

Service and Troubleshooting

PACKAGE TERMINAL AIR CONDITIONER / HEAT PUMP STANDARD AND REMOTE APPLICATIONS WITH LED CONTROLBOARD R32 AND 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.

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.**



WARNING

ONLY PERSONNEL THAT HAVE BEEN TRAINED TO INSTALL, ADJUST, SERVICE, MAINTENANCE OR REPAIR (HEREIN-AFTER, "SERVICE") THE EQUIPMENT SPECIFIED IN THIS MANUAL SHOULD SERVICE THE EQUIPMENT. THE MANUFACTURER WILL NOT BE RESPONSIBLE FOR ANY INJURY OR PROPERTY DAMAGE ARISING FROM IMPROPER SERVICE OR SERVICE PROCEDURES. IF YOU SERVICE THIS UNIT, YOU ASSUME RESPONSIBILITY FOR ANY INJURY OR PROPERTY DAMAGE WHICH MAY RESULT. IN ADDITION, IN JURISDICTIONS THAT REQUIRE ONE OR MORE LICENSES TO SERVICE THE EQUIPMENT SPECIFIED IN THIS MANUAL, ONLY LICENSED PERSONNEL SHOULD SERVICE THE EQUIPMENT.

IMPROPER INSTALLATION, ADJUSTMENT, SERVICING, MAINTENANCE OR REPAIR OF THE EQUIPMENT SPECIFIED IN THIS MANUAL, OR ATTEMPTING TO INSTALL, ADJUST, SERVICE OR REPAIR THE EQUIPMENT SPECIFIED IN THIS MANUAL WITHOUT PROPER TRAINING MAY RESULT IN PRODUCT DAMAGE, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

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WARNING

DO NOT BYPASS SAFETY DEVICES.

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January 2023

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IMPORTANT INFORMATION

This device, which was assembled by Daikin Comfort Technologies Manufacturing, L.P., contains a component that is classified as an intentional radiator. This intentional radiator has been certified by the FCC: FCC ID TF7M90-1000. And this international radiator has an Industry Canada ID: IC 27830-M901C1000.

The manufacturer of the intentional radiator (model no. M90H or M90S) or FCC ID:TF-TF7M90-1000 is Everex Communications Inc, which can be contacted by (510)-687-0075 (www.everexcomm.net).

This device complies with Part 15 of the FCC's Rules. Operation of this device is subject to two conditions:

- (1) This device may not cause harmful interference; and
- (2) This device must accept any interference received, including interference that may cause undesirable operation.

And this device meets the applicable Industry Canada technical specification.

The FCC responsible party is Daikin Comfort Technologies Manufacturing, L.P. , and may be contacted by calling 713-861-2500, or at 19001 Kermier Rd., Waller TX 77484. (www.DaikinComfort.com)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC radiation exposure limits. To ensure compliance, human proximity to the antenna shall not be less than 20 cm during normal operations.

NOTE: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

IMPORTANT NOTICES

RECOGNIZE SAFETY SYMBOLS, WORDS AND LABELS

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.**



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 OCCURRENCE.

SAFE REFRIGERANT HANDLING

While these items will not cover every conceivable situation, they should serve as a useful guide.



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

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

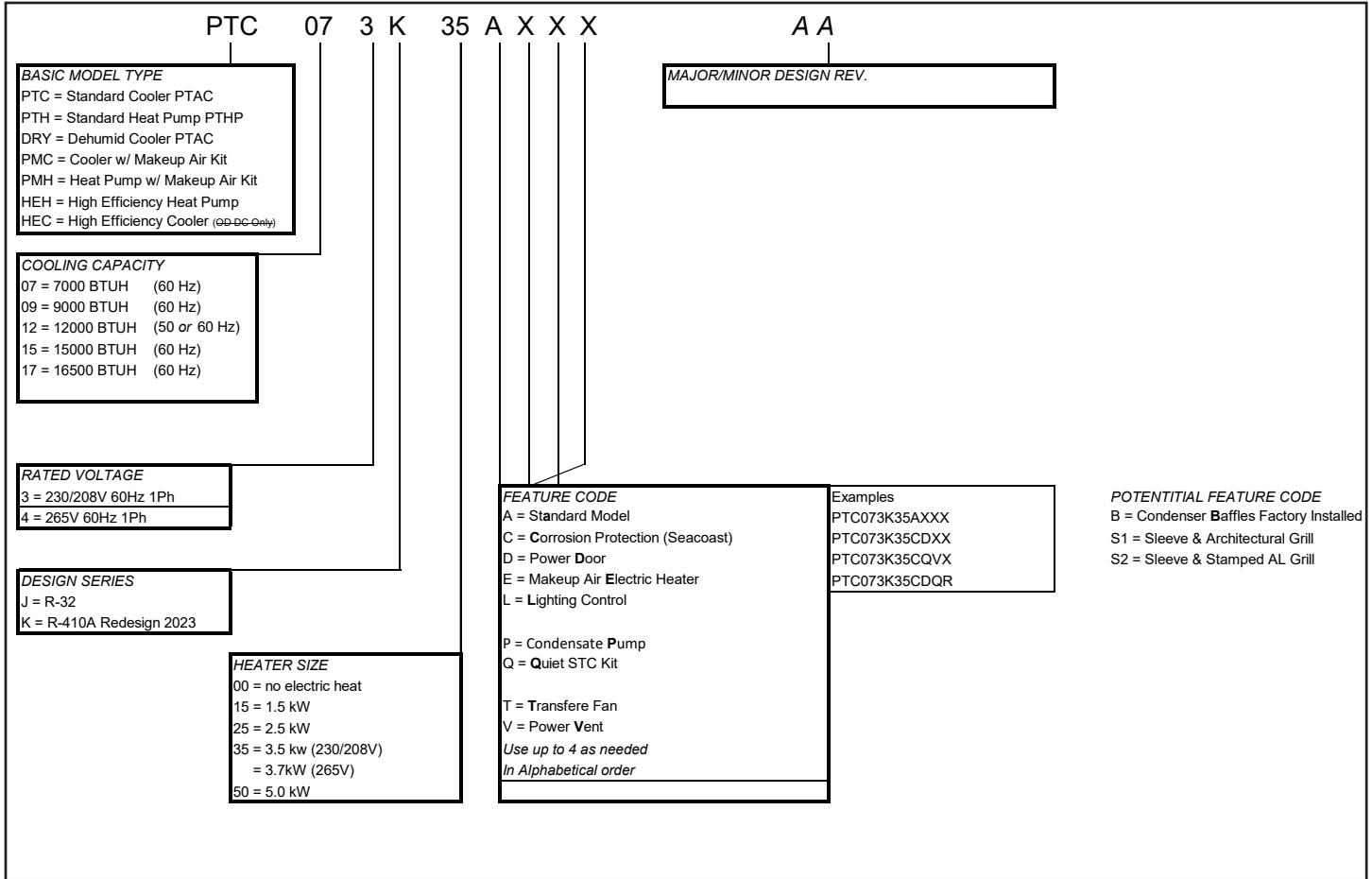
THE MANUFACTURER WILL NOT BE RESPONSIBLE FOR ANY INJURY OR PROPERTY DAMAGE ARISING FROM IMPROPER SERVICE OR SERVICE PROCEDURES. IF YOU INSTALL OR PERFORM SERVICE ON THIS UNIT, YOU ASSUME RESPONSIBILITY FOR ANY PERSONAL INJURY OR PROPERTY DAMAGE WHICH MAY RESULT. MANY JURISDICTIONS REQUIRE A LICENSE TO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

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

NOMENCLATURE



Package Terminal Air Conditioner	
Model/Revision	Description
PT***** AA	Redesign unit with 2 fan motors and R410A refrigerant
PT***** AC	2 Speed Condenser Fan Motor
PT***** BA	M70 Control Board
PT***** EA	Release of units with low displacement compressor 7 and 12 K HP PTAC models. Only for standard models and high efficiency models
PT***** GA	Transition from Fayetteville to Houston built product

SPECIFICATIONS

PMC/PMH SERIES

Model ^{1,6,8,9}	PMC073J00AXXX	PMC093J00AXXX	PMC123J00AXXX	PMC153J00AXXX
Voltage ^{1,3}	230/208	230/208	230/208	230/208
Capacity (BTU/h)	6,800/6,700	9,000/8,700	11,800/11,700	14,500/14,400
Amps ¹⁰	3.2/3.2	4.3/4.3	6.0/6.0	7.1/7.1
Watts ¹⁰	565/550	775/760	1,070/1,060	1,460/1,450
EER	12.0/12.1	11.6/11.4	11.0/11.0	9.9/9.9
Kit Fresh Air, CFM	25-35	25-35	25-35	25-35
Kit Dehumidifier (Oz/Hr)	5	5	5	5

Model ^{1,6,8,9}	PMC073K00AXXX	PMC093K00AXXX	PMC123K00AXXX	PMC153K00AXXX
Voltage ^{1,3}	230/208	230/208	230/208	230/208
Capacity (BTU/h)	6,800/6,700	9,000/8,700	11,800/11,700	14,500/14,400
Amps ¹⁰	3.2/3.2	4.3/4.3	6.0/6.0	7.1/7.1
Watts ¹⁰	565/550	775/760	1,070/1,060	1,460/1,450
EER	12.0/12.1	11.6/11.4	11.0/11.0	9.9/9.9
Kit Fresh Air, CFM	25-35	25-35	25-35	25-35
Kit Dehumidifier (Oz/Hr)	5	5	5	5

NOTES:

- ¹ All 265-volt models must use an Amana® brand sub-base (PTSB4**E) or an Amana® brand hard-wire kit (PTPWHWK4).
- ² 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.
- ³ Minimum voltage on 265-volt models is 239 volts; maximum is 292 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 all Amana® brand 265-volt chassis). See heater perform
- ⁵ Heating capacity and efficiency based on unit operation without condensate pump.
- ⁶ Specify two-digit heater kW size to complete model number.
- ⁷ R-410A / R32 refrigerant used in all systems. R-134A used in Kit Fresh Air.
- ⁸ All units meet or exceed ASHRAE 90.1 standards.
- ⁹ All units less than 250 volts have a Leak Current Detector Interrupter (LCDI) power cord and meet UL 484 standards.
- ¹⁰ 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 J/K SERIES

Model ^{1,7,9,10}	PTC073J00AXXX	PTC074J00AXXX	PTC093J00AXXX	PTC094J00AXXX	PTC123J00AXXX	PTC124J00AXXX	PTC153J00AXXX	PTC154J00AXXX	
Voltage ^{1,3}	230/208	265	230/208	265	230/208	265	230/208	265	
Capacity (BTU/h)	7,000/7,000	7,000	9,200/9,000	9,200	11,900/11,600	11,800	14,800/14,500	14,800	
Amps ¹¹	3.1/3.1	2.7	4.1/4.1	3.6	6.1/6.1	4.8	7.0/7.0	6.1	
Watts ¹¹	580/560	585	790/765	805	1,080/1,060	1,170	1,480/1,450	1,480	
EER	12.8/12.8	13	12.2/12.1	11.9	11.5/11.4	11.2	10.4/10.3	10.7	
Unit without Electric Heater									
Min. Circuit Amps ^{2,5,11}	3.7	3.2	4.9	4.4	7.4	5.8	8.5	7.4	
CFM (Cool/Wet Coil)	High	330	330	290	290	330	330	400	400
	Low	245	245	264	264	245	245	314	314
CFM (Dry)	High	360	370	310	310	370	370	360	360
	Low	270	270	282	282	270	270	332	332
Ventilated Air, CFM (Fan Only)**	40*	65*	65**	65**	40*	40**	65**	65**	
Dehumidification (Pints/Hr.)	1.7	1.7	2.2	2.2	1.7	1.7	4.4	4.4	
Net Weight (lbs.)	106	103	102	102	108	108	113	113	
Ship Weight (lbs.)	115	115	117	117	125	125	130	130	

Model ^{1,7,9,10}	PTC073K00AXXX	PTC074K00AXXX	PTC093K00AXXX	PTC094K00AXXX	PTC123K00AXXX	PTC124K00AXXX	PTC153K00AXXX	PTC154K00AXXX	
Voltage ^{1,3}	230/208	265	230/208	265	230/208	265	230/208	265	
Capacity (BTU/h)	7,000/7,000	7,000	9,200/9,000	9,200	11,900/11,600	11,800	14,800/14,500	14,800	
Amps ¹¹	3.1/3.1	2.8	4.2/4.2	3.6	6.1/6.1	4.9	7.1/7.1	6.2	
Watts ¹¹	580/560	585	790/765	810	1,080/1,060	1,170	1,480/1,450	1,480	
EER	12.0/12.4	11.9	11.6/11.7	11.3	11.0/11.0	10.7	10.0/10.0	10	
Unit without Electric Heater									
Min. Circuit Amps ^{2,5,11}	3.7	3.2	4.9	4.4	7.4	5.8	8.5	7.4	
CFM (Cool/Wet Coil)	High	330	340	330	330	330	400	400	
	Low	245	245	264	264	245	245	314	314
CFM (Dry)	High	360	360	310	310	360	360	400	400
	Low	270	270	282	282	270	270	332	332
Ventilated Air, CFM (Fan Only)**	40*	65*	65**	65**	40*	40**	65**	65**	
Dehumidification (Pints/Hr.)	1.7	1.7	2.2	2.2	1.7	1.7	4.4	4.4	
Net Weight (lbs.)	106	103	102	102	108	108	113	113	
Ship Weight (lbs.)	115	115	117	117	125	125	130	130	

* INFORMATION IN THIS MANUAL APPLIES ONLY TO THE BA REVISION OF 0902G*** MODEL.

** ACTUAL VENT CFM PERFORMANCE WILL VARY DUE TO APPLICATION AND INSTALLATION CONDITIONS.

NOTES:

¹ All 265-volt models must use an Amana® brand sub-base (PTSB4**E) or an Amana® brand hard-wire kit (PTPWHWK4).

² 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.

³ Minimum voltage on 265-volt models is 239 volts; maximum is 292 volts.

⁴ Minimum voltage on 115-volt models is 104 volts; maximum is 127 volts.

⁵ 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 perform

⁶ Heating capacity and efficiency based on unit operation without condensate pump.

⁷ Specify two-digit heater kW size to complete model number.

⁸ R-410A / R32 refrigerant used in all systems.

⁹ All units meet or exceed ASHRAE 90.1 standards.

¹⁰ All units less than 250 volts have a Leak Current Detector Interrupter (LCDI) power cord and meet UL 484 standards.

¹¹ 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

HEC J/K SERIES

Model ^{1,7,9,10}		HEC073J00AXXX	HEC074J00AXXX	HEC093J00AXXX	HEC094J00AXXX	HEC123J00AXXX	HEC124J00AXXX	HEC153J00AXXX	HEC154J00AXXX
Voltage ^{1,3}		230/208	265	230/208	265	230/208	265	230/208	265
Capacity (BTU/h)		7,000/7,000	7,000	9,200/9,000	9,200	11,700/11,400	11,800	14,800/14,500	14,800
Amps ¹¹		3.1/3.1	2.7	4.1/4.1	3.6	6.1/6.1	4.8	7.0/7.0	6.1
Watts ¹¹		510/505	500	715/700	720	980/955	1,015	1380/1340	1,320
EER		13.8/13.6	12.7	12.8/12.8	11.9	11.9/11.9	11.1	10.8/10.7	10.3
Unit without Electric Heater									
Min. Circuit Amps ^{2,5,11}		3.7	3.2	4.9	4.4	7.4	5.8	8.5	7.4
CFM (Cool/Wet Coil)	High	330	330	290	290	330	330	400	400
	Low	245	245	264	264	245	245	314	314
CFM (Dry)	High	360	370	310	310	370	370	360	360
	Low	270	270	282	282	270	270	332	332
Ventilated Air, CFM (Fan Only)**		40*	65*	65**	65**	40*	40**	65**	65**
Dehumidification (Pints/Hr.)		1.7	1.7	2.2	2.2	1.7	1.7	4.4	4.4
Net Weight (lbs.)		106	103	102	102	108	108	113	113
Ship Weight (lbs.)		115	115	117	117	125	125	130	130

Model ^{1,7,9,10}		HEC073K00AXXX	HEC074K00AXXX	HEC093K00AXXX	HEC094K00AXXX	HEC123K00AXXX	HEC124K00AXXX	HEC153K00AXXX	HEC154K00AXXX
Voltage ^{1,3}		230/208	265	230/208	265	230/208	265	230/208	265
Capacity (BTU/h)		7,000/7,000	7,000	9,200/9,000	9,200	11,700/11,400	11,800	14,800/14,500	14,800
Amps ¹¹		3.1/3.1	2.8	4.2/4.2	3.6	6.1/6.1	4.9	7.1/7.1	6.2
Watts ¹¹		520/530	550	760/735	770	1025/990	1,060	1435/1405	1,435
EER		13	11.9	11.6/11.7	11.3	11.0/11.0	10.7	10.0/10.0	10
Unit without Electric Heater									
Min. Circuit Amps ^{2,5,11}		3.7	3.2	4.9	4.4	7.4	5.8	8.5	7.4
CFM (Cool/Wet Coil)	High	330	340	330	330	330	330	400	400
	Low	245	245	264	264	245	245	314	314
CFM (Dry)	High	360	360	310	310	360	360	400	400
	Low	270	270	282	282	270	270	332	332
Ventilated Air, CFM (Fan Only)**		40*	65*	65**	65**	40*	40**	65**	65**
Dehumidification (Pints/Hr.)		1.7	1.7	2.2	2.2	1.7	1.7	4.4	4.4
Net Weight (lbs.)		106	103	102	102	108	108	113	113
Ship Weight (lbs.)		115	115	117	117	125	125	130	130

* INFORMATION IN THIS MANUAL APPLIES ONLY TO THE BA REVISION OF 0902G*** MODEL.

