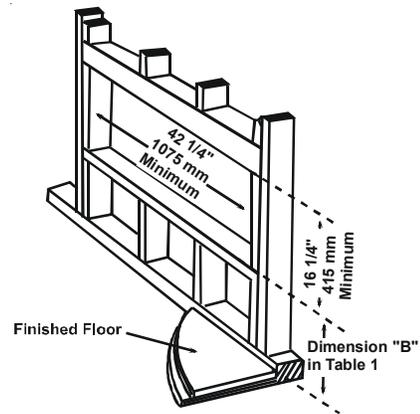
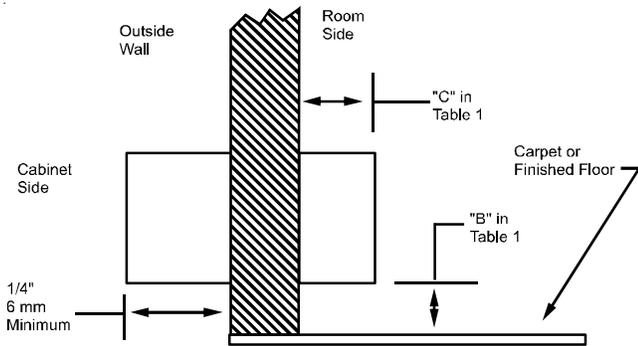
### Framing with Lintel

- When installed in the opening, the wall sleeve must be horizontally level from side to side and pitched (one quarter bubble in the sight glass) to the outside. DO NOT INSTALL LEVEL (FRONT TO BACK) OR SLOPE THE WALL SLEEVE TOWARD THE ROOM.
- The installer must determine and supply the mounting bolts and/or screws to attach the wall sleeve to the sides of the wall opening. Make sure the wall opening is adequate for strong support.
- The installer must provide adequate sealing and insulation around the sleeve after it is installed (air and water tight). See Block and Brick Veneer Installation Figure for one of many types of constructions.



### Block and Brick Veneer Installation

# PROPER INSTALLATION



## Minimum Interior and Exterior Projections

MINIMUM CLEARANCES AND PROJECTIONS						
Option	Minimum Clearances				Minimum Projection	
	A		B		C	
	in.	mm	in.	mm	in.	mm
Wall Sleeve Only	3	75	0	0	0	0
Subbase Kit	3	75	3 1/4	85	2 3/4	70
Leveling Legs Kit	3	75	3	75	2	50
Duct Kit	3	75	0	0	1 3/8	35
Drain Kit	3	75	0 <sup>1</sup>	0 <sup>1</sup>	0	0
Hard Wire Kit	3	75	1 1/4	30	0	0
Hydronic Heat Kit "A" Series	9	230	0 to 3 1/4 <sup>3</sup>	0 to 85 <sup>3</sup>	32	752
Hydronic Heat Kit "J" Series	6	150	0	0	2 1/2	65

<sup>1</sup> If inside mounted then B = 1 1/2 inches (40 mm).

<sup>2</sup> To achieve a flush fit between the hydronic front and the finished wall, Dimension "C" must be between 3" and 3 1/8". If this dimension is more than 3 1/8" there will be a gap between the front and the wall. This gap could permit occupant access to hydronic lines or other dangerous parts.

<sup>3</sup> This dimension can be from 0" to 3-1/4", but cannot exceed 3-1/4". If this dimension exceeds 3-1/4", the skirt around the front will not reach the floor.

- For installations in walls deeper than 13-1/2 inches, special care is necessary to prevent problems with rain water, condensate drainage and intake/discharge air. Under these circumstances, careful job site analysis and precautions are required. You must consult with your Sales Representative and receive approval before attempting such installations.
- If used, a 230/208 volt wall receptacle must be located within 58 inches of the lower right sleeve corner. Extension cords must not be used with the unit. See the note on Wall Sleeve Dimensions Figure.

## Minimum Wall Opening Dimensions

When 230/208 volt units are to be installed, the power supply may be either cord connected or permanent wiring. Permanent wiring may be done through the accessory hard wire junction box, or the accessory subbase.

When 265 volt units are to be installed, the power supply must be permanent wiring. Permanent wiring may be done through the accessory hard wire junction box, or the accessory subbase. **An exposed cord connection on 265 volt units is not permitted.**

The subbase accessory includes leveling legs. If added wall sleeve support is required and the subbase is not to be used as an accessory, leveling leg kit may be installed.

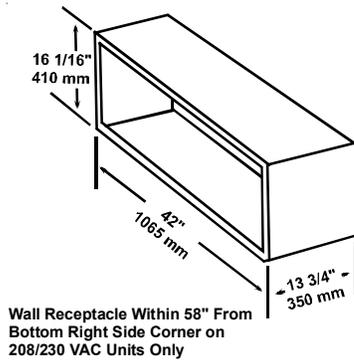
### Drain Kit

An indoor/outdoor drain kit is available as an accessory item. When a drain kit is to be installed, do so before installing the wall sleeve in the wall. See the drain kit for actual installation instructions.

### Subbase, Leveling Legs, Main Duct, and Hydronic Heat Kits

Installation of these kits requires drilling of mounting holes on both sides of the wall sleeve. The minimum required clearance distance between the wall sleeve and wall is shown in Minimum Clearances and Projections Table. If the distance between wall sleeve and wall will be at or near the minimum clearance distance, mount these kits on the sleeve before installing the sleeve in the wall. The kit installation instructions are included with the accessory kits.

# PROPER INSTALLATION



## Wall Sleeve Dimensions

### Outside Enclosure Panel Removal

The sleeve stiffener must be taken out before the enclosure panel can be removed from the sleeve.

The enclosure panel can be removed by folding the four flaps up and downward and manipulating the front ends of the top plus bottom towards the center. The entire panel can be pulled out diagonally from one side.

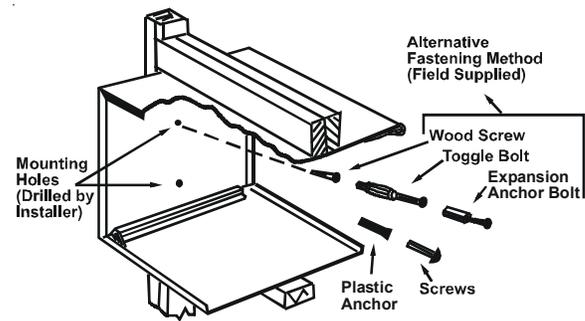
Install the wall sleeve condenser air grille by using the screws and holes provided.

### Installation (WS900B or WS900D)

After the wall opening is checked and approved for location, size, and clearances, complete the following to install the wall sleeve.

**NOTE:** Check with Amana® Brand Technical Service when a chassis is installed in any wall sleeve not supplied by Goodman.

1. Remove the outside enclosure panel from the wall sleeve.
2. Slide the wall sleeve into the wall opening. Do not distort the cabinet shape to fit the wall opening. The unit chassis must fit snugly and uniformly into the wall sleeve.
3. Locate the sleeve within the range of minimum projections, as shown in Minimum Wall Opening Dimensions and Minimum Interior and Exterior Projections Figures, so both sides are at least the minimum projection from the wall.
4. Check the level of the wall sleeve. For proper drainage, the sleeve should be level from side to side and one-quarter bubble in the sight glass sloping to the outside.
5. Two holes will need to be drilled in both sides of the wall sleeve for mounting into the wall. Drill holes of proper size and in the proper location so the screws will engage into strong supporting members of the wall. **DO NOT DRILL THROUGH BOTTOM OF SLEEVE.** The following figure shows possible fastening methods.



## Attaching Wall Sleeve to Opening

6. Check the level of the wall sleeve and adjust if necessary.
7. Caulk or seal around the outside of the entire sleeve.
8. If the unit chassis will not be installed immediately, replace the enclosure panel on the outside opening of the sleeve. This will prevent weather damage to the building interior.
9. Recycle or dispose of packaging materials per local codes.

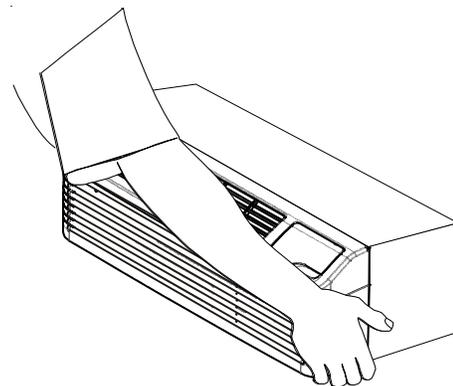
## OUTDOOR GRILLE

An outside grille must be installed to direct air flow for proper unit operation and also protect the outdoor coil. The grille must be installed before installing the chassis. Refer to the Installation Instructions supplied with the outdoor grille kit for a complete description of the installation procedure.

This model requires either a Stamped Grille Kit (Model SGK--B) or an Architectural Grille Kit (Model AGK--B). When replacing an old chassis with an existing grille, please check with your sales representative to determine if the new chassis should be used with the old outdoor grille. An improper outdoor grille can decrease cooling or heating capacity, increase energy usage and shorten compressor life.

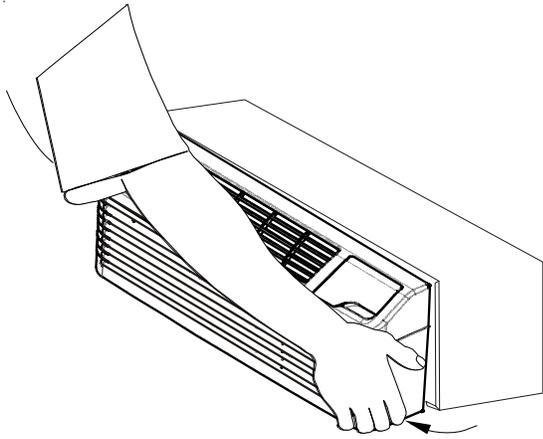
## FRONT REMOVAL

1. Grasp the cabinet front as shown.



2. Pull the bottom of the cabinet front away from the chassis until the retaining clips disengage.

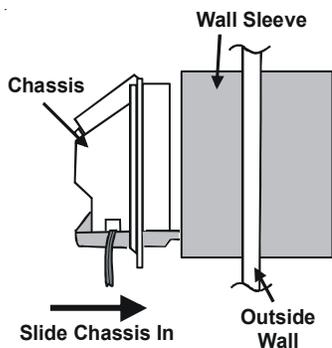
# PROPER INSTALLATION



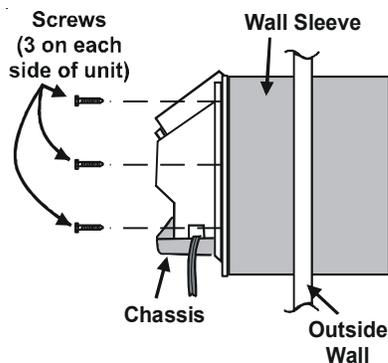
3. Lift the cabinet front off the chassis. Reverse this procedure to reinstall the cabinet front.

## CHASSIS INSTALLATION

1. Remove the cabinet front from the chassis as described in Front Removal.
2. Insert the chassis into the wall sleeve.



3. Slide the chassis into the wall sleeve until the chassis flanges contact the front edge of the wall sleeve.

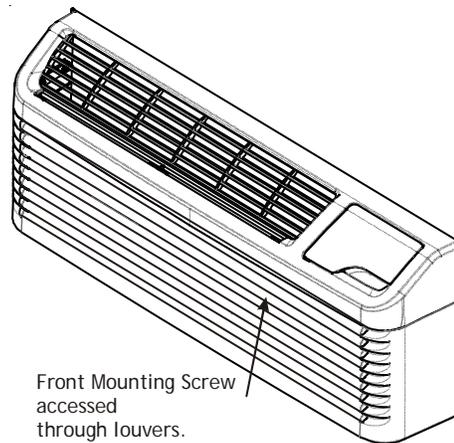


4. Secure the chassis to the wall sleeve using *three* screws on each side of the chassis to ensure a proper seal between the chassis and the wall sleeve. The screws are supplied in a plastic bag which is attached to the power cord.

### IMPORTANT NOTES:

1. The unit is equipped with a rubber grommet mounted compressor. These grommets are factory set and require no adjustment.
2. If a standard subbase is used, be sure the right hand subbase cover is removed before the chassis is installed in the sleeve.
3. Check the indoor and outdoor grilles for obstructions to air flow. The unit must be located where curtains, furniture, trees, shrubs or other objects do not block the air flow to and from the unit. If air is obstructed and/or deflected back into the unit, the air conditioner's compressor may cycle on and off rapidly. This could damage the compressor and void the warranty.

Front Mounting Holes - Two mounting holes are provided to give the owner the option of securing the front to the chassis. The mounting holes are located behind the intake grille. The owner must supply two 1/2 inch long #8 sheet metal screws per unit. The two screws must be removed before the front can be removed.



### Front Mounting Screws

# PROPER INSTALLATION

## WIRING

CAUTION

**TO AVOID PROPERTY DAMAGE, PERSONAL INJURY OR DEATH DUE TO ELECTRICAL SHOCK:**

- **DO NOT USE AN EXTENSION CORD WITH THIS UNIT.**
- **USE ONLY COPPER CONDUCTORS.**
- **WIRING TO THE UNIT MUST BE PROPERLY POLARIZED AND GROUNDED.**

Cord connection to a wall socket is not permitted for 265-volt units. All 265-volt units must be hard wired using the hard wire kit or make use of the plug-in receptacle in the standard subbase.

### Heaterless Units

If a heaterless unit is ordered, field provisions must be made for supplemental heat if desired. Refer to the Installation Instructions supplied with the heater kit for a complete description of the installation procedures. All 208/230 volt heaterless units are shipped with a 15 Amp power cord and all heaterless 265 volt units are shipped with a 20 Amp power cord.

When adding a heater kit to a unit, the power cord supplied with the heater kit must be used in place of the power cord supplied with the unit. The following table specifies power cord rating requirements for the various heater kits.

<b>POWER CORD REQUIREMENTS</b>		
Heater Size (kW)	<b>230/208 Volt Units</b>	<b>265 Volt Units</b>
	Power Cord Rating (amp)	Power Cord Rating (amp)
1.5	15	20
2.5	15	20
3.5	20	Not Applicable
3.7	Not Applicable	20
5	30	30

**NOTE:** Heaterless units are shipped with an auxiliary data label on the front side of the mid-partition panel. If an electric heater kit is field installed, the installer must mark the appropriate box on the label to indicate the electric heater capacity. If no heater is installed, the box labeled "None" must be marked. Refer to the unit nameplate for over current protection data.

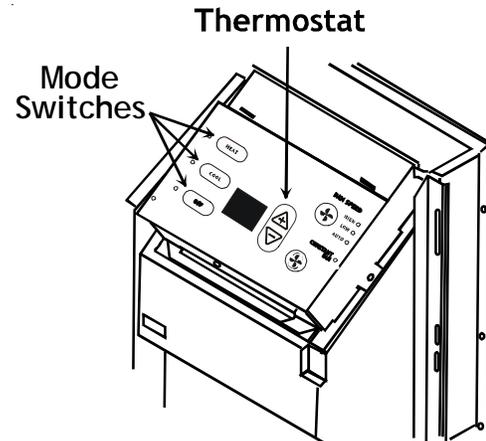
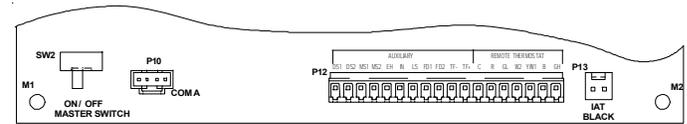
CAUTION

**DO NOT INSTALL A 5kW HEATER KIT IN ANY 7,000 OR 9,000 BTU CHASSIS.**

## OPERATING CONTROLS

### Users Controls

Two rotary knobs controlling temperature and operational



### Master Switch

The master switch disconnects power to all of the system components. When this switch is in the off position, the compressor, fan motor, reversing valve, and electric resistance heater will all be de-energized.

### REMOTE/STANDARD

The remote/standard configuration is used to change the control of the unit from the standard on board controls in the standard mode, to a remote wall mounted thermostat in the remote mode. For remote control configuration settings, refer to **Configuration Settings**.

### Fan Cycle Configuration

The fan cycle configuration sets the operational mode of the fan. In the ON position, the fan will run continuously whenever the unit is in the heat or cool mode. In the AU position, the fan will cycle on and off with the compressor or electric heater when the unit is in the cool or heat mode.

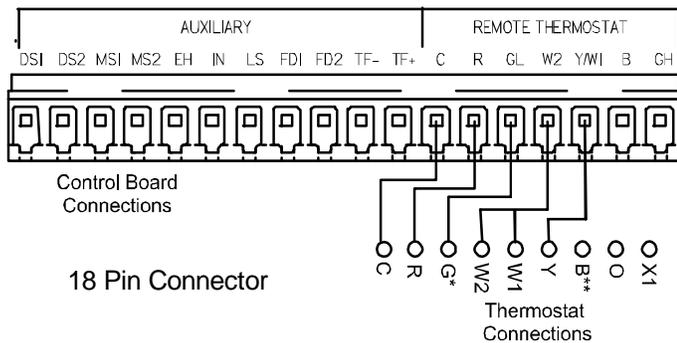
### Remote Control Inputs

The C, R, G, (GL for low fan speed or GH for high speed fan on W2, Y/W1 and B terminals provide control inputs for a remote wall mounted thermostat. See following illustration.

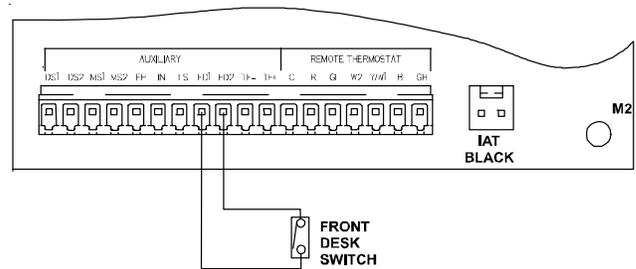
# PROPER INSTALLATION

## Wiring Schematic for Straight Cool Unit R-410A E SERIES

**\*NOTE:** For high speed fan operation, connect "G" to "GH".



The figures below shows a wiring schematic for connecting the front desk switch to the unit.



### Front Desk Switch Wiring Schematic

**IMPORTANT NOTE:** Do not apply 24VAC across these terminals. Applying 24VAC to these terminals will result in failure of the control board. Shorting these terminals to any other terminals may also result in control board failure.

**IMPORTANT NOTE:** Disconnect power to the unit and/or turn the Master Switch on the control board to OFF when connecting or altering wiring to any terminal. Failure to do so may result in shorting the fuse or damaging the control board.

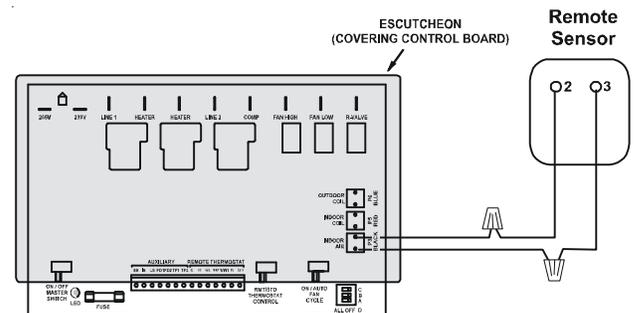
#### Front Desk Control

The FD1 and FD2 provide control inputs for a front desk switch. Shorting across these two terminals will disable unit operation. The only control function which will remain active when these two terminals are shorted is freeze protection. Any switch which will produce a short circuit across these two terminals can be used as a front desk switch. The contact resistance of the switch, when closed, must be less than 200 ohms for the front desk feature to operate properly.

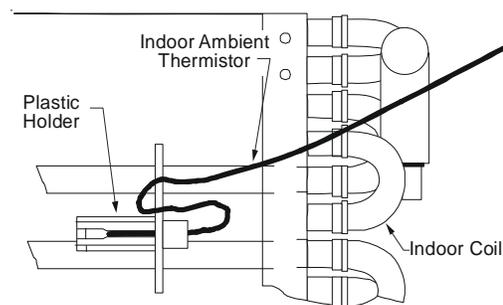
The following table shows the maximum wire length and corresponding gage size for installation of a front desk switch.

MAXIMUM WIRE LENGTH FOR FRONT DESK SWITCH	
Wire Size (AWG)	Maximum Length Allowed (ft)
#24	400
#22	600
#20	900
#18	1500
#16	2000

#### Remote Temperature Sensing

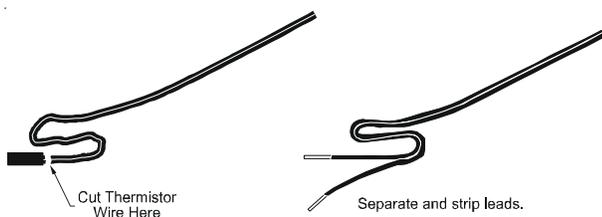


1. Remove indoor ambient thermistor from plastic holder on indoor coil.

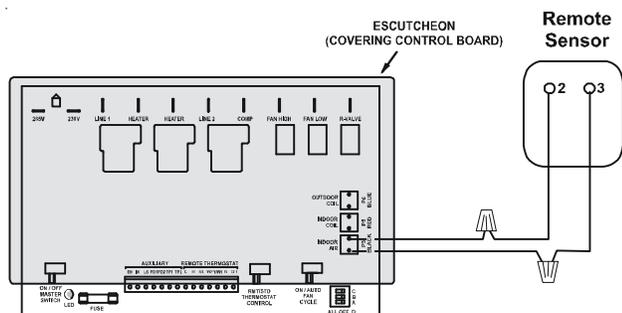


2. Cut off end of thermistor, separate leads 1" back from cut and strip 1/2" of insulation from each lead.

# PROPER INSTALLATION



- Wire nut the stripped leads to the two sensor wires running from terminals 2 and 3 on the remote temperature sensor base .



- Place the mode switch in the "OFF" position. Reestablish power to the unit. The remote temperature will automatically activate.

**NOTE:** Ensure the mode switch is in the OFF position before electrical power is applied to the unit. If the mode switch is not in the OFF position when electrical power is applied to the unit, the random restart feature will activate causing a two to four minute start-up delay.

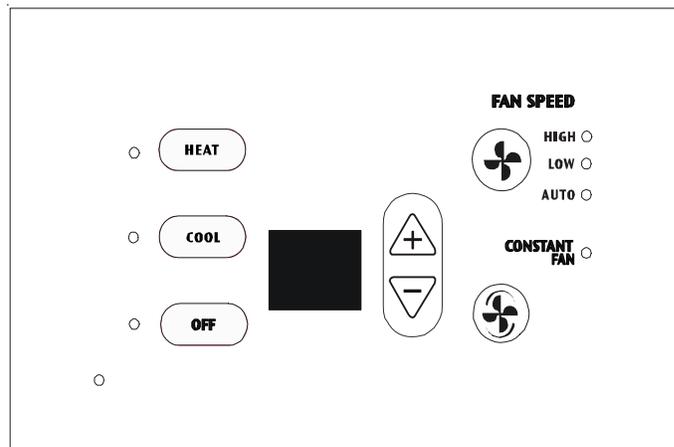
**NOTE:** Freeze protection temperatures will be sensed by the remote temperature sensing device and not at the PTAC unit (sensed at the PTAC unit when a remote thermostat is used).

## Temperature Limiter

The temperature limiting feature can reduce energy costs by controlling the maximum temperature available in heating and the minimum temperature available in cooling. While approximate temperature settings are shown below, actual room temperature will vary slightly.

## Users Controls "Digital Touch Pad"

A seven button touch key pad located behind the control door controls both temperature and operation mode. The key pads can be used alone or in combination.



## User Controls

### Thermostat Setting

Pressing the COOL thermostat control and the up or down arrows will provide a cooler room temperature, respectively. Pressing the HEAT thermostat control and the up or down arrow keys will provide a warmer room temperature.

### Fan Speed

The fan speed touch key will deliver high, low or auto fan speed to circulate room air. **NOTE:** The AUTO selection will not be available if a fan speed is selected without COOL or Heat selection.

Fan Operation HIGH or LOW with HEAT or COOL mode selected - The selected fan speed shall run in the selected speed.

Fan Operation AUTO with HEAT or COOL mode selected - The fan will run in low and high speed. The changes in fan speed are automatic. See "Configuration Settings" section for further details.

### Diagnostic Light

The green diagnostic light located in the lower left hand corner of the touchpad and indicates operation warnings. This light usually indicates that either the filter or coils need cleaning. Please refer to the *Maintenance and Cleaning* section for the proper cleaning procedure. If this light is still on after cleaning, please refer to the *Diagnostic & Status Report* section for assistance.

### Additional Control Inputs

The control inputs provide additional unit control and features. To access these control inputs, the cabinet front must be removed (see Front Removal).

### Master Switch

The master switch disconnects power to all of the system components. When this switch is in the off position, the compressor, fan motor, reversing valve, and electric resistance heater will all be de-energized.

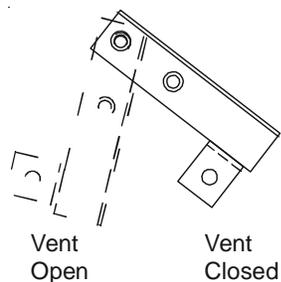
# PROPER INSTALLATION


**WARNING**



**HIGH VOLTAGE**  
**DISCONNECT ALL POWER BEFORE SERVICING.**  
**MULTIPLE POWER SOURCES MAY BE PRESENT.**  
**FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE,**  
**PERSONAL INJURY OR DEATH. DO NOT SERVICE THIS UNIT**  
**WITHOUT FIRST SHUTTING OFF POWER TO THE UNIT FROM**  
**THE CIRCUIT BREAKER AND/OR REMOVING THE UNIT CORD**  
**SET PLUG FROM THE WALL OUTLET. LINE VOLTAGE WILL BE**  
**PRESENT AT THE CONTROL BOARD, TERMINALS L1 AND L2**  
**WHENEVER POWER IS APPLIED TO THE UNIT REGARDLESS**  
**OF THE MASTER SWITCH POSITION.**

Rotate the vent control lever to either open or close the damper.



## Remote Control Inputs

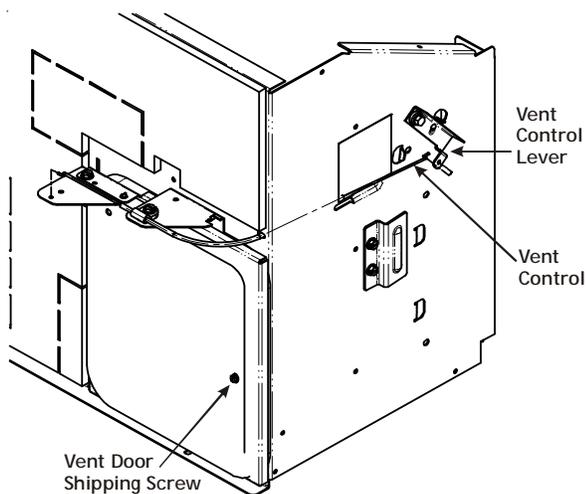
The C, R, GL, W2, Y/W1, B/O, and GH terminals provide control inputs for a "manufacturer-approved" remote wall mounted thermostat. The "B" terminal can be configured to become "O" if needed see *Configuration Settings* For remote control thermostat operation, refer to the *Remote Thermostat Operation* section.

## Vent Control

**NOTE:** Vent control is only used on units with the power vent or power vent door kit not installed.

The vent control allows fresh air to be drawn into the conditioned area. This fresh air can provide ventilation when the blower is operating, but it will increase the heating or cooling load and operating costs.

To obtain access to the vent control, remove the cabinet front (see Front Removal). Remove the shipping screw (if installed) from the vent door. Then remove the label (if present) from over the vent control lever on the left side of the chassis.

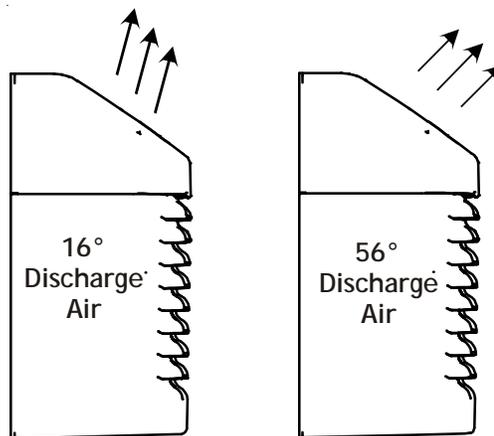


## HYDRONIC HEAT INSTALLATIONS

To avoid the risk of freezing the steam or water coil during prolonged shut down periods, the vent door must be left closed when the outdoor temperature might fall below freezing or a power door kit must be installed.

## AIR DISCHARGE GRILLE

The discharge grille can be adjusted to expel air at either a 16° or 56° angle.



## Discharge Grille Orientation Options

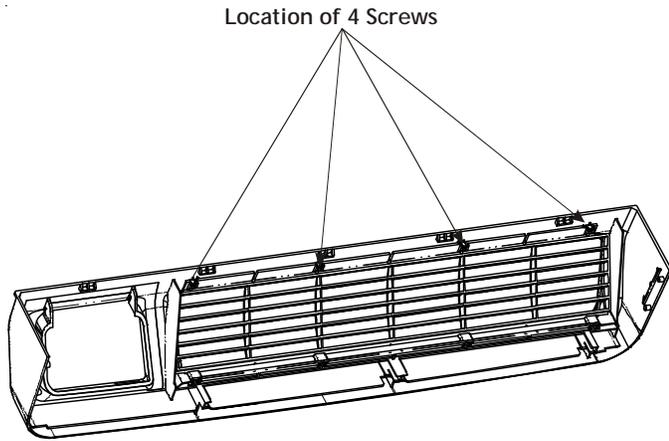
Use the following procedure to change the angle of the discharge air flow:

1. Remove the front cabinet (see Front Removal).
2. Position the front so that the backside is accessible.

### Discharge Air Flow

3. Remove the four (4) screws which secure the discharge air grille to the cabinet front.

# PROPER INSTALLATION



4. Rotate the grille 180° end-for-end.
5. Reinstall the nuts securing the discharge air grille to the cabinet front. Reinstall the cabinet front on the unit.

## CONFIGURATION SETTINGS FOR R410A

### E SERIES MODEL BOARDS

#### 7 BUTTON TOUCH PAD WITH DISPLAY

The control can be configured to operate a wide range of options. The options listed below 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 hold the up and down  arrow keys at the

same time and press the OFF  key twice within

a two (2) second time frame. The display will indi-

cate - -., and then release the  key and press the

 key one time. The display will then alternate be-

tween C1 and 0.

To select a different 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.

Refer to the Configuration Chart.

## Wireless Communications

PTAC models PT\*\*\*\*B\*\*\*M, N or P have the option to use a wireless thermostat and door sensor. These features will only work on the models listed above. The thermostat and / or door sensor will require an antenna for communication with the digital control board.

### ANTENNA INSTALLATION FOR DT01\* KIT

A DT01\* antenna must be installed on the digital PTAC to allow operation of either the DS01\* remote RF thermostat or a DD01\* combination PIR motion sensor and door switch.

 **WARNING**

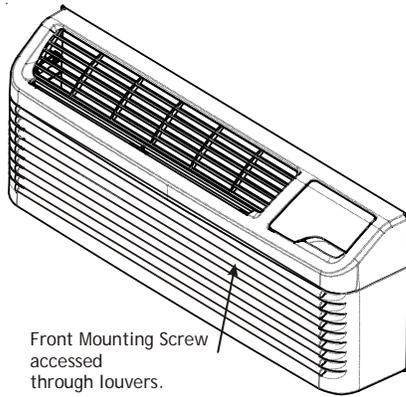
**HIGH VOLTAGE**  
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS KIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH. THE "OFF" SWITCH DOES NOT DISCONNECT ALL POWER TO THE UNIT.