** ACTUAL VENT CFM PERFORMANCE WILL VARY DUE TO APPLICATION AND INSTALLATION CONDITIONS.

NOTES:

- ¹ All 265-volt models must use an Amana® brand sub-base (PTSB4**E) or an Amana® brand hard-wire kit (PTPWHWK4).
- ² 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.
- ³ Minimum voltage on 265-volt models is 239 volts; maximum is 292 volts.
- ⁴ Minimum voltage on 115-volt models is 104 volts; maximum is 127 volts.
- ⁵ 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 perform
- ⁶ Heating capacity and efficiency based on unit operation without condensate pump.
- ⁷ Specify two-digit heater kW size to complete model number.
- ⁸ R-410A / R32 refrigerant used in all systems.
- ⁹ All units meet or exceed ASHRAE 90.1 standards.
- ¹⁰ All units less than 250 volts have a Leak Current Detector Interrupter (LCDI) power cord and meet UL 484 standards.
- ¹¹ 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 J/K SERIES

COOLING									
Model ^{1,7,9,10}	PTH073J00AXXX	PTH074J00AXXX	PTH093J00AXXX	PTH094J00AXXX	PTH123J00AXXX	PTH124J00AXXX	PTH153J00AXXX	PTH154J00AXXX	
Voltage ^{1,3}	230/208	265	230/208	265	230/208	265	230/208	265	
Capacity (BTU/h)	7,100/7,000	7,300	9,000/9,000	9,000	12,000/11,600	12,000	14,600/14,400	14,600	
Amps ¹¹	3.2	2.8	4	3.5	5.6	4.9	7.1	6.6	
Watts ¹¹	570/545	585	725/720	725	1,040/1,005	1,060	1,400/1,355	1,405	
EER	12.4/12.8	12.5	12.4/12.5	12.4	11.5/11.5	11.3	10.4/10.6	10.4	
HEATING									
Capacity (BTU/h)	6,300/6,100	6,500	8,200/8,000	8,200	11,000/10,800	11,500	14,300/14,000	14,100	
Amps ¹¹	3.2	2.8	4	3.5	5.6	4.9	7.1	6.6	
Watts ¹¹	510/480	545	665/650	685	980/1,030	1,020	1,350/1,320	1,375	
COP	3.6/3.7	3.5	3.6/3.6	3.5	3.3/3.3	3.3	3.1/3.1	3	
Unit without Electric Heater									
Min. Circuit Amps ^{2,5,11}	3.7	3.2	4.9	4.4	7.4	5.8	8.5	7.4	
CFM (Cool/Wet Coil)	High	330	330	290	290	330	330	400	400
	Low	245	245	264	264	245	245	314	314
CFM (Dry)	High	360	370	310	310	370	370	360	360
	Low	270	270	282	282	270	270	332	332
Ventilated Air, CFM (Fan Only)**	40*	65*	65**	65**	40*	40**	65**	65**	
Dehumidification (Pints/Hr.)	1.7	1.7	2.2	2.2	1.7	1.7	4.4	4.4	
Net Weight (lbs.)	106	103	102	102	108	108	113	113	
Ship Weight (lbs.)	115	115	117	117	125	125	130	130	

COOLING									
Model ^{1,7,9,10}	PTH073K00AXXX	PTH074K00AXXX	PTH093K00AXXX	PTH094K00AXXX	PTH123K00AXXX	PTH124K00AXXX	PTH153K00AXXX	PTH154K00AXXX	
Voltage ^{1,3}	230/208	265	230/208	265	230/208	265	230/208	265	
Capacity (BTU/h)	7,100/7,000	7,300	9,000/9,000	9,000	11,600/11,400	11,600	14,200/14,000	14,200	
Amps ¹¹	3.3	2.9	4.4	3.6	6.1	5.4	7.6	6.8	
Watts ¹¹	590/560	615	755/750	765	1,050/1,025	1,075	1,430/1,410	1,450	
EER	12/12.4	11.9	11.9/12	11.8	11/11.1	10.8	9.9/9.9	9.8	
HEATING									
Capacity (BTU/h)	6,500/6,400	6,800	8,200/8,000	8,200	10,600/10,500	10,600	13,900/13,700	13,700	
Amps ¹¹	3.3	2.9	4.4	3.6	6.1	5.4	7.6	6.8	
Watts ¹¹	560/535	585	705/685	705	970/960	970	1,355/1,335	1,340	
COP	3.4/3.5	3.4	3.4/3.4	3.4	3.2/3.2	3.2	3/3	3	
Unit without Electric Heater									
Min. Circuit Amps ^{2,5,11}	3.7	3.2	4.9	4.4	7.4	5.8	8.5	7.4	
CFM (Cool/Wet Coil)	High	330	340	330	330	330	400	400	
	Low	245	245	264	264	245	245	314	314
CFM (Dry)	High	360	360	310	310	360	400	400	
	Low	270	270	282	282	270	332	332	
Ventilated Air, CFM (Fan Only)**	40*	65*	65**	65**	40*	40**	65**	65**	
Dehumidification (Pints/Hr.)	1.7	1.7	2.2	2.2	1.7	1.7	4.4	4.4	
Net Weight (lbs.)	106	103	102	102	108	108	113	113	
Ship Weight (lbs.)	115	115	117	117	125	125	130	130	

* INFORMATION IN THIS MANUAL APPLIES ONLY TO THE BA REVISION OF 0902G*** MODEL.

** 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.
- Minimum voltage on 115-volt models is 104 volts; maximum is 127 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 perform
- Heating capacity and efficiency based on unit operation without condensate pump.
- Specify two-digit heater kW size to complete model number.
- R-410A / R32 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

HEH J/K SERIES

Model ^{1,7,9,10}		HEH073J00AXXX	HEH074J00AXXX	HEH093J00AXXX	HEH094J00AXXX	HEH123J00AXXX	HEH124J00AXXX	HEH153J00AXXX
COOLING								
Voltage ^{1,3}		230/208	265	230/208	265	230/208	265	230/208
Capacity (BTU/h)		7,100/7,100	7,300	9,000/9,000	9,100	12,000/11,600	12,100	14,500/14,400
Amps ¹¹		3	2.7	3.9	3.35	5.4	4.7	6.7
Watts ¹¹		530/515	550	690/680	700	1,015/965	1,045	1,355/1,305
EER		13.3/13.7	13.3	13/13.2	13	11.8/12	11.6	10.7/11
HEATING								
Capacity (BTU/h)		6,300/6,100	6,600	8,200/8,000	8,300	11,100/10,900	11,600	14,400/14,200
Amps ¹¹		3	2.7	3.9	3.35	5.4	4.7	6.7
Watts ¹¹		470/455	495	615/600	640	955/935	1,000	1,315/1,300
COP		3.9/3.9	3.9	3.9/3.9	3.8	3.4/3.4	3.4	3.2/3.2
Unit without Electric Heater								
Min. Circuit Amps ^{2,5,11}		3.7	3.2	4.9	4.4	7.4	5.8	8.5
CFM (Cool/Wet Coil)	High	330	330	290	290	330	330	400
	Low	245	245	264	264	245	245	314
CFM (Dry)	High	360	370	310	310	370	370	360
	Low	270	270	282	282	270	270	332
Ventilated Air, CFM (Fan Only)**		40*	65*	65**	65**	40*	40**	65**
Dehumidification (Pints/Hr.)		1.7	1.7	2.2	2.2	1.7	1.7	4.4
Net Weight (lbs.)		106	103	102	102	108	108	113
Ship Weight (lbs.)		115	115	117	117	125	125	130

Model ^{1,7,9,10}		HEH073K00AXXX	HEH74K00AXXX	HEH093K00AXXX	HEH094K00AXXX	HEH123K00AXXX	HEH124K00AXXX	HEH153K00AXXX
COOLING								
Voltage ^{1,3}		230/208	265	230/208	265	230/208	265	230/208
Capacity (BTU/h)		7,100/7100	7,200	9,000/9,000	9,100	11,600/11,400	11,600	14,200/14,000
Amps ¹¹		3.1	2.9	4.3	3.5	5.8	5.2	7.2
Watts ¹¹		545/530	575	720/705	745	1,005/990	1,065	1,390/1,370
EER		13/13.3	12.5	12.5/12.7	12.2	11.5/11.5	10.9	10.2/10.2
HEATING								
Capacity (BTU/h)		6,500/6,400	6,800	8,200/8,000	8,300	10,600/10,500	10,600	13,900/13,700
Amps ¹¹		3.1	2.9	4.3	3.5	5.8	5.2	7.2
Watts ¹¹		510/490	555	665/650	695	940/930	940	1,310/1,295
COP		3.7/3.8	3.6	3.6/3.6	3.5	3.3/3.3	3.3	3.1/3.1
Unit without Electric Heater								
Min. Circuit Amps ^{2,5,11}		3.7	3.2	4.9	4.4	7.4	5.8	8.5
CFM (Cool/Wet Coil)	High	330	340	330	330	330	330	400
	Low	245	245	264	264	245	245	314
CFM (Dry)	High	360	360	310	310	360	360	400
	Low	270	270	282	282	270	270	332
Ventilated Air, CFM (Fan Only)**		40*	65*	65**	65**	40*	40**	65**
Dehumidification (Pints/Hr.)		1.7	1.7	2.2	2.2	1.7	1.7	4.4
Net Weight (lbs.)		106	103	102	102	108	108	113
Ship Weight (lbs.)		115	115	117	117	125	125	130

NOTES:

- ¹ All 265-volt models must use an Amana® brand sub-base (PTSB4**E) or an Amana® brand hard-wire kit (PTPWHWK4).
- ² 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.
- ³ Minimum voltage on 265-volt models is 239 volts; maximum is 292 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 all Amana® brand 265-volt chassis). See heater perform
- ⁵ Heating capacity and efficiency based on unit operation without condensate pump.
- ⁶ Specify two-digit heater kW size to complete model number.
- ⁷ R-410A / R32 refrigerant used in all systems. R-134A used in Kit Fresh Air.
- ⁸ All units meet or exceed ASHRAE 90.1 standards.
- ⁹ All units less than 250 volts have a Leak Current Detector Interrupter (LCDI) power cord and meet UL 484 standards.
- ¹⁰ 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

PMH J/K SERIES

COOLING						
Model ^{1,6,8,9}	PMH073J00AXXX	PMH074J00AXXX	PMH093J00AXXX	PMH094J00AXXX	PMH123J00AXXX	PMH153J00AXXX
Voltage ^{1,3}	230/208	265	230/208	265	230/208	230/208
Capacity (BTU/h)	6,900/6,700	7,700	8,700/8,700	9,000	11,400/11,200	14,400/14,200
Amps ¹⁰	3	2.7	3.9	3.4	5.3	6.7
Watts ¹⁰	580/555	655	740/735	780	1,055/1,015	1,455/1,430
EER	11.9/12	11.7	11.7/11.8	11.6	10.8/11	9.9/9.9
HEATING						
Capacity (BTU/h)	6,200/6,100	6,500	7,800/7,600	8,000	10,600/10,400	13,900/13,700
Amps ¹⁰	3	2.7	3.9	3.4	5.3	6.7
Watts ¹⁰	560/535	585	705/685	705	970/960	1,355/1,335
COP	3.4/3.4	3.3	3.4/3.4	3.3	3.1/3.1	3/3
Kit Fresh Air, CFM	25-35	25-35	25-35	25-35	25-35	25-35
Kit Dehumidifier (Oz/Hr)	5	5	5	5	5	5

COOLING						
Model ^{1,6,8,9}	PMH073K00AXXX	PMH074K00AXXX	PMH093K00AXXX	PMH094K00AXXX	PMH123K00AXXX	PMH153K00AXXX
Voltage ^{1,3}	230/208	265	230/208	265	230/208	230/208
Capacity (BTU/h)	6,900/6,700	7,700	8,700/8,700	9,000	11,400/11,200	14,400/14,200
Amps ¹⁰	3.2	2.8	4.2	3.5	5.8	7.2
Watts ¹⁰	580/535	655	740/735	780	1,055/1,015	1,455/1,430
EER	11.9/12	11.7	11.7/11.8	11.6	10.8/11	9.9/9.9
HEATING						
Capacity (BTU/h)	6,200/6,100	6,700	7,800/7,600	8,000	10,600/10,400	13,900/13,700
Amps ¹⁰	3.2	2.8	4.2	3.5	5.8	7.2
Watts ¹⁰	560/535	585	705/685	705	970/960	1,355/1,335
COP	3.4/3.4	3.3	3.4/3.4	3.3	3.1/3.1	3/3
Kit Fresh Air, CFM	25-35	25-35	25-35	25-35	25-35	25-35
Kit Dehumidifier (Oz/Hr)	5	5	5	5	5	5

NOTES:

- ¹ All 265-volt models must use an Amana® brand sub-base (PTSB4**E) or an Amana® brand hard-wire kit (PTPWHWK4).
- ² 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.
- ³ Minimum voltage on 265-volt models is 239 volts; maximum is 292 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 all Amana® brand 265-volt chassis). See heater perform
- ⁵ Heating capacity and efficiency based on unit operation without condensate pump.
- ⁶ Specify two-digit heater kW size to complete model number.
- ⁷ R-410A / R32 refrigerant used in all systems. R-134A used in Kit Fresh Air.
- ⁸ All units meet or exceed ASHRAE 90.1 standards.
- ⁹ All units less than 250 volts have a Leak Current Detector Interrupter (LCDI) power cord and meet UL 484 standards.
- ¹⁰ 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 J/K SERIES HEH J/K SERIES PMH & PMC SERIES

Voltage	Electric Heater Size (Kw)	No. of Stage	Nominal Heating (Btu/h)			Total Watts	Total Amps	Min. Circuit Ampacity	MOD (amps)	Power Cord
			@230V	@208V	@265V					
230/208V	2.5	1	8,500	7,000	--	2,500/2,040	10.9/9.83	14.1	15	6 -15 P
230/208V	3.5	1	11,900	9,800	--	3,500/2,860	15.2/13.8	19.5	20	6 -20 P
230/208V	5	1	17,100	14,000	--	5,000/4,085	21.7/19.7	27.6	25	6 - 25 P
265V	2.5	1	--	--	8,500	2,500	9.4	12.2	15	7 - 20 P
265V	3.7	1	--	--	12,600	3,700	14	17.9	20	7 - 20 P
265V	5	1	--	--	17,100	5,000	18.9	23.9	25	7 - 30 P

NOTES:

- ¹ All 265-volt models must use an Amana® brand sub-base (PTSB4**E) or an Amana® brand hard-wire kit (PTPWHWK4).
- ² Minimum branch circuit ampacity ratings conform to the National Electric Code; however, local codes should apply.
- ³ 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.
- 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 all Amana® brand 265-volt chassis).
- ⁵ Heating capacity and efficiency based on unit operation without condensate pump.
- ⁶ Total watts for 15,000 BTU/h models; subtract 20 watts for PT07/09/12
- ⁷ Specify two-digit heater kW size to complete model number.
- ⁸ R-410A / R32 refrigerant used in all systems.
- ⁹ All units meet or exceed ASHRAE 90.1 standards.
- ¹⁰ 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

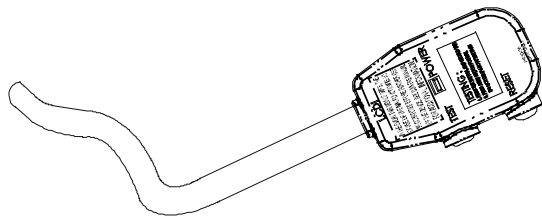
VOLTAGE REQUIREMENTS

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		
Unit Voltage	Voltage Utilization Range	
Rating	Minimum Voltage	Maximum Voltage
115	104	127
230/208	197	253
265	238	292

- 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

IMPORTANT NOTE

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.

SEQUENCE OF OPERATION

COOLING MODE

To set unit to the Cool mode, select your temperature and fan speed. If you select Auto the fan speed will automatically switch between LOW and HIGH based on the temperature of the room and the set point. If temperature is more than 5 degrees higher than the set point the fan will come on in HIGH and then switch to LOW when the room temperature is within 5 degrees of the set point. Once you have selected COOL, the desired temperature and the FAN selection, the fan will come on first and then the compressor will come on approximately 2 seconds later. When the room temperature has reached the desired set point the compressor will shut off and the fan will continue to run for approximately 30 seconds and then will shut off.

HEATING MODE

If the model is a PTC** the unit is an electric heat only unit which means the fan and electric heating element will be the only things that will operate in the heating mode. To set unit to the heat mode, select your temperature and fan speed selection. If you select Auto the fan speed will automatically switch between LOW and HIGH based on the temperature of the room and the set point. If temperature is more than 5 degrees higher than the set point the fan will come on in HIGH and then switch to LOW when the room temperature is within 5 degrees of the set point. Once you have selected the HEAT, the desired temperature and the FAN selection, the fan and the electric heat strip will come on. When the room temperature has reached the desired set point the electric heat strip will shut off and the fan will continue to run for approximately 30 seconds and then shut off.

HEAT MODE

If the model is a PTH** the unit is a heat pump and will operate in electric heat or reverse cycle heat pump mode. To set the unit for heat mode press the HEAT button on the touch pad and then press the + Plus or -Minus buttons to set the desired temperature, and press the fan speed button to select LOW, HIGH or Auto. If you select Auto the fan speed will automatically switch between LOW and HIGH based on the temperature of the room and the set point. If temperature is more than 5 degrees higher than the set point the fan will come on in HIGH and then switch to LOW when the room temperature is within 5 degrees of the set point. Once you have selected the HEAT, the desired temperature and the FAN selection, the temperature of the room, the outdoor ambient temperature and the desired set point will determine if the unit will come on in electric heat or heat pump and bring on the compressor. The room temperature will need to be within 4 degrees of the unit's set point for the compressor to come on in the heat pump mode. If the room temperature is more than 4 degrees higher than the set point the unit will come on in electric heat only. If the electric heat comes on the unit will remain in electric heat for the complete cycle. When the desired room temperature is reached the unit will cycle of the heat strip and the fan. When the unit cycles back on the unit will bring on the compressor in the heat pump mode and operate with the heat pump. The heat pump will continue to operate until the outdoor coil reaches approximately 27 degrees at which time the outdoor coil thermistor will shut off the compressor and bring the unit back into the electric heat only operation. The outdoor coil thermistor will keep the heat pump locked out until the thermistor is seeing an outdoor coil temperature of above 33 degrees. Once above 33 degrees the unit will return to heat pump operation on the next call for heat.

When the room temperature has reached the desired set point, electric heat or compressor will shut off and the fan will continue to run for approximately 30 seconds and then shut off.

SYSTEM OPERATION

NOTE:

The heat pump and electric heat DO NOT operate together, it is either in electric heat or heat pump mode.

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.
- 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°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°F+/-5°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°F.
- 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.
- Indoor Ambient Thermistor - The Indoor Ambient Thermistor senses actual room temperature.
- 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 IN & COM 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.
- Front Desk Control - The front desk control terminals are IN and COM. 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 IN and COM. 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 IN & COM 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.

OPERATING CONTROLS

USERS CONTROLS

The unit will be controlled by a Wired Wall Thermostat or the Amana Wireless Thermostat.

SYSTEM OPERATION

USING THE AMANA APP TO SET UP YOUR USER CONTROLS

Where to get the app?

You can find our app in the Google Play Store and in the Apple App Store by simply searching for Amana PTAC. Alternatively, you can use your phone's camera to scan one of the below QR codes that will take you to directly to the app.

For Android **A**

<https://play.google.com/store/search?q=Amana%20PTAC&c=apps>



For iOS **A**

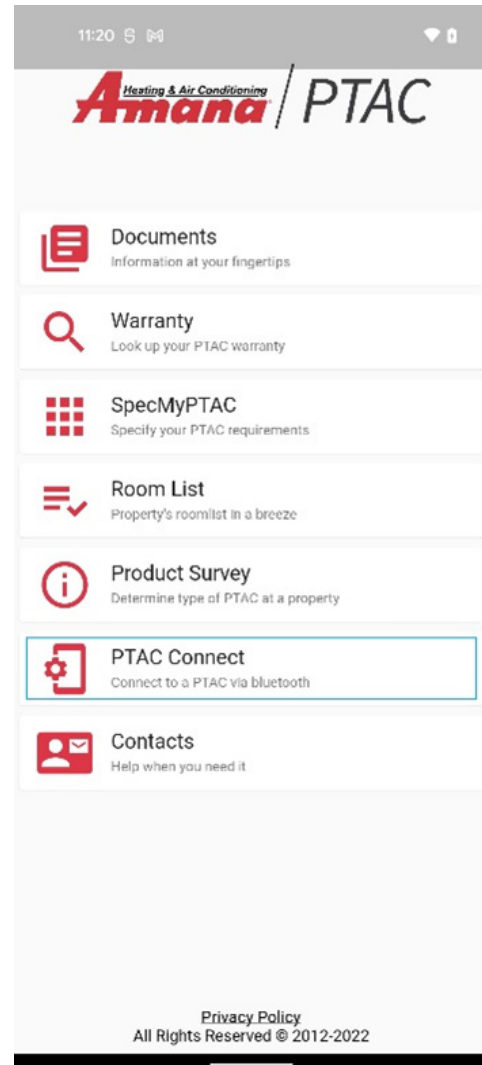
<https://apps.apple.com/us/app/amana-ptac/id1485904992?platform=iphone>



PTAC CONNECT APP

OVERVIEW

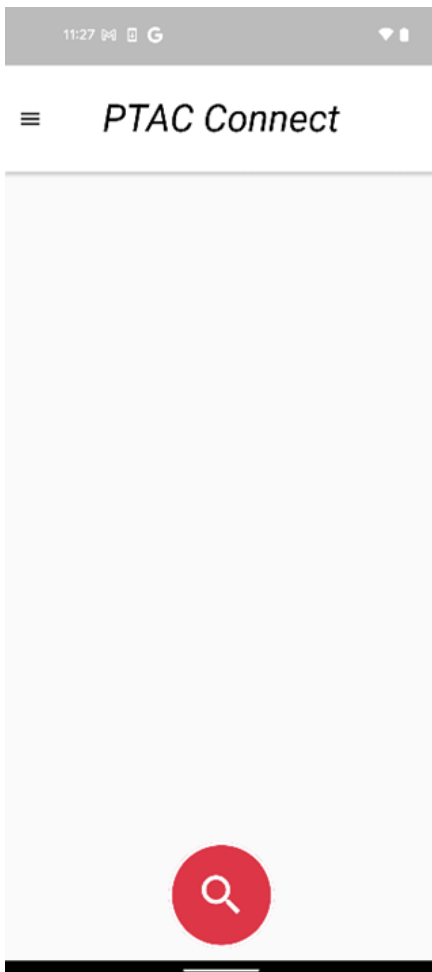
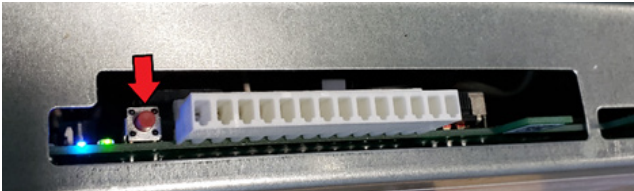
PTAC Connect is the mobile app that empowers you to program, via Bluetooth, our new J/K series PTACs. The app is part of the Goodman Amana PTAC suite of apps.



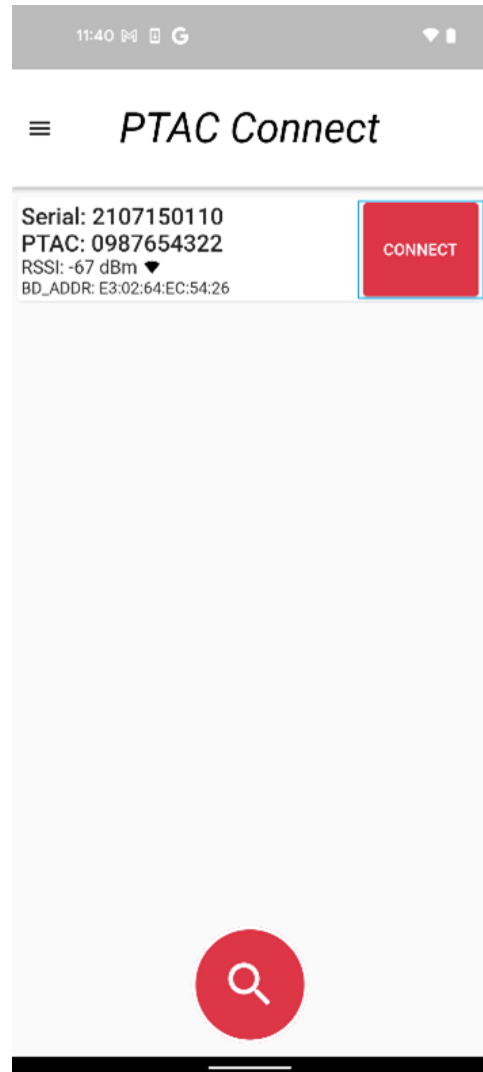
SYSTEM OPERATION

MAKING THE CONNECTION

Programming your PTAC starts with connecting the app to the PTAC device. To do so, first select PTAC Connect from the list of Amana PTAC apps above. A screen with a scan button will appear, shown below as a red button with a magnifying glass. Next, press the physical red button on the PTAC control board, one push, do not hold down, (PTAC control board, under the PTAC front cover and splash guard) then press the scan button in the app.



Touching this button will signal the app to scan for all Bluetooth-connectable PTACs. When found the PTAC will be listed showing the serial number as the main identifier to confirm it is the correct unit you wish to pair with.



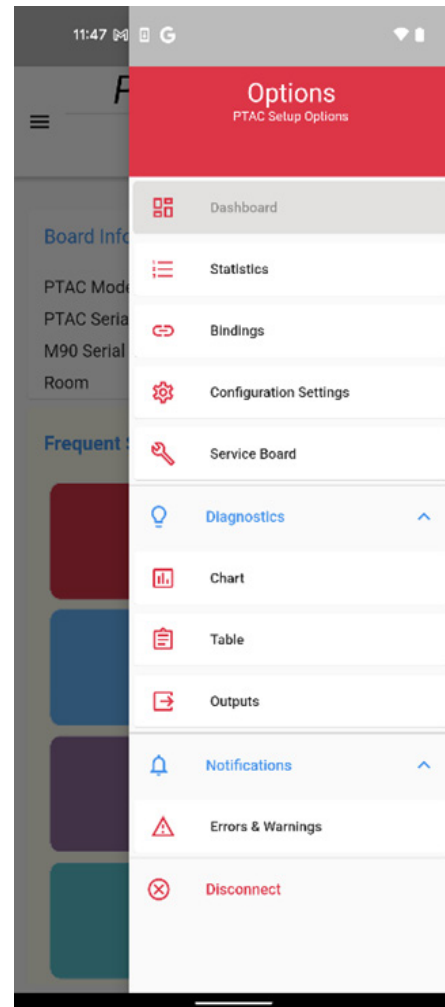
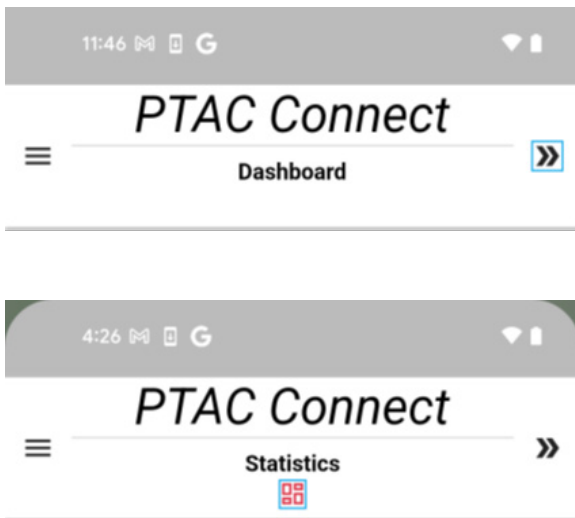
Touching the Connect button next to a desired PTAC on the list will connect the app to the PTAC.

SYSTEM OPERATION

Once the app is connected to a PTAC, the app's menu accessor (☰, upper right corner) will be visible. Touching the menu accessor will show the app's list of all available programming options:

- Dashboard
- Statistics
- Bindings
- Configuration Settings
- Service Board
- Diagnostics
- Notifications

If you have navigated to a screen that is not the app's main Dashboard screen (see the section for programming screens). You will find a red return to dashboard icon under the current screen name as shown below. *You can press this icon at any time to return to the Dashboard.*



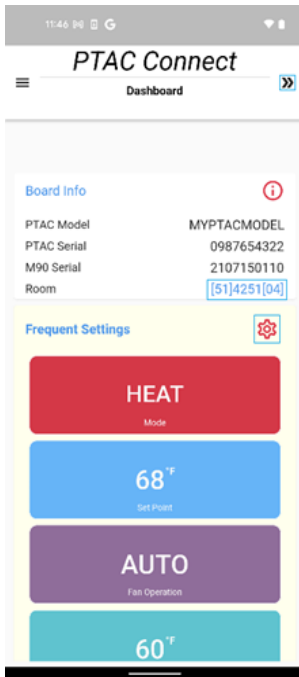
SYSTEM OPERATION

THE APP'S PROGRAMMING SCREENS (OR OPTIONS)

DASHBOARD

The Dashboard contains, among other things, the PTAC's at-a-glance info (Board Info) and the most frequently used PTAC settings (Frequent Settings).

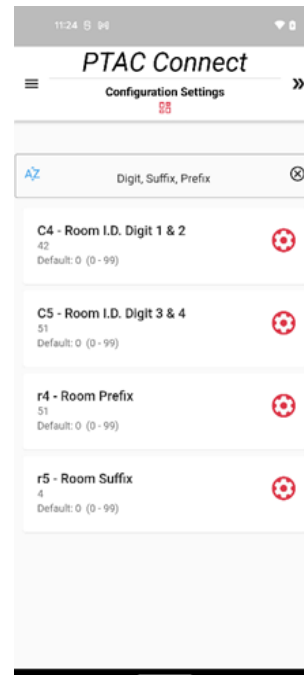
Almost everything on this screen, when touched, will display some type of additional info or an additional programming user interface (UI). Two pieces of UI are of special consideration here: the Room setting value (next to Board Info | Room) and the Configuration icon (⚙️, next to Frequent Settings).



Touching the Room setting value brings up the configuration screen with the room number settings pre-populated for quick editing. From here you can set the room number your PTAC is in.

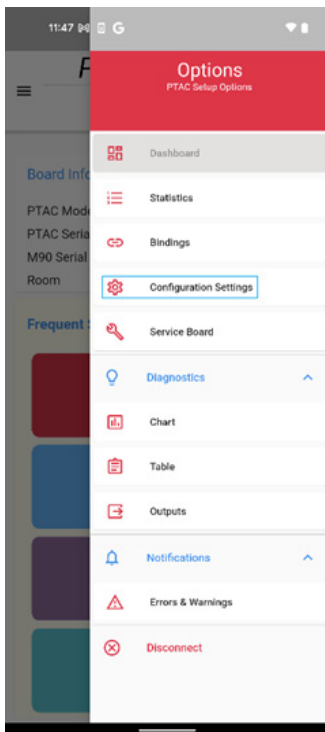
For most applications you will only need to worry about the C4 and C5 setting. The C4 setting this is commonly the "floor" your room is on. For example, if you are programming room number 213 the C4 would be 02. The second setting is the C5 setting this is the rooms "number" for the room 213 the C5 setting would be 13.


The less commonly used room number fields are the r4 and r5. The r4 is rarely used and can be safely left at 00 unless otherwise requested by a technical representative. Lastly the r5 setting this is the room suffix, this is used to distinguish between two or more units in the same room. The unit closest to the door should be set as 01, and then next from the door as 02. This will allow you to have a room 213.01 and 213.02 so you can distinguish between PTAC's during servicing and for use with the Eden Energy Management System.

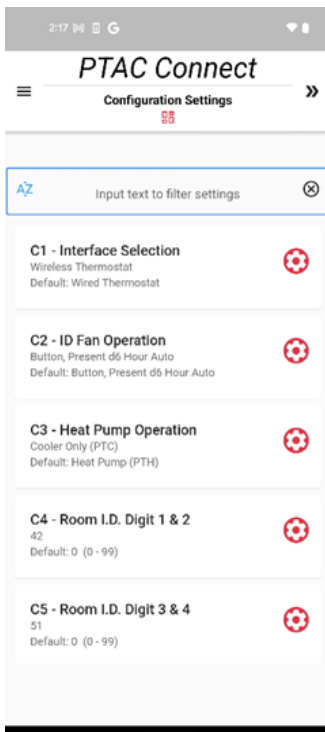


SYSTEM OPERATION

Touching the Configuration icon brings up the Configuration screen with all PTAC settings. This screen can also be alternatively accessed via the menu (Menu | Configuration Settings).

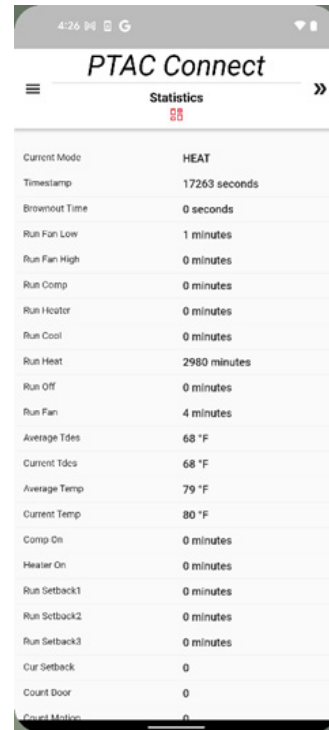


To change any setting, just touch the red gear  button on the right-hand side of the setting.



STATISTICS

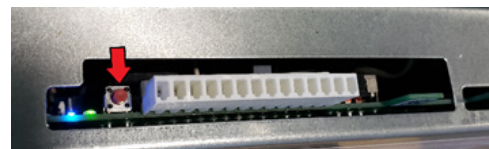
This screen displays many useful read-only runtime info from the PTAC board such as Current Mode, Current Temperature, Setback settings, etc.



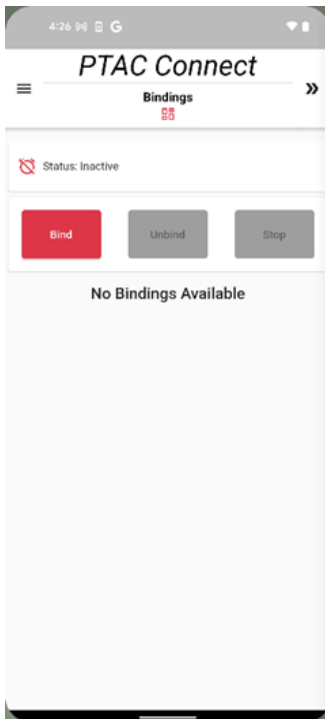
BINDINGS

The PTAC Connect allows you to bind or unbind a wireless peripheral such as a thermostat or an occupancy sensor. Binding or unbinding is accomplished by touching the corresponding Bind or Unbind button on this screen. You will then need to press the white binding button on the peripheral you wish to bind. If the binding fails or the device cannot be reached, you can stop the binding search with the Stop button.

You also have the option to bind without using the app. Simply press and hold the red button (PTAC control board, under the PTAC front cover and splash guard) for 5 seconds, then press the white binding button on the peripheral you wish to bind.




SYSTEM OPERATION

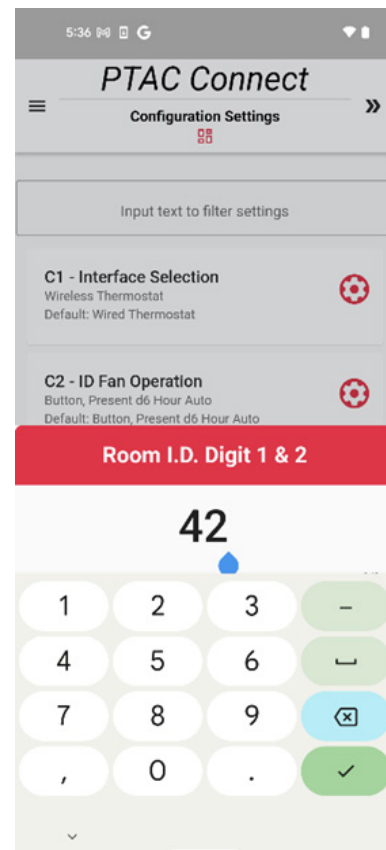
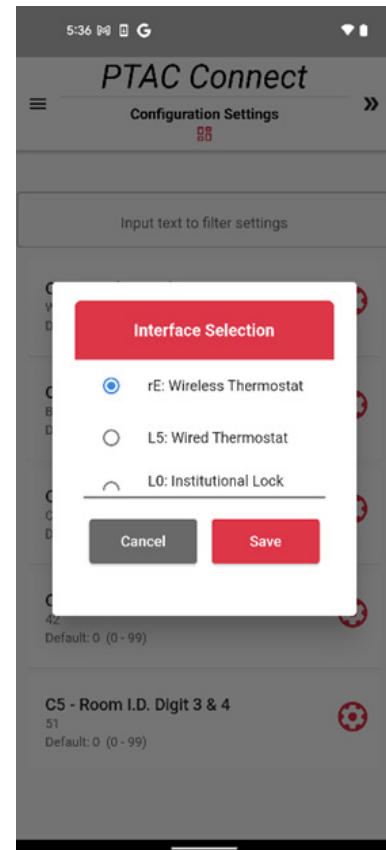


CONFIGURATION SETTINGS

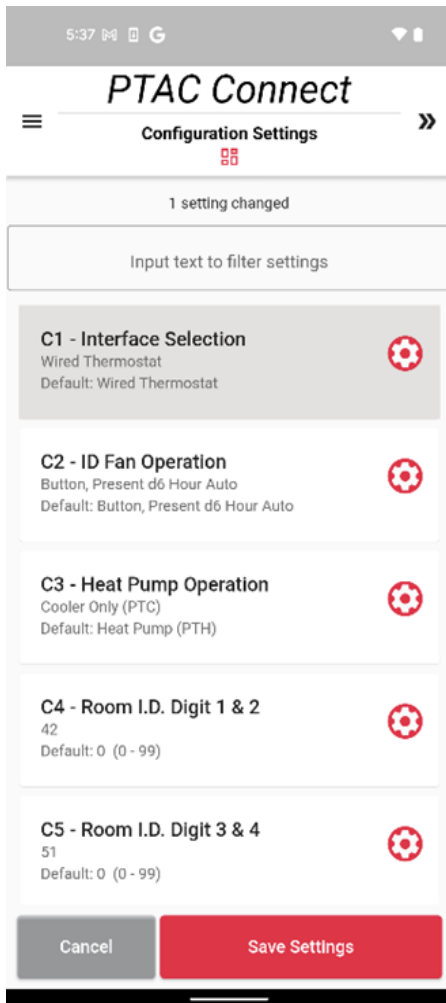
Nearly all the PTAC board's programmable settings can be configured on this screen (except for the PTAC's Model and Serial Number, which are configured on another screen, i.e., the Service Board screen).