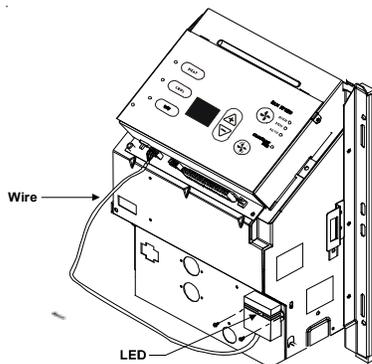
## PREPARATION

1. Disconnect power to the unit by unplugging the power cord at the wall outlet or subbase, or disconnect power at the fuse box or circuit breaker.
2. If the cabinet front is screwed to the chassis, remove the 1/4" screw (or screws). See following figure.

# PROPER INSTALLATION



3. Remove cabinet front from chassis by tilting the bottom of the front forward, lifting slightly up and forward.
4. Mount the antenna as high up on the control panel as possible and as far to the right as possible in a location that will not interfere with the reinstallation of the PTAC polymer room front. Mark holes for screw location. Remove antenna housing and drill two 1/8" holes where marked. Some units may have the holes already pre-drilled in the correct location.



**DT01\* Mounting**

5. Remove antenna cable and route cable through opening in bottom of antenna housing.
6. Mount antenna housing with two screws as shown in figure. (NOTE: The Amana® brand logo should be in the lower right hand corner).
7. Plug wire harness from antenna into connector on the control board to the right of the master switch, being careful not to bend and/or break the wires when you connect the cable to the PTAC. Gently push the connector into place by pushing on the edge of the connector with your thumb nails. *Avoid pushing directly on the wires.*
8. Restore power to the PTAC unit.
9. Reinstall the polymer room cover.

**NOTE:** The LED must be oriented at the top of the antenna housing (the Amana® brand logo will be on the lower right) for proper unit operation.

## THERMOSTAT INSTALLATION FOR DS01E KIT

**NOTE:** A DT01\* must be installed on the digital PTAC unit for the DS01\* to be operable.

*Skip these steps if not installing.*

1. Select thermostat mounting location about five feet above the floor, on an inside wall, out of direct sunlight, away from sources of radiant heat (lamps, fireplaces, heating and air conditioning equipment, etc.), away from windows or door to the outside, and avoid areas with poor air circulation. If the PIR in the thermostat is to be used with a DD01\* device as a 2nd motion sensor, point the thermostat towards the area where you are requiring additional motion sensing.

Ensure location is out of the path of foot traffic where a person might accidentally bump into the thermostats and damage the device.

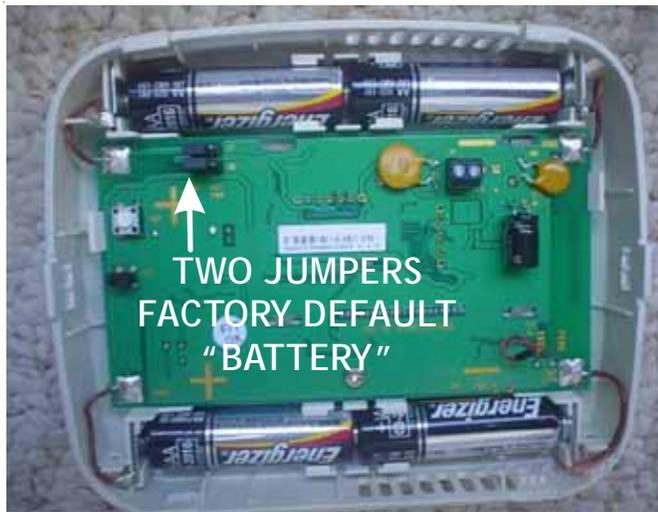
2. Remove thermostat from mounting plate by pulling apart at the bottom of the thermostat about 1", and slide thermostat up to release from the top of the mounting plate.
3. Place thermostat mounting plate against the wall at desired location and mark placement of mounting holes. Make sure the UP arrow is pointing up on the mounting plate.
4. If mounting in drywall, tap plastic anchors into wall. For other surfaces, drill a 3/16" hole.
5. Screw mounting plate to the wall. **DO NOT SNAP THERMOSTAT INTO PLACE UNTIL AFTER BINDING PROCESS.** See *Binding Instructions*.
6. Install four (4) AA batteries (included) into the back of the thermostat. Terminals are marked "+" and "-" for polarity.

**NOTE:** Do not install thermostat on wall plate until all configuration settings and binding processes have been completed.

## WIRED POWER OPTION

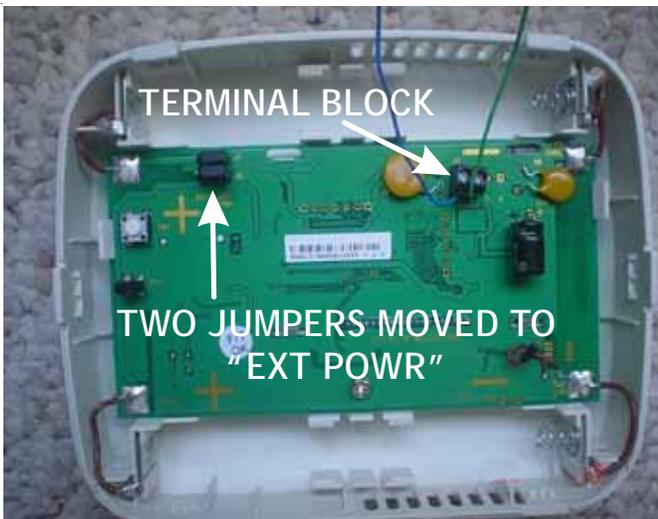
1. If the option for wired power is used, the two thermostat wires (20 gauge minimum field supplied) can be connected to the thermostat.
2. Route wires through the opening in the mounting plate.
3. Loosen set screws on wired terminal and insert wires into the opening. Tighten set screws.
4. Connect wires at PTAC unit to terminal pins C and R. The wire harness kit PWHK01C is required for this connection.

# PROPER INSTALLATION



## BATTERY CONNECTION

**NOTE:** For battery connection the 2 jumpers must be positioned as shown above, with jumpers on the center & left pins.



## POWERED CONNECTION

**NOTE:** For powered connection, the 2 jumpers must be positioned as shown above, with jumpers on the center & right pins.

## MOUNTING SENSOR/DOOR MAGNET INSTALLATION FOR DD01E AND DD01F KITS

DD01E and DD01F must be mounted on the top door frame as close to the door as possible in the horizontal position.

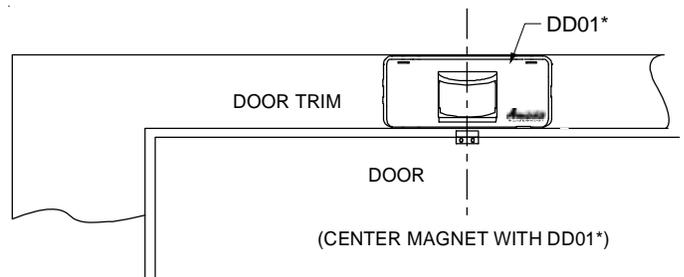
A DT01A must be installed in the PTAC unit for the DD01E or DD01F to be operable.

*Skip these steps if not installing.*

1. Remove motion sensor from mounting plate by pulling apart.
2. Mount the back plate on the door trim directly above the door using the enclosed screws. (Position so the UP arrow is pointing up.) Mount the DD01E as low as possible on the door frame to be as close to the moving part of the door as possible without interfering with the door opening or closing. Choose a location for mounting the back plate that will provide good coverage of the PIR for motion into the room. Make sure that the DD01E will not interfere with the normal opening and closing of the door.

**DO NOT SNAP MOTION SENSOR IN PLACE UNTIL AFTER BINDING PROCESS.**

*See Binding instructions.*



## DD01E and DD01F Mounting

3. Install two (2) AA batteries (included) into the back of the thermostat. Terminals are marked "+" and "-" for polarity. **Do NOT put batteries into the device until AFTER the magnet location is selected to test.** WIRED

## WIRED MAGNET AND POWERED DOOR SENSOR OPTION

In cases where there is no top door frame, the sensor will need to be mounted on the wall next to the door. In these cases a wired magnet (a field supplied single pole single throw wired magnet) can be recessed or surface mounted and wired to the door sensor. The magnet will be a recessed style magnet with wired switch. The wires for the sensor (20 gauge field supplied) in the magnet will need to be run during construction. Two wires will be run from the door sensor location to the PTAC unit; the remaining two wires will be run from the magnet location to the sensor location. The door sensor has four (4) terminal locations for wired power and/or wired magnets. The two (2) terminals closest to the binding button are for wired magnet and the top two (2) terminals are for wired power.

Run the magnet wires through the opening in the center of the door sensor wall plate.

# PROPER INSTALLATION

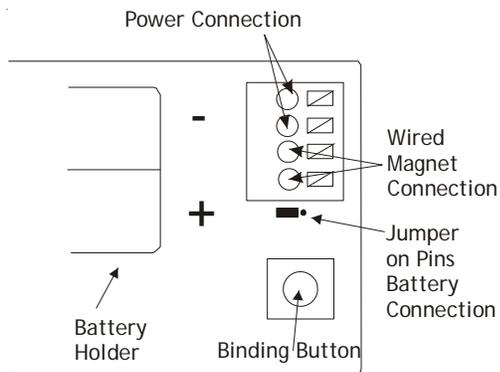
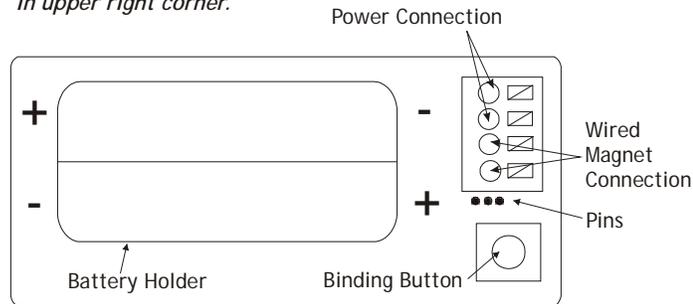
## CONNECTING MAGNET

Using a pocket size straight blade screw driver push down on the terminal button to open the socket, insert wire into socket and release the terminal button. Insert one wire into each of the two (2) terminals. See image below for wire locations.

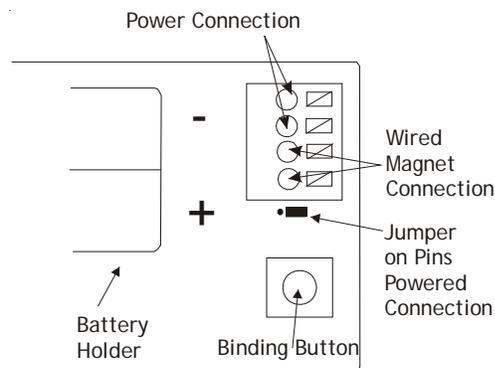
## POWER CONNECTION

If using the wired powered option for the door sensor, using a pocket size straight blade screw driver, push down on the terminal button to open the socket. Insert wire into socket and release the terminal button. Insert one wire into each of the two (2) terminals. See following for wire locations. Connect the power wires from the door sensor to the PTAC on terminals C & R. The wire harness kit PWHK01C is required for this connection.

*Viewed from the back with the power block in upper right corner.*



Note: For battery connection, the jumper must be placed as shown above



Note: For 24v powered connection, the jumper must be placed as shown in preceding graphic.

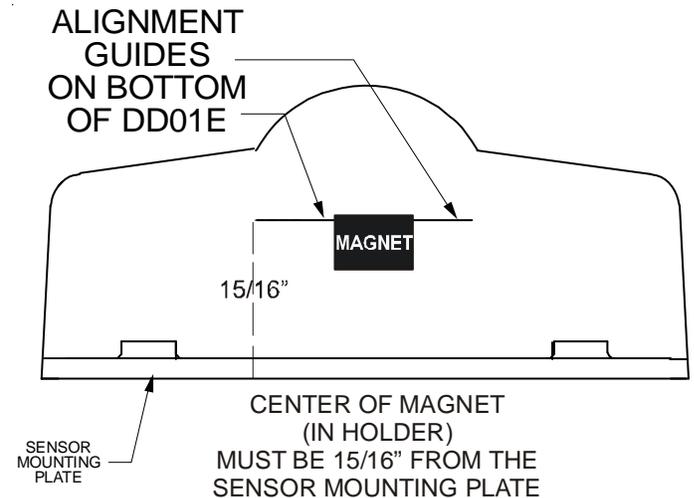
## DOOR MAGNET INSTALLATION

NOTE: MAGNET BUCKETS ARE SHIPPED FROM THE FACTORY WITH THE MAGNETS IN POSITION A. THE POSITION MAY CHANGE BASED ON THE DOOR AND DOOR FRAME ALIGNMENT ON PAGE 23.

Mount the door magnet holder on the front of the door where it will be as close as possible to the bottom of the motion sensor but no more than 1/8" from the bottom center of the motion sensor (DD01E or DD01F) when the door is closed.

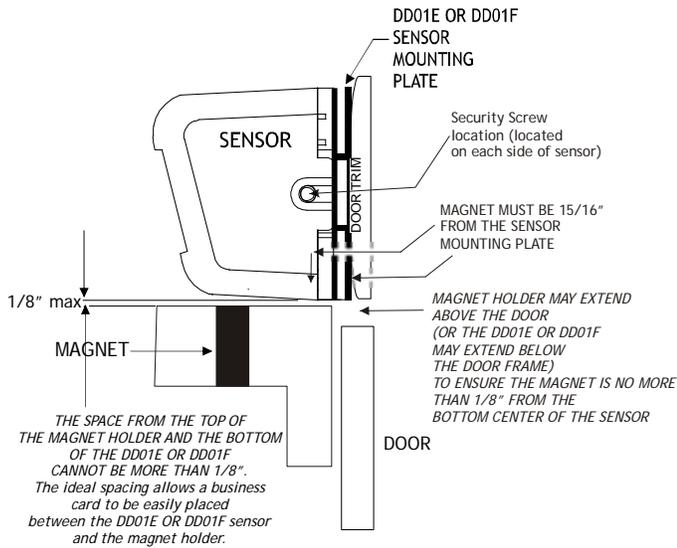
Select the correct slot in the magnet holder (there are three slots) to obtain 15/16" from back of sensor mounting plate to the center of the magnet. (If you can easily slide a business card between the magnet and the DD01E or DD01F sensor, unit is properly placed vertically.) See following image for magnet and sensor alignment.

Screw in place with the 2 screws provided. Open and close the door to make sure that the magnet holder and motion sensor will not interfere with normal opening and closing of the door. See following images.

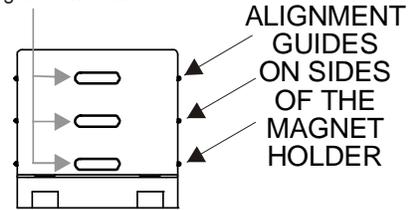


Do NOT install batteries until you are ready to test the magnet location with DD01E.

# PROPER INSTALLATION



Straight edge screwdriver  
may be placed in slots  
for magnet removal

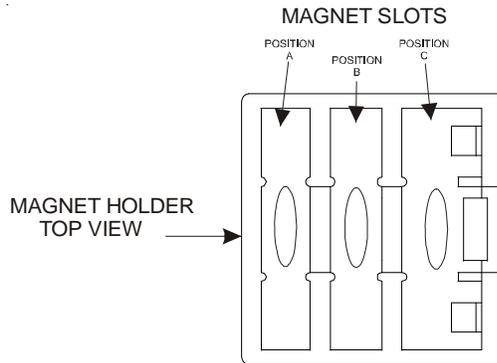
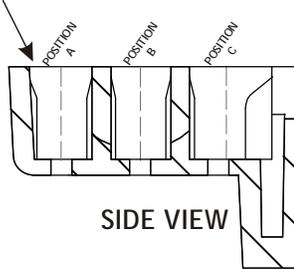


Select one of the three slots that places the magnet 15/16" from the sensor mounting plate on the door frame. See following examples. The door frame and door usually will not align. Place holder on the door and select the slot that places the magnet as close as possible to the 15/16" depth from the back of the DD01\* mounting plate.

**NOTE:** To install bucket to extend into the room, place provided shim in appropriate slot.

The following figures show the magnet 15/16" from the sensor mounting plate in different slot positions (A, B & C).

## MAGNET HOLDER TOP

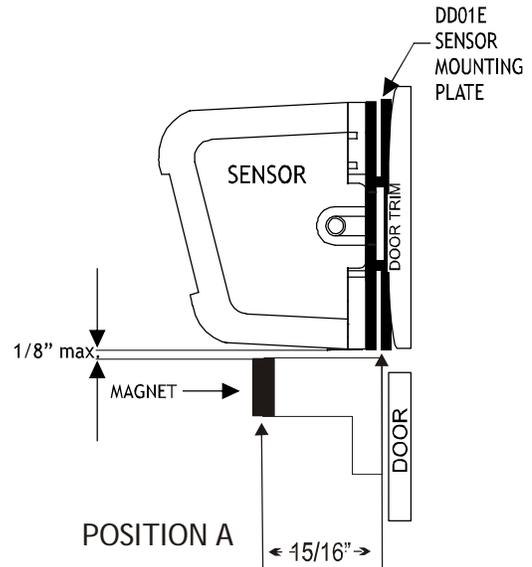


INSTALL THE MAGNET IN  
THE CORRECT SLOT.

15/16th" FROM BACK EDGE OF  
SENSOR MOUNTING PLATE  
TO BACK OF MAGNET.

## CONSTRUCTION STYLE 1

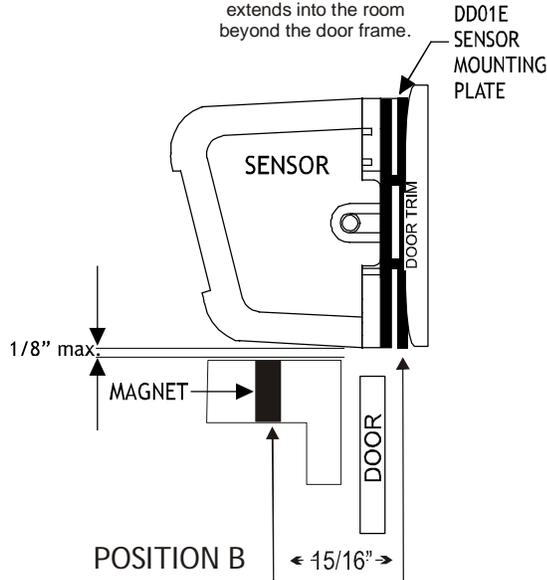
Place magnet in Position A  
in instances when the door  
and frame align.



# PROPER INSTALLATION

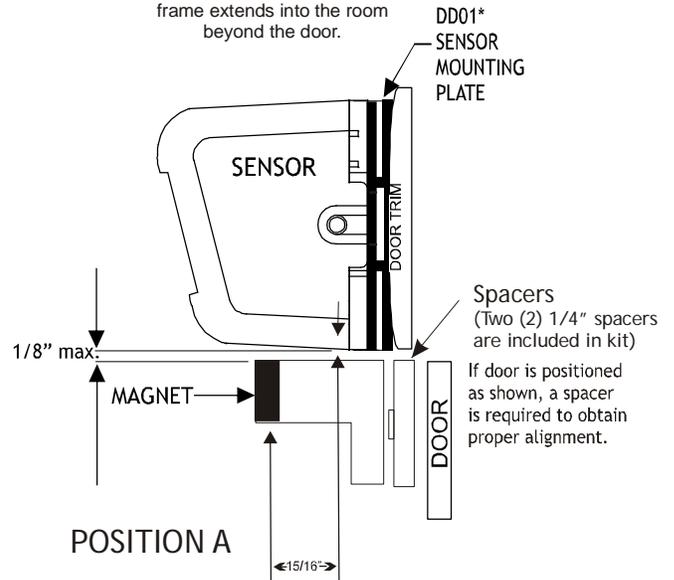
## CONSTRUCTION STYLE 2

Place magnet in Position B in instances when the door extends into the room beyond the door frame.



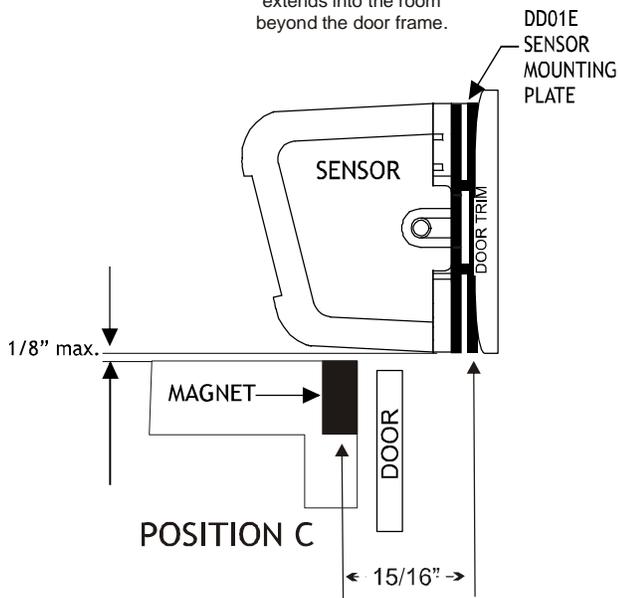
## CONSTRUCTION STYLE 4

Place magnet in Position A in instances when the door frame extends into the room beyond the door.



## CONSTRUCTION STYLE 3

Place magnet in Position C in instances when the door extends into the room beyond the door frame.

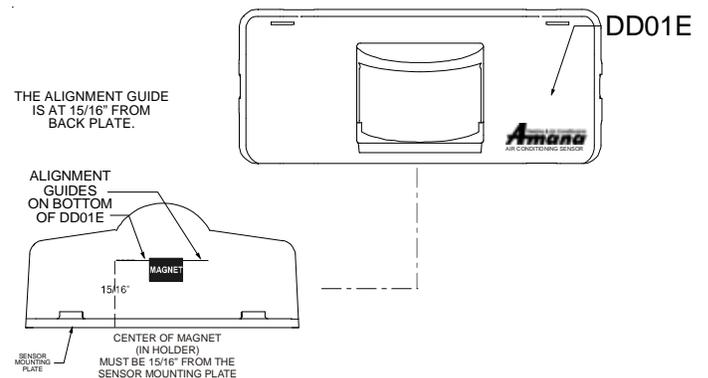


Above shows magnet 15/16" from the sensor mounting plate in different slot positions.

**NOTE:** Two (2) 1/4" spacers are provided in this kit for instances where the door is recessed behind the door trim. See Construction style 4.

There is a line on the bottom of the DD01E and DD01F to assist in aligning the magnet in the proper bucket location.

Above graphics are for example only. Always measure and place the magnet in the proper slot to obtain the 15/16" needed between the magnet and the sensor mounting plate on the door frame.



**IMPORTANT NOTE:** When properly installed, the center line mark on the bottom of the DD01E will line up with the center of the line of the magnet holder containing the magnet. Choose magnet position A, B, or C to align the magnet 15/16" from the back of the DD01E or DD01F.

# PROPER INSTALLATION

## DOOR SENSOR OPERATION VERIFICATION

**NOTE:** Do NOT attempt to bind a DD01E unless proper operation has been validated.

To verify that door sensor is installed properly:

1. Install batteries into DD01E or DD01F and snap sensor onto wall plate.
2. Close the door. Green light in lens should illuminate. Open door and green light will turn off. *Repeat this step several times to ensure door sensor is operating correctly.*

Procedure must be accomplished within one minute. If not accomplished within one minute, remove batteries and repeat Steps 1 & 2.

### Configuration Settings

The PTAC control will automatically self-configure to work with the wall thermostat (DS01E Kit) if installed and bound. The PTAC control will automatically self-configure to activate pre-configured energy management routine when the DD01E or DD01F is installed and bound to the PTAC. Additionally, the setback times and setback temperatures can be changed using the configuration settings. If you are using DP01\* or DL01E Front Desk Platform, the PTAC control will need to be configured to identify its room number placement.

## STANDARD AND DS01E CONFIGURATION

### TO ENTER CONFIGURATION FEATURE MODE:

Press and continue to hold the up and down  ar-

row keys and quickly press the OFF  key twice within a two (2) second time frame. You will see " - - " displayed. Once you are in the configuration program, you can use the HEAT button to move UP the various configuration settings or the COOL button to move DOWN the configuration settings. The + or - keys will move up or down the selectable codes that you can change for each configuration setting. Ensure that you are in the proper configuration setting before pressing the + or - key as you may accidentally change a setting that you did not intent to change.

The display will alternate between displaying the feature code  and the option code **0** (factory default setting). Press the HEAT button one time to get into C1 mode and then the display will alternate between C1 and 0 - the factory default. If an RF DS01\* has been bound to the unit the display will alternate between C1 and rE. The lower right dot on the display will flash.

## DPO1A, DP01E OR DL01E

### ENTERING ROOM NUMBER (SKIP IF NOT USING DP01\* FRONT DESK PLATFORM)

1. The PTAC control can be set for a 4-digit room number. To select the first two digits (floor), press the

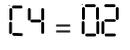
HEAT  key until  appears, then press the

 up  down arrows to select the first two digits.

2. To select the last two digits of the room number, press the HEAT  key until  appears, then

 press the up and down  arrows to select the last 2 digits of the room number.

For example for Room "201", press the HEAT  key until  appears, then press the up  down ar-

rows to select "02":  .

Next to select the last two digits of the room number, press the HEAT  key until  appears, then

press the up and down  arrows to select "01":  .

3. If a room contains more than one unit (a suite), a suffix must also be entered to identify which unit is in the main room and which unit(s) are in bedroom(s). Master unit ALWAYS MUST have a 01 suffix and slaves a suffix or 02, 03, etc. To select the room # suffix, while still in configuration mode, press the HEAT  key until  appears. Then press the up and down

 arrows to select the room # suffix. Example: For the unit serving the main living area in room 224, press

# PROPER INSTALLATION

the HEAT  key until **rs** appears, then press

the up and down  arrow keys to select **01** (**rs =**

**01** appears in the display).

For the bedroom unit closest to the main room in room

224, press the up and down  arrow keys to select

**02 02** (**rs = 02** appears in the display) Press the

 key to exit configuration mode.

## Binding of RF Devices

 **CAUTION**

**DO NOT HAVE TWO GROUPS OF PEOPLE BINDING UNITS IN THE PROPERTY AT THE SAME TIME. RADIO FREQUENCY (RF) GOES THROUGH WALLS AND UP TO 400'.**

**IMPORTANT NOTE:** If wireless platform DP01\*, DP01E or DL01E are being utilized, then room numbers **MUST BE CONFIGURED** in the control board prior to binding wireless devices.

**DO NOT ATTEMPT TO BIND  
MORE THAN ONE ROOM AT A TIME AT THE  
SAME PROPERTY!!!  
RF TRANSMITS THROUGH WALLS.**

The wireless devices (DS01E and or DD01E must be bound to the PTAC DT01E control for proper in-room communication. Ensure the unit is powered but in the OFF position.

**NOTE:** Both the DS01E and the DD01E must be bound to the PTAC unit during the same "learn" operation.

If you need to rebind one device - then you must rebind both devices during the same learn mode event.

*All must be bound at one time.*

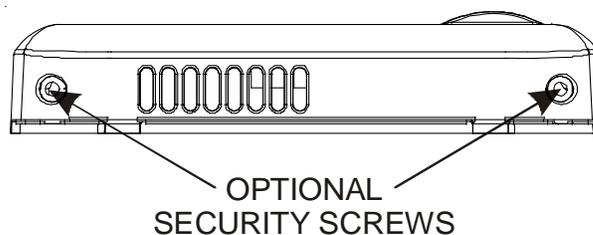
1. Press and hold OFF button on the PTAC until **L** appears.
2. Press and then immediately release the white tactile button on the back of the DS01\* thermostat. **L** should now be displayed on the PTAC LED display. If **L** does not show on the display in 1-2 seconds, then press and release the white button a second time. Skip this step if there is no thermostat.

3. Press and then immediately release the white tactile button on the back of the DD01\* motion sensor. **L** or **L** should now be displayed on the PTAC LED display.

If **L** or **L** does not show on the display in 1-2 seconds, then press and release the white button a second time. **NOTE:** If both a DD01\* and a DS01\* are being bound, then the display will show **L**.

Skip if there is no motion sensor.

4. Press "OFF" on the PTAC touchpad to exit the binding sequence.
5. Slide top of the thermostat down onto the wall plate and then snap into place.
6. Provided optional security screws may be used in lower corners of the thermostat.



7. Snap motion sensor onto motion sensor mounting plate.
8. Provided optional security screws may be installed on right and left side of the sensor.
9. If you wish to change from the factory default settings, configure the device or devices that were bound. See the next section for configuration choices.

**NOTE:** If a wireless device is replaced or added, all devices (including those previously bound) will need to be bound/re-bound to the unit. See directions above.

## ENTERING ROOM NUMBER (SKIP IF NOT USING DP01\* FRONT DESK PLATFORM)

1. The PTAC control can be set for a 4-digit room number. To select the first two digits (floor), press the HEAT  key until **L4** appears, then press the

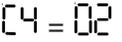
 up  down arrows to select the first two digits.

2. To select the last two digits of the room number, press the HEAT  key until **L5** appears, then

# PROPER INSTALLATION

press the up and down  arrows to select the last 2 digits of the room number.

For example for Room "201", press the HEAT  key until

key until  appears, then press the up  down  arrows to select "02": .

Next to select the last two digits of the room number, press the HEAT  key until  appears, then

press the up and down  arrows to select "01": .

3. If a room contains more than one unit (a suite), a suffix must also be entered to identify which unit is in the main room and which unit(s) are in bedroom(s). Master unit ALWAYS MUST have a 01 suffix and slaves a suffix or 02, 03, etc. To select the room # suffix, while still in configuration mode, press the HEAT  key until

key until  appears. Then press the up and down

 arrows to select the room # suffix. Example: For the unit serving the main living area in room 224, press the HEAT  key until  appears, then press

the up and down  arrow keys to select  ( =

 appears in the display). Since  is the factory default setting for configuration code , it may not be necessary to configure the suffix for the main room. For the bedroom unit closest to the main room in room

224, press the up and down  arrow keys to select

01  ( appears in the display) Press the  key to exit configuration mode.

4. If a property identifies rooms by an alpha character (such as WINGS), a prefix must also be entered to identify room numbers (example: A-115). To select the room # prefix, while still in configuration mode, press the HEAT  key until  appears. Then press the up and down  arrows to select the room # prefix. Contact the manufacturer to have the prefix show as the correct letter on the platform.

## SETBACK TEMPS - DD01E / DD01F

The DD01\* and the DigiSmart™ control can be programmed for 3 different times to activate temperature setbacks. The current factory default temperature setbacks in v2.5 \* software release are: 2° from set point in 30 minutes, 3° in one (1) hour, and 6° in three (3) hours. For each time, you can select a setback temperature. The amount of setback is the amount of degrees the control will operate from guest's setting in degrees F. If a change to the factory default temperature settings is desired, use the following instructions.

**NOTE: WHEN** first entering the configuration mode, if you see " - - " then you have version 2.5 or higher. You can verify the software version by starting with the unit in the OFF position, and while holding down the "+" and "-" buttons, double click the COOL button and then release and push the FAN button within one second. The unit display will scroll through all of the thermister temperatures and the last item displayed will be CS (current software) and you will see 25 for v2.5.

\*Other software versions may have different factory setback defaults. *Contact your PTAC representative to determine factory default settings.*

# PROPER INSTALLATION



## WARNING

### USE OF SETBACK TEMPERATURES

**Do not use motion sensing setback temperatures in rooms where incapacitated persons or animals are unable to change the control setting.**

**An unattended air conditioner with extreme setbacks may result in undesirable or unhealthy temperatures in the conditioned space causing under heating, under cooling or death of persons or animals.**

- To select first unoccupied set back temperature, press the HEAT  key until  feature code comes up. To scroll to a previously viewed feature codes, press the COOL  key.

Once you have scrolled to the  feature, press ei-

ther the up or down arrow  to scroll to the de-

sired first unoccupied setback temperature. Cooling example: 72° (guest set point) + 2° (Setback temperature) = 74° (operational set point).

- Press HEAT  key to scroll to  first unoccupied setback time. The first unoccupied setback time is the time between when the control determines that the room is not occupied and when the control sets the operating set point temperature back. The increments are in hours (.1 = 6 mins., .5 = 30 mins., 1 = 1

hour, etc.). Press either the up or down arrow 

to the desired first unoccupied setback time.