If you would like to find a setting quickly the search bar will help you filter through the many settings available to you. Search terms can be case-sensitive and can be single words separated by commas. An example was shown above in the section for Dashboard, where Room settings were filtered with the search terms: Digit, Suffix, Prefix. Also, as briefly introduced in the Dashboard section, to change any setting, just touch the red gear  button on the right-hand side of the setting. A configuration dialog or sheet will pop up to allow the user to make a setting change.

After settings changes are made, the Configuration Settings screen will display the number of settings that were edited and highlight which settings the editing was for. You will then be presented with the Save Settings button to save the changes to the PTAC board.

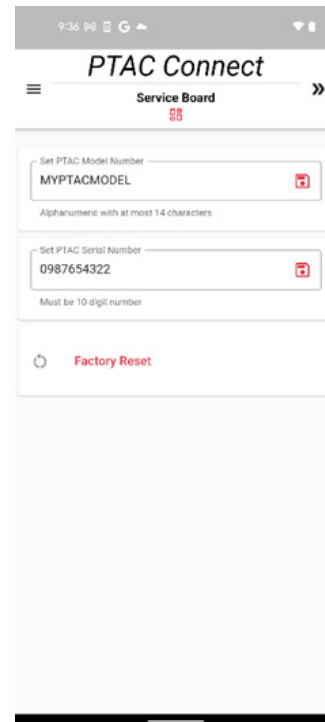


SYSTEM OPERATION

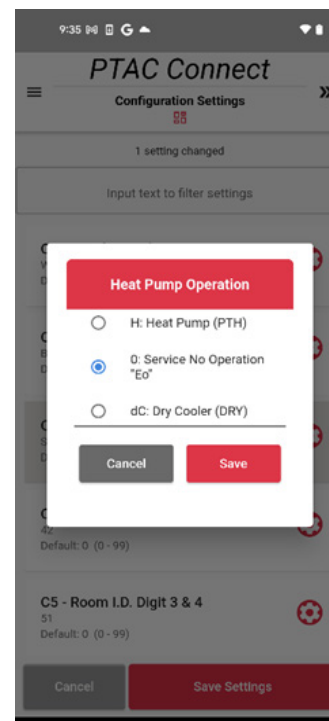


SERVICE BOARD

This menu allows you to view the board's Model and Serial Number. It also contains the Factory Reset button for your board. By selecting Factory Reset, all programmable board settings, including those in the Configuration Settings screen, will be reset to original factory values.



If you have the need to replace a control board, the board's Model and Serial Number are available here to be configured. Before this setting is available, the C3 (*Heat Pump Operation*) in the Configuration Settings screen must be to Eo (*Service Mode, No Operation*).

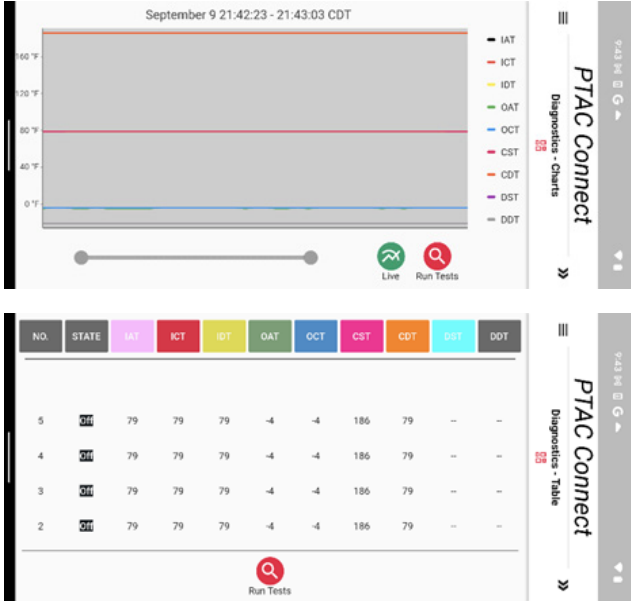


SYSTEM OPERATION

DIAGNOSTICS

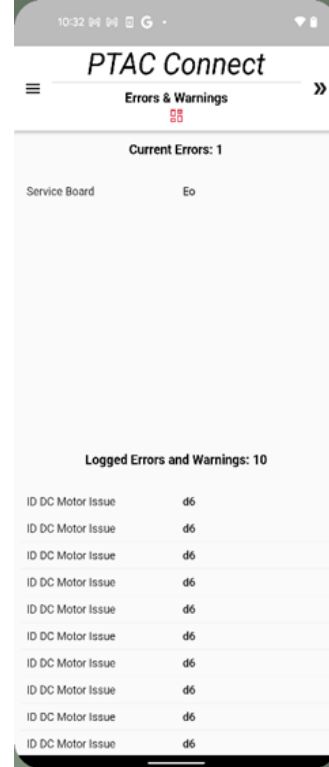
The Diagnostics screen allows you to see how the PTAC's thermistors are performing. This diagnostic tool is available both graphically (in a chart) and numerically (in a table). Based on the data that is being shown when the tool runs, you can effectively diagnose how well the PTAC is running or what issues it is experiencing.

NOTE: Once the Diagnostic process starts, it is expected to display real time values while on screen. Thus, there is no Stop button available.



NOTIFICATIONS

The Notifications screen reports all errors and warnings present on the PTAC board. On this screen, there are two lists. The top shows a list of all current errors. The bottom shows all *logged (historical) errors and warnings*.



Call your Amana brand PTAC Sales representative at **800-647-2982** for complete details.

For technical support please call **877-376-0214** and for Eden support please call **877-792-6262**.

SYSTEM OPERATION

DIAGNOSTIC LIGHT

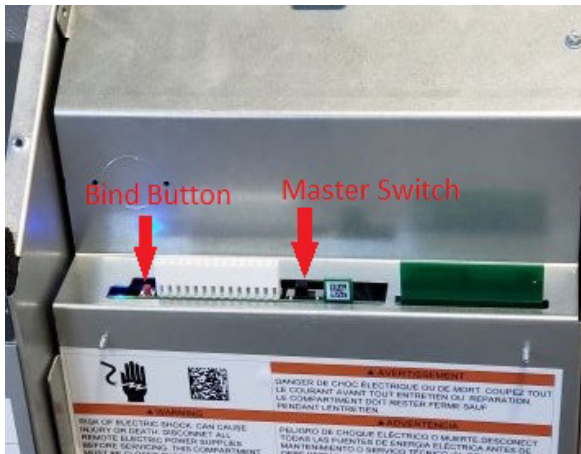
The red and green diagnostic light is located next to the terminal strip for the wired thermostat connections. If the lights are flashing a code you need to refer to the flash code chart to determine the cause.

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.

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.

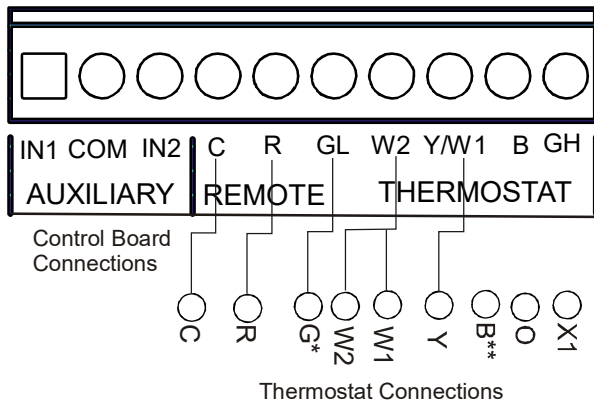


Control Board User Inputs*

*NOTE: The PTAC Wire Harness Kit (PWHK01G70) is required for the auxiliary or remote thermostat options.

WIRED THERMOSTAT

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.



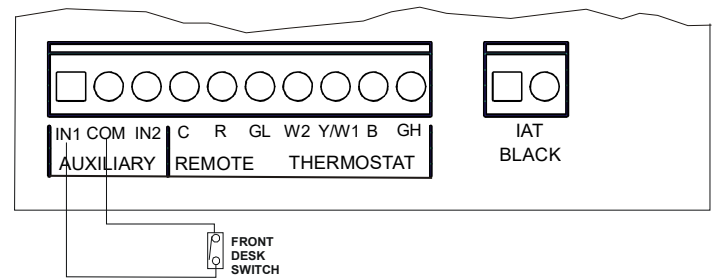
*NOTE: For high speed fan operation, connect “G” to “GH”.

** NOTE FOR THE B TERMINAL: If unit is a heat pump connect B from stat to B on the board.

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.

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

The following figure shows a wiring schematic for connecting the front desk switch to the unit.



FRONT DESK CONTROL (IN1, IN2, COM)

The COM and (IN2 or IN1) terminals provide control inputs for a front desk switch. Shorting across the terminals will disable unit operation. The only control function which will remain active when these 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. Table 3 shows the maximum wire length and corresponding gage size for installation of a front desk switch. The following figure shows a wiring schematic for connecting the front desk switch to the unit.

If the unit is configured for wired unrented setback energy management (see Configuration Settings section u8 and u9). If IN* and COM are shorted, the unit will go into setback temperatures for cooling and heating as configured in c3 and c4 (see Configuration Settings). Unit operation will be disabled. “Fd” (see Diagnostic Codes) will appear on the display. This allows the room to quickly recover to a comfortable temperature when the room is occupied.

SYSTEM OPERATION

WIRELESS COMMUNICATIONS

PTAC models PT***J/K*** have the option to use a wireless thermostat. Refer to Using the Amana App section for setting up the wireless thermostat.

WIRELESS THERMOSTAT

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.

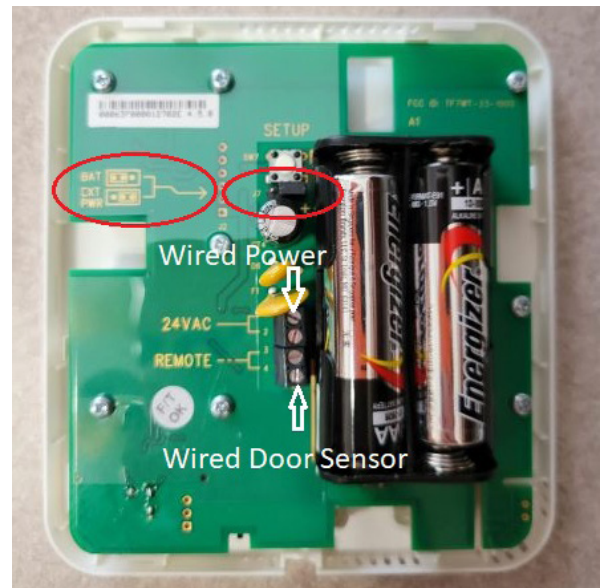
WIRED POWER OPTION

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.



BATTERY CONNECTION

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



POWERED CONNECTION

NOTE: For external power connection, the jumper must be positioned on the center and right pins. Connect wires from R & C from the control boards wired thermostat connection to the wired power terminals on the thermostat location in photo above.

For complete set up and configuration of the wireless thermostat and door sensor please refer to the installation instructions provided with the wireless thermostat and door sensor.

SYSTEM OPERATION

CONFIGURATION SETTINGS

Reference M70/M90 Conf. Code	Configuration Code Description	Option Code	Option Code Description
C1	User Interface Selection	0	Reverts to L5 (Legacy Chassis Membrane)
		L5 *	Wired Thermostat
		rE	Wireless Stat (Self configures at binding)
		L0	Institutional Lock Wireless Thermostat
C2	Fan Switch Type (ID Fan Op.)	bP	Follows (Cr) selection if any
		bA**	Follows (Cr) selection if any; reverts to Auto after (d6) hours
		A	Fan always runs (24/7/365)
		bC	Follows (Cr) selection if any; reverts to Cont. after (d6) hours
		Au	Reverts to "bA"
		On	Reverts to "bA"
		C	Reverts to "bA"
C3	Basic Unit Type	C	Cooler Only (PTC)
		H*	Heat Pump (PTH)
		0	Service No Operation "Eo"
		dC	Dry Cooler (DRY)
		dH	Dry Heat Pump (DRH)
		uC	Revert to option "C"
		uH	Revert to option "H"
		AC	Makeup Air Cooler (PMC)
		AH	Makeup Air Heat Pump (PMH)
		EC	High Eff. Cooler (HEC)
		EH	High Eff. Cooler (HEH)
		3C	32C Cooler (32C)
		3H	32C Heat Pump (32H)
C4	Room Digits 1 & 2	00* - 99	00* - 99
C5	Room Digits 3 & 4	00* - 99	00* - 99
C6	Occupancy Type (Use of wired occupancy sensor)	0 **	Off **
		1	On
		18	18 Hour Automatic entry into setbacks w/ no button op.
C7	Motion Sensor Polarity (Normally open/closed)	0 **	Normally Closed ** (0 w/ occ)
		1	Normally Open (1 w/ occ)
C8	Temp limit COOLING (min)	60** - 80	60** - 80 DEGF
C9	Temp limit HEATING (max)	68 - 90, 80**	68 - 90, 80** DEGF
C0	Thermostat Reversing ("B" or "O")	b **	"B" T-stat Terminal **
		0	"O" T-stat Terminal

* FACTORY DEFAULT

** FACTORY DEFAULT RESTORES ON FACTORY RESTORE DEFAULT OPERATION

SYSTEM OPERATION

CONFIGURATION SETTINGS

Reference M70/M90 Conf. Code	Configuration Code Description	Option Code	Option Code Description	
c3	Unrented Cool Setpoint	73 - 95, 79**	73 - 95 DEGF	Yes
c4	Unrented Heat Setpoint	45 - 67, 63**	45 - 67 DEGF	Yes
CA	Wireless twinning enabled	0 **	Not Twinned **	Yes
		5	Twinned	
Cb	Dehumid Activation (enable larger room swing)	0 **	Not Active **	Yes
		1	Active	
		U	Active in Unrented/Unoccupied	
CC	Dehumid Call Drop Temp (room swing delta)	3** - 8	3** - 8 DEGF	Yes
Cd	English/Metric Temperature (Display DEGF or DEGC)	F **	Fahrenheit Scale **	Yes
		C	Celsius Scale	
CE	Freeze Protection (Activation & speed selection)	L **	Freeze Protection On, Low Fan (FP & HS) **	Yes
		H	Freeze Protection On, High Fan (FP & HS)	
		0	Freeze Protection Off; Heat Sentinel Low Fan	
CF	High Speed Fan Temp Cool (Cooling temp delta for ID fan to go to high in auto fan)	5** - 9	5** - 9 DEGF	Yes
CH	High Speed Fan Temp Heat (Heating temp delta for ID fan to go to high in auto fan)	6 - 8**	6 - 8** DEGF	Yes
CJ	Second Stage Heat (Delta setting or disable)	4** - 8	4** - 8 DEGF	Yes
		--	No Elec. Heat	
Cr	T-stat Fan Button (applicable only to single button thermostat)	0	T-stat - toggles through all 6 options Lo Auto, Lo Cont., Hi Auto, Hi Cont., Smart Auto, Smart Cont.	No
		1	T-stat - Button selects Lo Cont.- Hi Cont. - Smart Auto	
		2	T-stat - Button selects Cont.- Auto Fan is in Smart Speed only	
Cu	Mode Button Usage	0 *	Off/Cool/Heat *	No
		1	Off/Auto-changeover	
		2	Off/Cool/Heat/Auto-changeover	
Cy	Auto-changeover Dead Band	4 - 9, 4*	4 - 9, 4*	Yes
d1	Room Air Mix Cooling	1	Reverts to Off	Yes
		0 **	Off **	
d2	Room Air Mix Heating	0 **	Off **	Yes
		1	Reverts to Off	
d3	Air Mix Fan Speed	L **	Low **	Yes
		H	High	

* FACTORY DEFAULT

** FACTORY DEFAULT RESTORES ON FACTORY RESTORE DEFAULT OPERATION

SYSTEM OPERATION

CONFIGURATION SETTINGS

Reference M70/M90 Conf. Code	Configuration Code Description	Option Code	Option Code Description	
d4	Heating Smart Fan ("Auto" adjusting speed availability in Heating)	0	Not Available	Yes
		1 **	Available **	
d5	Health Warning Activation (warnings/lockouts enable)	1	Enable	Yes
		0 **	Disabled*	
d6	Sensorless Unoccupied Time (hrs. to enter un-occupied state w/o button press)	1 - 32, 18**	1 - 32, 18* Hours	Yes
d7	Setback 1 Value (Degrees setback in 1st setback period)	1 - 16, 2**	1 - 16, 2** DEGF	Yes
d8	Setback 1 Time (hrs. before 1st setback period after going un-occ.)	0.1, 0.5**, 1 - 24	0.1, 0.5, 1 - 24, .5** Hours	Yes
d9	Setback 2 Value (Degrees setback in 2nd setback period)	1 - 16, 3**	1 - 16, 3** DEGF	Yes
dA	Setback 2 Time (hrs. before 2nd setback period after going un-occ.)	.5, 1** - 24	(d8) - 24, 1** Hours	Yes
db	Setback 3 Value (Degrees setback in 3rd setback period)	1 - 16, 6**	1 - 16, 6** DEGF	Yes
dC	Setback 3 Time (hrs. before 3rd setback period after going un-occ.)	1 - 24, 3**	(dA) - 24, 3** Hours	Yes
dd	Cooling Capacity (Nominal/Unit Nomenclature)	0, 5-24, 15*	0 (test unit), 5,000 - 24,000 BTU, 15,000 *	No
dF	Group Code (Hotel unique platform code - multiple hotels in proximity)	00* - 99	00* - 99	No
dH	Electric heater size (Nominal/Unit nomenclature)	00, 15, 20, 25, 35, 50*	00, 15, 20, 25, 35, & 50* kW	No
dJ	Operating voltage (Nominal/Unit nomenclature)	2, 3*, 4, 5	2, 3*, 4, 5	No
dL	Selects to show (or not) actual setpoint if limiting SP	0** or 1	0** or 1	Yes
FA	Temp below which "FA" error code fires	20 - 40, 30*	20°-40°, 30**	No
HA	(Temp + 200) above which "HA" error code fires	00 - 57, 50*	200° + {0° - 57°}, 250**	No

* FACTORY DEFAULT

** FACTORY DEFAULT RESTORES ON FACTORY RESTORE DEFAULT OPERATION

SYSTEM OPERATION

CONFIGURATION SETTINGS

Reference M70/M90 Conf. Code	Configuration Code Description	Option Code	Option Code Description	
J8	Time un-rented state will revert to rented if network lost	01 - 99, 30*	01 - 99, 30* Minutes	No
Jb	Freeze Protection Temp	25 -55, 40*	25 -55, 40* DEGF	No
JC	IAT Weight (Percentage weighting of IAT verses RIAT to room temp)	0 - 99, 20*	0 - 99, 20*	No
Jd	Offset temperature to align stat with customer's reading	-9 - 9, 0*	-9 - 9, 0* DEGF	No
JF	Economizer/Smart Vent Outside Cold Limit (Coldest OD temp Economizer / Smart Vent allowed to op.)	0 **	0 ** [No limit]	Yes
		1 – 70	{1 – 70} -20 (55=35°F)	
JH	Economizer/Smart Vent Outside Heat Limit (Hottest OD temp Economizer / Smart Vent allowed to op.)	0**	0 [No limit]	Yes
		60 – 99, 95	20 + {60 – 99}, 95 (95=115°F)	
JJ	Electric or Hydronic Heat	0	Reverts to 27	No
		1 - 25	Reverts to 27	
		27*	Electric Heaters	
		28	Reverts to 27	
		29	Hydronic (N.C. Valve)	
		30	Hydronic (N.O. Valve)	
JP	Temp subtracter to 210 or 230 for "H2" & "H4" error, 0=Off	0 **	0 **	Yes
		1 - 99	1 - 99	
JL	PSC / DC motor usage	0 *	ID PSC w/ Hall Effect & OD PSC Motors	No
		1	ID DC Motor & OD PSC Motor	
		2	ID PSC Motor w/ Hall Effect & OD DC Motor	
		3	ID DC & OD DC Motors	
Ld	(# x 10) = minutes for Lighting control op; 0=Disabled	0	0 [Disabled]	Yes
		1-9, 3**	10 x {1-9}; 10 x 3** = 30 Minutes	

* FACTORY DEFAULT

** FACTORY DEFAULT RESTORES ON FACTORY RESTORE DEFAULT OPERATION

SYSTEM OPERATION

CONFIGURATION SETTINGS

Reference M70/M90 Conf. Code	Configuration Code Description	Option Code	Option Code Description	
	Selects Smart Vent op. (w/fan, w/occ., 100%, etc.)	1 **	On only when ID fan running **	
		2	On only when ID fan running and room is occupied.	
		3	On all the time	
		4	On when room is occupied	
		E	Economizer (compressor locked out)	
		EP	Econ & compressor assist	
P2	Selects DigiAir op (off, unlimited, w/ fan, w/occ, etc.)	0	Off	Yes
		1 **	May be On Anytime ** (Kit fan is always running)	
		2	Allowed on only when not in Off mode	
		3	Allowed only when ID fan is running	
		4	Allowed on only when room is unoccupied	
		5	Allowed on only when room is occupied	
		6	Allowed only when ID humidity is higher than (ub)	
		7	Same as opt. 6; but muffin fan is always running and heater as allowed	
		8	Allowed only when Bath Vent is running	
9	Allowed only when Bath vent is running & Occupied			
P3	Low Indoor PSC Motor Relay usage (Pin 4 on J504)	0 *	PSC Low Speed Blower *	No
		1	Reverts to 0	
		3	Reverts to 0	
		4	Reverts to 0	
		5	Reverts to 0	
		6	Reverts to 0	
		7	DigiAir Air Compressor	
P4	High Indoor PSC Motor Relay usage (Pin 1 on J504)	0 *	PSC High Speed Blower *	No
		1	Reverts to 0	
		2	DigiAir Heater	
		3	Reverts to 0	
		4	Reverts to 0	
		5	Reverts to 0	
P5	Low Outdoor PSC Motor Relay usage (Pin 4 on J503)	0 *	PSC Low Speed Fan *	No
		3	Reverts to 0	
		4	Reverts to 0	
		5	Reverts to 0	
P6	High Outdoor PSC Motor Relay usage (Pin 1 on J503)	0 *	PSC High Speed Fan *	No
		3	Reverts to 0	
		4	Reverts to 0	
		5	Reverts to 0	
P7	Acc 1 Relay usage	0*	No Function*	

* FACTORY DEFAULT

** FACTORY DEFAULT RESTORES ON FACTORY RESTORE DEFAULT OPERATION

SYSTEM OPERATION

CONFIGURATION SETTINGS

Reference M70/M90 Conf. Code	Configuration Code Description	Option Code	Option Code Description	
	(Pin 2 on J506, Pin 2 on J507, & Pin 1 on J200)	1	Makeup Air Ventilation	No
		3	Ventilation/Econ/Econ+, per (P0) *	
		4	Lighting Control Kit	
		5	Transfer Fan Kit	
		11	Hydronic Valve / Exterior Heater	
P8	Acc 2 Relay usage (Pin 2 on J508, & Pin 3 on J200)	0*	No Function*	No
		4	Lighting Control Kit	
		5	Transfer Fan Kit	
		9	Bath Vent Unique Operation	
		11	Hydronic Valve / Exterior Heater	
P9	DC Motor Quiet Speeds Enable-- Future	0 **	Only run Standard Speeds	Yes
		1	Only run Quiet Speeds	
		2	Standard Spds in daytime; Quiet Spds in Night (EC1 only)	
		3	All Speeds based upon delta T & humidity? in Auto	
r0	Warning "L7" severity selection	0	Revert to option "1"	Yes
		1 **	L7 will evoke only a recorded code, user still able to adjust temperature settings. **	
		2	Revert to option "1"	
		3	Complete Shutdown and Lockout. Error code will be evoked on Bluetooth App or Central Control.	
r4	Room Prefix	00* - 99	00* - 99	No
r5	Room Suffix	00* - 99	00* - 99	No
u1	Disable motion sensor on T-stat	1 **	Enabled **	Yes
		0	Dis-enabled	
u2	Allow display of room temp on T- stat; except for setting	0 **	Display only Set Point **	Yes
		1	Display Room Temp	
u3	Temp to engage Heat Sentinel; 0=Disabled	0 **	Dis-enabled **	Yes
		78 - 99	78 - 99 DEGF	
u4	Open Door Shut down (Minutes door left open before shutting down)	0 **	Dis-enabled **	Yes
		1 - 30	1 - 30 Minutes	
u7	Compressor Lock-in Time	4** - 10	4** - 10 Minutes	Yes
u8	Input Pins IN1 (FD, LS, EHH, door, etc.)	0	Door Switch	Yes
		1	Motion Sensor	
		2 **	Front Desk **	
		3	Wired Un-rented Set Back	
		4	Emergency Hydronic	
		5	Load Shedding	
		6	Alarm Sensor (normally open option)	
		7	Alarm Sensor (normally closed option)	
8	Bath Vent Op. Input			

* FACTORY DEFAULT

** FACTORY DEFAULT RESTORES ON FACTORY RESTORE DEFAULT OPERATION

SYSTEM OPERATION

CONFIGURATION SETTINGS

Reference M70/M90 Conf. Code	Configuration Code Description	Option Code	Option Code Description	
		9	Hydronic Coil Switch	
u9	Input Pins IN2 (FD, LS, EHH, door, etc.)	0	Door Switch	Yes
		1	Motion Sensor	
		2 **	Front Desk **	
		3	Wired Un-rented Set Back	
		4	Emergency Hydronic	
		5	Load Shedding	
		6	Alarm Sensor (normally open option)	
		7	Alarm Sensor (normally closed option)	
		8	Bath Vent Op. Input	
		9	Hydronic Coil Switch	
ub	ID humidity below which DigiAir does not run; (P2=6 must)	0,15 - 80, 25**	0, 15 - 80, 25**	Yes
uE	Room delta above Setpoint Economizer reverts to A/C	0-50, 10**	0-50, 10** DEGF	Yes
uF	Temp OD must be below Setpoint for Economizer	0-50, 5**	0-50, 5** DEGF	Yes
uH	Cooling Setpoint when exiting Un-rented state	60 - 72**	60 - 72** DEGF	Yes
uJ	Heating Setpoint when exiting Un-rented state	74** - 90	74** - 90 DEGF	Yes
uL	Two-digit security code required to enter Configurations	00* - 99	00** - 99	No
un	OD humidity level above which DigiAir compressor op.	0	Dis-enabled	Yes
		15 - 60, 30**	15 - 60, 30**	
ur	Selects if DigiAir uses only single or multi-level %RH	0 **	DigiAir compressor engages on Steps **	Yes
		1	DigiAir compressor engages on OD %RH (un)+30	
uu	Selects if ID fan runs concurrent with DigiAir compressor	0 **	ID Fan runs at speed per standard logic **Everex Factory	Yes
		1	ID Fan runs low with DigiAir *Goodman factory	

* FACTORY DEFAULT

** FACTORY DEFAULT RESTORES ON FACTORY RESTORE DEFAULT OPERATION

SCHEDULED MAINTENANCE

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

MONTHLY MAINTENANCE AND CLEANING

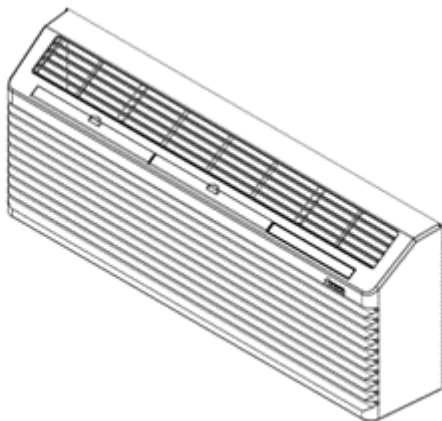
INTAKE AIR FILTER

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.



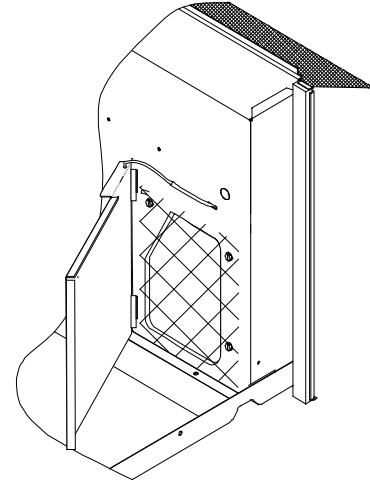
INTAKE FILTER REMOVAL

VENT SCREEN

Before cleaning the vent screen, disconnect power to the unit by unplugging the power cord at the wall outlet or subbase, 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. 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.



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.) or ammonia based cleaners 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.

SCHEDULED MAINTENANCE

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 properly 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

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.

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

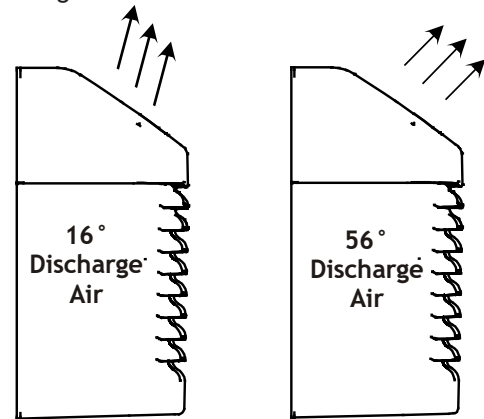
The fan cycle switch sets the operational mode of the fan in the on position. When the unit is in conditioning mode for example high or low heat or cool, the fan will run continuously. In the AUTO position, the fan will cycle on and off with the compressor or electric heater.

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.

AIR DISCHARGE GRILLE

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



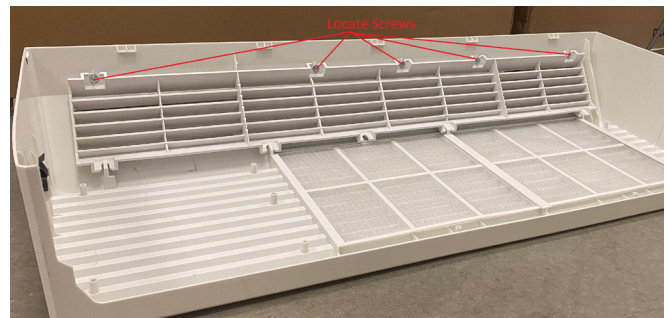
DISCHARGE GRILLE ORIENTATION OPTIONS

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

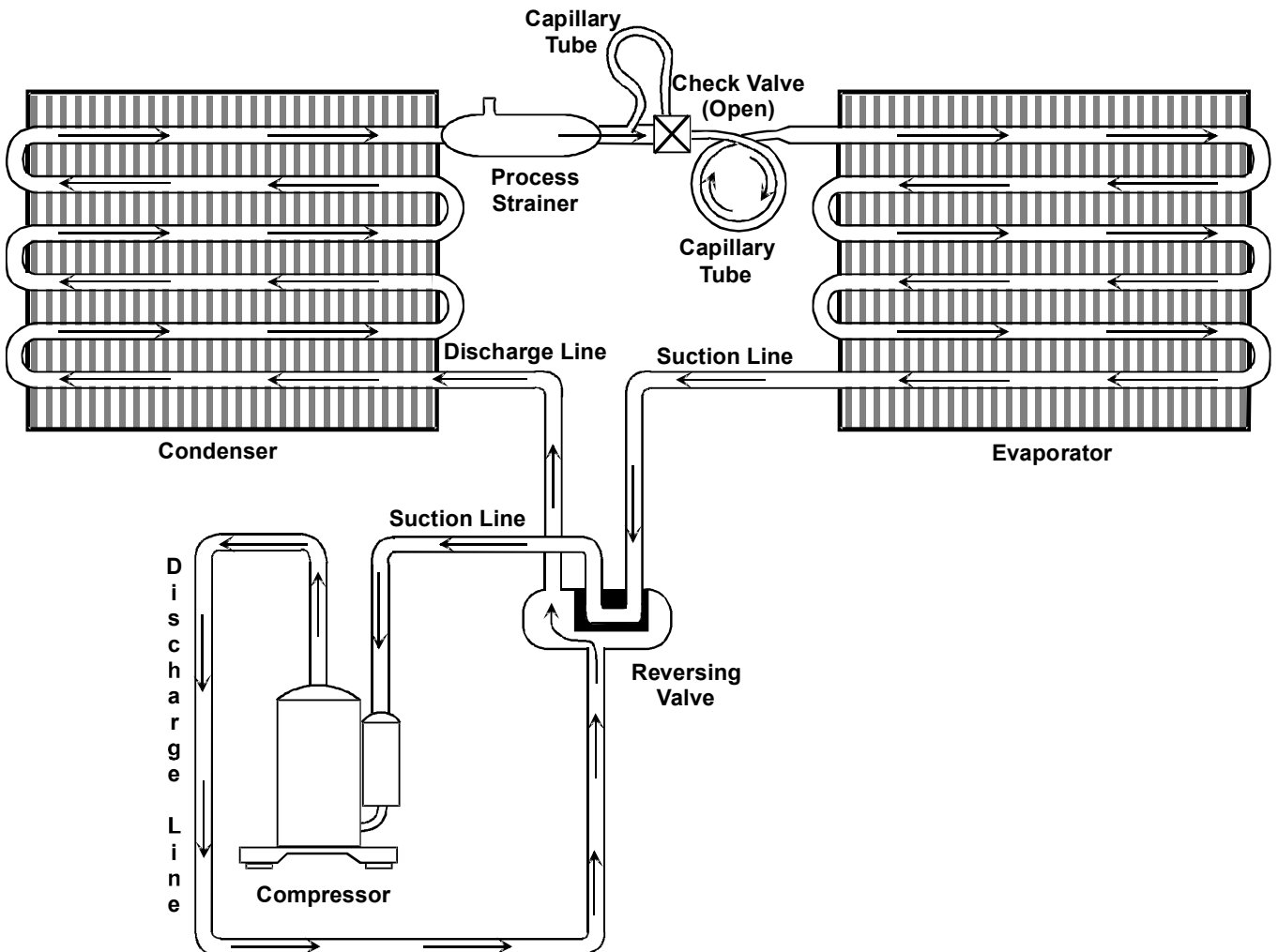
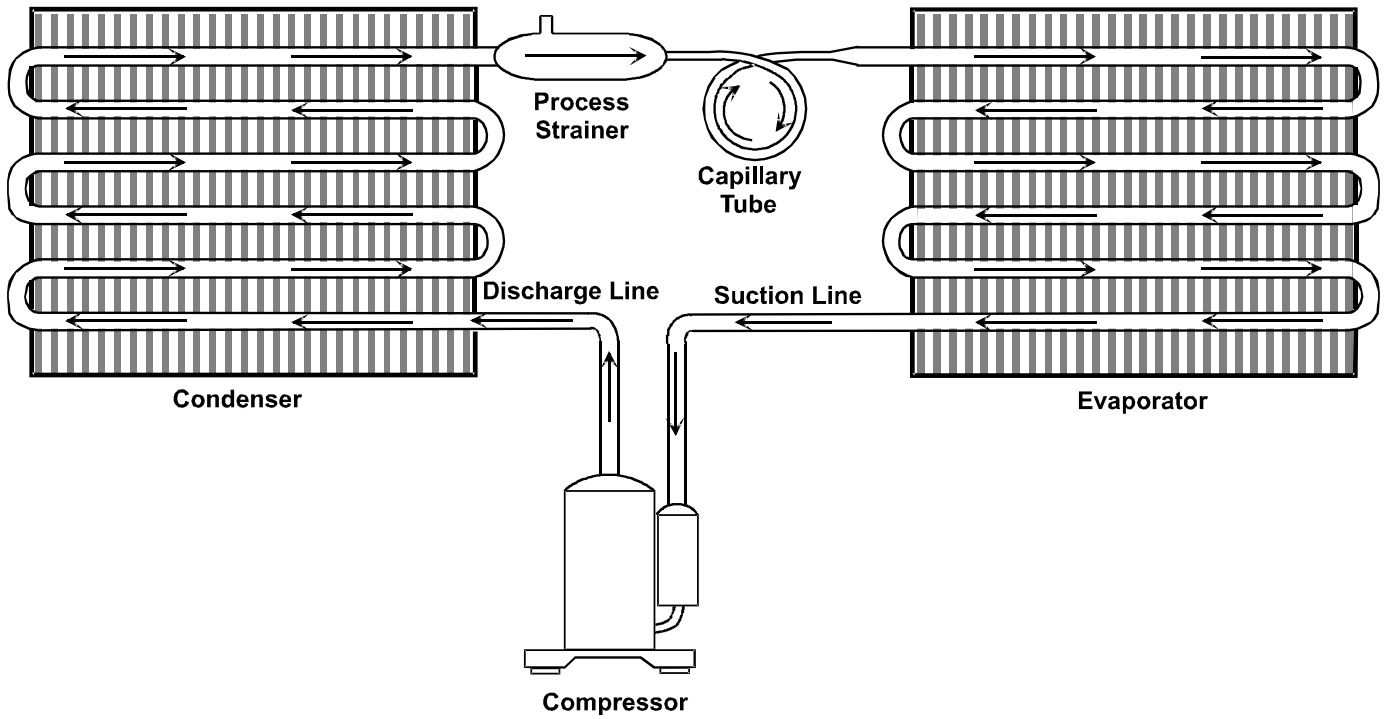
3. Remove the four (5) screws which secure the discharge air grille to the cabinet front.