- To select second unoccupied setback temperature, press the HEAT  key until  comes up. Press

either the up or down arrow  to the desired second unoccupied setback temperature.

Cooling example: 72° (guest set point) + 4° (Setback temperature) = 76° (operational set point).

- Press HEAT  key to scroll to  second unoccupied setback time. Press either the up or down arrow

 to the desired second unoccupied setback time.

Example: Operating set point would be 76° instead of 72, one hour (1.0 hour) after guest leaves room.

- Press HEAT  key to scroll to  third unoccupied setback temperature. Press either the up or

down arrow  to the desired third unoccupied setback temperature.

- Press HEAT  key to scroll to  third unoccupied setback time. Press either the up or down arrow

 to the desired third unoccupied setback time.

- To exit configuration mode:

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

The changes made in configuration mode are now in effect.

NOTE: Additional codes are present and may be accessed within this menu. Contact the manufacturer for additional information.

# PROPER INSTALLATION

# CONFIGURATION SETTINGS

Configuration Code	Description	Option Code	Description
C1	Interface	0*	Chassis Membrane*
		rE	Wireless Remote
		L5	Wired Thermostat
C2	Fan Operation	bP	Button present
		bA*	7-Button, reverts to Cyclic
		A	Always run fan (even in Off)
		bC	7-Button, reverts to Continuous
C3	Reverse Cycle Operation	C	Cooler Only
		H*	Heat Pump*
		0	Service No Operation "Eo"
C4	Room I.D. Digit 1 & 2	00* - 99	00* - 99
C5	Room I.D. Digit 3 & 4	00* - 99	00* - 99
C6	Wired or Wireless Occupancy	0*	Off*
		1	On
		18	18 Hour Automatic Entry
C8	Temp. Limiting Cool	60* - 72	60* - 72
C9	Temp. Limiting Heat	68 - 90, 80*	68 - 90, 80*
Cd	English / Metric Temp	F*	Fahrenheit Scale*
		C	Celsius Scale
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	.1, .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, .5, 1 - 24, 3*	(dA) - 24, 3*
dF	Jace Group Code	00* - 99	00* - 99
r4	Room Prefix	00* - 99	00* - 99
r5	Room Suffix	00* - 99	00* - 99

\*Indicates factory default

See manufacturer for additional configuration options.

# MAINTENANCE

NOTE: The compressor does not require maintenance. It is hermetically sealed, permanently lubricated.

**WARNING**



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

**WARNING**



**HIGH VOLTAGE  
TO AVOID PROPERTY DAMAGE, PERSONAL  
INJURY OR DEATH DUE TO ELECTRICAL  
SHOCK, CLEAN AIR FILTERS OR COILS  
REGULARLY. CLOGGED OR SEVERELY RESTRICTED  
FILTERS OR COILS REDUCE AIRFLOW WHICH CAN  
CAUSE DRASTIC EFFICIENCY LOSS AS WELL AS  
SEVERE COMPONENT DAMAGE TO COMPRESSORS,  
ELECTRIC HEATER OR FAN MOTOR. IN EXTREME  
CASES, CLOGGED FILTERS AND/OR COILS MAY  
CREATE A FIRE HAZARD AND WILL VOID THE WARRANTY.**

**WARNING**



**SOME LOCAL CONDITIONS AND ENVIRONMENTS  
CAN CAUSE FUNGI AND OTHER MATERIAL TO  
GROW INSIDE THE PTAC UNIT. THIS MATERIAL  
WHEN DRIED, AS WELL AS OTHER FOREIGN  
MATERIAL, SIMILAR TO DRYER LINT IN YOUR  
CLOTHES DRYER, ARE FIRE HAZARDS. BE SURE TO  
THOROUGHLY CHECK AND CLEAN THE UNIT'S  
COILS, BLOWER WHEEL AND BASEPAN PER THE  
INSTRUCTIONS CONTAINED IN THIS MANUAL.**

## MONTHLY MAINTENANCE AND CLEANING

### *Intake Air Filter*

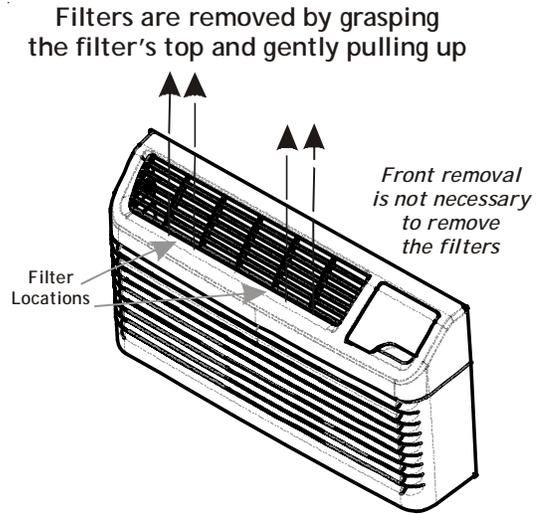
To properly maintain the operational performance of your PTAC unit, it is extremely important that the inlet air filter be cleaned once per month or more often if operated in dusty or dirty locations or conditions. The intake air filter is constructed of durable polypropylene. The "air intake" air filter can be easily inserted into the cabinet front using the cabinet filter guides. The intake air grille pulls upward for easy access to the filter. Before cleaning the intake filter, turn the unit off by setting the mode switch to the OFF position. Filter should be cleaned as required.

The following procedure is used to remove the intake filter:

1. Grasp each filter by its molded handle, located on the front edge of the front, below the discharge grill.

2. Pull the filter straight up and remove.
  3. Clean filter with vacuum or with running water.
- Reverse this procedure to reinstall the filters.

NOTE: Available accessory filter kits are FK10B (air intake filter - 10 per pack) and CFK10B (charcoal filter - 10 per pack). The charcoal filters will greatly improve the quality of the air by absorbing odors from tobacco smoke, mold, mildew, etc. Both filters are permanent and cleanable. Contact your sales person for details.



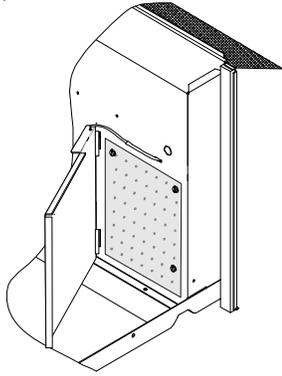
## Intake Filter Removal

### *Vent Screen*

Before cleaning the vent screen, disconnect power to the unit by unplugging the power cord at the wall outlet or sub-base, or disconnect power at the fuse box or circuit breaker. If unit is operated with vent door closed, the vent screen does not need to be cleaned.

1. Remove the cabinet front as described in Front Removal.
2. Remove the six screws securing the chassis to the wall sleeve.
3. Slide the chassis out of the wall sleeve far enough so that the vent screen is accessible.
4. Remove the three screws securing the vent mesh screen to the partition panel.
5. Clean and replace the vent screen, slide the chassis back into the wall sleeve, secure it in place with six screws and reinstall the front cabinet.

# MAINTENANCE



Vent - (Left Side Unit)

## Cabinet Front

The cabinet front and discharge air grille can be cleaned with a water dampened cloth. Under no circumstances should hydrocarbon-based cleaners (e.g. acetone, benzene, naphtha gasoline, etc.) be used to clean the front or air grilles. Use care when cleaning the control area.

## YEARLY MAINTENANCE AND CLEANING

**NOTE:** Use a mild biodegradable detergent such as Simple Green™ when cleaning the unit.

Special care must be taken to protect the unit's control board and other electrical components from getting any water on them while cleaning. The use of harsh or caustic cleaning agents or materials such as bleach or coil cleaners that are not designed for PTAC products will cause damage or deterioration of the aluminum fin or coil material and is not recommended. Care must be taken not to bend the aluminum fin stock.

### Routine Scheduled Maintenance

To achieve continuing top performance and high efficiency, establish a "once a year" cleaning/inspection schedule for the unit. Take the unit out of the sleeve and thoroughly clean and rinse. Be sure to include in the yearly cleaning the evaporator coils, and condenser coils, basepan, and drain passages. Scheduled maintenance can be accomplished by either local maintenance staff or by an authorized servicer. They must follow the instructions described in this manual.

### Adverse Operating Conditions Maintenance

Units operating in dusty or corrosive locations; i.e. dusty construction site or sea coast, must be cleaned more often. A minimum of four (4) times a year will maintain proper operational conditions and protect unit components.

### Wall Sleeve

Clean the wall sleeve while cleaning the unit. The caulking around the sleeve should be checked to make sure that any potential air and water openings around the sleeve are prop-

erly sealed. The wall sleeve's level should also be rechecked. Proper leveling for most installations are a ¼ bubble tilt to the outside and level from right to left. Contact your sales person for detailed maintenance or cleaning instructions.

### Basepan and Condenser Coil



## WARNING

**DO NOT USE COMMERCIAL GRADE COIL CLEANERS. SOME OF THESE CLEANERS MAY CONTAIN ETHYLENE DIAMINE TETRACETIC ACID (EDTA) WHICH CAN SHORTEN THE LIFE OF THE CONDENSER COIL.**

Before cleaning the basepan and condenser coil, turn OFF unit mode switch and disconnect power to the unit. To disconnect power, either unplug the power cord at the wall outlet or subbase, or disconnect power at the fuse box or circuit breaker.

1. Create a water-tight seal by tightly covering the entire control panel area and fan motor with plastic. Creating this seal prevents water from entering the control area or the fan motor and damaging the unit.
2. Spray condenser coil and basepan down with water. Next spray a mild biodegradable detergent such as Simple Green™ onto the condenser coil and basepan. Let set for five (5) minutes.
3. Rinse condenser coil and basepan with water again. **NOTE:** Ensure water pressure is no higher than that of an ordinary garden hose and the water temperature no higher than 120°F.
4. Tilt the non-compressor side of the unit up no higher than 45 degrees and allow water to drain out the other side of the unit.
5. Remove excess water left in the basepan by wiping the basepan with a dry cloth.
6. Remove the water-tight seal from the motor and control panel area.
7. Reinstall unit back into wall sleeve.
8. Allow unit to dry for 24 hours before reapplying power. When power is reapplied test unit for proper operation.
9. Place a non-acidic algaecide in the basepan to inhibit bacteria growth. Ensure the algaecide is compatible with wet coil operation and is not corrosive to the coil.



## WARNING

**HIGH PRESSURE AND HIGH TEMPERATURE CLEANING IS NOT RECOMMENDED. DOING SO COULD DAMAGE THE ALUMINUM FIN STOCK AND ELECTRICAL COMPONENTS.**

# MAINTENANCE

## CLEARANCE CHECK

Clearances around the unit should also be checked to make sure that the intake air and discharge air paths have not become blocked or restricted. A minimum of eight inches clearance is needed from unit to furniture, beds, or other objects for proper operation. Restricted discharge or intake air will reduce the units operational performance. In severe airflow restrictions damage can occur to unit components such as the compressor, electric heater or fan motor.

## NORMAL OPERATING SOUNDS AND CONDITIONS

### *Water Trickling Sounds*

Water is picked up and distributed over the coil. This improves the efficiency and helps with water removal.

### *Water Dripping*

Water will collect in the base pan during high humidity days. This can cause overflow and drip from the outside of the unit.

### *Air Sounds*

The fan cycle switch sets the operational mode of the fan in the on position. When the unit is in conditioning mode for example high or low heat or cool, the fan will run continuously. In the AUTO position, the fan will cycle on and off with the compressor or electric heater.

### *Starting Delay*

You may notice a few minutes delay in the starting if you try to start the unit too soon after turning the unit off. This is due to a built in delay to protect the compressor.

# OPERATIONS

## SEQUENCE OF OPERATION

### *Cooling Mode*

Set the thermostat to the desired temperature then set the mode switch to high or low cool. The fan motor will start first then the compressor will start approximately 10 seconds later. When the room temperature has reached the desired temperature the compressor will shut off and the fan will continue to run for 30 seconds then shut off. If the fan cycle switch has been set to "ON" or the electronic board has been programmed for "ON" the fan will continue to run.

### *Heating Mode*

Set the thermostat to the desired temperature then set the mode switch to high or low heat. The fan motor will start, the reversing valve will engage and then the compressor or electric heat strip will start. If the unit is a heat pump the temperature of the room and the set point of the thermostat will determine if the unit brings on the compressor or electric heat. The room temperature will need to be within 4 degree's of the thermostat set point on "C-K" models and 2 1/2 degree's on "A-B" models for the compressor to come on in the heat pump mode. Any time the temperature of the room is more then 4 degree's or 2 1/2 degree's colder than the set point the electric heat will be energized. The outdoor coil thermostat or thermistor will lock out the compressor when the outdoor coil reaches a certain temperature. Clamp on bi-metal thermostat disc's may be on "A-B" model units. The bi-metal thermostats will open when the coil temperature reaches  $25^{\circ} \pm 5^{\circ}$  and closes at  $50^{\circ}$ . The plug in thermistors on the "C-K" models will lock the compressor out at  $24^{\circ}$  outdoor temperature and allow heat pump operation to come back on at  $33^{\circ}$ .

### **CONTROL BOARD CHARACTERISTICS**

- **Automatic 3-minute Compressor Lockout** - After the compressor cycles off, it will not restart for three minutes. This feature is enabled in standard or remote thermostat control.

**NOTE:** This delay may be defeated by shorting the "FD1" and "FD2" terminals together for a minimum of 5 seconds

- **Compressor lock-in feature**- Whenever the compressor is switched from off to on because the room temperature has risen above or fallen below the specified limit it will remain on for at least four minutes. However, if the thermostat point is changed during the four minutes this lock in feature is overridden.
- **Automatic 2nd Stage Electric Heat (Heat Pump Models)**- If the room temperature falls to  $4^{\circ}\text{F}$  below the set point temperature, the reverse cycle heat pump is shut off and the strip heat is turned on.

- **Automatic Freeze Protection** - Whenever power is supplied to the unit and the master switch is in the ON position, automatic freeze protection is active. If the thermistor senses temperature below  $40^{\circ}\text{F} \pm 5^{\circ}\text{F}$ , the fan motor and electric strip heat (or hydronic heat, if applicable) are switched on. The heater and fan will remain on until the Thermistor senses a temperature of  $43^{\circ}\text{F}$ .
- **Fan Advance/ Delay**- The advance feature will allow the fan to start six seconds prior to the compressor starting in either cooling or heating mode. The delay will keep the fan running for thirty seconds after the compressor stops in either cooling or heating modes.
- **Remote Thermostats** - Always use an approved thermostat supplied by the manufacturer. A wall thermostat that has not been approved by the manufacturer may not work correctly with this unit.
- **Remote Functions** - All functions are controlled by a wall mounted thermostat.
- **Remote Fan**- When GL terminal is connected to R terminal the remote fan speed is switched to low. GH terminal connected to the R terminal fan speed is switched to high.
- **Fuse Protection**- The fuse protection has been maximized on the 24 volt circuit so accidental groundings of the external terminals will not result in a burned out board. The unit may be operated in standard mode if the fuse is blown. There will be an auxiliary fuse supplied with the board. It will be attached to the main fuse by a plastic clip. The fuse is a 500 ma fuse. When replacing the fuse always use the correct fuse part #M0804205.
- **Random Delay** - When the master switch is turned on or power is reapplied to the control, all functionality will be locked out for a random period between two and four minutes, if Y or W inputs are active in remote or the mode switch is set to HI/LO heat or cool. The delay can be avoided if the front desk terminals are closed for more than two seconds, or the mode switch is in the off or fan only position.
- **Transformer Selection**- Some boards come with the transformer selection set for on-board use, if an external transformer is utilized move the jumper from "ON-BOARD to EXTERNAL". If applicable, the wiring for an external transformer connects to the "EXT XFRMR" terminals.
- **Indoor Ambient Thermistor**- The Indoor Ambient Thermistor senses actual room temperature.

# OPERATIONS

- **Indoor/Outdoor Coil Thermistors**- In the cooling mode, if the compressor is engaged continuously for 20 minutes and the Indoor Coil Thermistor is below 30 degrees the compressor is disengaged until the ICT rises above 45 degrees. The Outdoor Coil Thermistor senses coil temperature which correlates to outdoor air temperature. Heat pump operation can operate as low as 24°F outdoor temperature depending upon humidity conditions and/or the balance point of the system. After defrost is initiated, the compressor remains off for at least thirty minutes and resumes operation when the outdoor coil temperature reaches 33°F. Electric resistance heat will maintain the ambient room temperature anytime the temperature falls 4°F below the room set point temperature.
- **Load Shedding**-The LS & IN terminals are used for load shedding. A switch can be added to close the circuit to lock out the compressor and electric heat when the power company or energy management system is trying to reduce its load for a specified time.
- **Sample Before Start** - The SBS routine is used in the cooling mode. This routine runs the unit fan on low speed for up to 120 seconds. The sample fan is aborted if compressor demand is detected. To avoid unnecessary sampling the period between samples will be based on specific room conditions. The default sample before start period after a power up is 5 minutes. The period is corrected every time a sample run is completed without a compressor demand. The minimum sample period is 5 minutes and the maximum period is 15 minutes.
- **Remote Temperature Sensor** - An auxiliary temperature sensor (RTS02) may be connected to the control that senses actual room temperature. This sensor replaces the Indoor Ambient Thermistor and will connect to the Indoor Air terminals on the control.
- **Front Desk Control** - The front desk control terminals are FD1 and FD2. These terminals will provide a connection for a user supplied switch that will allow the operation of the unit to be remotely defeated.
- **Transfer Fan**- A transfer fan may be used if a user supplied relay is connected to TF1 and TF2. Make sure the relay is a manufactured approved relay. The relay will be energized whenever the blower/fan relay is energized.
- **Emergency Hydronic Heat** - A switch can be added to the EH & IN terminals to close the circuit to enable the fan, enable the heater relay and lockout the compressor to continue minimum operations with auxiliary power, if the main power goes out.

## DIGITAL BOARD DIAGNOSTICS

If a failure is detected on the digital board, there will be a green light constantly lit up. This light is located under the OFF touch pad button. The board will need to be programmed into the Diagnostic Maintenance & Status Report mode to determine the failure and the procedures to correct the failure.

### DIAGNOSTIC MAINTENANCE & STATUS REPORT

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.

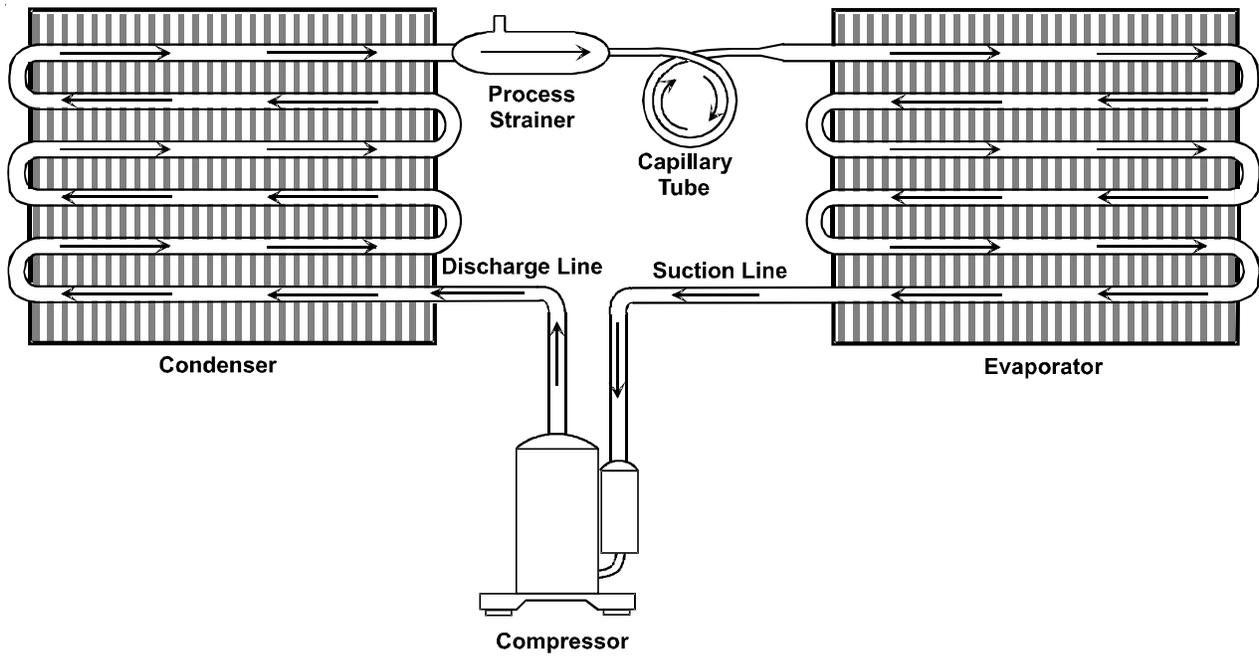
# OPERATIONS

## DIAGNOSTIC CODES

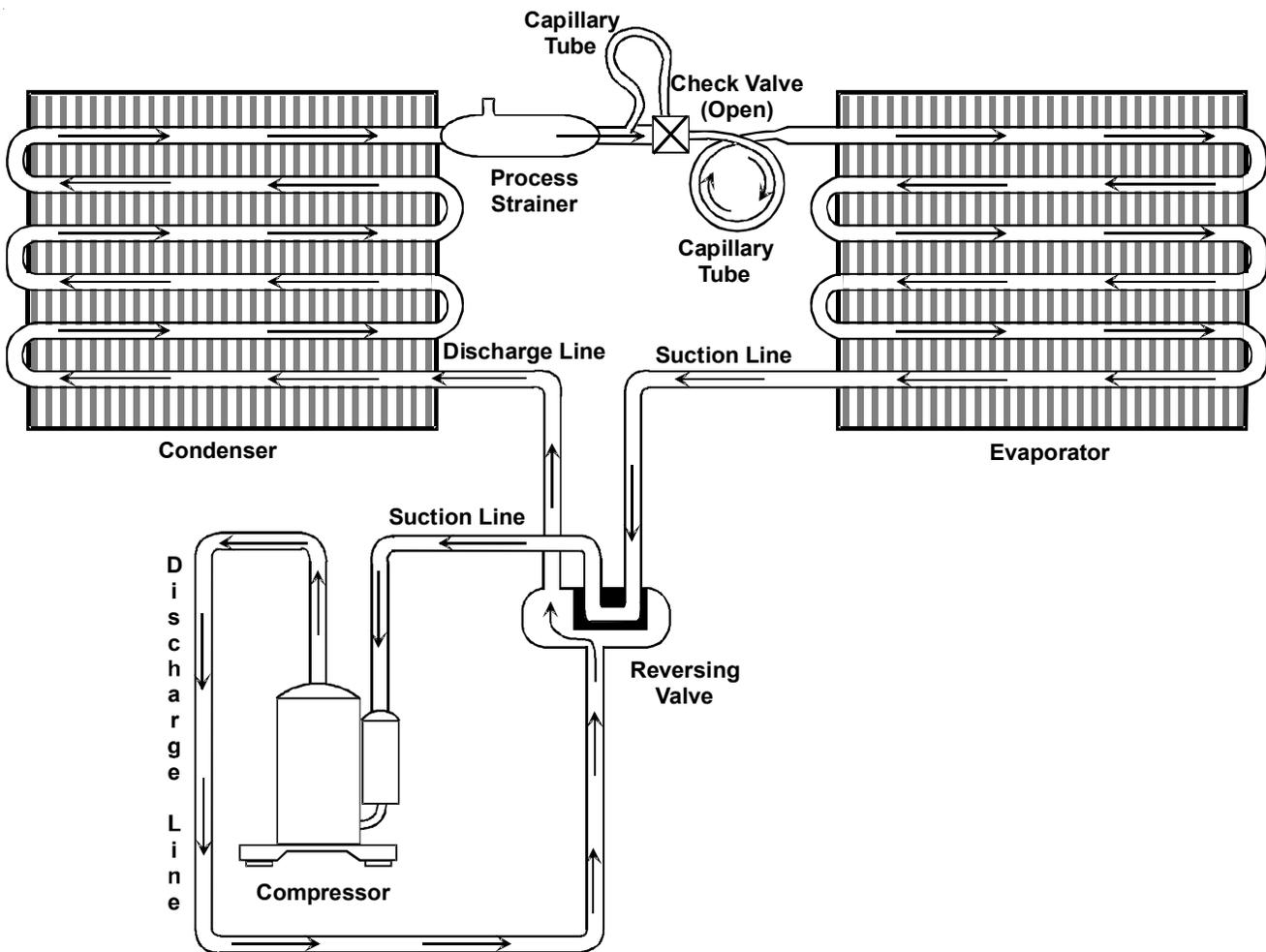
CODE	STATUS	DISPLAY	ERROR LIGHT	SUGGESTED ACTION	
<b>MODES</b>	<b>FP</b>	<b>Freeze Protection</b> Engaged. The room temperature measured by the wireless remote thermostat or indoor ambient thermistor active sensor falls below 40°F.	Y	N	No Action required. This setting will disengage when the room temperature rises above 43°F.
	<b>Fd</b>	<b>Front Desk</b> switch is closed. All outputs are switched off.	Y	N	Open front desk switch to allow occupant unit operation.
	<b>Eo</b>	<b>Un-Configured Service Board -</b> 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.
	<b>EH</b>	<b>Emergency Hydronic</b> Engaged. The EHH switch is closed. Compressor is switched off.	Y	N	Open front emergency hydronic switch to allow occupant unit operation.
	<b>LS</b>	<b>Load Shedding</b> Engaged. The LS switch is closed. Compressor and Electric heat is switched off.	Y	N	Open load shedding switch to allow occupant unit operation.
	<b>On</b>	Control is configured to respond to a wired thermostat	Y	N	No action if a wired thermostat is being used. Otherwise, see Configuration Settings.
	<b>oP</b>	<b>Open Door Lockout</b> (DS1 & DS2 open; wireless)	Y	Y	Close Room Door. Unit will not condition space with door open.
	<b>nP</b>	<b>Window Switch Lockout -</b> (LS & INN open)	Y	Y	Close Room Door or Window. Unit will not condition space with door or window open.
	<b>hP</b>	<b>Heat Sentinel -</b> (WIAT > u3)	Y	N	No action required. This setting will disengage when the room temperature falls.
	<b>Ur</b>	<b>Un-Rented Status</b> (EHH & INN or wireless)	Y	N	Front Desk needs to set to Rented mode (if applicable).
<b>FAILURES</b>	<b>F1</b>	Indoor Ambient Thermistor reads outside the range -20°F to 200°F & the wireless thermostat is not communicating to the unit control or	Y	Y	Replace black Indoor Ambient Thermistor or Wireless Remote Thermostat.
		Indoor Ambient Thermistor (IAT) without a wireless remote thermostat reads outside the range -20°F to 200°F.			
	<b>F2</b>	Wireless Remote Thermostat failure	N	N	Replace Wireless Thermostat.
	<b>F3</b>	Indoor Ambient Thermistor reads outside the range -20°F to 200°F	Y	N	Replace black Indoor Ambient Thermistor.
	<b>F4</b>	Indoor Coil Thermistor either above or below operating tolerances.	N	Y	Replace Red Indoor Coil Thermistor .
	<b>F5</b>	Wireless Thermostat failure.	N	Y	Attempt to rebind Wireless Thermostat or Replace Wireless Thermostat.
	<b>F6</b>	Indoor Discharge Thermistor either above or below operating tolerances.	N	Y	Replace Yellow Indoor Discharge Thermistor.
	<b>Fb</b>	Low Remote Battery Warning.	N	Y	Replace Batteries in Wireless Devices.
	<b>H1</b>	High Voltage Protection engaged. Power supply voltage is to high.	Y	N	Check for incoming power at correct voltage.
<b>br</b>	Brown Out Protection engaged. Power was lost or voltage is low.	N	N	Check for incoming power at correct voltage.	
<b>AIRFLOW ALERTS</b>	<b>L6</b>	Discharge Air Too Hot.	N	Y	Clean Filter or Remove Air Blockage.
	<b>LC</b>	Outdoor Coil Thermistor temperature high.	N	Y	Clean Condenser Coils, Check Fan for fault. Code will reset after cleaning.
	<b>C2</b>	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.
	<b>C5</b>	Outdoor Coil temperature too high for outdoor ambient temperature.	N	Y	Check for Blocked Outdoor Air or Clean Coil.

# OPERATIONS

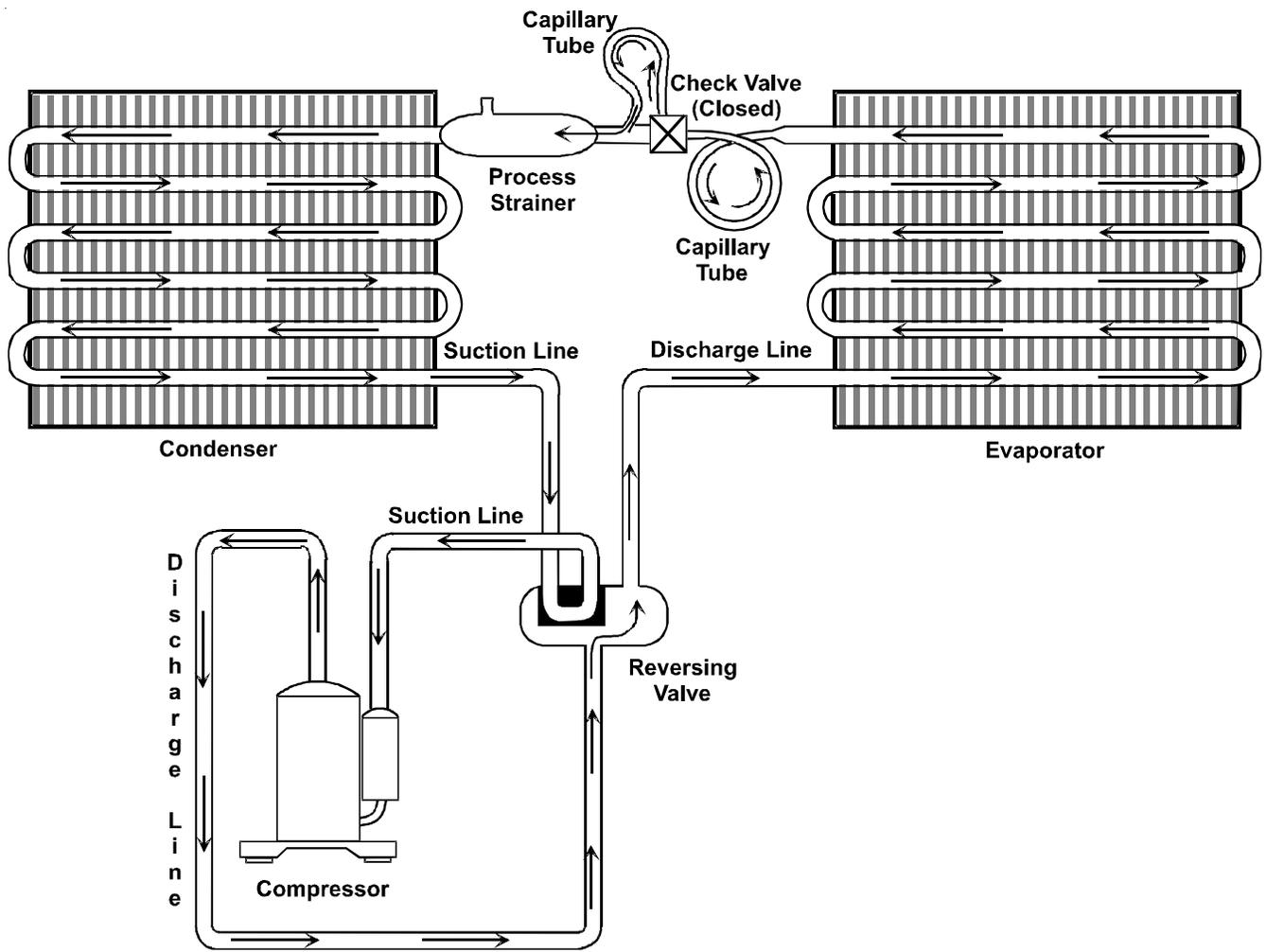
# REFRIGERATION SEALED SYSTEM



Refrigeration System - Air Conditioner



Refrigeration Sealed System - Heat Pump (Air Conditioning Mode)



Refrigeration Sealed System - Heat Pump (Heat Pump Mode)

# SERVICING

Refer to the cooling and heater performance charts in this section for capacity test procedure.