DISCHARGE AIR FLOW GRILLE REMOVAL

4. Rotate the grille 180° end-for-end.
5. Reinstall the screws to 18 IN-LBS securing the discharge air grille to the cabinet front. Reinstall the cabinet front on the unit.

REFRIGERANT SYSTEM



SERVICING

REFRIGERATION SYSTEM SERVICE

IMPORTANT NOTE: Some models contain R32 refrigerant and can be identified in a couple ways. The model serial plate will indicate R32, there is a red label added to the process tube and A2L labels have been added to the unit. If there is damage to a the red label on the process tube it will need to be replaced.

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.

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 ¼ 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 ¼" to ⅝" 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

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.

SERVICING

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.

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.

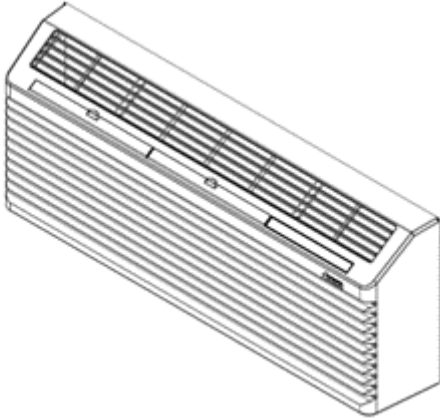
Efficient operation is dependent on a balanced system. One of the most common reasons for inefficiency is the users failure to adequately clean the condenser thereby creating reduced air movement.

SERVICING

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.



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:

- A. Dry bulb temperature of return air at conditioner. Locate thermometer as illustrated.
- B. Dry bulb temperature of air leaving conditioner. Thermometer has to be located as illustrated.
- C. 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.
- D. After the wet bulb temperature, dry bulb temperature, and return air temperature have been recorded, proceed to calculate the temperature difference as follows.
- E. 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.

1. Return air D.B. temperature: 80°F, Step A.
2. Discharge air D.B. temperature: 69°F, Step B.
3. Return air, wet and dry bulb temperature as recorded in Step C: Dry Bulb 80°F, Wet Bulb 75°F.
4. In left hand column of Cooling Capacity Chart headed Dry Bulb, find the 80° value.
5. 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

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

SERVICING

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

1. Outdoor dry bulb temperature reading - 95°F.
2. Check watts input - 1510.
3. 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).

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 - 208 Volts.
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.

SERVICING

COOLING CHANGE OF TEMPERATURE - AIR CONDITIONERS									
Model		PMC073 PTC073	PMC074 PTC074	PMC093 PTC093	PMC094 PTC094	PMC123 PTC123	PMC124 PTC124	PMC153 PTC153	PMC154 PTC154
Temperature		Temperature Across Indoor Coil (ΔT)	Temperature Across Indoor Coil (ΔT)	Temperature Across Indoor Coil (ΔT)	Temperature Across Indoor Coil (ΔT)	Temperature Across Indoor Coil (ΔT)	Temperature Across Indoor Coil (ΔT)	Temperature Across Indoor Coil (ΔT)	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		HEH073 PMH073 PTH073	HEH074 PMH074 PTH074	HEH093 PMH093 PTH093	HEH094 PMH094 PTH094	HEH123 PMH123 PTH123	HEH124 PMH124 PTH124	HEH153 PMH153 PTH153	HEH154 PMH154 PTH154
Temperature		Temperature Across Indoor Coil (Temperature Across Indoor Coil (Temperature Across Indoor Coil (Temperature Across Indoor Coil (Temperature Across Indoor Coil (Temperature Across Indoor Coil (Temperature Across Indoor Coil (Temperature Across Indoor Coil (
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 enter 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

Refer to the diagnostic flash codes on the following page.

SERVICING

Code	Status LED (Red/Grn)	Wireless LED (BLUE)	Status / Issue	Priority	Logged
A1	Flashing Green-L	n/a	Alarm (NO) on IN1 or IN2 Terminal	146	Y
A2	Flashing Green-L	n/a	Alarm (NC) on IN1 or IN2 Terminal	145	Y
br	Flashing Red-LS ^{^5}	n/a	Brown out	2	N
C1	Flashing Red-LS ^{^2}	n/a	Hyd coil freeze protection	51	Y
C2	Flashing Green- LS ^{^2}	n/a	Indoor recirculation	63	Y
C4	Flashing Red-LS ^{^2}	n/a	Frozen ID coil	13	Y
C5	Flashing Green- LS ^{^2}	n/a	Outdoor recirculation	64	Y
d5	Flashing Red-LS ^{^3}	n/a	OD DC Motor Issue	6	Y
d6	Flashing Red-LS ^{^3}	n/a	ID Blower Motor Issue	7	Y
Ec	Flashing Red-LS ^{^6}	n/a	Relay Configuration Error	4	Y
EH	Flashing Green- LS ^{^1}	n/a	Emergency. muffin	83	N
Eo	Flashing Red-LS ^{^6}	n/a	Service Board	5	N
F1			IAT & RIAT Sensor bad	8	
F2	Flashing Red-LS ^{^4}	n/a	T-stat Sensor bad	25	N
F3	Flashing Red-LS ^{^4}	n/a	IAT Sensor bad	30	Y

SERVICING

Code	Status LED (Red/Grn)	Wireless LED (BLUE)	Status / Issue	Priority	Logged
F4	Flashing Red-LS ^{^4}	n/a	ICT Sensor bad	31	Y
F5	Flashing Red-LS ^{^4}	n/a	Wireless device signal loss	26	Y
F6	Flashing Red-LS ^{^4}	n/a	IDT Sensor bad	32	Y
F7	Flashing Red-LS ^{^4}	n/a	OCT Sensor bad	33	N
F8	Flashing Red-LS ^{^4}	n/a	OAT Sensor bad	34	N
F9	Flashing Red-LS ^{^4}	n/a	CDT Sensor bad (old IHD)	35	N
FE	Flashing Red-LS ^{^4}	n/a	CST Sensor Bad	36	N
FA	Flashing Green-L	n/a	DigiAir suction cold	135	Y
Fb	Flashing Red-LS ^{^4}	n/a	Low Battery	27	Y
FC	Flashing Red-LS ^{^4}	n/a	DST Sensor bad	37	N
Fd	Flashing Green-LS ^{^1}	n/a	Front Desk	80	N
FH	Flashing Red-LS ^{^4}	n/a	DDT Sensor bad	38	N
Fh	Flashing Red-LS ^{^4}	n/a	OD %RH Sensor bad	39	N
Fo	Flashing Red-LS ^{^4}	n/a	DOAT on OD RH Sensor bad	40	N
Fp	Flashing Green-LS ^{^1}	n/a	Room Freeze Protection	85	N
H1	Flashing Red-LS ^{^5}	n/a	High Voltage	3	Y
H2	Flashing Green-LS ^{^2}	n/a	Hot compressor discharge	87	Y
H4	Flashing Red-LS ^{^2}	n/a	Hot compressor discharge	11	Y

SERVICING

Code	Status LED (Red/Grn)	Wireless LED (BLUE)	Status / Issue	Priority	Logged
HA	Flashing Green-L	n/a	DigiAir discharge hot	136	Y
HP	Flashing Green-LS ¹	n/a	Room Heat Protection	86	N
L3	Flashing Red-LS ²	n/a	Frosting indoor coil	50	Y
L4	Flashing Red-LS ²	n/a	Too hot indoor coil in heat	12	Y
L5	Flashing Green-LS ¹	n/a	Load Shedding	82	N
L6	Flashing Red-LS ²	n/a	Electric discharge too hot	10	Y
L7	Flashing Green-L	n/a	DigiAir refrigeration issue	137	Y
LC	Flashing Red-LS ²	n/a	OD Coil Hot Lockout	14	Y
LE	Flashing Green-LS ¹	n/a	OD Coil Frosted Lockout	88	N
LF	Flashing Green-LS ¹	n/a	OD Coil Frost Lockout	89	N
LH	Flashing Red-LS ⁶	n/a	(C3) Configuration Error	16	Y
oP	Flashing Green-LS ¹	n/a	Open door lockout	81	N
rC	Flashing Green-L	n/a	Wireless Twinned Control	148	N
Ur	Flashing Green-LS ¹	n/a	Unrented Room	84	N
---	Flashing Red-LS	n/a	Program error	1	N
---	Flashing Green-L	n/a	Error Free	150	N

SERVICING

Complaint	No Heat				Unsatisfactory Cooling				System Operating Pressures				Test Method Remedy	See Service Procedure Reference			
	SYMPTOM																
POSSIBLE CAUSE DOTS IN ANALYSIS GUIDE INDICATE "POSSIBLE CAUSE"	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	High head 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	
Airflow Across Coils													•			Check Motor Operation	
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

CHECKING VOLTAGE

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.

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.

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.

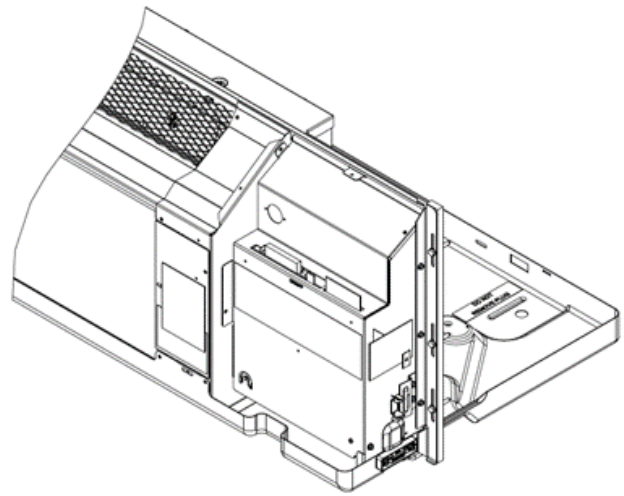
INDOOR AMBIENT THERMISTOR

1. Remove the front cover.
2. The thermistor is on the front of the unit and plugs in the lower right corner of the board. Unplug the thermistor from the board.
3. Check continuity between the thermistor wires, see chart for resistance and temperature ranges. If out of range replace the thermistor.

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 red thermistor from the control board's ICT Red CONNECTOR.
4. Check continuity between the thermistor wires, see chart for resistance and temperature ranges. If out of range replace the thermistor.
5. To replace the indoor coil thermistor remove the access plate shown in picture below to gain access to the thermistor. Thermistor goes through the side panel into control board compartment.



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.
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.

SERVICING

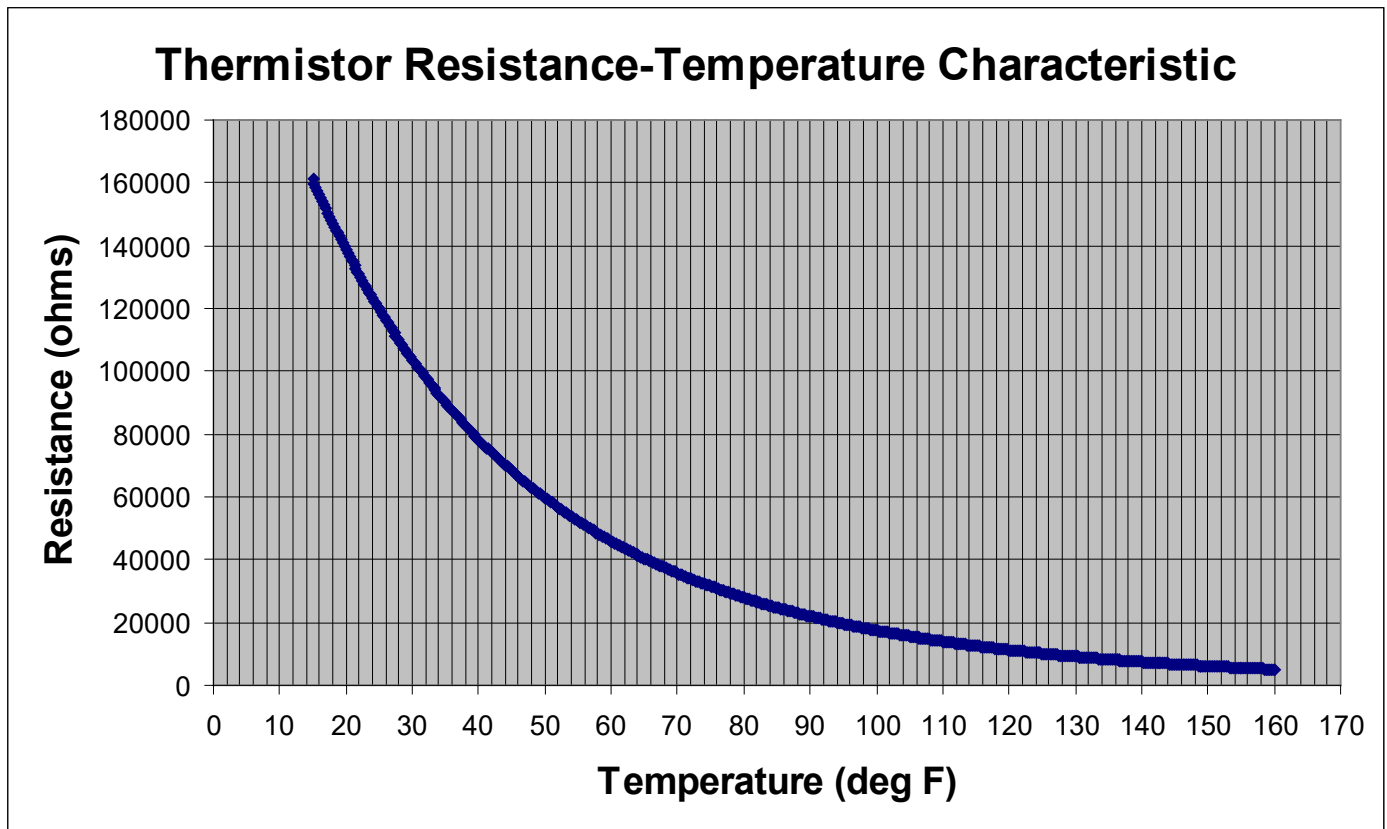


Chart applies to black, red, blue, yellow and green wires; it does not apply to orange wires.

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.

HEATER ASSEMBLY

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 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.

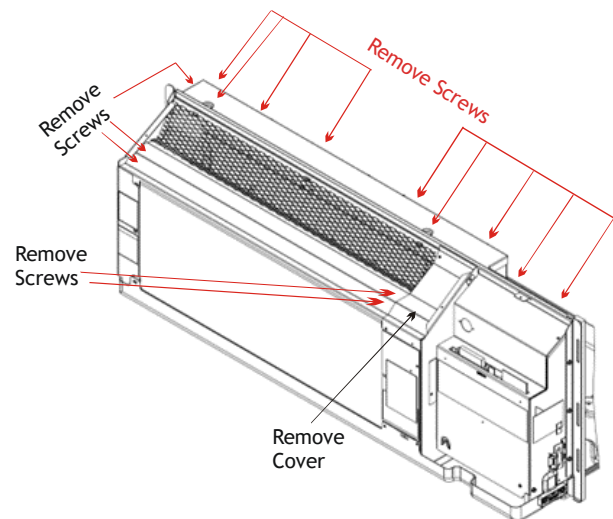


FIGURE A

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

SERVICING

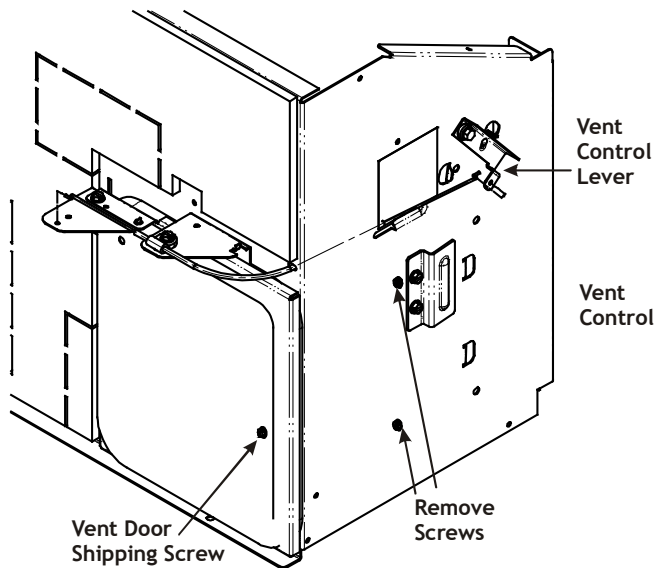


FIGURE B

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.

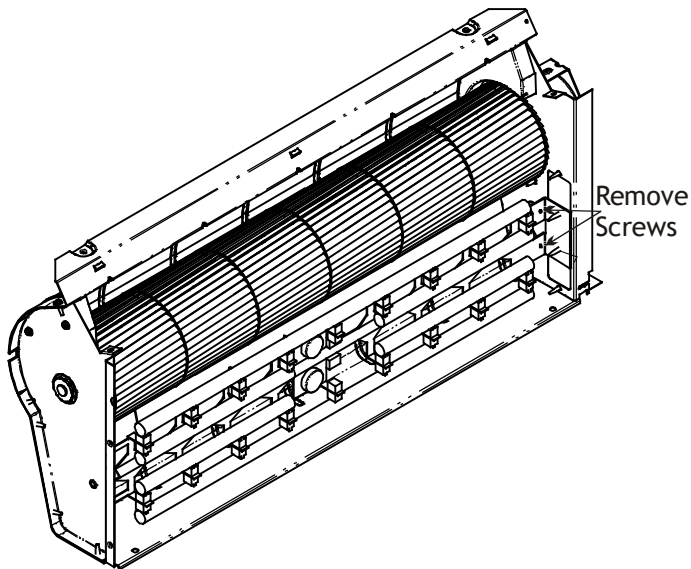


FIGURE C

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.

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.

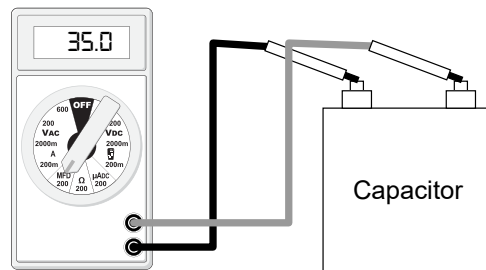
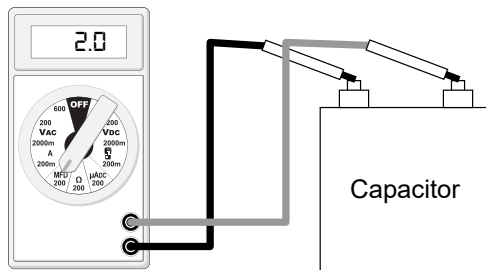
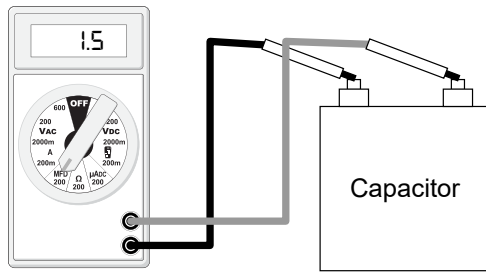
CAPACITOR CHECK

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

Discharge capacitor and remove wire leads.