A step-by-step procedure for determining source of trouble, suggested method and normal values are provided in the Diagnosis Charts.

Service operations requiring opening of the hermetically sealed refrigeration system should not be performed in the home. The unit must be taken to a well equipped shop where special equipment for evacuating, dehydrating, charging and testing is available. The following equipment is necessary.

Equipment to use dry nitrogen of no more than .0012 grains of moisture. Vacuum pump capable of evacuating to a minimum of 50 microns.

Vacuum Pump - Kenney or equivalent. Micron gauge to check vacuum. Refrigerant charging cylinder accurate to within 1/4 oz. Electronic leak detector - General Electric or equivalent. Electrical equipment to test: compressors, capacitors, voltage relays and overload protectors Electrical test board or portable equipment, including: volt meter, ammeter, and watt meter. Silver soldering and brazing equipment: Pinch off tools 1/4" to 5/8" Thermocouple tester.

## *Dehydrating And Evacuating Refrigeration System*

A rather popular misconception exists that since air conditioners normally operate with a refrigerant temperature above 32°F., moisture in the system is harmless. Nothing could be further from the truth. Oxygen from moisture plus normal compressor and motor heat reacts chemically with the refrigerant and oil to form corrosive hydrochloric and hydrofluoric acids. These acids contribute to the breakdown of motor winding insulation and the corrosion of compressor working parts and cause unnecessary compressor failure. Sludge, which is a residue of the chemical action, coats all compressor parts, the inside of refrigerant tubing, and may even restrict refrigerant flow through the capillary tube(s).

## *Leak Testing*

Refrigerant leaks are best detected with a halide or electronic leak detector.

**NOTE:** Leak detectors must be compatible with R-410A refrigerant.

The importance of careful leak testing cannot be overemphasized. Undetected leaks invariably lead to repeated calls and eventually result in system contamination, restrictions and burned out compressors.

For a system that contains a refrigerant charge and is suspected of having a leak, stop the operation, check all tubing and fittings. Soap suds may also be used.

**NOTE:** The flame of the halide detector will glow green in the presence of R-410A refrigerant.

If a leak is detected, do not attempt to apply more brazing material to the joint. Recover the charge, unbrazed the joint, clean and rebraze.

For a system that has been newly repaired and does not contain a charge, connect a cylinder of refrigerant, through a gauge manifold, to the process tube of the compressor and liquid line strainer. Open the valve on the cylinder and manifold and allow the pressure to build up within the system. Check for and handle leaks as described above.

After the test has been completed, recover the test charge, evacuate the system, and recharge with clean refrigerant.

## *Brazing*

Satisfactory results require cleanliness, experience and the use of proper material and equipment.

The connections to be brazed must be properly sized, free of rough edges and clean.

The generally accepted materials are:

**SIL-FOS** (Alloy of 15% silver, 80% copper, 5% phosphorus) is used without flux on copper to copper. **DO NOT USE FOR A COPPER TO STEEL CONNECTION.** Recommended heat is approximately 1400°F.

**SILVER SOLDER** (Alloy of 30% silver, 38% copper, 32% zinc.) is used with fluoride base flux on copper to steel, brass to copper, steel to steel, brass to steel. Recommended heat is approximately 1200°F.

## *Evacuation*



**IMPORTANT NOTE:** Effective July 1, 1992. Before opening any refrigerant system it is the responsibility of the service technician to capture the refrigerant for safe disposal.

This is the most important part of the entire service procedure. The life and efficiency of the equipment is dependent upon the thoroughness exercised by the serviceman when evacuating air (non-condensables) and moisture from the system.

Air in the system causes high condensing temperature and pressure, resulting in increased power input and reduced performance.

Moisture chemically reacts with the refrigerant and oil to form corrosive hydrofluoric and hydrochloric acids. These attack motor windings and parts, causing breakdown.

The equipment required to thoroughly evacuate the system is a high vacuum pump, capable of producing a vacuum equivalent to 50 microns, and a thermocouple vacuum gauge to give a true reading of the vacuum in the system.

**NOTE:** Never use the system compressor as a vacuum pump or run when under a high vacuum. Motor damage could occur.

# SERVICING

1. Connect the vacuum pump, vacuum tight manifold set with high vacuum hoses, thermocouple vacuum gauge and charging cylinder.
2. Connect the low side line to the process tube of the compressor.
3. Connect the high side line to the process tube of liquid line strainer.

**NOTE:** If either process tube is not long enough to receive the compression or flare fitting and still leave room for a pinch-off, swag the tube and braze in an extra length of tubing.

4. Start the vacuum pump and open shut off valve to the high vacuum gauge manifold only. After the compound gauge (low side) has dropped to approximately 29 inches of vacuum open the valve to the vacuum thermocouple gauge. See that the vacuum pump will bank-off to a minimum of 50 microns. A high vacuum pump can only produce a good vacuum if its oil is not contaminated.
5. If the vacuum pump is working properly, close the valve to the vacuum thermocouple gauge and open the high and low side valves or the high vacuum manifold set. With the valve on the charging cylinder closed, open the manifold valve to the cylinder.
6. Evacuate the system to at least 29 inches gauge before opening valve to thermocouple vacuum gauge.
7. Continue to evacuate to a minimum of 250 microns. Close valve pump and watch rate of rise. If vacuum does not rise above 1500 microns in three minutes, system can be considered properly evacuated.
8. If thermocouple vacuum gauge continues to rise and levels off at about 5000 microns, moisture and non-condensables are still present. If gauge continues to rise a leak is present. Repair and re-evacuate.
9. Close valve to thermocouple vacuum gauge and vacuum pump. Shut off pump and prepare to charge.

## Charging

Charge the system with the exact amount of refrigerant.

Refer to the unit nameplate for the correct refrigerant charge. An inaccurately charged system will cause future problems.

1. When using an ambient compensated calibrated charging cylinder, allow liquid refrigerant only to enter the high side.
2. After the system will take all it will take, close the valve on the high side of the manifold.
3. Start the system and charge the balance of the refrigerant though the low side. Do not charge in a liquid form.
4. Close the low side valve on the manifold and pinch-off both process tubes. Remove the manifold set, crimp shut the open ends of the process tubes and braze.

5. Recheck for refrigerant leaks.

**NOTE:** Do not use a refrigerant other than that shown on the serial number identification plate.

All precautionary measures recommended by the refrigerant manufacturers and suppliers should be observed.

## Line Piercing Valves

Line piercing valves may be used for diagnosis but are not suitable for evacuating or charging due to the minute holes pierced in the tubing.

Line piercing valves must not be left on the refrigerant system. The connection between the valve and the refrigerant tubing is not hermetically sealed and will eventually leak.

## Open Lines

During any processing of the refrigeration system the lines should never be left open to atmosphere since water vapor will enter and add to the problem of proper evacuation.

## Operating Test

The final step in a successful repair is an accurate operating test. Follow the Cooling and Heating Performance tests provided to make sure the product is again performing to design standards.

 **WARNING**

**NEVER TEST OPERATION WITHOUT THE UNIT IN THE WALL SLEEVE. A SERIOUS CHANGE IN DESIGN SPECIFICATIONS FOR AIR MOVEMENT THROUGH THE EVAPORATOR AND CONDENSER COMPARTMENTS, CAUSING THE FAN MOTOR TO OVER HEAT AND THE REFRIGERATION SYSTEM TO BECOME UNBALANCED WILL OCCUR WHEN THE UNIT IS NOT INSTALLED IN THE WALL SLEEVE.**

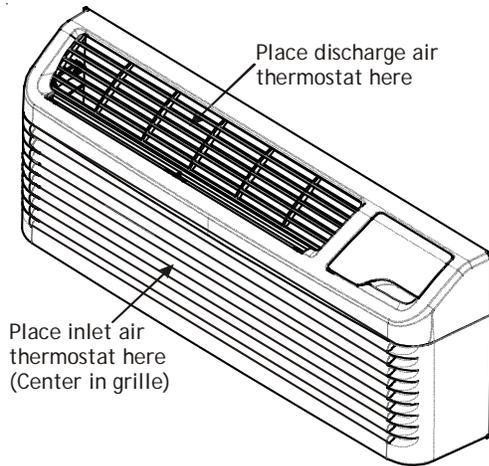
Efficient operation is dependent on a balanced system. One of the most common reasons for inefficiency is the users failure to adequately clean the condenser thereby creating reduced air movement.

## Cooling Performance Test Thermometers

The following precautions are necessary in observing the thermometer readings in the cooling performance test.

1. Use two accurately calibrated refrigeration type thermometers or a thermocouple potentiometer.
2. Thermometers are affected by body heat or changes in air flow. Therefore, the thermometers must be secured in proper locations with masking tape, wire or other applicable retainers.
3. Readings should be observed without touching or moving the thermometers.

# SERVICING



## Sling Psychrometer

The sling psychrometer is used to obtain the wet bulb temperature in determining the percent relative humidity.

To obtain the wet bulb operate the sling psychrometer as follows:

Saturate the wick (only once during procedure of obtaining wet bulb readings) with clean water slightly below room temperature. Psychrometer reading should be acquired five to six feet in front of the unit and approximately four feet off the floor.

**NOTE:** Direct discharge airflow away from the sling psychrometer.

The cooling performance test should not be employed when outside temperatures are 20° below that of the room. Best results are obtained when the test is conducted under peak load conditions.

The air conditioner must operate at least 20 minutes on the High Cool position before testing.

## Cooling Test

The following temperature must be recorded for the cooling performance test:

- Dry bulb temperature of return air at conditioner. Locate thermometer as illustrated.
- Dry bulb temperature of air leaving conditioner. Thermometer has to be located as illustrated.
- The dry bulb thermometer temperature on the sling psychrometer should be plus or minus 1°F within reading obtained on thermometer in the return air. Check wet bulb temperature on sling psychrometer and record same.
- After the wet bulb temperature, dry bulb temperature, and return air temperature have been recorded, proceed to calculate the temperature difference as follows.

- Subtract temperature obtained in Step B from temperature obtained in Step A. The remainder temperature is used to calculate from the Cooling Range Chart.

**EXAMPLE:** Assume a PTH15 unit is under test and the temperature readings indicated below were obtained.

- Return air D.B. temperature: 80°F, Step A.
- Discharge air D.B. temperature: 69°F, Step B.
- Return air, wet and dry bulb temperature as recorded in Step C: Dry Bulb 80°F, Wet Bulb 75°F.
- In left hand column of Cooling Capacity Charge headed Dry Bulb, find the 80° value.
- In column headed Wet Bulb find the 75°F value and find the value 8 -13 in the cooling range column under the Model "PTH153 PTH154".

This data shows that the temperature of the air passing through the cooling coil is reduced at least 8°F but not more than 13°F. This example unit is operating normally for the existing conditions.

For the example unit under test, the temperature difference was 11°F (80°F, return air, minimum 69°F discharge air). Since the value is within the listed cooling range 8 - 13, this unit is considered to be operating normally.

**For Total Power Input Test (wattage) the following additional readings must be recorded after the unit under test is interconnected with a wattmeter.**

- Outdoor dry bulb temperature. Avoid direct exposure of thermometer to sunlight or to hot condenser discharge air.
- Total watts input, measured by wattmeter or calculate by multiplying applied voltage by unit amps.

## Calculating Procedure

- Locate the outdoor temperature obtained in first column of Total Power Consumption Cooling Chart.
- Locate in second column the return air wet bulb temperature obtained in Step C.
- The total watts input should come between minimum and maximum values indicated for each model.

**EXAMPLE:** Assume that a PTH15 is again under test. Proceed as follows and observe test readings as simultaneously as possible.

- Outdoor dry bulb temperature reading - 95°F.
- Check watts input - 1510.
- Wet bulb temperature as described in Step C - 75°F.

In column headed Outdoor Dry Bulb Temperature of the Power Consumption Chart find the 95°F value. Read to the right from the 95°F value and find the room wet bulb temperature (75°F).

# SERVICING

Read to the right front the 75°F W.B. value in the PTH15 column and note the minimum and maximum wattage of 1460 - 1575.

Since the wattage reading (1510) obtained in the test is within the prescribed range, the total power input in watts is considered to be normal.

## *Electric Heat Test*

For the electric heat test, the following readings must be recorded after the unit is interconnected with a wattmeter or by recording the total amp draw to the unit.

**NOTE:** Cabinet front must be in place during this test.

- Record supply voltage to unit.
- Operate unit in highest heat setting.
- Record wattage recorded on wattmeter or total amp draw to unit.
- Refer to heating watts/amps chart. (Whichever is applicable for voltage rating on the unit being tested.)
- The total watts or amps recorded should fall within the minimum and maximum watts/amps listed on these charts.

**EXAMPLE:** Assume that a PTH15 230/208V with 3.5 kW electric heater is under test.

1. Supply voltage as recorded - 208volts.
2. Watts recorded -2750W or Amps recorded - 13.5 Amps.
3. Locate the readings listed on the following pages. You will note that these readings fall within the voltage, watts and amp draw minimum and maximum ranges listed and therefore the unit heating performance would be considered normal.

## **Heating Power Consumption Test (Heat Pump Mode Only)**

For the total power consumption test, the following readings must be recorded after the unit is interconnected with a wattmeter.

- Outside coil inlet air dry bulb temperature.
- Inside coil inlet air dry bulb temperature.
- Total watts input measured by wattmeter.

Calculating procedure

1. Locate temperature obtained in Step A in first column of Heating Wattage Chart.
2. Locate in second column the inside coil inlet D.B. temperature.
3. The total watts input should come between minimum and maximum values indicated for each model.

**EXAMPLE:** Assume that a PTH15 is under test.

Proceed as follows and observe test readings as simultaneously as possible.

1. Outside coil inlet D.B. temperature readings as described in Step A: 45°F.
2. Check watts input: 1370 W.
3. Inside coil inlet D.B. temperature reading as described in Step B: 75°F.

Read to the right from the 75°F inside coil inlet D.B. value in the column and note the minimum and maximum wattage of 1335 - 1470.

Since the wattage reading (1370) obtained in the test is within the prescribed range, the total power input in watts is considered to be normal.

**See the charts on the following pages.**

COOLING CHANGE OF TEMPERATURE - AIR CONDITIONERS									
Model		PTC073	PTC074	PTC093	PTC094	PTC123	PTC124	PTC153	PTC154
Temperature		Temperature Across Indoor Coil (ΔT)							
Outside Coil Dry Bulb (°F)	Room Wet Bulb (°F)	Min	Max	Min	Max	Min	Max	Min	Max
90	85	1	3	2	6	1	5	1	4
	80	6	11	10	15	9	13	8	13
	78	15	19	18	23	17	22	16	21
	70	23	28	27	31	25	30	24	29
85	80	3	8	7	11	5	10	5	9
	75	11	16	14	19	13	18	12	17
	70	18	23	22	26	20	25	20	24
	65	26	31	29	34	28	33	27	32
80	75	7	12	10	15	9	13	8	13
	70	14	18	17	21	15	20	15	19
	65	20	25	23	28	22	26	21	26
	60	27	31	30	34	28	33	28	32
75	70	9	14	12	17	10	15	10	15
	65	14	19	17	22	15	20	15	20
	60	19	24	22	27	20	25	20	25
	55	24	29	27	32	25	30	25	30
70	65	9	13	11	15	9	13	9	14
	60	13	17	15	19	13	17	13	18
	55	17	21	19	23	17	21	17	22

COOLING CHANGE OF TEMPERATURE - HEAT PUMPS									
Model		PTH073	PTH074	PTH093	PTH094	PTH123	PTH124	PTH153	PTH154
Temperature		Temperature Across Indoor Coil (ΔT)							
Outside Coil Dry Bulb (°F)	Room Wet Bulb (°F)	Min	Max	Min	Max	Min	Max	Min	Max
90	85	1	3	2	6	1	5	1	4
	80	6	11	10	15	9	13	8	13
	78	15	19	18	23	17	22	16	21
	70	23	28	27	31	25	30	24	29
85	80	3	8	7	11	5	10	5	9
	75	11	16	14	19	13	18	12	17
	70	18	23	22	26	20	25	20	24
	65	26	31	29	34	28	33	27	32
80	75	7	12	10	15	9	13	8	13
	70	14	18	17	21	15	20	15	19
	65	20	25	23	28	22	26	21	26
	60	27	31	30	34	28	33	28	32
75	70	9	14	12	17	10	15	10	15
	65	14	19	17	22	15	20	15	20
	60	19	24	22	27	20	25	20	25
	55	24	29	27	32	25	30	25	30
70	65	9	13	11	15	9	13	9	14
	60	13	17	15	19	13	17	13	18
	55	17	21	19	23	17	21	17	22

# SERVICING

## DIGITAL BOARD DIAGNOSTICS

If a failure is detected on the digital board, there will be a green light constantly lit up. This light is located under the OFF touch pad button. The board will need to be programmed in the Diagnostic Mode to determine failure code and procedures to follow to correct problem.

### *Diagnostic Maintenance & Status Report*

The Diagnostic Maintenance & Status Report Mode 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.

# SERVICING

CODE	STATUS	DISPLAY	ERROR LIGHT	SUGGESTED ACTION	
<b>MODES</b>	<b>FP</b>	<b>Freeze Protection</b> 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.
	<b>Fd</b>	<b>Front Desk</b> switch is closed. All outputs are switched off.	Y	N	Open front desk switch to allow occupant unit operation.
	<b>Eo</b>	<b>Un-Configured Service Board -</b> 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.
	<b>EH</b>	<b>Emergency Hydronic</b> Engaged. The EHH switch is closed. Compressor is switched off.	Y	N	Open front emergency hydronic switch to allow occupant unit operation.
	<b>LS</b>	<b>Load Shedding</b> Engaged. The LS switch is closed. Compressor and Electric heat is switched off.	Y	N	Open load shedding switch to allow occupant unit operation.
	<b>On</b>	Control is configured to respond to a wired thermostat	Y	N	No action if a wired thermostat is being used. Otherwise, see Configuration Settings.
	<b>oP</b>	<b>Open Door Lockout</b> (DS1 & DS2 open; wireless)	Y	Y	Close Room Door. Unit will not condition space with door open.
	<b>nP</b>	<b>Window Switch Lockout -</b> (LS & INN open)	Y	Y	Close Room Door or Window. Unit will not condition space with door or window open.
	<b>hP</b>	<b>Heat Sentinel -</b> (WIAT > u3)	Y	N	No action required. This setting will disengage when the room temperature falls.
	<b>Ur</b>	<b>Un-Rented Status</b> (EHH & INN or wireless)	Y	N	Front Desk needs to set to Rented mode (if applicable).
<b>FAILURES</b>	<b>F1</b>	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.
	<b>F2</b>	Wireless Remote Thermostat failure	N	N	Replace Wireless Thermostat.
	<b>F3</b>	Indoor Ambient Thermistor reads outside the range -20°F to 200°F	Y	N	Replace black Indoor Ambient Thermistor.
	<b>F4</b>	Indoor Coil Thermistor either above or below operating tolerances.	N	Y	Replace Red Indoor Coil Thermistor .
	<b>F5</b>	Wireless Thermostat failure.	N	Y	Attempt to rebind Wireless Thermostat or Replace Wireless Thermostat.
	<b>F6</b>	Indoor Discharge Thermistor either above or below operating tolerances.	N	Y	Replace Yellow Indoor Discharge Thermistor.
	<b>Fb</b>	Low Remote Battery Warning.	N	Y	Replace Batteries in Wireless Devices.
	<b>H1</b>	High Voltage Protection engaged. Power supply voltage is to high.	Y	N	Check for incoming power at correct voltage.
	<b>br</b>	Brown Out Protection engaged. Power was lost or voltage is low.	N	N	Check for incoming power at correct voltage.
<b>AIRFLOW ALERTS</b>	<b>L6</b>	Discharge Air Too Hot.	N	Y	Clean Filter or Remove Air Blockage.
	<b>LC</b>	Outdoor Coil Thermistor temperature high.	N	Y	Clean Condenser Coils, Check Fan for fault. Code will reset after cleaning.
	<b>C2</b>	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.
	<b>C5</b>	Outdoor Coil temperature too high for outdoor ambient temperature.	N	Y	Check for Blocked Outdoor Air or Clean Coil.

Complaint	No Heat						Unsatisfactory Cooling				System Operating Pressures				Test Method Remedy	See Service Procedure Reference	
	System Will Not Start	Compressor will not start - fan runs	Compressor and Condenser Fan will not start	Evaporator fan will not start	Condenser fan will not start	Compressor runs - goes off on overload	Compressor cycles on overload	System runs continuously - little cooling	Too cool and then too warm	Not cool enough on warm days	Certain areas too cool others, too warm	Compressor is noisy	Low suction pressure	Low head pressure			High Suction Pressure
Power Failure	•															Test Voltage	S-1
Blown Fuse	•		•	•												Impact Fuse Size & Type	
Loose Connection	•		•	•	•											Inspect Connection - Tighten	S-2
Shorted or Broken Wires	•	•	•	•	•	•										Test Circuits With Ohmmeter	S-3
Open Overload	•	•		•	•											Test Continuity of Overloads	S-17A
Faulty Thermostat	•			•				•								Test Continuity of Thermostat & Wiring	S-3
Shorted or Open Capacitor		•			•	•										Test Capacitor	S-15
Internal Overload Open	•															Test Continuity of Overload	S-6
Shorted or Grounded Compressor		•			•											Test Motor Windings	S-17
Compressor Stuck	•				•											Use Test Cord	S-17
Open Control Circuit				•												Test Control Circuit with Voltmeter	S-1
Low Voltage		•			•	•										Test Voltage	S-1
Faulty Evap or Cond. Fan Motor				•								•				Repair or Replace	S-16
Shorted or Grounded Fan Motor				•										•		Test Motor Windings	S-16
Shortage or Refrigerant						•	•					•	•			Test for Leaks, Replace Drier	S-1, S-2
Restricted Liquid Line						•	•					•	•			Replace Restricted Part	
Dirty Air Filter							•	•	•			•		•		Inspect Filter - Clean or Replace	
Dirty Indoor Coil							•	•	•			•		•		Inspect Coil - Clean	
Too Much Air across Indoor Coil													•			Reduce Blower Speed	
Overcharge of Refrigerant					•	•							•	•		Recover & Replace Cap Tube	S-116
Dirty Outdoor Coil					•	•		•						•		Inspect Coil - Clean	
Noncondensibles						•		•						•		Remove Charge, Replace Cap Tube	S-1, S-2
Recirculation of Condensing Air						•		•						•		Remove Obstruction to Air Flow	
Infiltration of Outdoor Air							•	•	•							Check Windows, Doors, Vent Fans, etc.	
Improperly Located Thermostat					•			•								Relocate Thermostat	
System Undersized							•	•								Refigure Cooling Load	
Broken Internal Parts												•				Replace Compressor	S-17
Broken Valves												•				Test Compressor Efficiency	S-104
Inefficient Compressor							•					•	•			Test Compressor Efficiency	S-104

# SERVICING

## S-1 CHECKING VOLTAGE

**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.**

1. Using a voltmeter, measure the voltage across terminals L1 and L2 of the outlet.
2. No reading - indicates open wiring, open fuse(s), no power or etc. from the unit to fused disconnect service. Repair as needed.

## S-3 CHECKING THERMOSTAT, WIRING AND ANTICIPATOR

1. Visually inspect all the wires.
2. Check wires for loose connections (tighten as needed or replace Terminal if needed).
3. Check wires for pinched or cut wires.

**WARNING**

**LINE VOLTAGE NOW PRESENT.**

With power ON and thermostat calling for cooling.

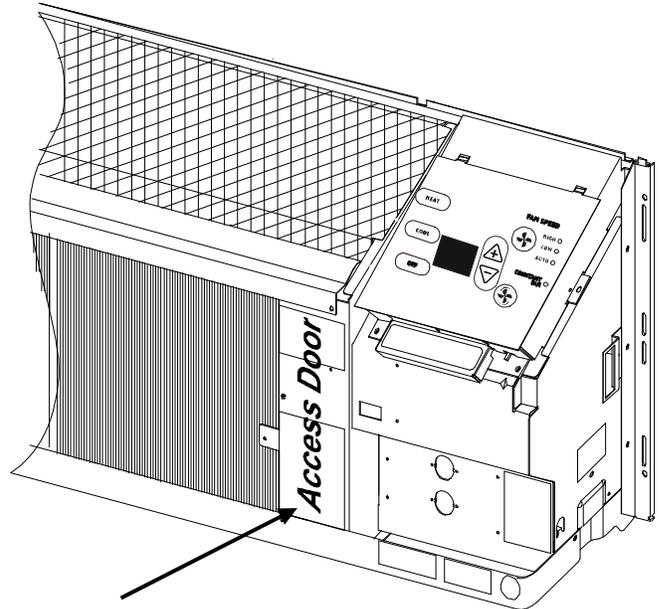
1. Use a voltmeter to check for 24 volts at thermostat wires C and R on the terminal strip of the control board.
2. No voltage indicates trouble in the thermostat, wiring or external transformer source.
3. Check the continuity of the thermostat and wiring. Repair or replace as necessary.

### Indoor Coil Thermistor

*See following page for resistance/temperature*

1. Remove front cover.
2. Remove the two mounting screws, one on each side of the control board cover. Tilting the control panel out, remove the cover.
3. Disconnect the floodback protector wiring or thermistor from the control board's Indoor Switch terminals.
4. Remove the two screws securing the top screen to the evaporator assembly. (Be sure to slide the top of the screen between the top flange and chassis when reassembling.)
5. Remove the two screws securing the heater assembly to the evaporator.
6. Pull heater assembly up and out of the chassis.

7. Disconnect floodback protector.
8. If the unit has a Red Thermistor on the indoor coil follow steps 1-6 then steps 12 and 13.
9. Remove the access panel on the evaporator assembly.



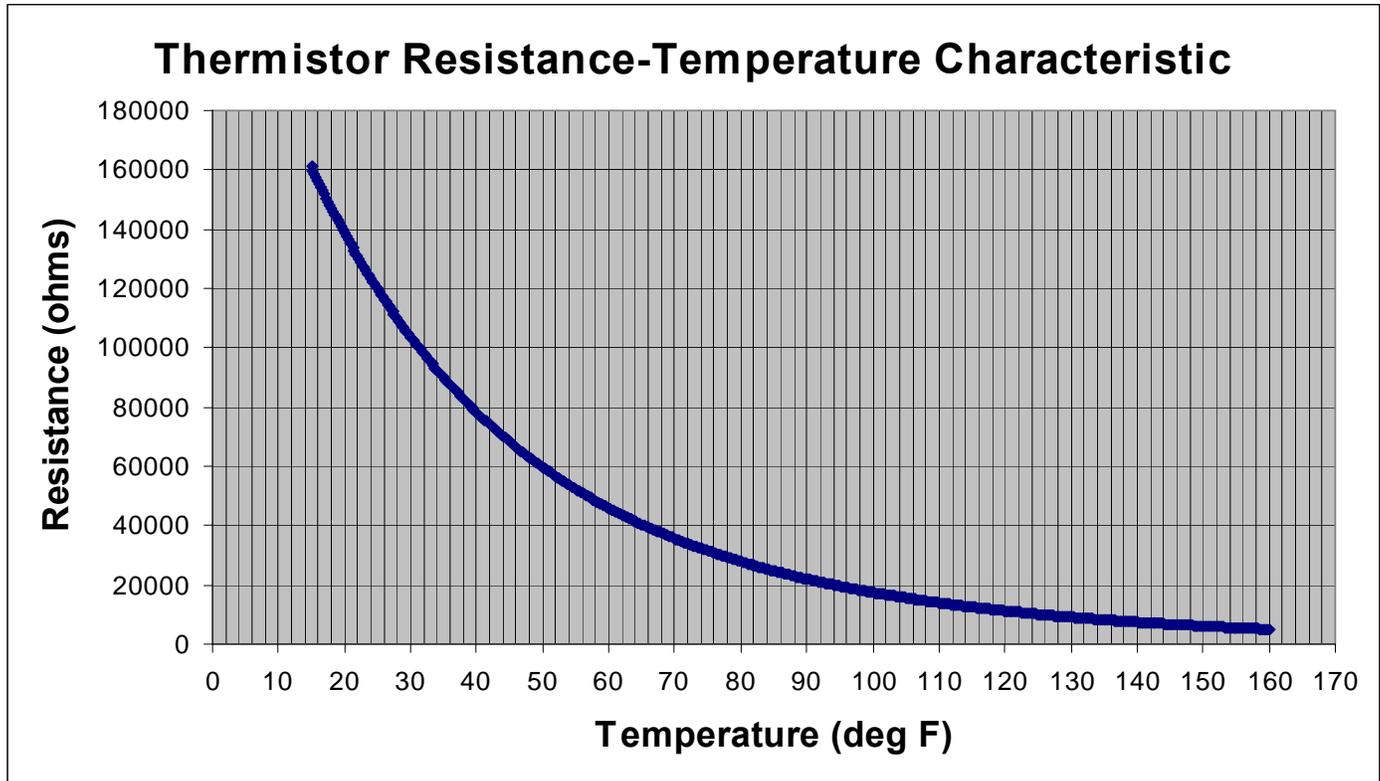
10. The thermistor is clipped on the vertical section of the 90° bend of the inlet line to the indoor coil. Unclip the thermistor and remove.

### Outdoor Coil Thermistor

1. Remove chassis from wall sleeve.
2. Remove the two mounting screws, one on each side of the control board cover. Tilting the control panel out, disconnect ribbon connector from control board. **DO NOT PULL ON RIBBON. GRASP THE BLACK RIBBON CONNECTOR AND PULL GENTLY.**
3. Unplug the Blue Thermistor from the connector.
4. Unclip thermistor from outdoor coil.
5. Carefully slide thermistor wiring through the center partition. When replacing, be sure all holes in the center partition are properly sealed with Permagum.S-5 Outdoor Coil Thermistor or Thermistor (Switchover Thermostat).

# SERVICING

## THERMISTOR RESISTANCE - TEMPERATURE CHARACTERISTIC



### Checking OCT Thermistor

1. With power off, remove the thermistor leads from the circuit board.
2. Check the thermistor for continuity. See chart above for resistance values.
3. Replace thermistor if it does not test as above.

### S-6 HEATER ASSEMBLY

1. Disconnect power to the unit

**WARNING**

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

2. Remove front cover of unit.
3. Remove the three screws securing the indoor fan motor cover and remove the cover. See Figure A.
4. Remove the 8 screws securing the partition panel top to the chassis, Figure A.
5. Remove the 2 screws securing the two tie braces to the partition panel. See Figure A.

6. Remove the partition panel top
7. Remove the 4 screws on the top of the evaporator, Figure A.

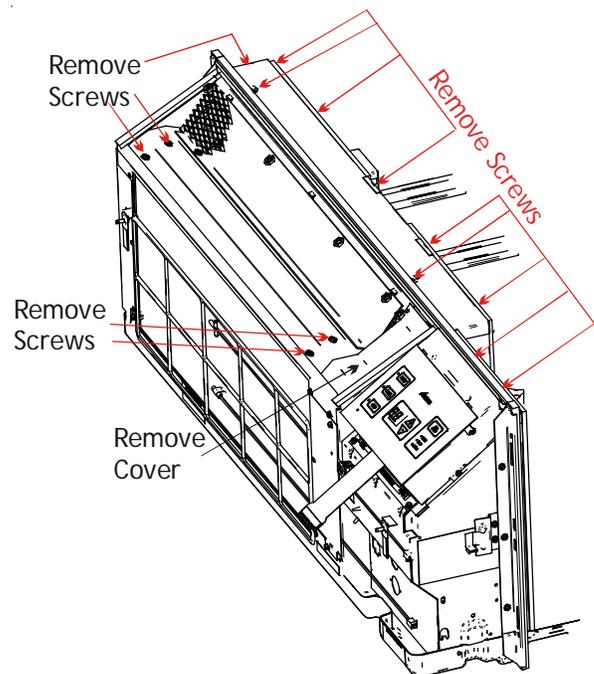


Figure A

8. Remove the two screws on the left side panel securing the motor panel assembly, Figure B.

# SERVICING

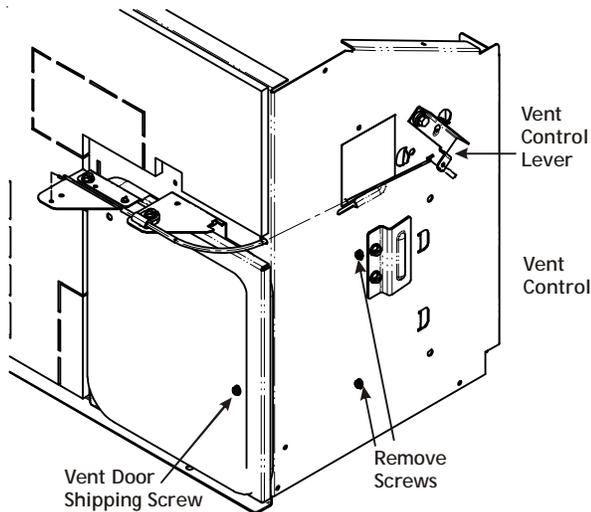


Figure B

9. Lift up on the right side of the fan motor assembly to release the housing.
10. Slide whole assembly to the right as you are looking at it and lift the assembly straight up.
11. Remove the two screws securing the heater assembly, Figure C.
12. Remove heater assembly and disconnect wires from the heater.

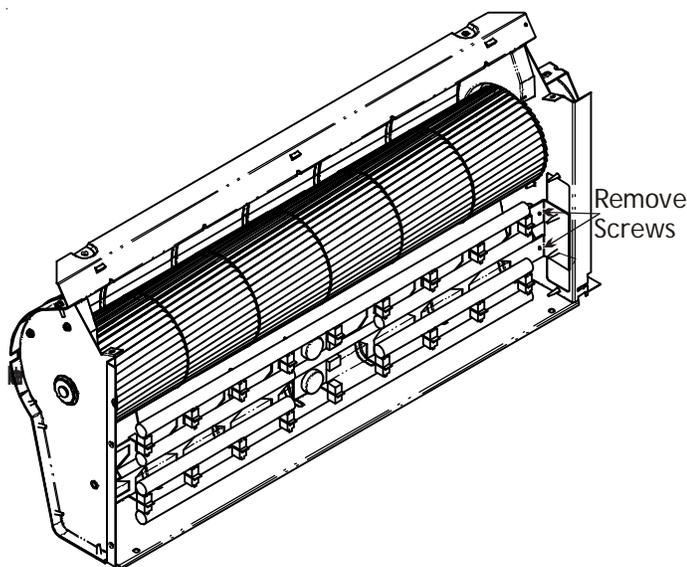


Figure C

### Checking Heater Assembly

1. With power off to the unit and heater, remove the heaters in question and visually inspect the element for broken condition.
2. Remove the wires from the element and check for continuity through the heater. If there is no continuity the heater needs to be replaced.

### S-7 DRAIN PAN VALVE (HEAT PUMP MODELS ONLY)

1. Remove the chassis from the wall sleeve.
2. Remove the mounting screw and remove the drain valve.

The drain pan operates to remove condensate from base pan. This is a thermal operated device that opens at 40°F and closes at 60°F.

#### Checking Operation of the Drain Valve

1. Cool the valve to 40°F or below and the plunger should open.
2. Warm the valve up to 60°F and the plunger should close.

### S-15 CAPACITOR CHECK

1. Remove front cover.
2. Remove the two mounting screws, one on each side of the control board cover. Tilting the control panel out, disconnect ribbon connector from control board. *DO NOT PULL ON RIBBON. GRASP THE BLACK RIBBON CONNECTOR AND PULL GENTLY.*
3. Disconnect all wiring to the capacitor. Label the wires to ensure proper reassembly.
4. Remove the screw securing the capacitor mounting clamp to the center partition. Remove the capacitor.

#### Resistance Check

**WARNING**

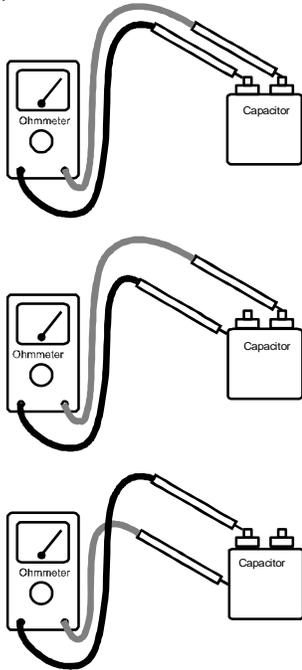
**HIGH VOLTAGE  
 DISCONNECT ALL POWER BEFORE  
 SERVICING OR INSTALLING THIS UNIT.  
 MULTIPLE POWER SOURCES MAY  
 BE PRESENT. FAILURE TO DO SO MAY CAUSE  
 PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.**

Discharge capacitor and remove wire leads.

**WARNING**

**DISCHARGE CAPACITOR THROUGH A 20 TO 30 OHM  
 RESISTOR BEFORE HANDLING.**

# SERVICING

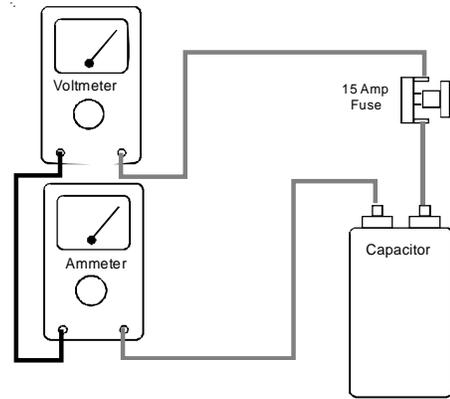


## Capacitor Resistance TEST

- a. Good Condition - indicator swings to zero and slowly returns to infinity. (Start capacitor with bleed resistor will not return to infinity. It will still read the resistance of the resistor).
  - b. Shorted - indicator swings to zero and stops there - replace.
  - c. Open - no reading - replace. (Start capacitor would read resistor resistance).
2. Testing for ohms between either capacitor terminal and the capacitor body must show infinite ohms.

## Capacitance Check

Using a hookup as shown below, take the amperage and voltage readings and use them in the formula:



$$\text{Capacitance (MFD)} = \frac{2650 \times \text{Amperage}}{\text{Voltage}}$$

If the value obtained is not within 10% of the rating printed on the capacitor, replace.

## S-16 CHECKING FAN AND MOTOR BLOWER WINDINGS

### BLOWER WHEEL, BLOWER MOTOR, FAN BLADE

1. Disconnect power to the unit.



2. Remove front cover of unit.
3. Remove the three screws securing the indoor fan motor cover and remove the cover. See Figure D.
4. Remove the 8 screws securing the partition panel top to the chassis, Figure D.
5. Remove the 2 screws securing the two tie braces to the partition panel. See Figure D.
6. Remove the partition panel top
7. Remove the 4 screws on the top of the evaporator, Figure D.

# SERVICING

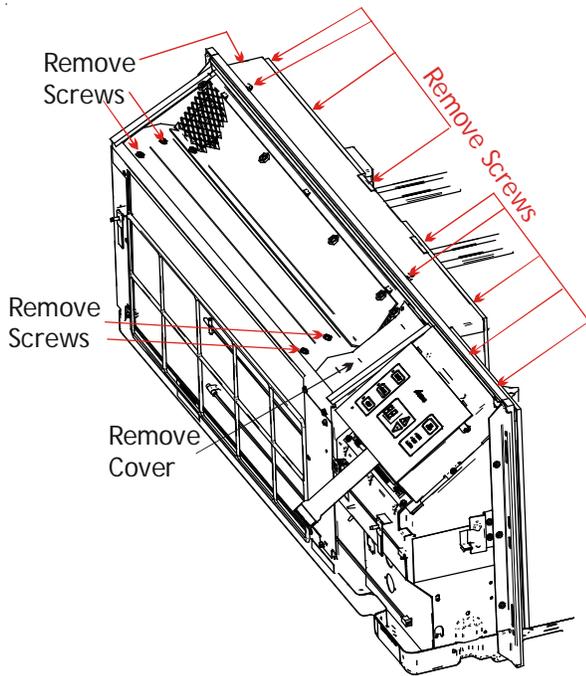


Figure D

8. Remove the two screws on the left side panel securing the motor panel assembly, Figure E.

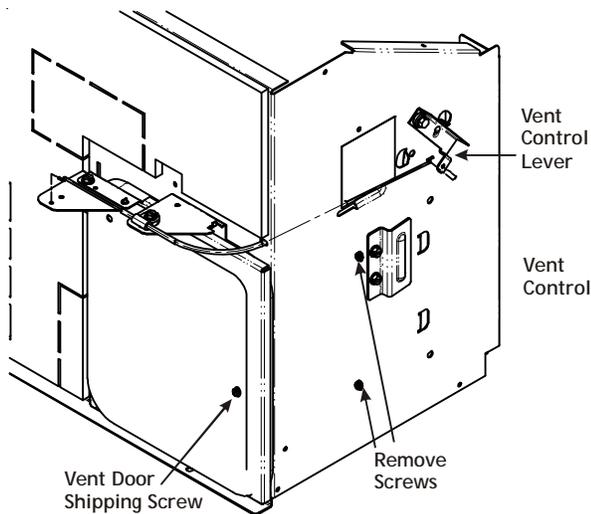


Figure E

8. Remove the partition panel top.
9. Remove the 4 screws on the cut off (top of the evaporator) and remove, Figure F.
10. Remove the two screws on the left side panel securing the motor panel assembly. See Figure F.

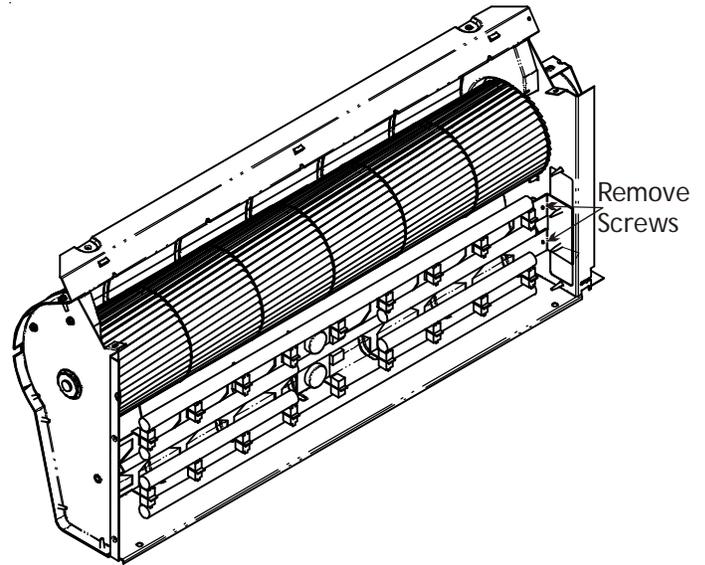


Figure F

11. Lift up on the right side of the fan motor assembly to release the housing.
12. Slide the assembly to the right as you are looking at it, and lift the assembly straight up.
13. Loosen the set screw on the blower wheel
14. Remove the three screws securing the motor to the housing and remove the motor from the blower wheel.
15. Disconnect the blower motor wiring as follows:
  - White from capacitor C terminal
  - Red from control board FAN LOW terminal
  - Brown from capacitor FAN terminal
  - Black from control board FAN HIGH terminal
 Gently pull the wire through the center partition.

The auto reset fan motor overload is designed to protect the motor against high temperature and high amperage conditions by breaking the common circuit within the motor, similar to the compressor internal overload. However, heat generated within the motor is faster to dissipate than the compressor, allow at least 45 minutes for the overload to reset, then retest.

**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.**

# SERVICING

1. Remove the motor leads from their respective connection points and capacitor (if applicable).
2. Check the continuity between each of the motor leads.
3. Touch one probe of the ohmmeter to the motor frame (ground) and the other probe in turn to each lead.

If the windings do not test continuous or a reading is obtained from lead to ground, replace the motor.

WARNING

THE USE OF THE DIAGNOSTIC BOX AND RELATED PROCEDURES ARE TO BE USED BY QUALIFIED, PROFESSIONALLY TRAINED HVAC TECHNICIANS ONLY. GOODMAN DOES NOT ASSUME ANY RESPONSIBILITY FOR PROPERTY DAMAGE OR PERSONAL INJURY DUE TO IMPROPER SERVICE PROCEDURES OR SERVICES PERFORMED BY AN UNQUALIFIED PERSON.

## S-17 COMPRESSOR WINDINGS

1. Remove the chassis from the wall sleeve.
2. Remove the compressor terminal cap and disconnect all compressor wiring.
3. After capturing the refrigerant from the system, debraze the inlet and discharge tubing from the compressor.
4. Remove the three foot mounting bolts and remove the compressor.

WARNING

HIGH VOLTAGE TO PREVENT PROPERTY DAMAGE, PERSONAL INJURY OR DEATH DUE TO ELECTRICAL SHOCK, DO NOT CONNECT ELECTRICAL POWER TO THIS UNIT OR TO THE COMPRESSOR IF THE COMPRESSOR TERMINAL COVER HAS BEEN REMOVED OR IS NOT FIRMLY IN PLACE.

If the test indicates shorted, grounded or open windings, see procedure for the next steps to be taken.

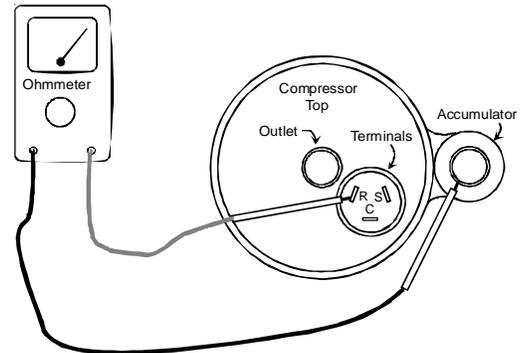
### Resistance Test

1. With no power, remove the leads from the compressor terminals.
2. Touch the leads of an ohmmeter to terminals C-S, start windings and C-R, run winding.

### Ground Test

With no power and compressor leads removed:

Set an ohmmeter on its highest scale. Touch one lead to the compressor body (clean point of contact, as a good connection is a must) and the other probe to each compressor terminal in turn. If a reading is obtained, then the compressor is grounded and must be replaced.



### Compressor Ground Test

If the voltage, capacitor, overload and motor windings test fail to show the cause for failure.

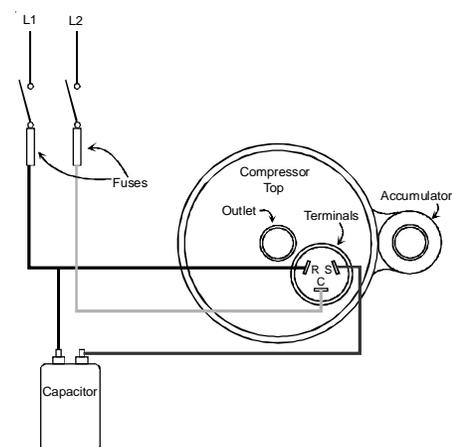
WARNING

DISCONNECT ELECTRICAL POWER SUPPLY.

With no power, wire a test cord to line voltage (L1 & L2).

NOTE: The wire size of the test cord must equal the line size, and the fuses in the test line must be of the proper size and type.

### Test Cord Connections



1. Connect a good capacitor of the right MFD and voltage rating into the circuit as shown.
2. Carefully apply line voltage.

# SERVICING

- a. If the compressor starts and continues run, the cause for failure is somewhere else in the system.
- b. If the motor fails to start - replace.

Since all single phase compressors are of the permanent split capacitor design the high and low side pressure must be approximately equal or the low torque compressor may not start.

## S-17A OVERLOAD

Each compressor is equipped with an internal overload.

The line break internal overload senses both motor amperage and winding temperature. High motor temperature or amperage heats the disc causing it to open, breaking the common circuit within the compressor.

Fuse, circuit breaker, ground fault protective device, etc. has not tripped.

- 1. With no power to the unit, remove the compressor cover, and overload lead from the compressor terminal.
- 2. Using an ohmmeter: Test continuity between terminals of the overload. If not continuous, the overload is open, replace the overload.

## S-104 CHECKING COMPRESSOR EFFICIENCY

The reason for compressor inefficiency is broken or damaged suction and/or discharge valves, or scroll flanks on Scroll compressors, reducing the ability of the compressor to pump refrigerant vapor.

The condition of the valves or scroll flanks is checked in the following manner.

- 1. Attach gauges to the high and low side of the system.
- 2. Start the system and run a "Cooling Performance Test."

If the test shows:

- a. Below normal high side pressure.
- b. Above normal low side pressure.
- c. Low temperature difference across coil.
- d. Low amp draw at compressor.

and the charge is correct. The compressor is faulty - replace the compressor. **NOTE: THIS TEST CANNOT BE DONE IN THE HEATING MODE.**

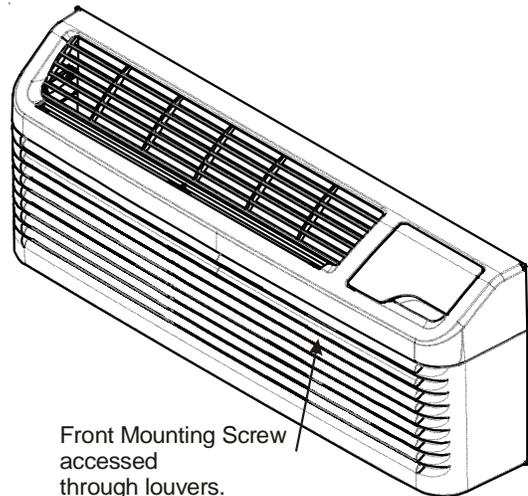
## S-116 FILTER DRIER REPLACEMENT

 **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.**

- 1. Remove the two screws securing the front. Not all installations have the screws. Then remove the front. Do this by pulling the bottom corners out and lifting up.

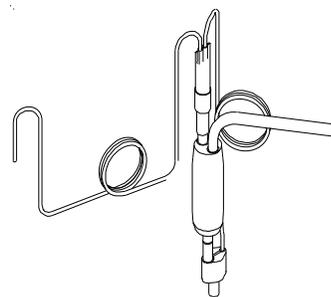


- 2. Remove the six screws securing the unit to the wall sleeve. If screws are not present they should be installed when units is reinstalled.
- 3. Pull unit from wall sleeve and take unit to adequate work area. Taking care not to spill any condensate which may still be in the basepan.

**IMPORTANT NOTE:** Effective July 1, 1992. Before opening any refrigerant system it is the responsibility of the service technician to capture the refrigerant for safe disposal.

- 4. After all the refrigerant has been recovered from the system, remove bottom of strainer by unbrazing the strainer from the condenser elbow. Hold the strainer with a pair of pliers while heating up the brazed joint with a torch. When joint is hot pull up on strainer and remove.

Heat up Capillary tube and remove from line.



- 5. To install the new filter drier assembly, remove the end plugs and clean the ends to be brazed into place.

# SERVICING

6. Clean the end of the capillary tube and insert into the tube, it may be necessary to crimp tubing around the capillary tube, being careful not to damage the capillary tube. Insert the bottom of the filter drier into the condenser elbow, it may be necessary to heat slightly to get coupling to go into place.

## Brazing

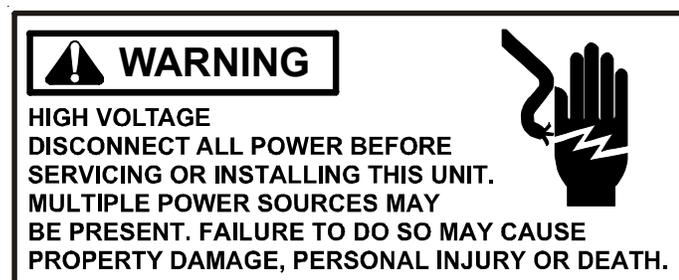


Satisfactory results require cleanliness, experience and the use of proper material and equipment.

The connections to be brazed must be properly sized, free of rough edges and clean.

The generally accepted materials are:

- **SIL-FOS** (Alloy of 15% silver, 80% copper, 5% phosphorus) is used without flux on copper to copper. *DO NOT USE FOR A COPPER TO STEEL CONNECTION.* Recommended heat is approximately 1400°F.
  - **SILVER SOLDER** (Alloy of 30% silver, 38% copper, 32% zinc.) Is used with fluoride base flux on copper to steel, brass to copper, steel to steel, brass to steel. Recommended heat is approximately 1200°F. This is the most important part of the entire service procedure.
8. Braze coupling and cap tube into place.



## S-122 REVERSING VALVE

Occasionally the reversing valve may stick in the heating or cooling position or in the mid-operation.

When stuck in the mid-position, part of the discharge gas from the compressor is directed back to the suction side resulting in excessively high suction pressure.

Check the operation of the valve by starting the system and switching the operation from COOLING to HEATING and then back to COOLING.

If the valve fails to change its position, test the voltage (230 V. or 265 V.) at the valve coil connector cap, while the system is on the HEATING CYCLE.



If no voltage is registered to the coil, check the operation of the reversing relay and the continuity of the connecting wires.

If voltage is registered at the coil, tap the valve body lightly while switching the system from HEATING to COOLING etc. If this fails to cause the valve to switch position, remove the coil connector cap and wiring and test the continuity of the valve coil. If the coil does not test continuous replace it.

If the valve is inoperative, replace.

## SOUND LEVEL

Noise complaints are frequently caused by a faulty installation or by the customer's lack of knowledge and information. Sources of actual noise may be traced to operational components, tubing vibration, or misalignment of case or sleeve with chassis.

## COMPONENT REPLACEMENT

Replacement of the compressor, evaporator, condenser, capillary tubes and reversing valve must be in accordance with accepted service practices. These procedures include a complete evacuation of both high and low sides, and changing of both strainer whenever the refrigerant system is opened.

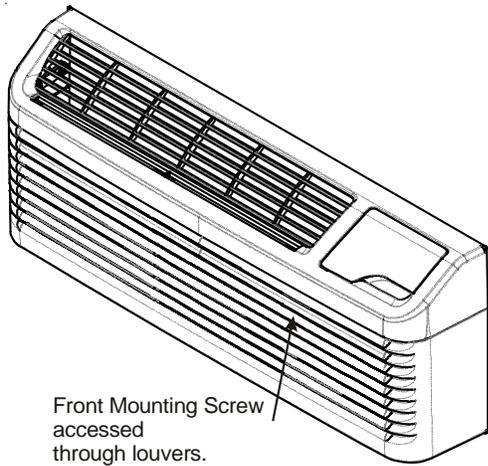
Before replacing a component in the sealed system, make sure that the cause for complaint does not lie in the electrical circuit, control, overload or is due to some other reason. The serviceman must be familiar with the operational characteristics of the product and should not jump to conclusions.

## FRONT COVER

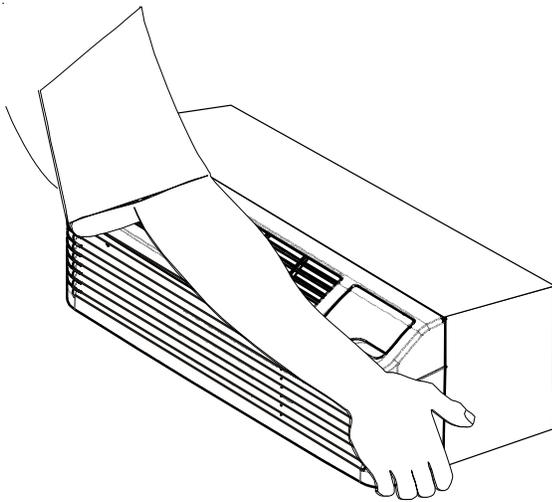
1. Remove the two screws securing the front to the chassis.

**NOTE:** Not all installations will use these screws.

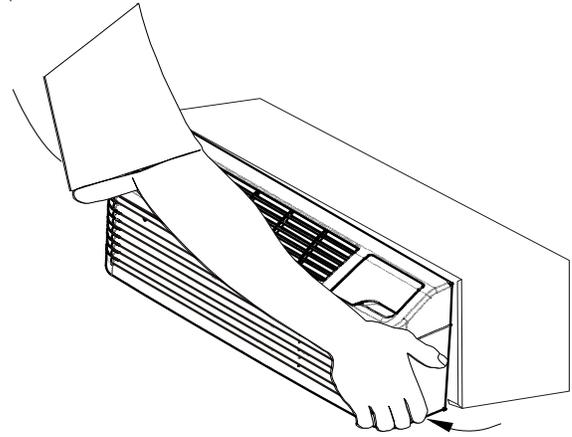
# SERVICING



2. Grasp the cabinet front as shown.



3. Pull the bottom of the cabinet front away from the chassis until the retaining clips disengage.



4. Lift the cabinet front off the chassis. Reverse this procedure to reinstall the cabinet front.

## CHASSIS

**WARNING**



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MULTIPLE POWER SOURCES MAY  
BE PRESENT. FAILURE TO DO SO MAY CAUSE  
PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.**

1. Disconnect power to the unit.
2. Remove the front cover.
3. Remove three screws on each side of the chassis, securing the chassis to the wall sleeve.
4. Carefully slide chassis out of wall sleeve, placing on floor or protected cart.

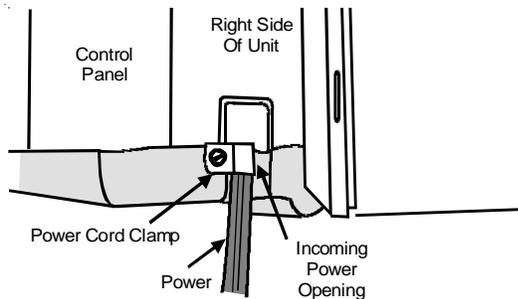
## ESCUTCHEON, CONTROL BOARD, CONTROL PANEL

1. Remove front cover.
2. Remove the two mounting screws, one on each side of the control board cover. Tilting the control panel out, disconnect ribbon connector from control board. *DO NOT PULL ON RIBBON. GRASP THE BLACK RIBBON CONNECTOR AND PULL GENTLY.*
3. Disconnect all wiring to the control board. Label the wires to ensure proper reassembly.
4. Remove the thermistor in front of the evaporator.
5. Remove the four control board mounting screws and remove the control board.

# SERVICING

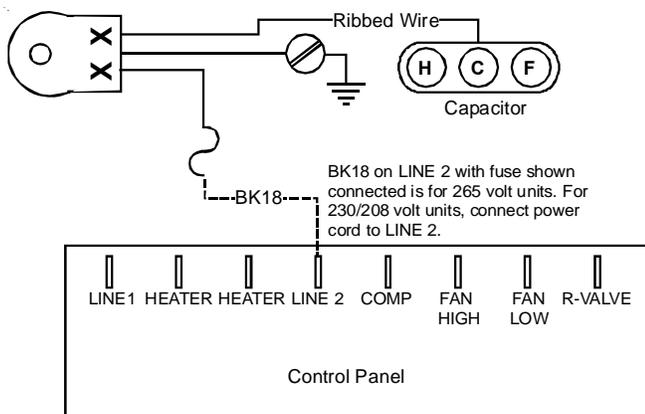
## POWER CORD

1. Remove the unit front by tilting the bottom of the front outward and then lift the front straight up.
2. Remove the control knobs on the control panel cover by pulling upward on the knobs. Remove the escutcheon.
3. Remove the control panel cover by removing the two screws holding the control panel cover. Tilt the control panel forward to gain access to the wires.
4. Remove the power cord clamp located near the bottom right of the chassis.



5. On 230/208 volt units disconnect the ribbed lead from the C terminal on the capacitor and the smooth lead from LINE 2 terminal on the control board and the green ground wire from the partition panel.

On 265 volt units disconnect the ribbed lead from the C terminal on the capacitor and the smooth lead from the fuse holder and the green ground wire from the partition panel.



## EVAPORATOR

1. Remove front cover.
2. Remove the two mounting screws, one on each side of the control board cover. Tilting the control panel out, disconnect ribbon connector from control board. **DO NOT PULL ON RIBBON. GRASP THE BLACK RIBBON CONNECTOR AND PULL GENTLY.**

3. Remove the two screws securing the top screen to the evaporator assembly. (Be sure to slide the top of the screen between the top flange and chassis when reassembling.)
7. Remove screws on mid partition panel and shift out of the way.
8. Remove the two screws securing the heater assembly to the evaporator.
9. Pull heater assembly up and out of the chassis.
10. Disconnect all wiring to the heater assembly and remove the assembly.
11. Remove the floodback protector or thermistor from the evaporator discharge tube.
12. Remove screws holding evaporator to basepan and partition panel.
13. After recapturing the refrigerant charge (see Refrigeration Service section), debraze the tubes into the evaporator. Be sure to protect all chassis components, especially foam parts, from excessive heat.
14. Lift the evaporator up over the basepan edge and remove.

## OUTDOOR COIL

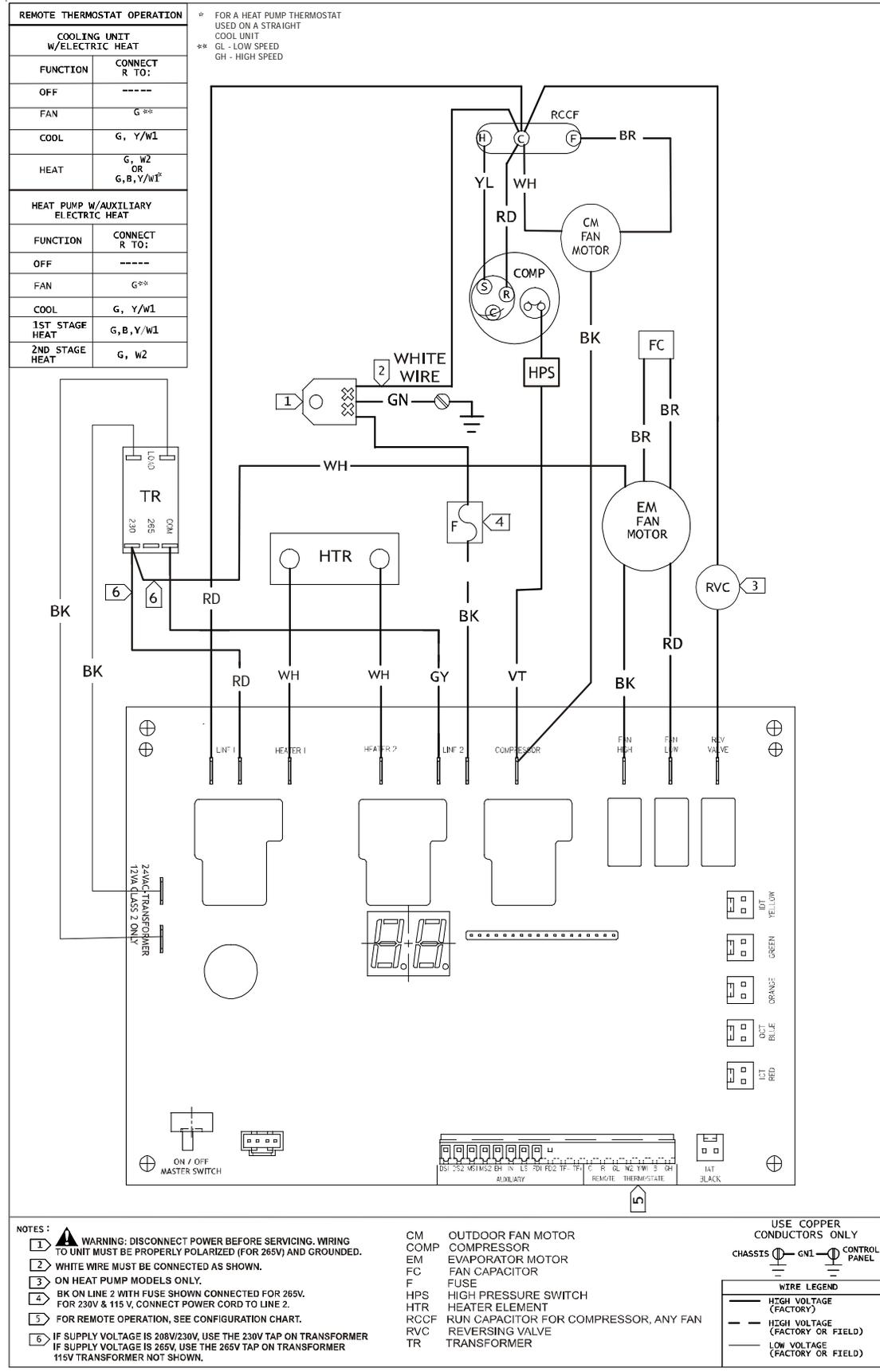
1. Remove the chassis from the wall sleeve.
2. After capturing the refrigerant from the system, debraze the inlet and discharge tubing from the outdoor coil.
3. Remove all screws from the sides of the outdoor coil securing the shroud to the coil.
4. Pressing the tabs on the right side of the shroud separate the shroud from the outdoor coil.
5. The "E-K" models have a four piece condenser shroud where the top, sides and shroud will come apart separately.
5. Remove the two screw securing the outdoor coil to the base pan.
6. Carefully lift the outdoor coil over the basepan lip.