SERVICING

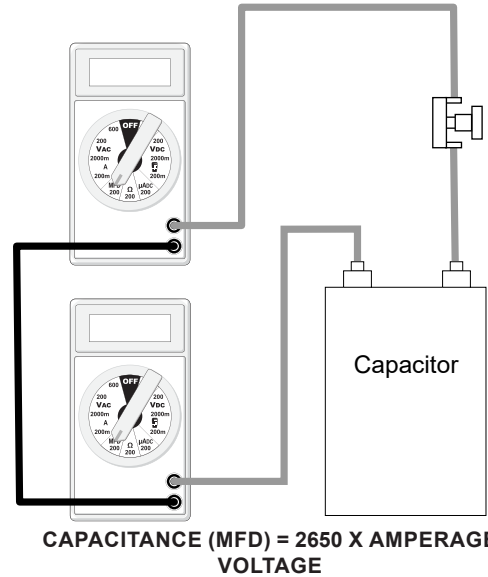


CAPACITOR RESISTANCE TEST

- 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).
 - Shorted - indicator swings to zero and stops there - replace.
 - Open - no reading - replace. (Start capacitor would read resistor resistance).
- 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:



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

CHECKING FAN AND MOTOR BLOWER WINDINGS

Blower Wheel, Blower Motor, Fan Blade

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

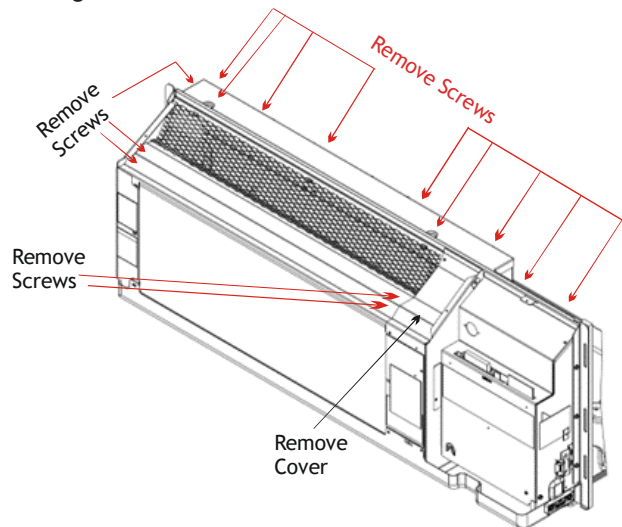


FIGURE D

SERVICING

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

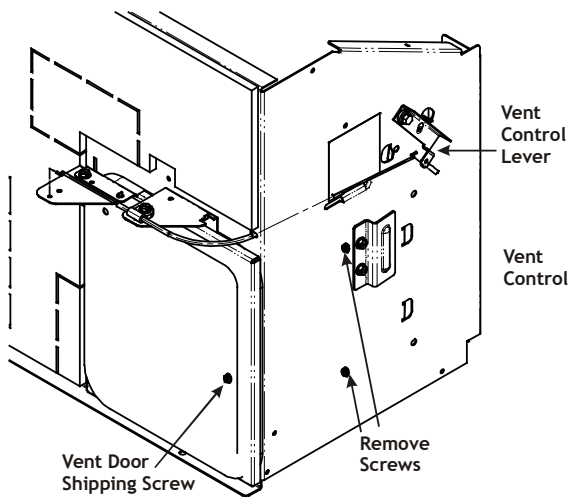


FIGURE E

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

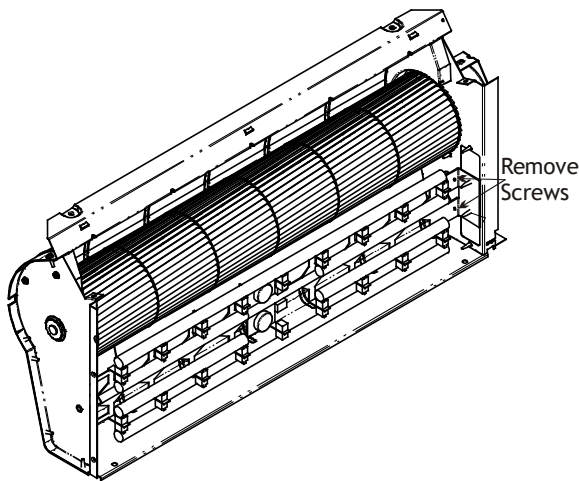


FIGURE F

- Lift up on the right side of the fan motor assembly to release the housing.
- Slide the assembly to the right as you are looking at it, and lift the assembly straight up.
- Loosen the set screw on the blower wheel
- Remove the three screws securing the motor to the housing and remove the motor from the blower wheel.
- 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.

- Remove the motor leads from their respective connection points and capacitor (if applicable).
- Check the continuity between each of the motor leads.
- 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.

COMPRESSOR WINDINGS

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

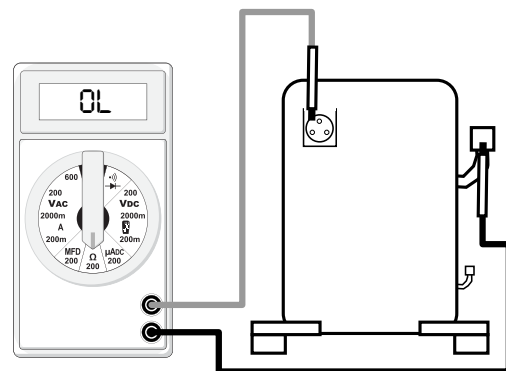
If the test indicates shorted, grounded or open windings, see procedure for the next steps to be taken.

RESISTANCE TEST

- With no power, remove the leads from the compressor terminals.
- 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.



SERVICING

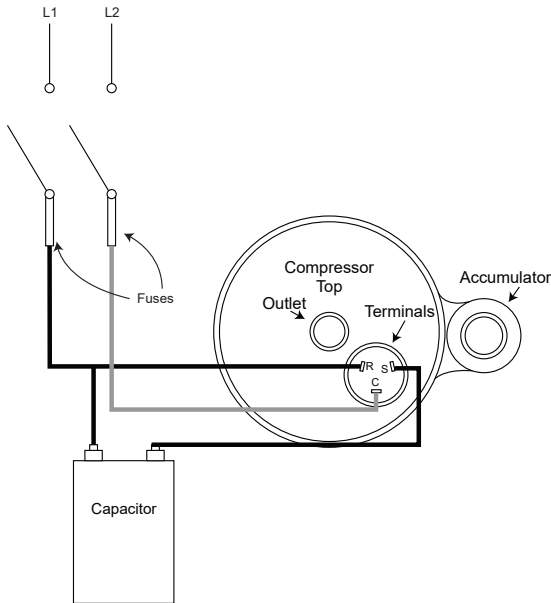
COMPRESSOR GROUND TEST

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

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.
 - 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.

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.

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".

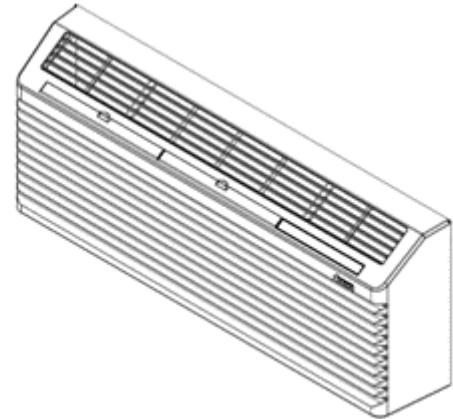
If the test shows:

- 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.

FILTER DRIER REPLACEMENT

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.

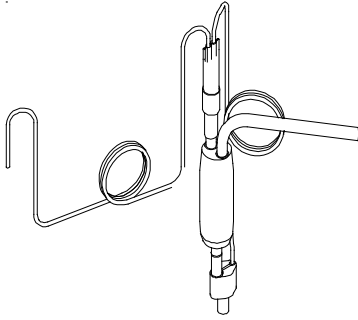


2. Remove the six screws securing the unit to the wall sleeve. If screws are not present they should be installed when units is reinstalled.
3. Pull unit from wall sleeve and take unit to adequate work area. Taking care not to spill any condensate which may still be in the basepan.

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.

SERVICING



5. To install the new filter drier assembly, remove the end plugs and clean the ends to be brazed into place.
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.
7. Braze coupling and cap tube into place.

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

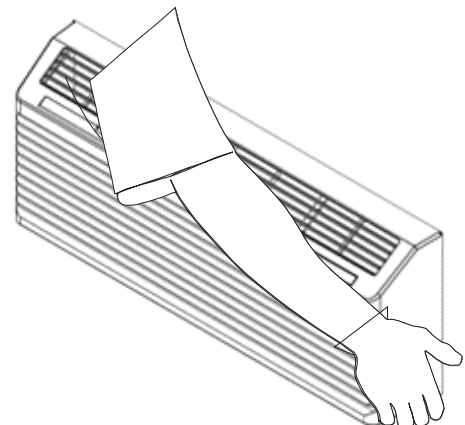
Replacement of the compressor, evaporator, condenser, capillary tubes and reversing valve must be in accordance with accepted service practices. These procedures include a complete evacuation of both high and low sides, and changing of both strainer whenever the refrigerant system is opened.

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

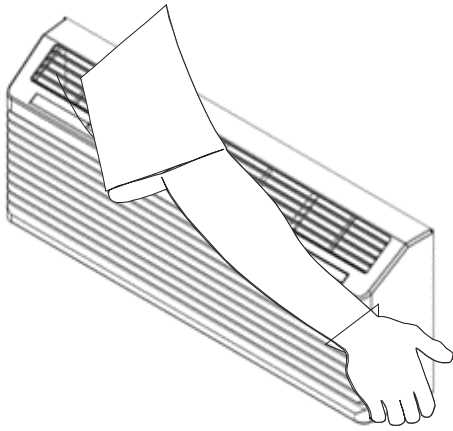
1. Remove the two screws securing the front to the chassis.

NOTE: Not all installations will use these screws.

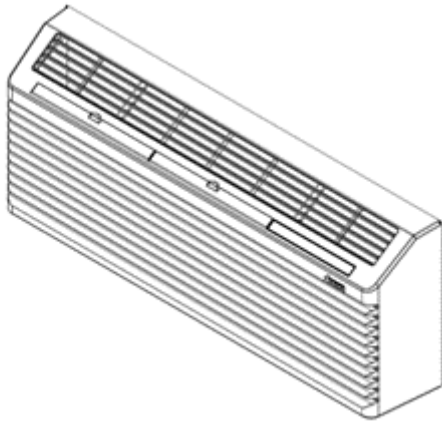


2. Grasp the cabinet front as shown.

SERVICING



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

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.

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.
6. Remove the two screw securing the outdoor coil to the base pan.
7. 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.

DIGIAIR™ PRODUCT INFORMATION

The Amana brand PTAC factory installed DigiAIR™ module is a "make-up air" system to assist in providing outside air into a room (living space) to replace ventilation air that is usually removed through an exhaust air system in bathroom areas. This exhausted air creates a negative air pressure in the room and the DigiAIR™ make up air system is designed to move most of the needed replacement outside air to enter the room through the DigiAIR™ dehumidification module. To assist in this needed outside make up air to be directed to come through the DigiAIR™ dehumidification module, a fan in the module operates continuously (as long as the module is properly maintained and powered), to provide positive pressure through the DigiAIR™ module to the inside room.

The DigiAIR™ Amana brand PTAC is a 2 compressor system. The Amana brand R32 / R410A PTAC system is used to assist in control of the sensible heat (room temperature) and latent load (moisture) that is brought into the room by the DigiAIR system and also the typical sensible and latent loads created in the room from occupants and typical air infiltration. The DigiAIR™ module is an R32 compressor system designed to continuously provide outside make up air at rates of up to 75 CFM (dependent on the room's negative pressure *). The outside air entering the room through the DigiAIR™ module is first filtered, to assist in keeping the DigiAIR™ coils clean, and then dehumidified. The DigiAIR™ dehumidification is engaged at outside air temperatures and humidity levels (RH%: Relative Humidity) when the air entering the room generally should have moisture reduced before it comes into the room.

SERVICING

The DigiAIR™ compressor/dehumidification process is controlled both by a humidity sensor and temperature sensor that monitor the outdoor environment. The DigiAIR™ module is factory pre-set at

- 50% RH: > 46° F and < 68° F
- 40% RH: > 68° F and < 78° F
- 25% RH: > 78° F

When the outdoor humidity (RH %) and temperature levels are above the DigiAIR™ settings, the compressor and dehumidification process begins. If the outdoor humidity level drops below the RH% settings at the temperatures above or the outdoor temperature drops below 48°F the compressor dehumidification operation ceases. The DigiAIR™ dehumidification RH% can easily be adjusted through the Amana brand PTAC touch pad, if changes to the factory preset RH% are desired. The 25% RH setting can be adjusted to as low as 15% or as high as 60%. The factory preset ranges are based on HVAC industry psychometric chart sensible temperature and humidity ratios that would generally require outside air to be dehumidified before being introduced into a room and should suffice from most applications.

A temperature sensor (brown thermistor) monitors the refrigeration temperature coming into the compressor (suction line) to protect against potential liquid refrigerant entering the compressor. If refrigerant temperatures are too low, the compressor will be cutoff to help protect the compressor from liquid refrigerant damage. A temperature sensor (green thermistor) monitors the outdoor air temperature, and if the temperature falls below 48°F, the compressor is disabled. Generally, at air temperatures below 48°F, the air coming through the DigiAIR™ module does not need to be dehumidified before entering the indoor room. Additionally, since the dehumidification coil (evaporator) is generally operating 12°F to 18°F below the outdoor temperature, the compressor should be cut off to prevent the evaporator coil from frosting or icing and not being able to exchange heat. A frosted or iced coil cannot dehumidify the incoming air. All dehumidifier controls and safety features are automatically reset.

The DigiAIR™ fan, when the unit is properly powered and maintained, will operate 24/7/365 to provide continuous outside makeup air, even when the compressor is not operating. For installation locations where the winters are cold, or it is desired to warm the air coming through the DigiAIR™ system before it enters the room, an optional 250 watt electric heater is available for the make-up air system.

Condensate water generated from the DigiAIR™ dehumidifier operation drains directly into the PTAC's exterior base pan. When the PTAC's R32 compressor is operating in the cooling mode, and the outside air temperature is above 60°F, condensate water in the PTAC's exterior base pan will be picked up and slung onto

the condenser coil for re-evaporation to the outside air. Excess condensate is drained into the PTAC's wall case from which it can drain either to the outside through the drain holes in the sleeve or piped to a drainage system with the use of an optional drain kit. Since condensate water can be generated from the PTACs compressor operation in either the cooling mode or, in the case of a heat pump, during reverse cycle operation plus the added condensate water generated from the DigiAIR™ dehumidification operation, a piped condensate drain system is highly recommended.

NOTE: A DigiAIR™ module is intended to work in conjunction with a building exhaust system. As an example, to obtain 55 CFM of outside makeup air, the room exhaust ventilation system needs to create a 0.053 (inches H2O) negative static pressure in the indoor conditioned room. CFM can be increased or decreased by increasing or lowering the negative static pressure created by the property ventilation system. The DigiAIR can provide up to 75 CFM when negative static pressures are increased to a high enough level. Failure to properly exhaust the air introduced by the DigiAIR™ makeup air module will result in poor performance of both the outside air volumes (CFM) and the proper dehumidification of the makeup air.

This unit is shipped, tested and rated with the dehumidification switch off.

Dehumidification Kit Volts	230
Frequency (Hz)	60
Phase	1
Dehumid Comp. RLA	1.05
Dehumid comp. LRA	3.30
Res. Heat Watts	250
Res. Heat Amps	1.10
Refrigerant R-134A Oz.	3.20
High Side Pressure (Psig)	200
Low Side Pressure (Psig)	60
Air Flow (CFM)	55
Dehumidification (Oz/Hr)	5
Kit Weight (lbs)	20

DIGIAIR™ SYSTEM FEATURES

DigiAIR™ is a factory added module to an Amana brand PTAC to provide for outside makeup air that is dehumidified when needed:

1. Lower installation and renovation costs than typical central dedicated outdoor air systems (DOAS).
2. Configurable dehumidification settings based on HVAC industry psychometric data. Configuration can easily and accurately be adjusted through a few button clicks of the PTAC touchpad by any authorized site personnel.

SERVICING

3. Outside Makeup air volumes of up to 75 CFM.
4. Drier room conditions (lower RH %) usually means that room occupants will feel comfortable at higher sensible temperatures saving PTAC operational costs.
5. Optional 250 watt electric heater to warm colder outside air when needed.
6. Filter to assist in keeping the DigiAIR™ coils cleaner to maintain dehumidification and outside air flow. Permanent and washable.
7. Vent door is configurable to either be open 100% of the time or can be closed if codes permit intermittent operation.
8. Future, optional Web access to allow monitoring and configuration access through an Amana DigiSmart / DigiLink internet connectivity.

INSTALLATION INSTRUCTIONS

The DigiAIR™ makeup air and dehumidification module is factory installed to the PTAC partition panel and base pan as shown in Figure 2. The optional heater, to raise the inlet air temperature in cold climates, is attached to the indoor section of the partition panel. The DigiAIR™ power switch is shipped from the factory in the “off” position. Before installing the PTAC front cover, change the DigiAIR™ power switch to the “on” position if makeup air is desired. The DigiAIR™ power switch is located on the front of the PTAC control and is visible when the front is not installed. Also, if the DigiAIR™ vent door is to be manually secured in the open position, the vent door screw must be inserted before the PTAC is installed into the wall sleeve.