## VENT DOOR

1. Remove Chassis from wall sleeve.
2. Remove P clamp securing vent door control cable to center partition and disconnect cable from vent door.
3. Remove vent door by opening door and pulling hinge tabs out of slots in center partition.
4. Remove the door by pulling hinge tabs out away from the center partition.

# SCHEMATICS

**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.



## PTC and PTH Standard Models

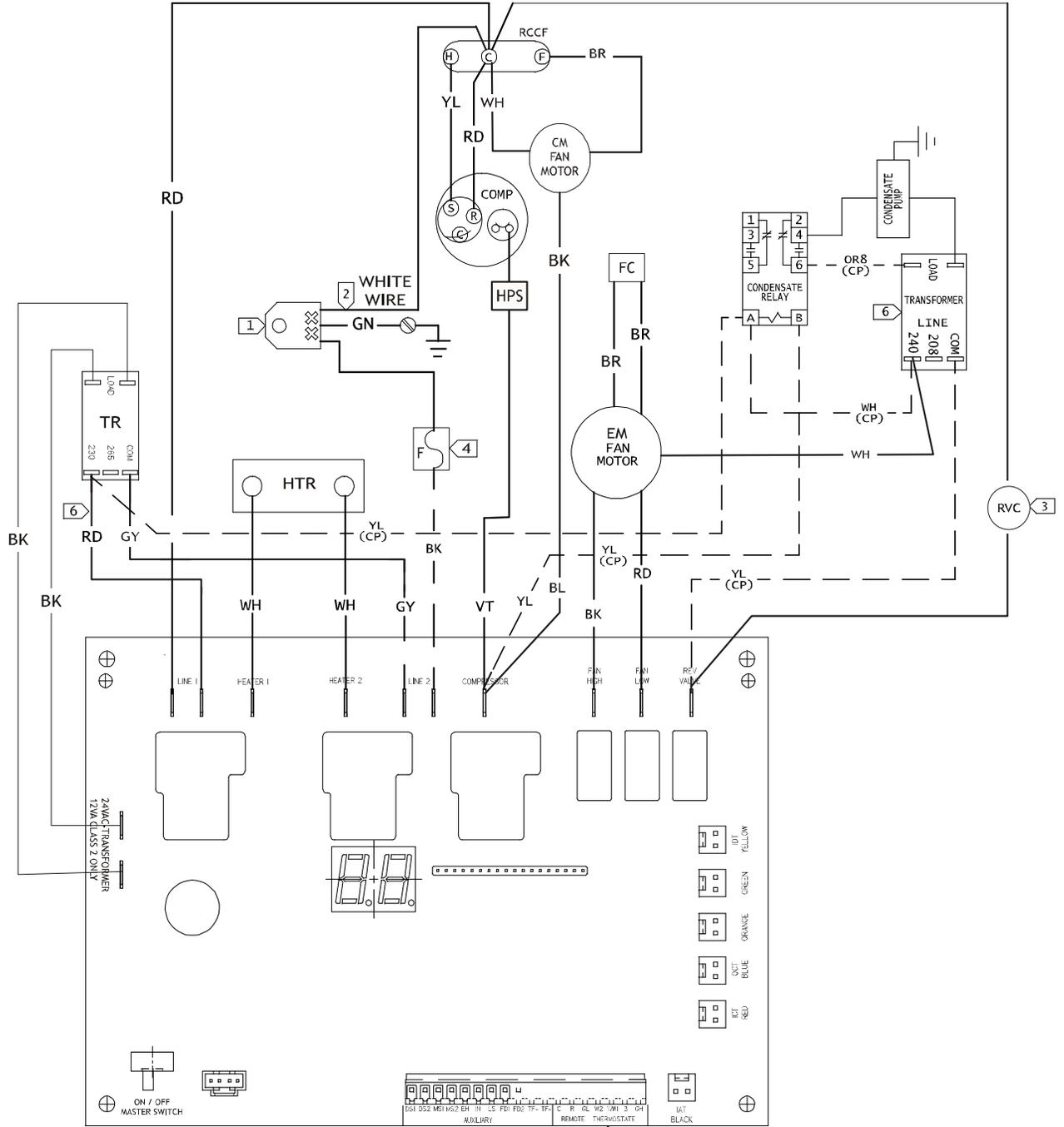
Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.

# SCHEMATICS

PTC/PTH\*\*\*E\*\*\*\*\* (AA/AB)

DRY\*\*\*E\*\*\*\*\* (AB)

**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.



- 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 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 TAP ON TRANSFORMER. IF SUPPLY VOLTAGE IS 265V, USE THE 265V TAP ON TRANSFORMER. 115V TRANSFORMER NOT SHOWN.
- COMPONENTS:**
- CM OUTDOOR FAN MOTOR
  - COMP COMPRESSOR
  - EM EVAPORATOR MOTOR
  - FC FAN CAPACITOR
  - F FUSE
  - HPS HIGH PRESSURE SWITCH
  - HTR HEATER ELEMENT
  - RCCF RUN CAPACITOR FOR COMPRESSOR, ANY FAN
  - RVC REVERSING VALVE
  - TR TRANSFORMER
- WIRE LEGEND:**
- USE COPPER CONDUCTORS ONLY
  - CHASSIS GND CONTROL PANEL
  - HIGH VOLTAGE (FACTORY)
  - - - HIGH VOLTAGE (FACTORY OR FIELD)
  - LOW VOLTAGE (FACTORY OR FIELD)

## PTC and PTH (Condensate Pump)

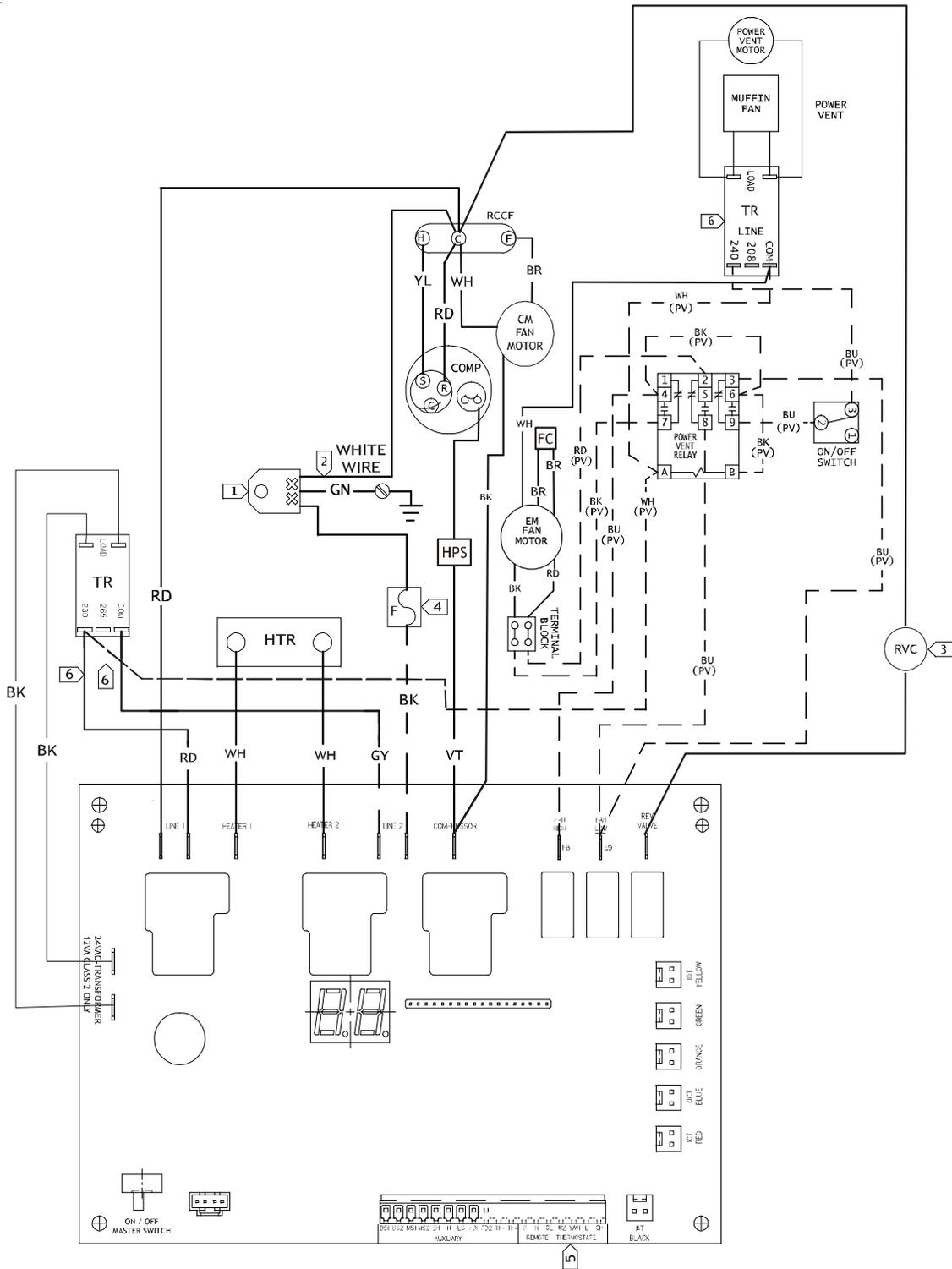
Wiring is subject to change, Always refer to the wiring diagram on the unit for the most up-to-date wiring.

# SCHEMATICS

PTC/PTH\*\*\*E\*\*\*\*\* (AA/AB)

DRY\*\*\*E\*\*\*\*\* (AB)

**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.



- 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 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 TAP ON TRANSFORMER IF SUPPLY VOLTAGE IS 265V, USE THE 265V TAP ON TRANSFORMER 115V TRANSFORMER NOT SHOWN.
- CM OUTDOOR FAN MOTOR  
 COMP COMPRESSOR  
 EM EVAPORATOR MOTOR  
 FC FAN CAPACITOR  
 F FUSE  
 HPS HIGH PRESSURE SWITCH  
 HTR HEATER ELEMENT  
 RCCF RUN CAPACITOR FOR COMPRESSOR, ANY FAN  
 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)

## PTC and PTH (Power Door)

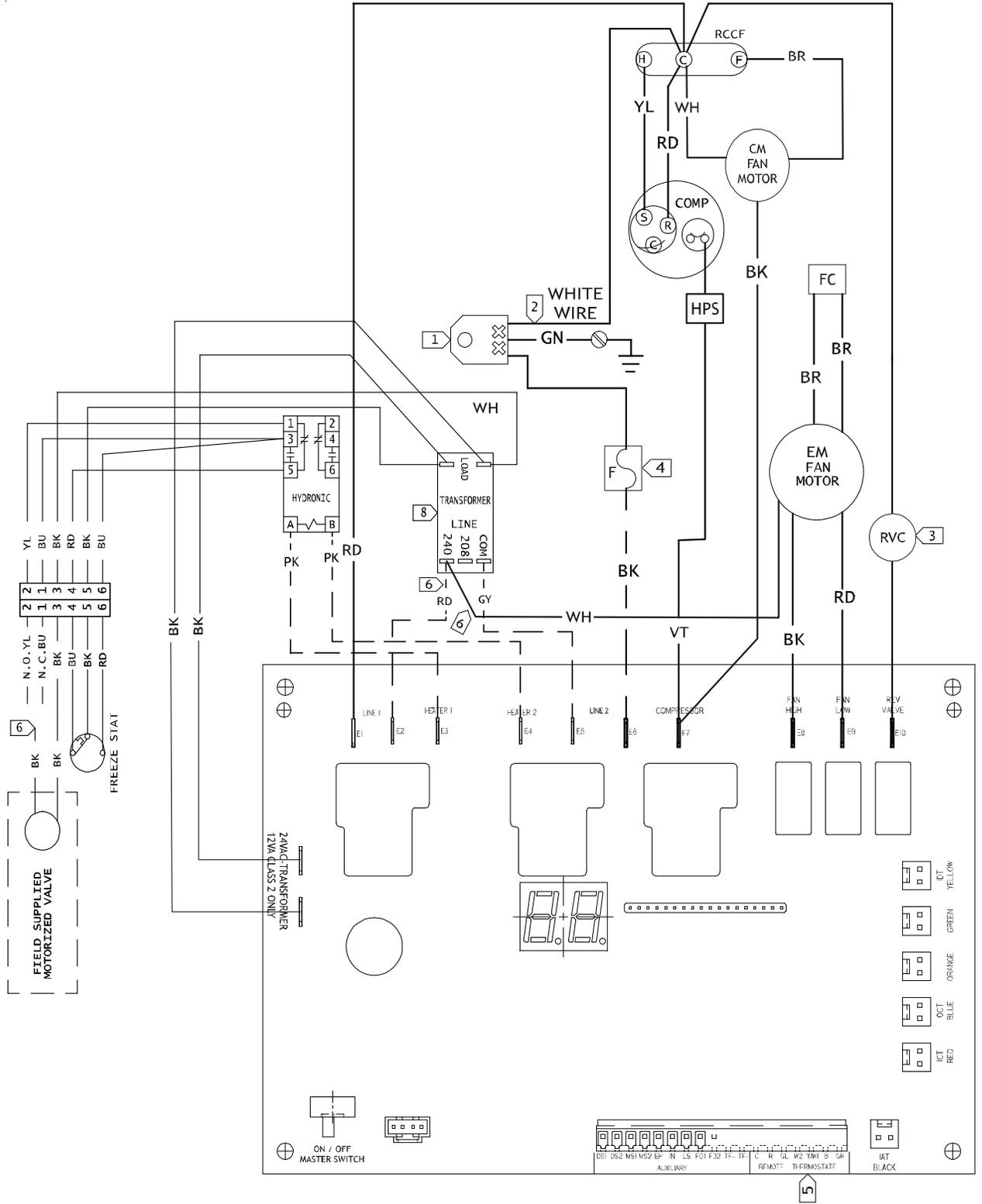
Wiring is subject to change, always refer to the wiring diagram on the unit for the most up-to-date wiring.

# SCHEMATICS

PTC/PTH\*\*\*E\*\*\*\*\* (AA/AB)

DRY\*\*\*E\*\*\*\*\* (AB)

**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.



- 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 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 TAP ON TRANSFORMER. IF SUPPLY VOLTAGE IS 265V, USE THE 265V TAP ON TRANSFORMER. 115V TRANSFORMER NOT SHOWN.

- CM OUTDOOR FAN MOTOR
- COMP COMPRESSOR
- EM EVAPORATOR MOTOR
- FC FAN CAPACITOR
- F FUSE
- HPS HIGH PRESSURE SWITCH
- HTR HEATER ELEMENT
- RCCF RUN CAPACITOR FOR COMPRESSOR, ANY FAN
- RVC REVERSING VALVE
- TR TRANSFORMER

USE COPPER CONDUCTORS ONLY

CHASSIS GND CONTROL PANEL

WIRE LEGEND

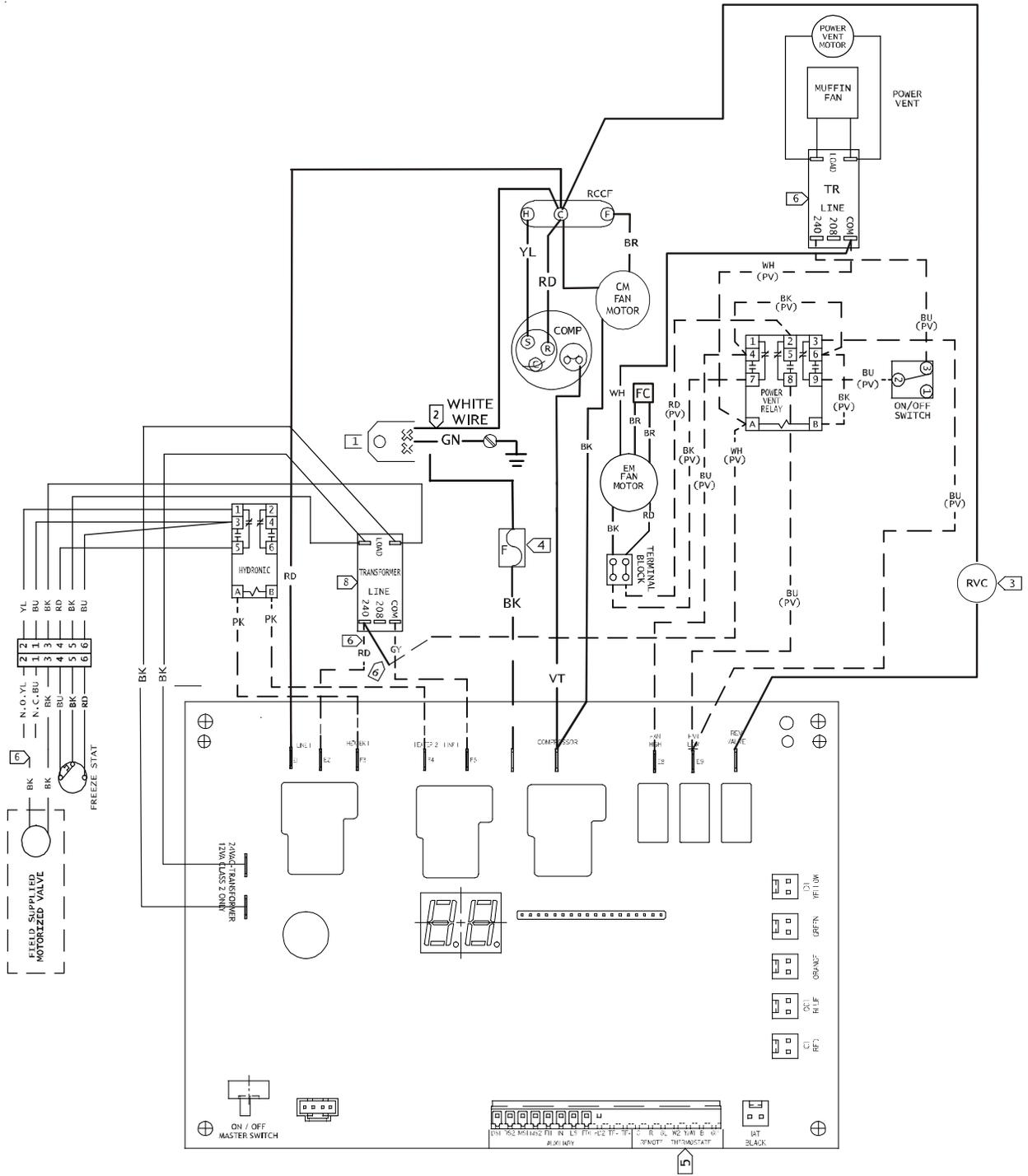
- HIGH VOLTAGE (FACTORY)
- - - HIGH VOLTAGE (FACTORY OR FIELD)
- LOW VOLTAGE (FACTORY OR FIELD)

## Hydronic

Wiring is subject to change, always refer to the wiring diagram on the unit for the most up-to-date wiring.



**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.



- 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 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 TAP ON TRANSFORMER. IF SUPPLY VOLTAGE IS 265V, USE THE 265V TAP ON TRANSFORMER. 115V TRANSFORMER NOT SHOWN.

- CM OUTDOOR FAN MOTOR  
 COMP COMPRESSOR  
 EM EVAPORATOR MOTOR  
 FC FAN CAPACITOR  
 F FUSE  
 HPS HIGH PRESSURE SWITCH  
 HTR HEATER ELEMENT  
 RCCF RUN CAPACITOR FOR COMPRESSOR, ANY FAN  
 RVC REVERSING VALVE  
 TR TRANSFORMER

USE COPPER CONDUCTORS ONLY

CHASIS GND CONTROL PANEL

**WIRE LEGEND**

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

## Hydronic (With Power Vent or Power Door)

Wiring is subject to change, always refer to the wiring diagram on the unit for the most up-to-date wiring.

# SCHEMATICS



The following schematics are for use  
with  
models having 2-speed motors:

PT\*\*\*E\*\*\*XXXAC

PT\*\*\*G\*\*\*XXX\*\*

DRY\*\*\*G\*\*\*XXX\*\*

& STC #31 models only:

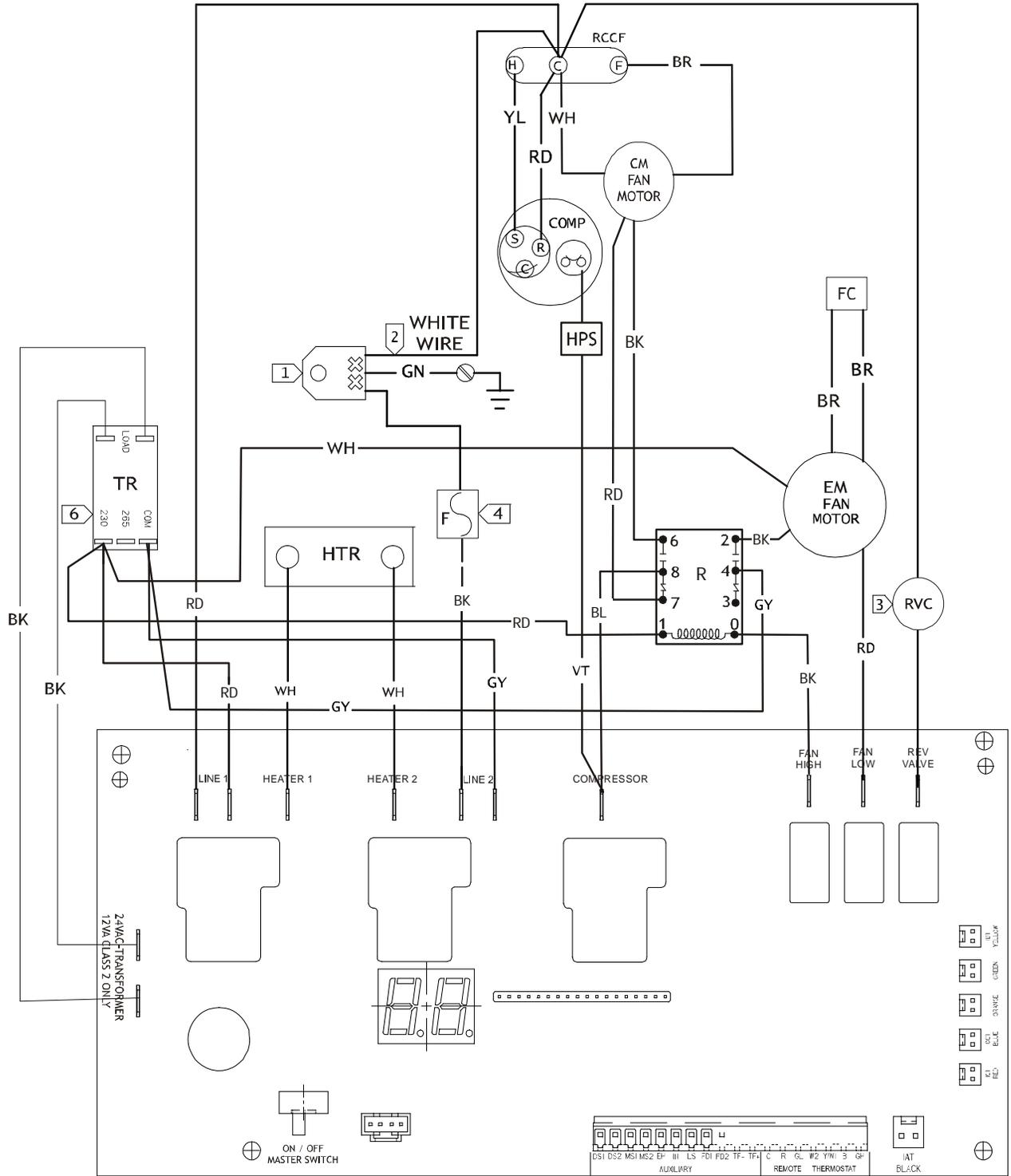
PT\*\*\*E\*\*QXXX AC

Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.

# SCHEMATICS

PTC/PTH\*\*\*E\*\*\*\*\*AC; PTC\*\*\*G\*\*\*\*\*AA

**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.



REMOTE THERMOSTAT OPERATION	
COOLING UNIT W/ELECTRIC HEAT	
FUNCTION	CONNECT R TO:
OFF	----
FAN	G <sup>SP</sup>
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 <sup>SP</sup>
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  
<sup>SP</sup> GL - LOW SPEED  
<sup>GH</sup> - HIGH SPEED

- NOTES :**
- WARNING: DISCONNECT POWER BEFORE SERVICING. WIRING TO UNIT MUST BE PROPERLY POLARIZED (FOR 265V) AND GROUNDED.**
  - WHITE WIRE MUST BE CONNECTED AS SHOWN.
  - ON HEAT PUMP MODELS ONLY.
  - BK ON LINE 2 WITH FUSE SHOWN CONNECTED FOR 265V. FOR 230V & 115 V, CONNECT POWER CORD TO LINE 2.
  - FOR REMOTE OPERATION, SEE CONFIGURATION CHART.
  - 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.

- CM OUTDOOR FAN MOTOR
- COMP COMPRESSOR
- EM EVAPORATOR MOTOR
- FC FAN CAPACITOR
- F FUSE
- HPS HIGH PRESSURE SWITCH
- HTR HEATER ELEMENT
- R RELAY
- RCCF RUN CAPACITOR FOR COMPRESSOR, ANY FAN
- RVC REVERSING VALVE
- TR TRANSFORMER

**USE COPPER CONDUCTORS ONLY**

CHASSIS GND CONTROL PANEL

**WIRE LEGEND**

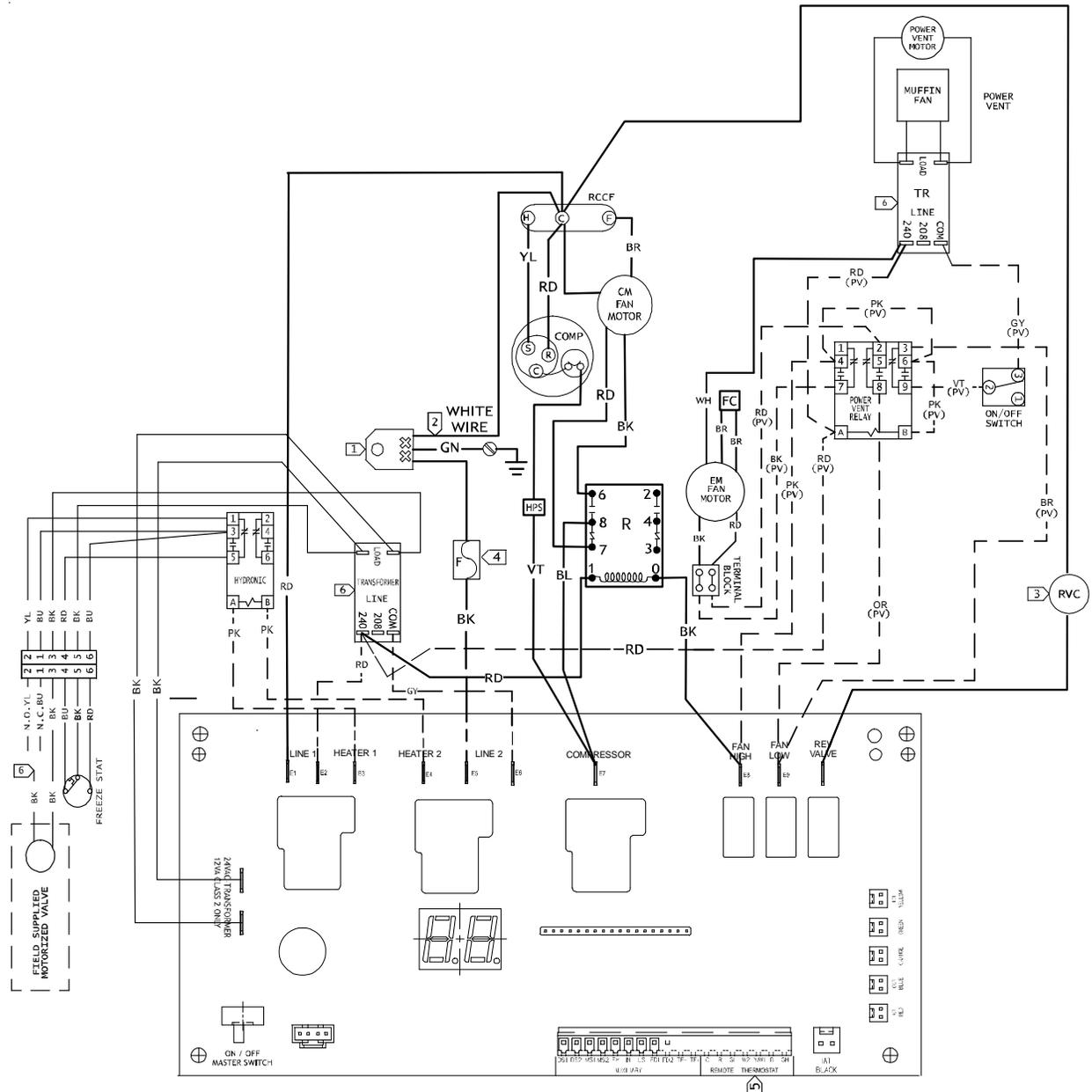
- HIGH VOLTAGE (FACTORY)
- - - HIGH VOLTAGE (FACTORY OR FIELD)
- LOW VOLTAGE (FACTORY OR FIELD)

Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.





**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.



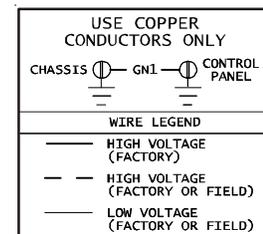
REMOTE THERMOSTAT OPERATION	
COOLING UNIT W/ELECTRIC HEAT	
FUNCTION	CONNECT R TO:
OFF	-----
FAN	G**
COOL	G, Y/W1
HEAT	G, W2 OR G, B, Y/W1 <sup>†</sup>
HEAT PUMP W/AUXILIARY ELECTRIC HEAT	
FUNCTION	CONNECT R TO:
OFF	-----
FAN	G**
COOL	G, Y/W1
1ST STAGE HEAT	G, B, Y/W1
2ND STAGE HEAT	G, W2

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

**NOTES :**

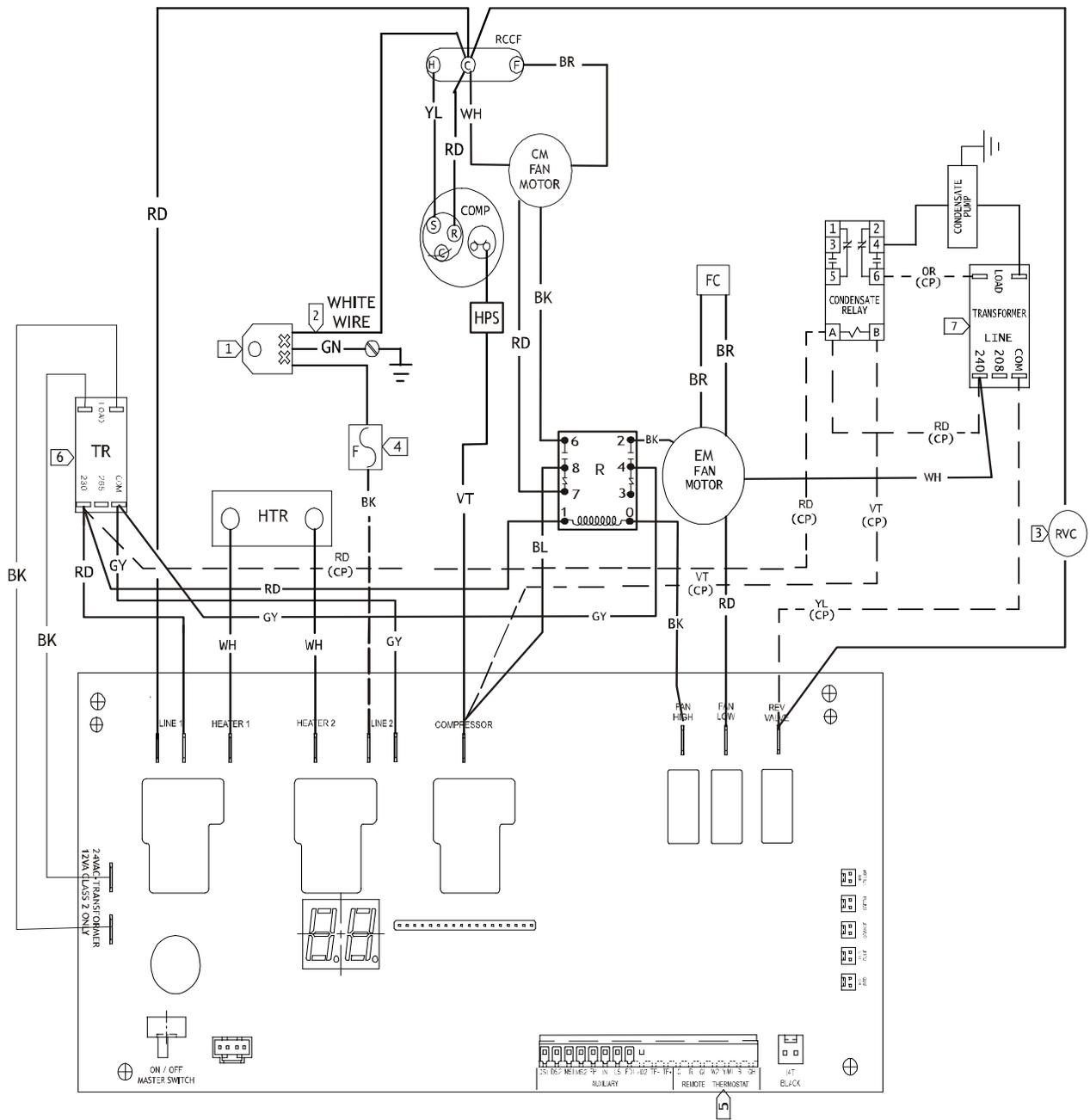
- 1 **WARNING: DISCONNECT POWER BEFORE SERVICING. WIRING TO UNIT MUST BE PROPERLY POLARIZED (FOR 265V) AND GROUNDED.**
- 2 **WHITE WIRE MUST BE CONNECTED AS SHOWN.**
- 3 **ON HEAT PUMP MODELS ONLY.**
- 4 **BK ON LINE 2 WITH FUSE SHOWN CONNECTED FOR 265V. FOR 230V & 115 V, CONNECT POWER CORD TO LINE 2.**
- 5 **FOR REMOTE OPERATION, SEE CONFIGURATION CHART.**
- 6 **265V AND 115V TRANSFORMER NOT SHOWN.**

CM OUTDOOR FAN MOTOR  
COMP COMPRESSOR  
EM EVAPORATOR MOTOR  
FC FAN CAPACITOR  
F FUSE  
HPS HIGH PRESSURE SWITCH  
HTR HEATER ELEMENT  
R RELAY  
RCCF RUN CAPACITOR FOR COMPRESSOR, ANY FAN  
RVC REVERSING VALVE  
TR TRANSFORMER



Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.

**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.



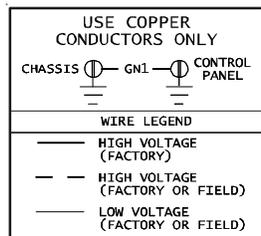
REMOTE THERMOSTAT OPERATION	
COOLING UNIT W/ELECTRIC HEAT	
FUNCTION	CONNECT R TO:
OFF	----
FAN	G**
COOL	G, Y/WL
HEAT	G, W2 OR G, B, Y/WL
HEAT PUMP W/AUXILIARY ELECTRIC HEAT	
FUNCTION	CONNECT R TO:
OFF	----
FAN	G**
COOL	G, Y/WL
1ST STAGE HEAT	G, B, Y/WL
2ND STAGE HEAT	G, W2

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

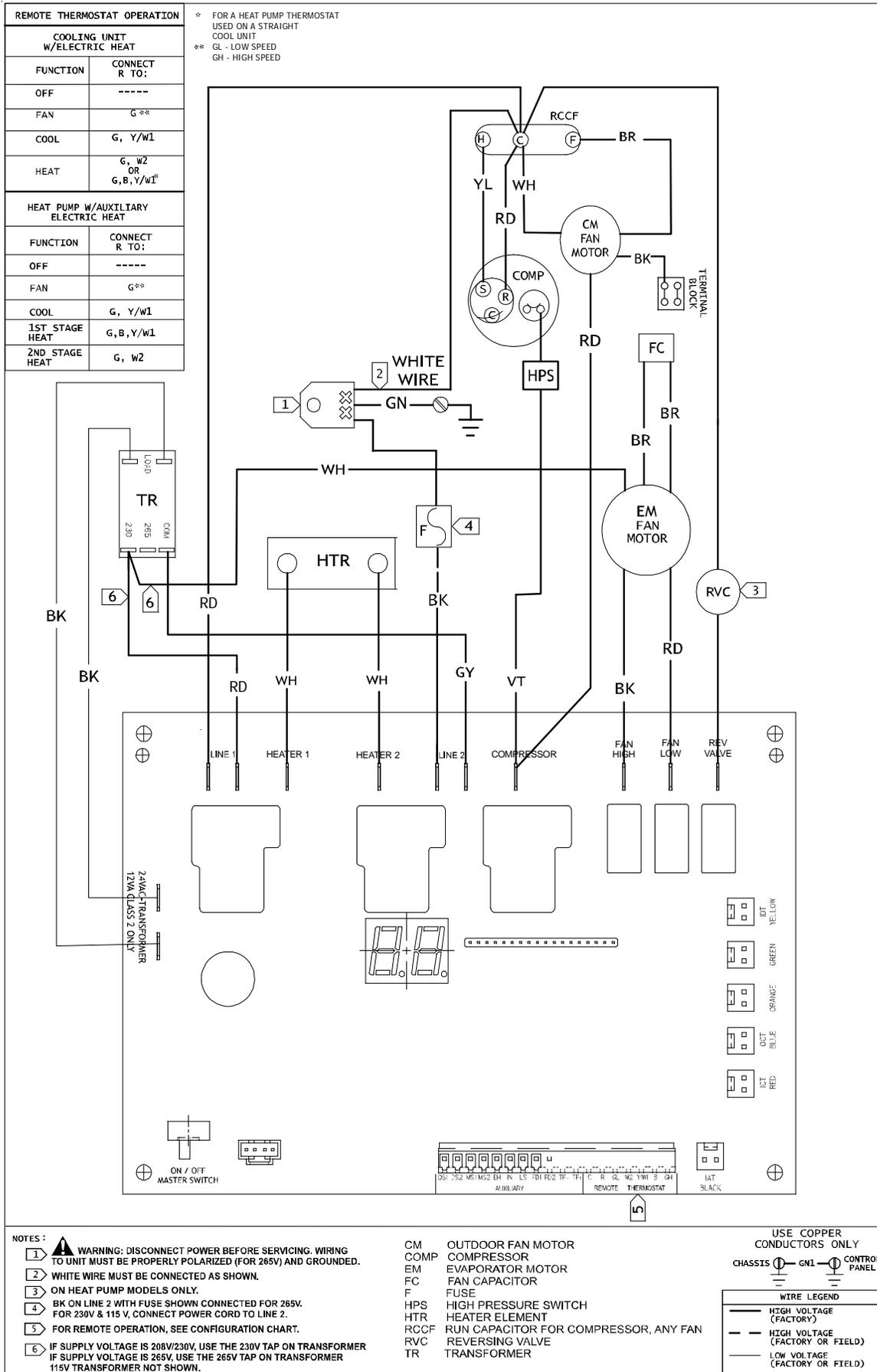
NOTES:

- WARNING: DISCONNECT POWER BEFORE SERVICING. WIRING TO UNIT MUST BE PROPERLY POLARIZED (FOR 265V) AND GROUNDED.**
- WHITE WIRE MUST BE CONNECTED AS SHOWN.
- ON HEAT PUMP MODELS ONLY.
- BK ON LINE 2 WITH FUSE SHOWN CONNECTED FOR 265V. FOR 230V & 115 V, CONNECT POWER CORD TO LINE 2.
- FOR REMOTE OPERATION, SEE CONFIGURATION CHART.
- 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.
- 265V AND 115V TRANSFORMER NOT SHOWN.

CM OUTDOOR FAN MOTOR  
 COMP COMPRESSOR  
 EM EVAPORATOR MOTOR  
 FC FAN CAPACITOR  
 F FUSE  
 HPS HIGH PRESSURE SWITCH  
 HTR HEATER ELEMENT  
 R RELAY  
 RCCF RUN CAPACITOR FOR COMPRESSOR, ANY FAN  
 RVC REVERSING VALVE  
 TR TRANSFORMER



Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.



Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.

# SCHEMATICS

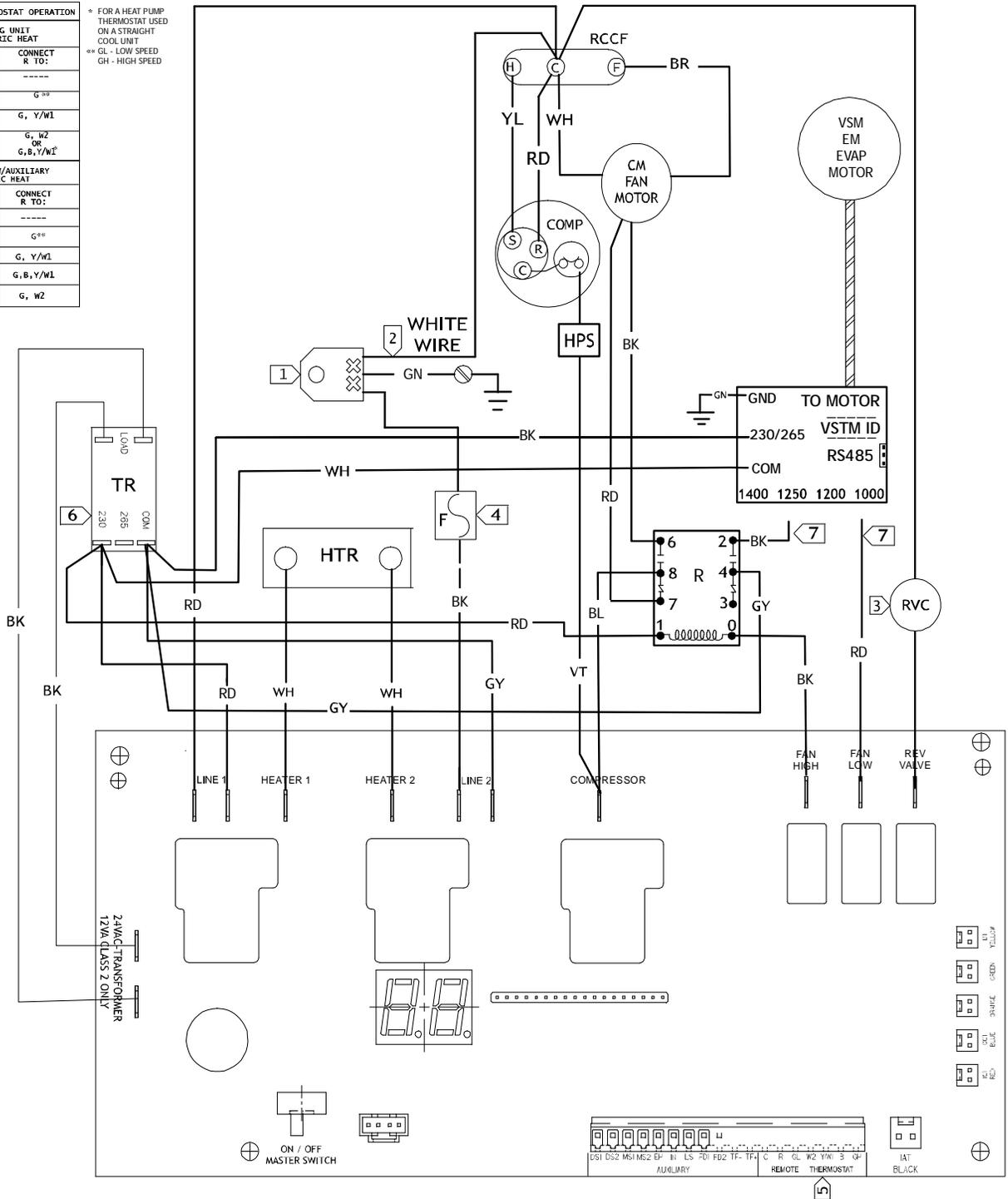
# PTH\*\*\*G\*\*\*\*\*A\* (ID MOTOR DC; OD MOTOR 2 SPEED PSC)

## STANDARD

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/W2
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

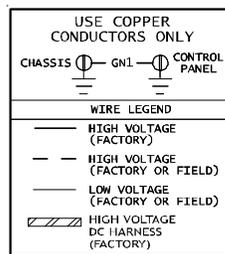
**WARNING**  
 HIGH VOLTAGE DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.



**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 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 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.

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



Indoor Motor Speed Selection				
Model Starts With	High Speed VSTM Black		Low Speed VSTM Red	
PTH074G(00 to 35)	1250	M3	1000	M4
PTH093G(00 to 35)	1200	M3	1000	M4
PTH093G50	1400	M1	1250	M2
PTH094G(00 to 35)	1200	M3	1000	M4
PTH094G50	1400	M1	1250	M2
PTH123G(00 to 35)	1250	M2	1000	M4
PTH123G50	1400	M1	1250	M2
PTH124G(00 to 35)	1250	M2	1000	M4
PTH124G50	1400	M1	1250	M2

Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.

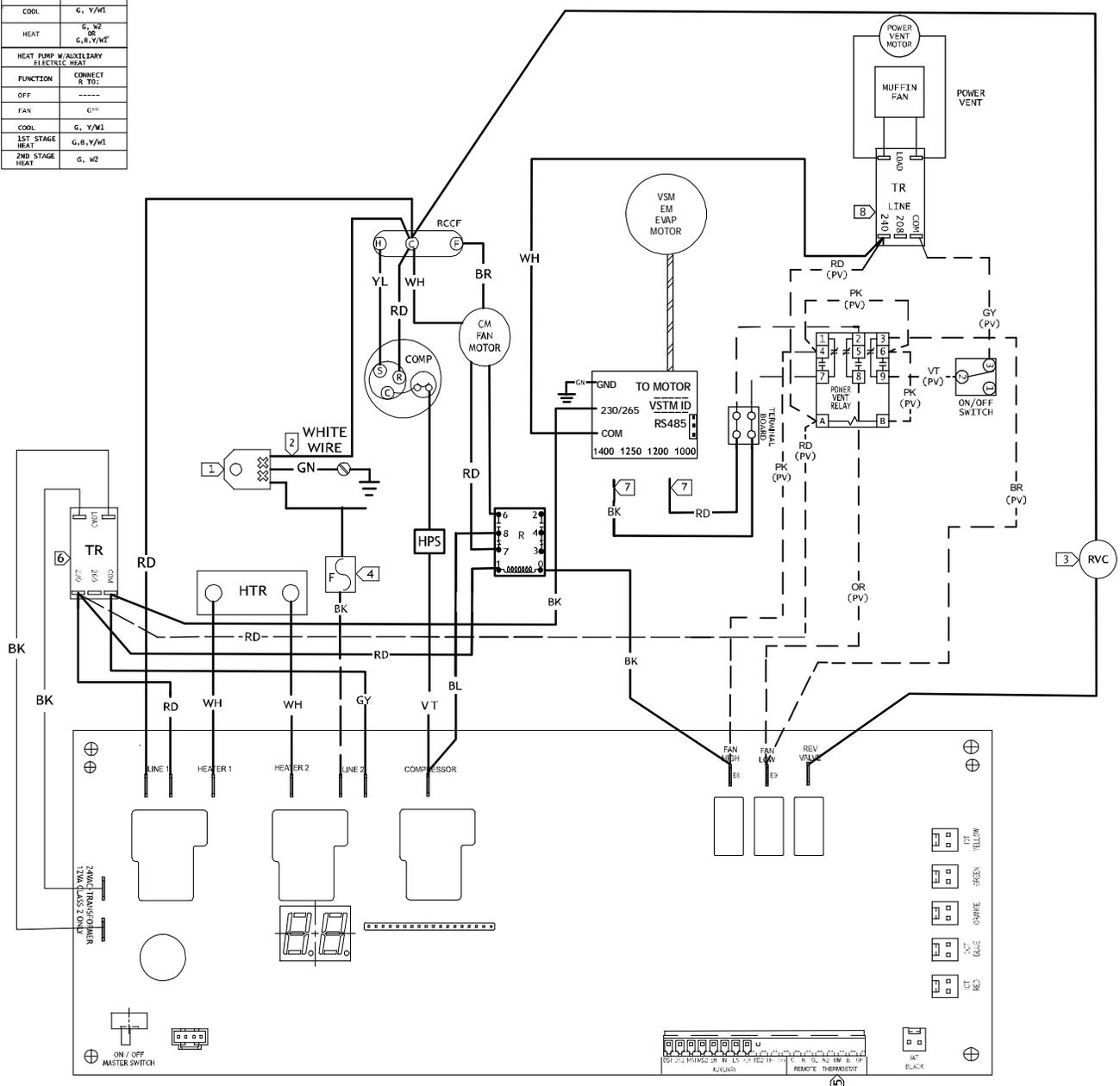
# SCHEMATICS PTH\*\*\*G\*\*[V/D]\*\*A\* (ID MOTOR DC; OD MOTOR 2 SPEED PSC)

POWER DOOR/  
VENT

REMOTE THERMOSTAT OPERATION	
COOLING UNIT W/ELECTRIC HEAT	
FUNCTION	CONNECT R TO:
OFF	-----
FAN	G <sup>15</sup>
COOL	G, Y/W1
HEAT	G, W2 G, B, Y/W2
HEAT PUMP W/AUXILIARY ELECTRIC HEAT	
FUNCTION	CONNECT R TO:
OFF	-----
FAN	G <sup>15</sup>
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  
 G<sup>15</sup> - LOW SPEED  
 GH - HIGH SPEED

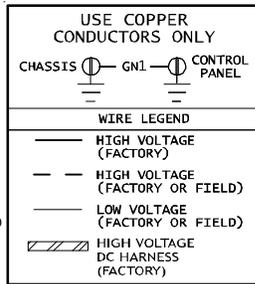
**WARNING**  
 HIGH VOLTAGE  
 DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.



**NOTES:**

- 1 **WARNING: DISCONNECT POWER BEFORE SERVICING. WIRING TO UNIT MUST BE PROPERLY PORIZED (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 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 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 265V and 115V TRANSFORMER NOT SHOWN.

- CM OUTDOOR FAN MOTOR
- COMP COMPRESSOR
- EM EVAPORATOR MOTOR
- FC FAN CAPACITOR
- F FUSE
- HPS HIGH PRESSURE SWITCH
- HTR HEATER ELEMENT
- R RELAY
- RCCF RUN CAPACITOR
- RVC REVERSING VALVE
- TR TRANSFORMER
- VSM VARIABLE SPEED MOTOR
- VSTM VARIABLE SPEED TERMINAL BOARD



Model Starts With	Indoor Motor Speed Selection			
	High Speed VSTM Black		Low Speed VSTM Red	
PTH074G(00 to 35)	1250	M3	1000	M4
PTH093G(00 to 35)	1200	M3	1000	M4
PTH093G50	1400	M1	1250	M2
PTH094G(00 to 35)	1200	M3	1000	M4
PTH094G50	1400	M1	1250	M2
PTH123G(00 to 35)	1250	M2	1000	M4
PTH123G50	1400	M1	1250	M2
PTH124G(00 to 35)	1250	M2	1000	M4
PTH124G50	1400	M1	1250	M2

Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.

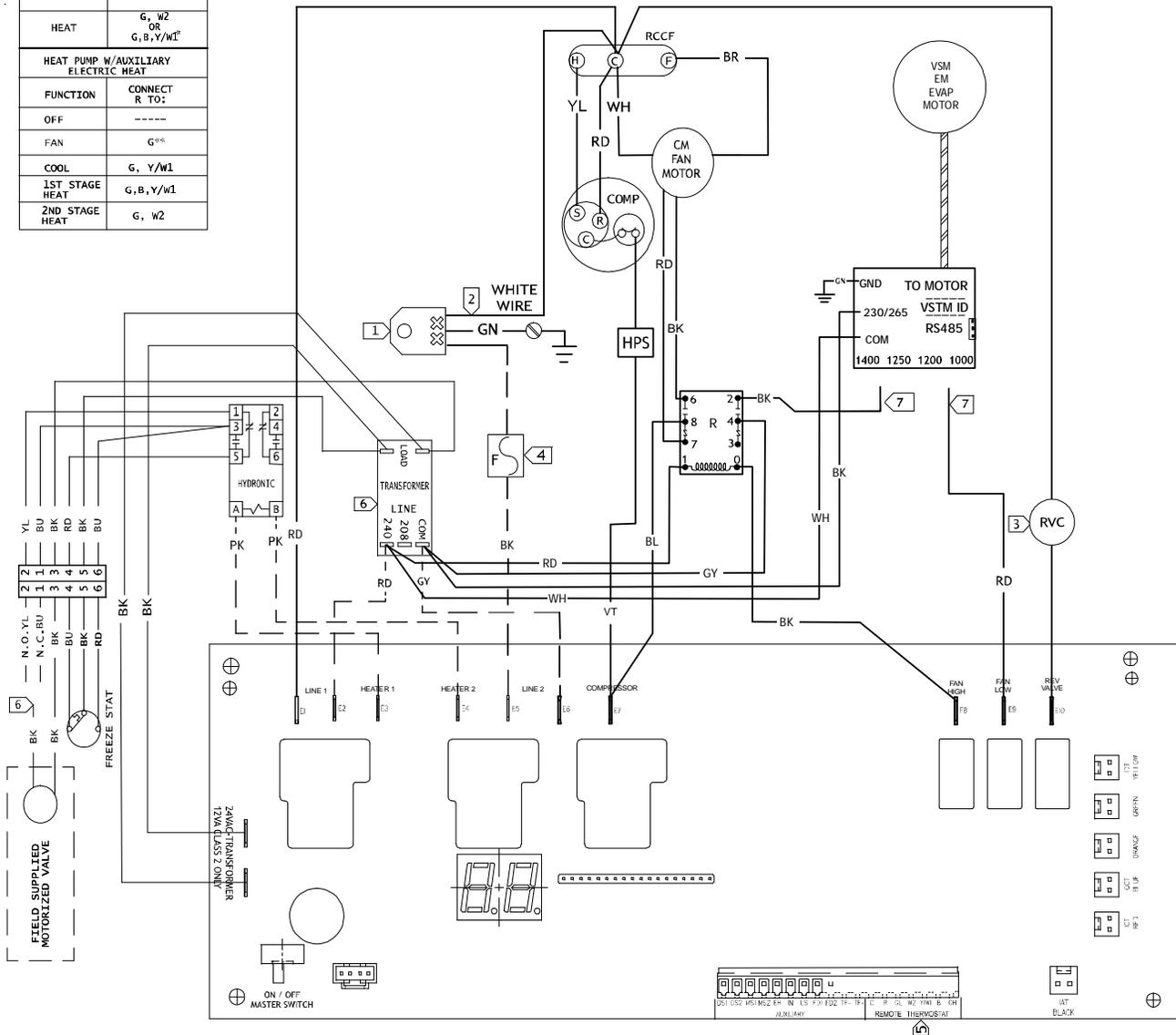
# SCHEMATICS

# PTH\*\*\*G\*[H]\*\*\*A\* (ID MOTOR DC; OD MOTOR 2 SPEED PSC) HYDRONIC

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

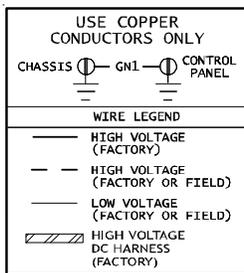
**WARNING**  
HIGH VOLTAGE  
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.



**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 230V & 115 V, CONNECT POWER CORD TO LINE 2.
- 5** FOR REMOTE OPERATION, SEE CONFIGURATION CHART.
- 6** 265V AND 115V TRANSFORMER NOT SHOWN.
- 7** SEE TABLE FOR MOTOR SPEED SELECTION.

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



Indoor Motor Speed Selection				
Model Starts With	High Speed VSTM Black		Low Speed VSTM Red	
PTH074G(00 to 35)	1250	M3	1000	M4
PTH093G(00 to 35)	1200	M3	1000	M4
PTH093G50	1400	M1	1250	M2
PTH094G(00 to 35)	1200	M3	1000	M4
PTH094G50	1400	M1	1250	M2
PTH123G(00 to 35)	1250	M2	1000	M4
PTH123G50	1400	M1	1250	M2
PTH124G(00 to 35)	1250	M2	1000	M4
PTH124G50	1400	M1	1250	M2

Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.

# SCHEMATICS PTH\*\*\*G\*[H/V]\*\*\*A\* (ID MOTOR DC; OD MOTOR 2 SPEED PSC)

HYDRONIC/  
POWER VENT

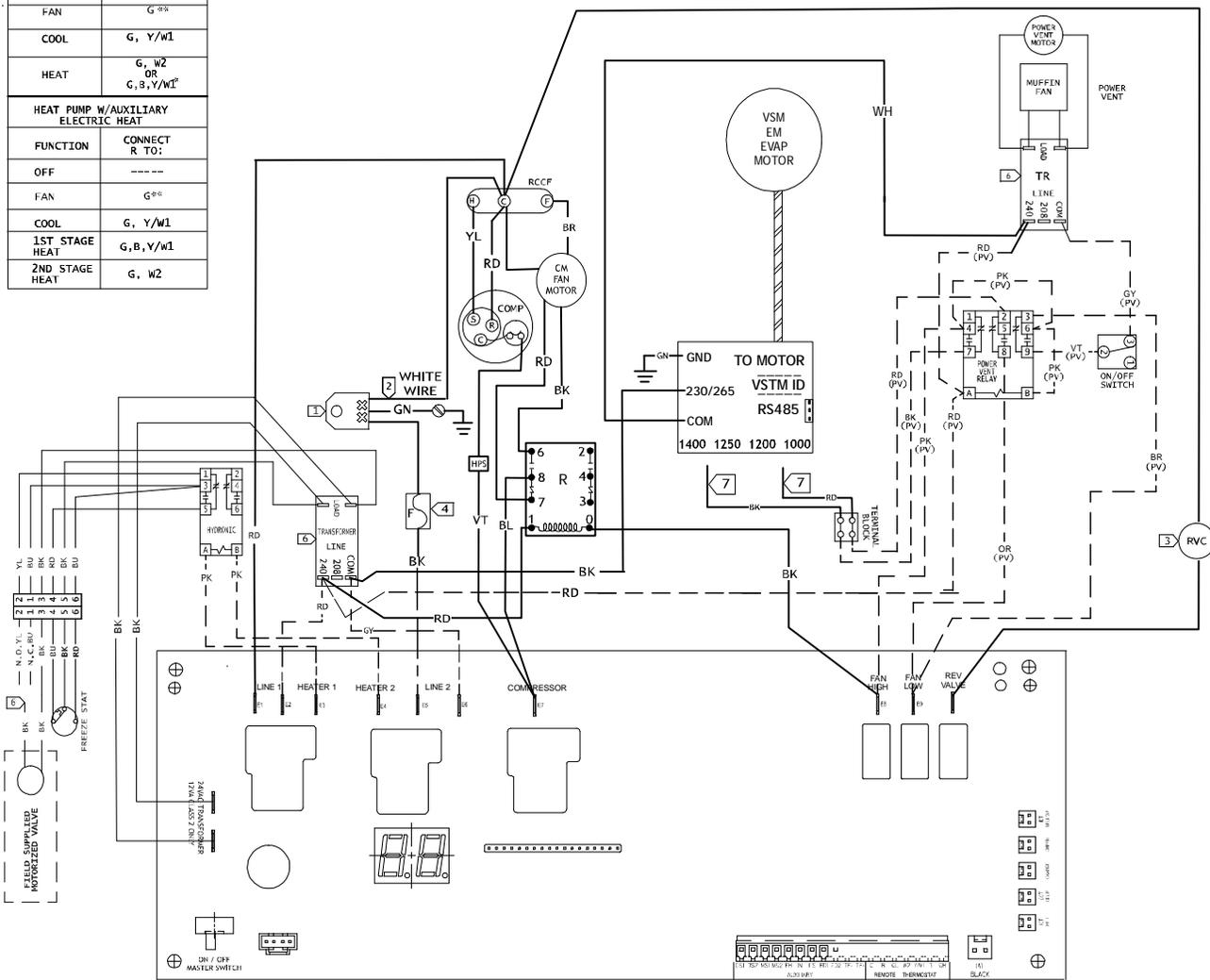
REMOTE THERMOSTAT OPERATION	
COOLING UNIT W/ELECTRIC HEAT	
FUNCTION	CONNECT R TO:
OFF	-----
FAN	G**
COOL	G, Y/W1
HEAT	G, W2 OR G, B, Y/W1*

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

**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.



**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 230V & 115 V, CONNECT POWER CORD TO LINE 2.
- 5 FOR REMOTE OPERATION, SEE CONFIGURATION CHART.
- 6 265V AND 115V TRANSFORMER NOT SHOWN.
- 7 SEE TABLE FOR MOTOR SPEED SELECTION.

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

**USE COPPER CONDUCTORS ONLY**

CHASSIS GND CONTROL PANEL

**WIRE LEGEND**

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

Indoor Motor Speed Selection				
Model Starts With	High Speed VSTM Black		Low Speed VSTM Red	
PTH074G(00 to 35)	1250	M3	1000	M4
PTH093G(00 to 35)	1200	M3	1000	M4
PTH093G50	1400	M1	1250	M2
PTH094G(00 to 35)	1200	M3	1000	M4
PTH094G50	1400	M1	1250	M2
PTH123G(00 to 35)	1250	M2	1000	M4
PTH123G50	1400	M1	1250	M2
PTH124G(00 to 35)	1250	M2	1000	M4
PTH124G50	1400	M1	1250	M2

Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.

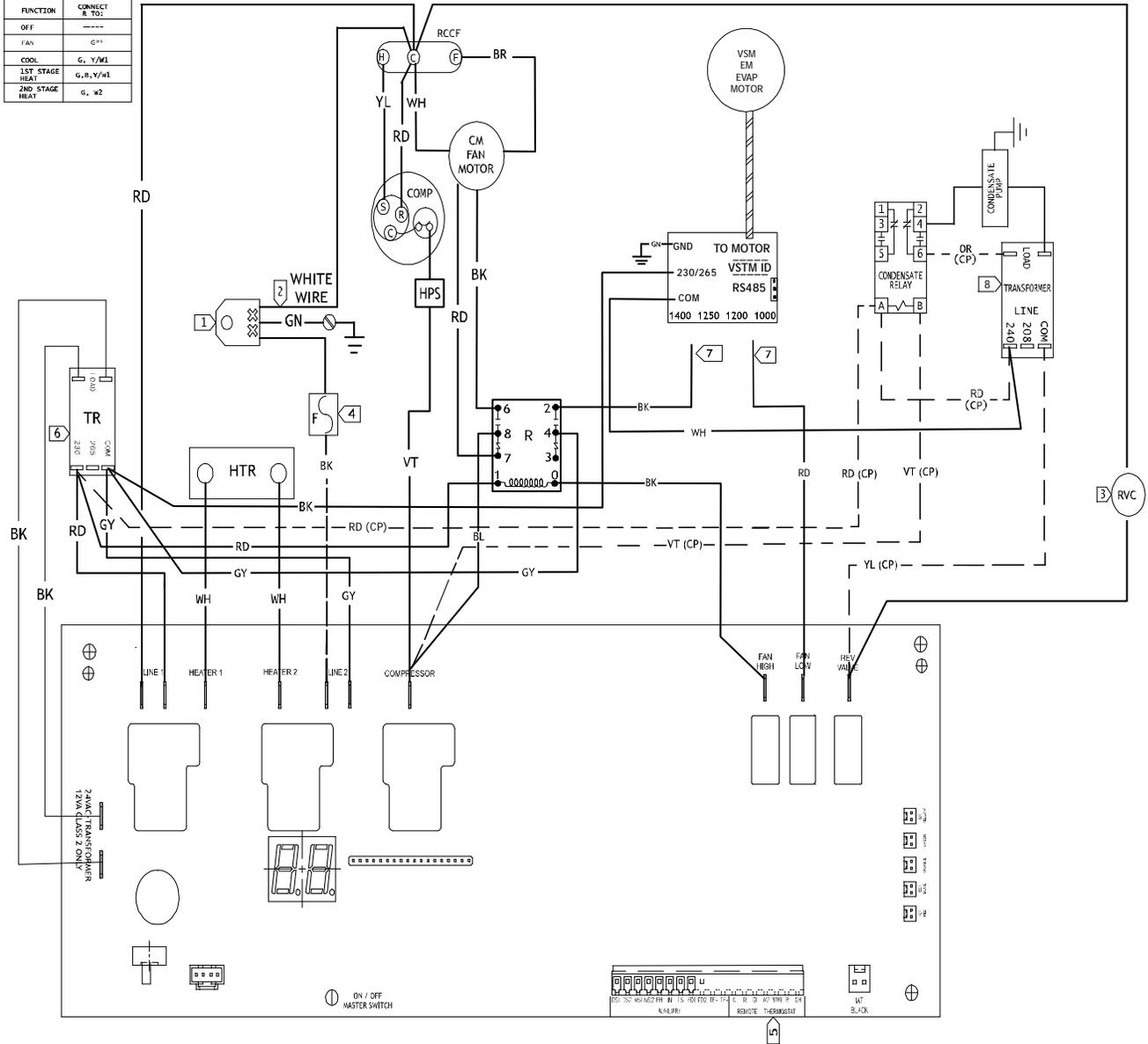
# SCHEMATICS

## PTH\*\*\*G\*\*\*\*\*A\* (ID MOTOR DC; OD MOTOR 2 SPEED PSC) CONDENSATE PUMP

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

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

**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.



- NOTES:
- WARNING: DISCONNECT POWER BEFORE SERVICING. WIRING TO UNIT MUST BE PROPERLY POLARIZED (FOR 265V) AND GROUNDED.**
  - WHITE WIRE MUST BE CONNECTED AS SHOWN.
  - ON HEAT PUMP MODELS ONLY.
  - BK ON LINE 2 WITH FUSE SHOWN CONNECTED FOR 265V. FOR 230V & 115 V, CONNECT POWER CORD TO LINE 2.
  - FOR REMOTE OPERATION, SEE CONFIGURATION CHART.
  - 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.
  - SEE TABLE FOR MOTOR SPEED SELECTION.
  - 265V AND 115V TRANSFORMER NOT SHOWN

- CM OUTDOOR FAN MOTOR
- COMP COMPRESSOR
- EM EVAPORATOR MOTOR
- FC FAN CAPACITOR
- F FUSE
- HPS HIGH PRESSURE SWITCH
- HTR HEATER ELEMENT
- R RELAY
- RCCF RUN CAPACITOR
- TR REVERSING VALVE
- RVC REVERSING VALVE
- TR TRANSFORMER
- VSM VARIABLE SPEED MOTOR
- VSTM VARIABLE SPEED TERMINAL BOARD

**USE COPPER CONDUCTORS ONLY**

CHASSIS GND CONTROL PANEL

**WIRE LEGEND**

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

Indoor Motor Speed Selection				
Model Starts With	High Speed VSTM Black		Low Speed VSTM Red	
PTH074G(00 to 35)	1250	M3	1000	M4
PTH093G(00 to 35)	1200	M3	1000	M4
PTH093G50	1400	M1	1250	M2
PTH094G(00 to 35)	1200	M3	1000	M4
PTH094G50	1400	M1	1250	M2
PTH123G(00 to 35)	1250	M2	1000	M4
PTH123G50	1400	M1	1250	M2
PTH124G(00 to 35)	1250	M2	1000	M4
PTH124G50	1400	M1	1250	M2

Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.

# SCHEMATICS

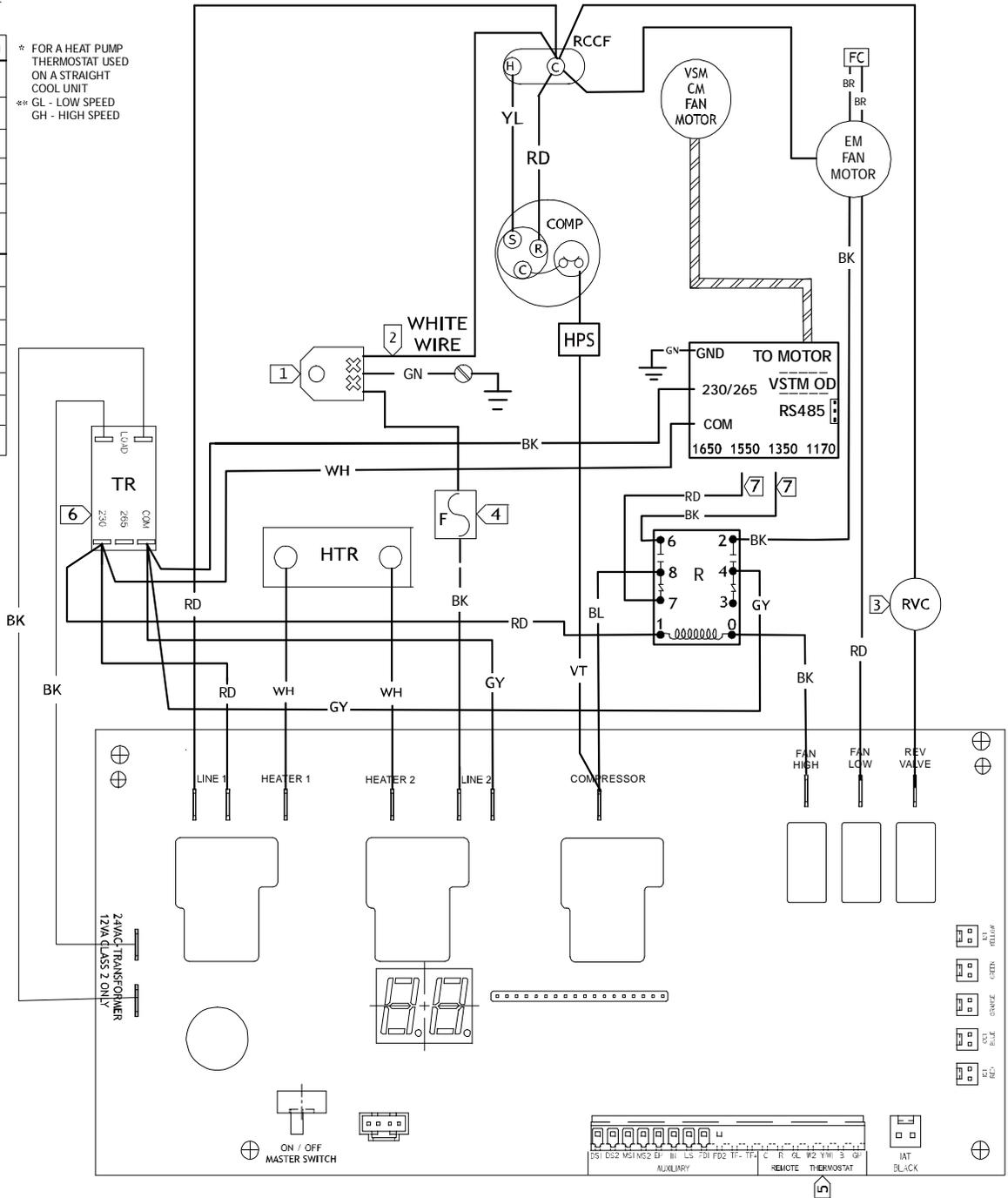
PTH\*\*G\*\*\*\*A\* (ID MOTOR 2 SPEED PSC; OD MOTOR DC)  
 DRY\*\*G\*\*AXXX\*\*

STANDARD

**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.

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:**

- WARNING:** DISCONNECT POWER BEFORE SERVICING. WIRING TO UNIT MUST BE PROPERLY POLARIZED (FOR 265V) AND GROUNDED.
- WHITE WIRE MUST BE CONNECTED AS SHOWN.
- ON HEAT PUMP MODELS ONLY.
- BK ON LINE 2 WITH FUSE SHOWN CONNECTED FOR 265V. FOR 230V & 115 V, CONNECT POWER CORD TO LINE 2.
- FOR REMOTE OPERATION, SEE CONFIGURATION CHART.
- 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.
- SEE TABLE FOR MOTOR SPEED SELECTION.

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

**USE COPPER CONDUCTORS ONLY**

CHASSIS  $\ominus$  GN1  $\ominus$  CONTROL PANEL

**WIRE LEGEND**

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

Outdoor Motor Speed Selection				
Model Starts With	High Speed VSTM Black	Low Speed VSTM Red		
PTH073G (00 to 35)	1350	M3	1170	M4
DRY093G (00 to 35)	1350	M3	1170	M4
DRY094G (00 to 35)	1350	M3	1170	M4

Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.

# SCHEMATICS

PTH[07\*/09\*/12\*/15\*]G[15/25/35/50][D/V]\*\*\*A\*

DRY\*\*\*G\*\*\*XXX\*\*

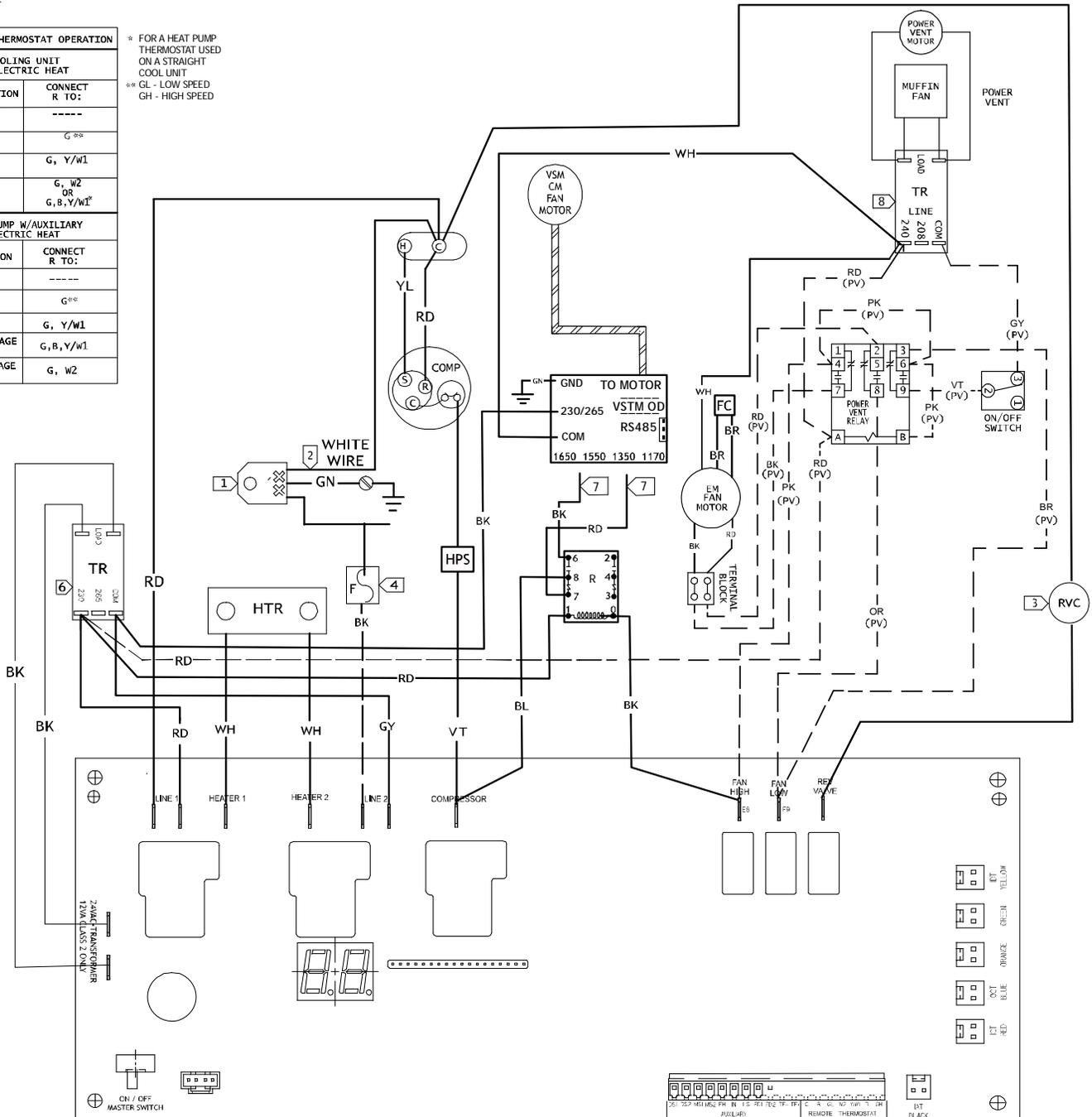
**WARNING**

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.

POWER DOOR/  
VENT

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:
- WARNING: DISCONNECT POWER BEFORE SERVICING. WIRING TO UNIT MUST BE PROPERLY POLARIZED (FOR 265V) AND GROUNDED.
  - WHITE WIRE MUST BE CONNECTED AS SHOWN.
  - ON HEAT PUMP MODELS ONLY.
  - BK ON LINE 2 WITH FUSE SHOWN CONNECTED FOR 265V. FOR 230V & 115 V, CONNECT POWER CORD TO LINE 2.
  - FOR REMOTE OPERATION, SEE CONFIGURATION CHART.
  - 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.
  - SEE TABLE FOR MOTOR SPEED SELECTION.
  - > 265V AND 115V TRANSFORMER NOT SHOWN.

CM OUTDOOR FAN MOTOR  
COMP COMPRESSOR  
EM EVAPORATOR MOTOR  
FC FAN CAPACITOR  
F FUSE  
HPS HIGH PRESSURE SWITCH  
HTR HEATER ELEMENT  
R RELAY  
RCCF RUN CAPACITOR  
RVC REVERSING VALVE  
TR TRANSFORMER  
VSM VARIABLE SPEED MOTOR  
VSTM VARIABLE SPEED TERMINAL BOARD

USE COPPER CONDUCTORS ONLY

CHASSIS GND CONTROL PANEL

WIRE LEGEND

— HIGH VOLTAGE (FACTORY)

- - - HIGH VOLTAGE (FACTORY OR FIELD)

— LOW VOLTAGE (FACTORY OR FIELD)

HIGH VOLTAGE DC HARNESS (FACTORY)

Outdoor Motor Speed Selection				
Model Starts With	High Speed VSTM Black	Low Speed VSTM Red		
PTH073G (00 to 35)	1350 M3	1170 M4		
DRY093G (00 to 35)	1350 M3	1170 M4		
DRY094G (00 to 35)	1350 M3	1170 M4		

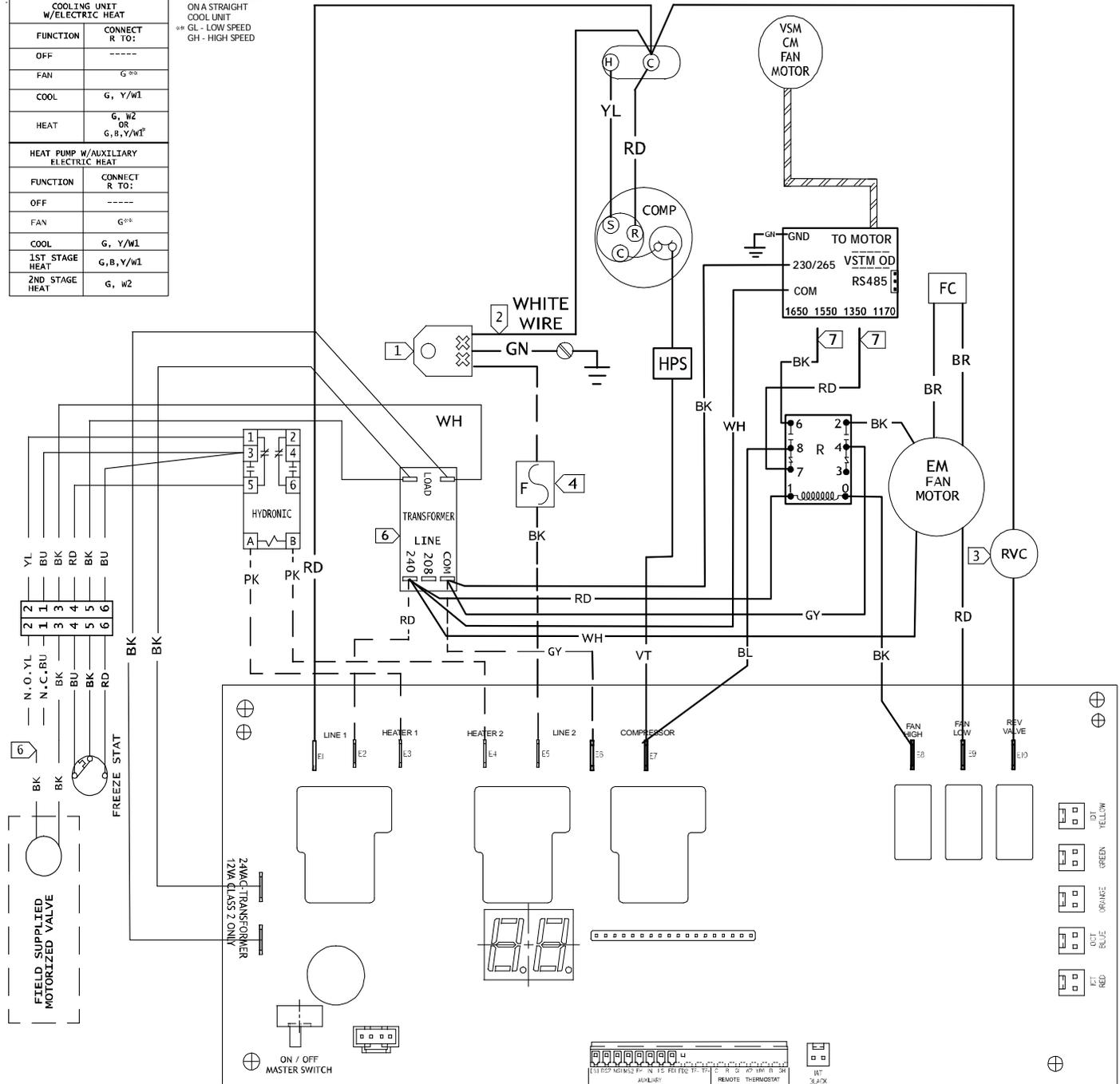
Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.

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.

REMOTE THERMOSTAT OPERATION	
COOLING UNIT W/ELECTRIC HEAT	
FUNCTION	CONNECT R TO:
OFF	-----
FAN	G <sup>265</sup>
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 <sup>265</sup>
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 230V & 115 V, CONNECT POWER CORD TO LINE 2.**
  - 5 **FOR REMOTE OPERATION, SEE CONFIGURATION CHART.**
  - 6 **265V AND 115V TRANSFORMER NOT SHOWN.**
  - 7 **SEE TABLE FOR MOTOR SPEED SELECTION.**

- CM OUTDOOR FAN MOTOR
- COMP COMPRESSOR
- EM EVAPORATOR MOTOR
- FC FAN CAPACITOR
- F FUSE
- HPS HIGH PRESSURE SWITCH
- HTR HEATER ELEMENT
- R RELAY
- RCCF RUN CAPACITOR FOR COMPRESSOR, ANY FAN
- TR TRANSFORMER
- RVC REVERSING VALVE
- VSM VARIABLE SPEED MOTOR
- VSTM VARIABLE SPEED TERMINAL BOARD

USE COPPER CONDUCTORS ONLY

CHASSIS GND CONTROL PANEL

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WIRE LEGEND

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

Outdoor Motor Speed Selection				
Model Starts With	High Speed VSTM Black		Low Speed VSTM Red	
PTH073G (00 to 35)	1350	M3	1170	M4

Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.

# SCHEMATICS

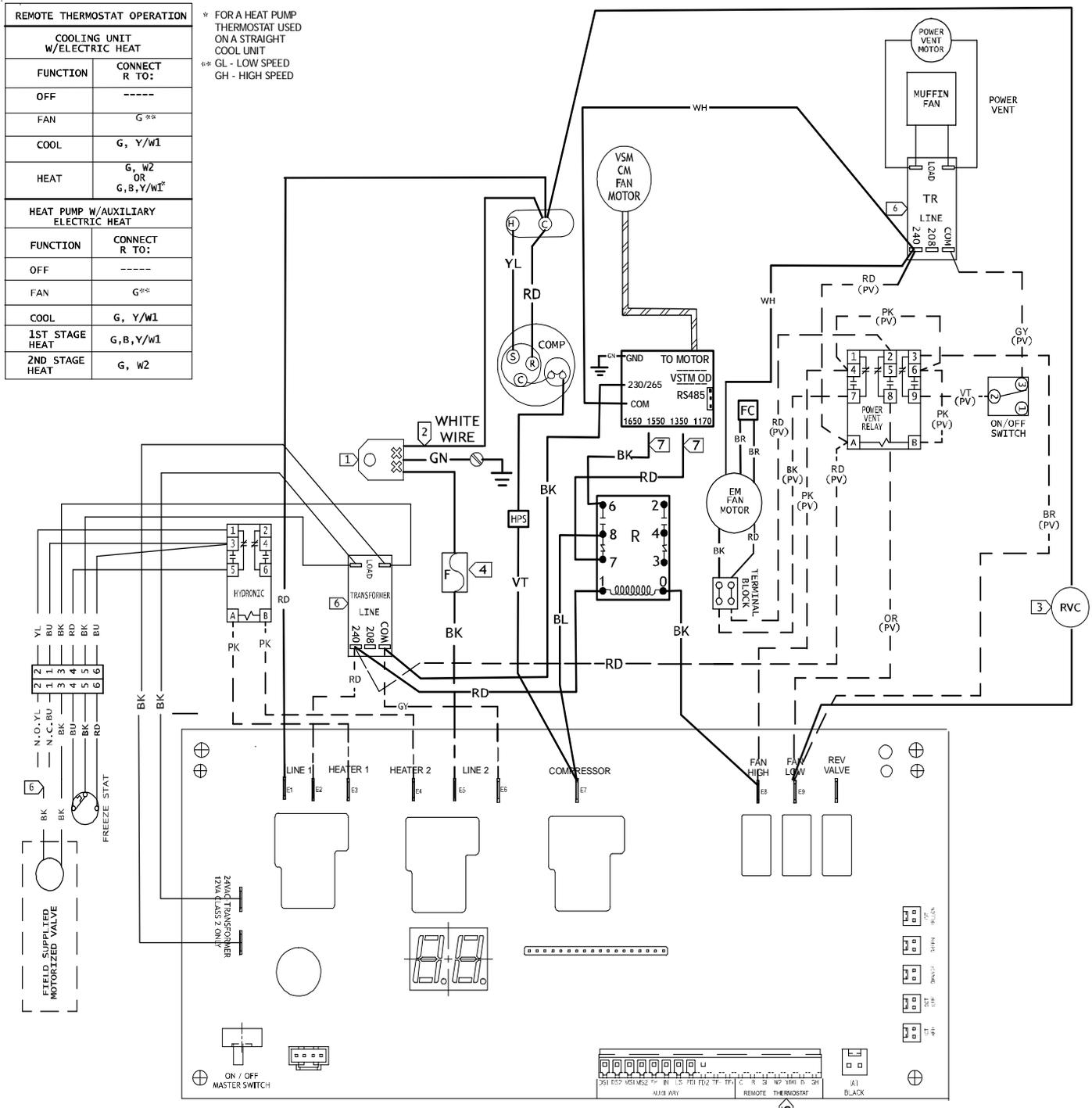
PTH[07\*/09\*/12\*/15\*]G[15/25/35/50][H/V]\*\*\*A\*

HYDRONIC/  
POWER VENT

**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.

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:**
- WARNING: DISCONNECT POWER BEFORE SERVICING. WIRING TO UNIT MUST BE PROPERLY POLARIZED (FOR 265V) AND GROUNDED.**
  - WHITE WIRE MUST BE CONNECTED AS SHOWN.
  - ON HEAT PUMP MODELS ONLY.
  - BK ON LINE 2 WITH FUSE SHOWN CONNECTED FOR 265V. FOR 230V & 115 V, CONNECT POWER CORD TO LINE 2.
  - FOR REMOTE OPERATION, SEE CONFIGURATION CHART.
  - 265V AND 115V TRANSFORMER NOT SHOWN.
  - SEE TABLE FOR MOTOR SPEED SELECTION.

- CM OUTDOOR FAN MOTOR
- COMP COMPRESSOR
- EM EVAPORATOR MOTOR
- FC FAN CAPACITOR
- F FUSE
- HPS HIGH PRESSURE SWITCH
- HTR HEATER ELEMENT
- R RELAY
- RCCF RUN CAPACITOR FOR COMPRESSOR, ANY FAN
- RVC REVERSING VALVE
- TR TRANSFORMER
- 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)

Outdoor Motor Speed Selection				
Model Starts With	High Speed VSTM Black	Low Speed VSTM Red		
PTH073G (00 to 35)	1350	M3	1170	M4

Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.

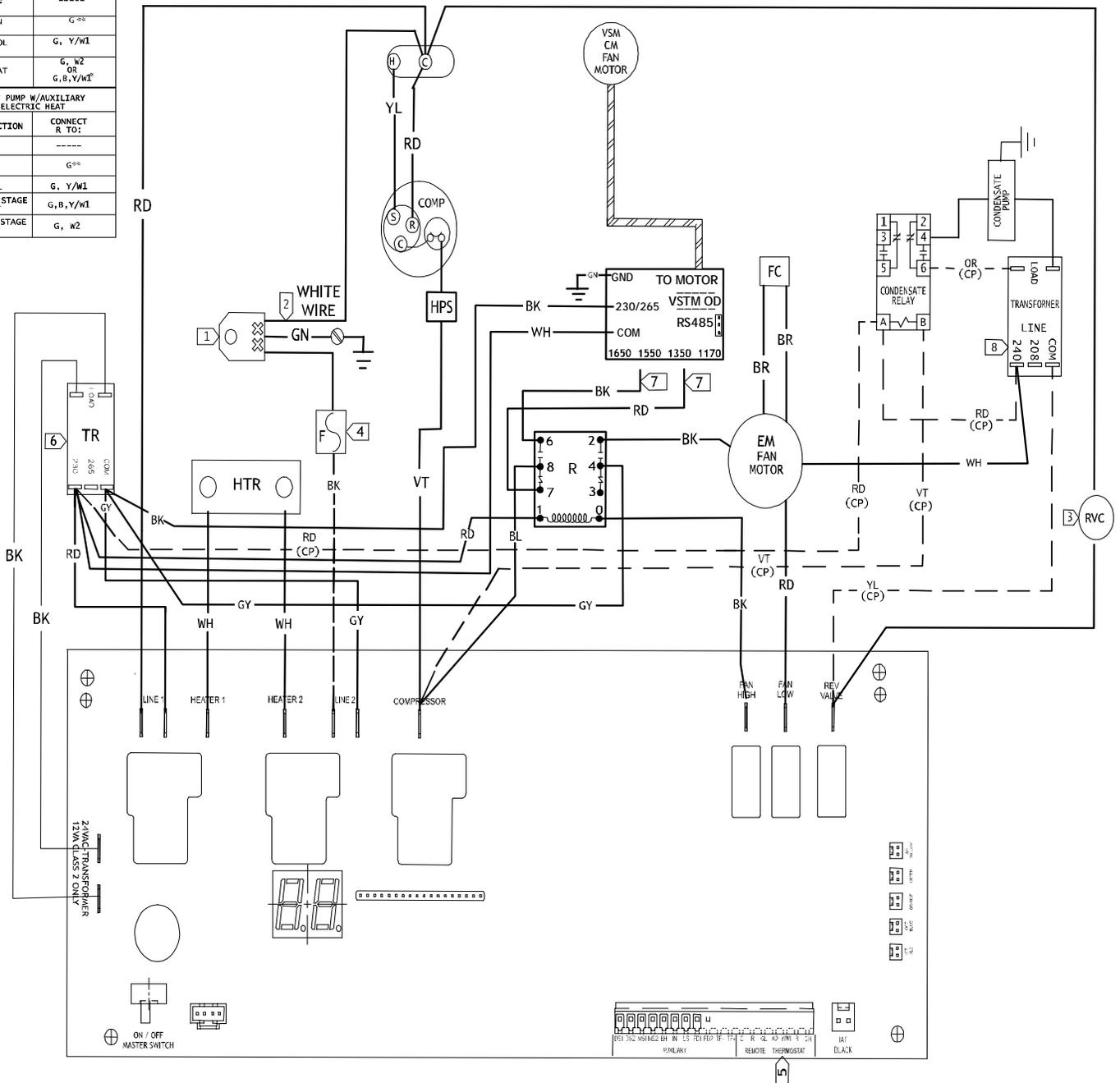
# SCHEMATICS PTH[07\*/09\*/12\*/15\*]G[15/25/35/50]P\*\*\*A\* CONDENSATE PUMP

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.

REMOTE THERMOSTAT OPERATION	
COOLING UNIT W/ELECTRIC HEAT	
FUNCTION	CONNECT R TO:
OFF	-----
FAN	G <sup>90</sup>
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 <sup>90</sup>
COOL	G, Y/W1
1ST STAGE HEAT	G, B, Y/W1
2ND STAGE HEAT	G, W2

90 FOR A HEAT PUMP THERMOSTAT USED ON A STRAIGHT COOL UNIT  
99 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 230V & 115V, CONNECT 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 265V AND 115V TRANSFORMER NOT SHOWN.

- CM OUTDOOR FAN MOTOR
- COMP COMPRESSOR
- EM EVAPORATOR MOTOR
- FC FAN CAPACITOR
- F FUSE
- HPS HIGH PRESSURE SWITCH
- HTR HEATER ELEMENT
- R RELAY
- RCCF RUN CAPACITOR FOR COMPRESSOR, ANY FAN
- RVC REVERSING VALVE
- TR TRANSFORMER
- VSM VARIABLE SPEED MOTOR
- VSTM VARIABLE SPEED TERMINAL BOARD

USE COPPER CONDUCTORS ONLY

CHASSIS 
GN1 
CONTROL PANEL

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WIRE LEGEND

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

Outdoor Motor Speed Selection				
Model Starts With	High Speed VSTM Black		Low Speed VSTM Red	
PTH073G (00 to 35)	1350	M3	1170	M4

Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.