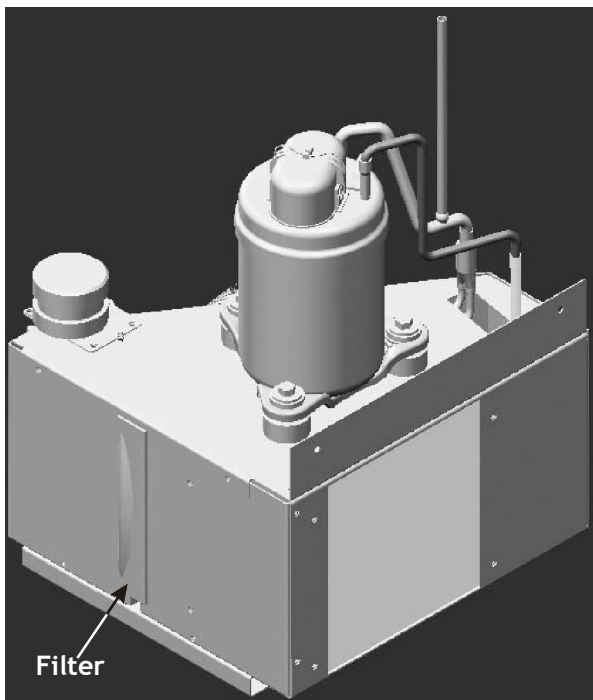


FIGURE 1 - DIGIAIR™ KIT

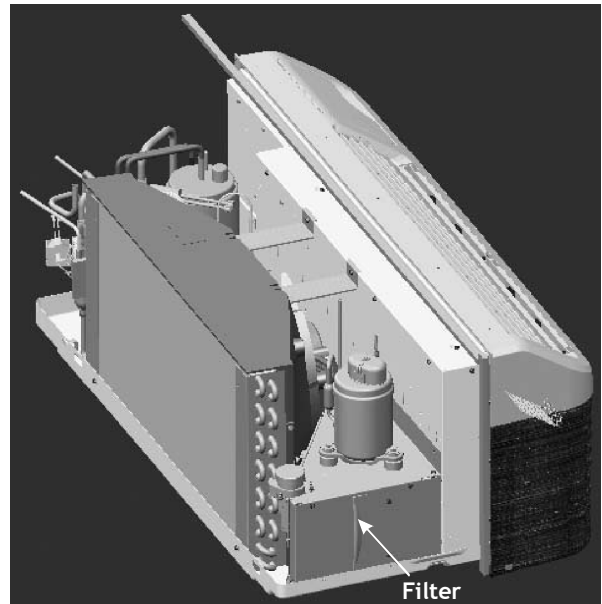


FIGURE 2 - DIGIAIR™ KIT INSTALLED IN PTAC UNIT

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.

OPERATING INSTRUCTIONS

The DigiAIR™ power switch should be in the “ON” position to activate the module. When this switch is ON and the PTAC unit is properly powered, the fan will operate and the vent door motor will keep the DigiAIR™ vent door in the open position.

This allows makeup outside air to flow through the DigiAIR™ system, 24/7/365. The compressor and optional 250 watt electric resistance heater may be energized when configured temperatures, outside air RH% and operating conditions are met. If codes or property ownership mandate that the makeup air is required 100% of the time, then the DigiAIR™ module should never be powered off. If preferred, the vent door can be permanently installed in the open position by adding a screw to the additional holes provided in the vent panel and vent door, Figures 3, 4, 5. To keep the vent door always open, manually align Figures 4 and 5 then insert a screw through the vent door & vent panel holes. See Figure 4 & 5.

SERVICING

If local codes allow for the property (or individual room) ventilation exhaust system to be powered off in extreme weather conditions (very cold weather, dust storms etc.) or when the room becomes unoccupied, the DigiAIR™ module can be powered off and the fan will cease operating and the vent door will slide to the closed position (if the optional vent door screw is not installed).

NOTE: If it is preferable for the vent door to be manually kept open at all times, the screws must be inserted before the unit is installed into the wall sleeve.

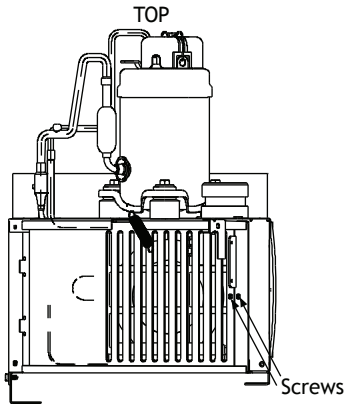


FIGURE 3

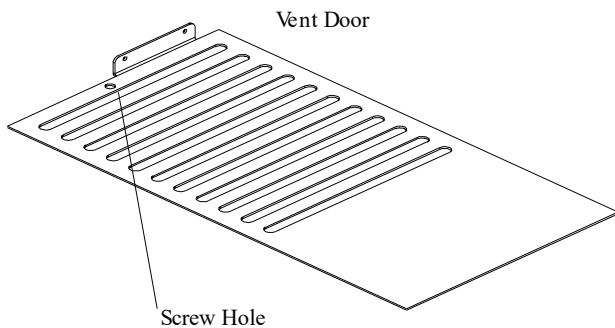


FIGURE 4

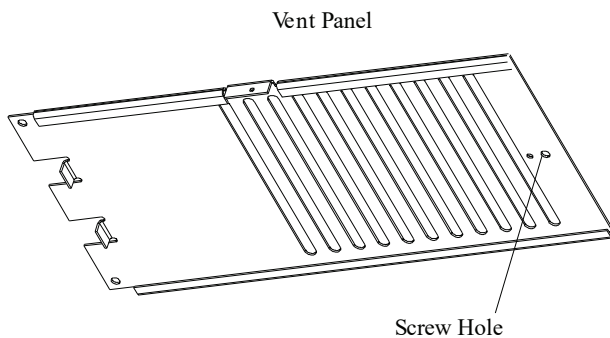


FIGURE 5



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/PR REMOVING
THE UNIT CORD SET PLUG FROM THE WALL OUTLET.



MAINTENANCE AND CLEANING

Complete PTAC maintenance and cleaning instructions can be found in IO-447*.

DIGIAIR™ INTAKE AIR FILTER

To properly maintain the operational performance of your DigiAIR™ Make-up air module, it is extremely important that the inlet air filter be cleaned, at minimum, every 3 months or more often if operated in dusty or dirty locations or conditions. Dirty filters will dramatically reduce both the supplied CFM of outside air as well as lower the dehumidification of the air passing through the DigiAIR™ module. The intake air filter is constructed of durable polypropylene, and is designed to be permanent and washable.

Filters should be checked frequently after initial installation and operation and cleaned as required. This will assist in establishing the proper time interval to maintain for future scheduled cleaning.

Before cleaning the intake filter, turn off the power to the entire PTAC unit and unplug the unit from the power receptacle.

The following procedure is used to remove the intake filter:

1. Pull the PTAC unit out from the wall sleeve sufficiently to allow access to the filter. See complete instructions for removing and reinstalling the PTAC chassis from the wall sleeve in IO-447*.
2. Grasp the filter by its molded handle, located on the side of the kit (See Figures 1 & 2).
3. Pull the filter straight out from the side and remove.

NOTE: Spare filters are available and you can also replace the existing filters with new ones and remove the dirty filters to a central location to thoroughly clean and have them ready for the next filter check.

4. Clean filter with vacuum or with running water.
Reverse this procedure to reinstall the filter.

SERVICING

5. Also inspect and clean the vent door as needed to remove material that can restrict air flow into the DigiAIR module. It is also recommended that the condensate drainage is checked while the DigiAIR™ filter is being cleaned or replaced. Make sure that water is properly allowed to drain from the PTAC base pan and wall sleeve or drainage system. Also, with the added condensate volumes from the DigiAIR™ system, manufactured approved time released algaecide pads should be considered to keep the water flowing properly.
6. Reinstall the PTAC chassis into the wall sleeve. Reinststate power to the PTAC and make sure that the DigiAIR™ power switch is in the on position.
7. While the R410A PTAC is not actively conditioning the air and the PTAC fan(s) are in the off position, check to make sure that air is flowing through the DigiAIR™ module into and through the PTAC into the room.

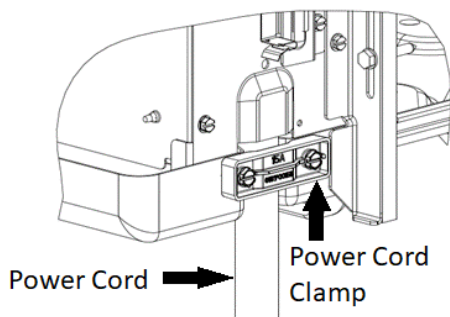
OBTAINING SERVICE FOR DIGIAIR™

In the event this unit requires repair or servicing beyond what is covered in this manual, contact an authorized service organization.

To obtain an authorized servicer, contact your sales representative or agency.

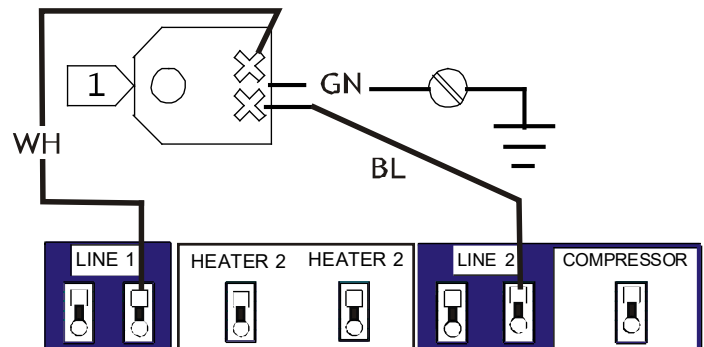
POWER CORD

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 115 volt or 230/208 volt units disconnect the white lead from the LINE 1 terminal on the control board and the black 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 LINE 1 terminal on the control board 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.)
4. Remove screws on mid partition panel and shift out of the way.
5. Remove the two screws securing the heater assembly to the evaporator.
6. Pull heater assembly up and out of the chassis.
7. Disconnect all wiring to the heater assembly and remove the assembly.
8. Remove the floodback protector or thermistor from the evaporator discharge tube.
9. Remove screws holding evaporator to basepan and partition panel.
10. 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.
11. Lift the evaporator up over the basepan edge and remove.

ACCESSORIES

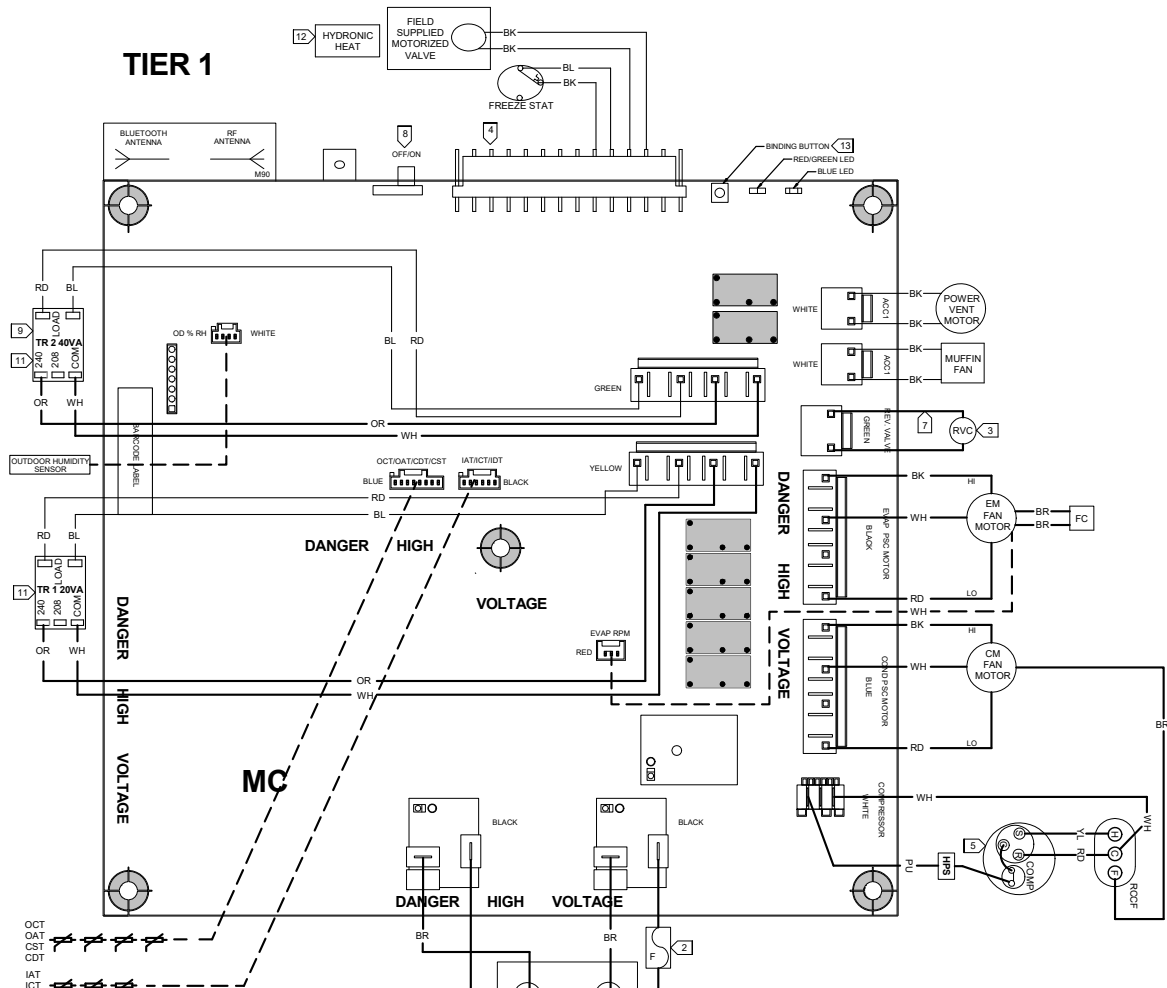
Accessory Description	Part Numbers
Antenna	DT01G
Antenna Generic Radio	GT01G
Circuit Breaker Kit(208/230Vonly)	CBK15C, CBK20C and CBK30C
Condensate Drain Kit	DK900D
Condenser Baffle Kit	DGK1B
Door Sensor	DD01G
Duct Extention	EDK02B
Hard Wire kit Quick Disconnect 208/230v	PTQC3A
Hard Wire Kit	PTPWHWK4
Hard Wire Kit Quick Disconnect 265v	PTQC4A
Hydronic Hot water Kit	HWK03
Hydronic Steam Kit	HVK03
Main Duct Kit	MDK01E
Outdoor Grill Architectural	AGK01TB
Outdoor Grill Standard	SGK01B
Subbase Kit 208/230v 15/20A	PTSB320E
Subbase Kit 208/230v 30A	PTSB330E
Subbase Kit 265v 15/20A	PTSB420E
Subbase Kit 265v 25A	PTSB430E
Terminal Duct	TDK02B
Wall Sleeve	WS900E
Web-enabled Platform Servicer	DL01G
Wire Harness Kit	PWHK01C
Wired Wall Thermostat	PHWT-A150H
Wireless Thermostat	DS01G

WIRING DIAGRAMS

WARNING IT IS ESSENTIAL THAT INDOOR AND OUTDOOR UNITS BE PROPERLY MATCHED. FAILURE TO FOLLOW THESE INSTRUCTIONS OR TO PROPERLY MATCH EVAPORATORS AND CONDENSERS CAN RESULT IN UNIT DAMAGE, PROPERTY DAMAGE AND/OR PERSONAL INJURY. NO WARRANTY CLAIM WILL BE HONORED FOR MIX-MATCHED SYSTEMS THAT FAIL TO ADHERE TO THE SPECIFIED PISTON SIZE.

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

WIRING IS SUBJECT TO CHANGE



NOTES:

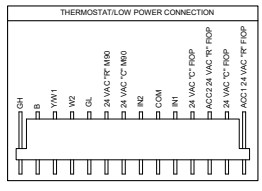
1. **WARNING: DISCONNECT POWER BEFORE SERVICING.** WIRING TO UNIT MUST BE PROPERLY POLARIZED (FOR 265V AND 115V) AND GROUNDED.
2. REQUIRED FOR 265V UNITS
3. ON HEAT PUMP MODELS ONLY.
4. FOR REMOTE THERMOSTAT OPERATION, SEE CONFIGURATION CHART.
5. PTC073G**, HEC073H** AND NEVER COMPRESSORS REQUIRE NO EXTERNAL OVERLOAD. HPS WILL WIRE STRAIGHT TO "C" TERMINAL ON COMPRESSOR
6. CHORD COLOR ON 265V MODELS IS WHITE, BUT THERE IS A BLACK DOT OR SLEEVE ON THE BLACK SIDE OF THE WHITE CHORD, FOR 230V & 115V MODELS, THE WIRE COLOR IS BLACK.
7. FOR 265V MODELS, THE WIRE COLOR IS BLUE. FOR 260V & 115V MODELS, THE WIRE COLOR IS BLACK
8. SHOWN IN "ON" CONDITION
9. TR2 IS ONLY INCLUDED FOR FIOPS
10. WHITE WIRE MUST BE CONNECTED AS SHOWN AND IS THE NEUTRAL FOR 265V AND 115V UNITS (230/208V UNITS ARE HOT ON BOTH SIDES)
11. IF THE UNIT IS POWERED BY A 208V SUPPLY, SWITCH THE TRANSFORMER POST TO 208V. 265V AND 115V TRANSFORMERS NOT SHOWN AND ONLY HAVE 1 POST.
12. FIOPS SHOWN IN POSSIBLE WIRING CONFIGURATION, HOWEVER, SOME ARE MUTUALLY EXCLUSIVE DEPENDING ON CONFIGURATION AND CAN BE CONNECTED TO ACC1 OR ACC2 (NOTE, MULTIPLE KITS CANNOT BE WIRED TO THE SAME TERMINAL AS SHOWN FOR ILLUSTRATION PURPOSES)
13. PRESS AND RELEASE BIND BUTTON TO INITIATE BLUETOOTH PAIRING WITH SMART PHONE FOR CONFIGURATION AND DIAGNOSTICS. PRESS AND RELEASE BINDING BUTTON FOR A LEAST 5 SECONDS AND LESS THAN 10 SECONDS THEN RELEASE TO INITIATE BINDING TO IN-ROOM THERMOSTAT WIRELESS AND OCCUPANCY SENSOR

COMPONENT LEGEND

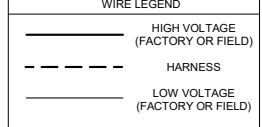
CM	OUTDOOR FAN MOTOR	BK	BLACK
COMP	COMPRESSOR	BL	BLUE
EM	EVAPORATOR MOTOR	BL/PK	BLUE WITH PINK STRIPE
F	FUSE	BR	BROWN
FC	FAN CAPACITOR	GR	GREEN
FIOP	FACTORY OR FIELD	GY	GRAY
HPS	HIGH PRESSURE SWITCH	OR	ORANGE
HTR	HEATER ELEMENT	PK	PINK
MC	MAIN CONTROL	PU	PURPLE
PSC	PERMANENT SPLIT CAPACITY	RD	RED
R	RELAY	TN	TAN
RCCF	RUN CAPACITOR FOR COMPRESSOR, AND FAN	VT	VIOLET
RVC	REVERSING VALVE COIL	WH	WHITE
TF	TRANSFER FAN	YL	YELLOW
TR	TRANSFORMER	YL/PK	YELLOW WITH PINK STRIPE
PSC	PERMANENT SPLIT CAPACITOR	GN	GROUND
VSM	VARIABLE SPEED MOTOR		

REMOTE THERMOSTAT OPERATION			
HEAT PUMP W/AUXILIARY ELECTRIC HEAT		COOLING UNIT W/ ELECTRIC HEAT	
FUNCTION	CONNECT R TO:	FUNCTION	CONNECT R TO:
OFF	---	OFF	---
FAN	G **	FAN	G **
COOL	G, YW1	COOL	G, YW1
1ST STAGE HEAT	G, B, Y / W1*	HEAT	G, W2 OR G, B, Y / W1*
2ND STAGE HEAT	G, W2		

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



USE COPPER CONDUCTORS ONLY
 CHASSIS (GND) CONTROL PANEL



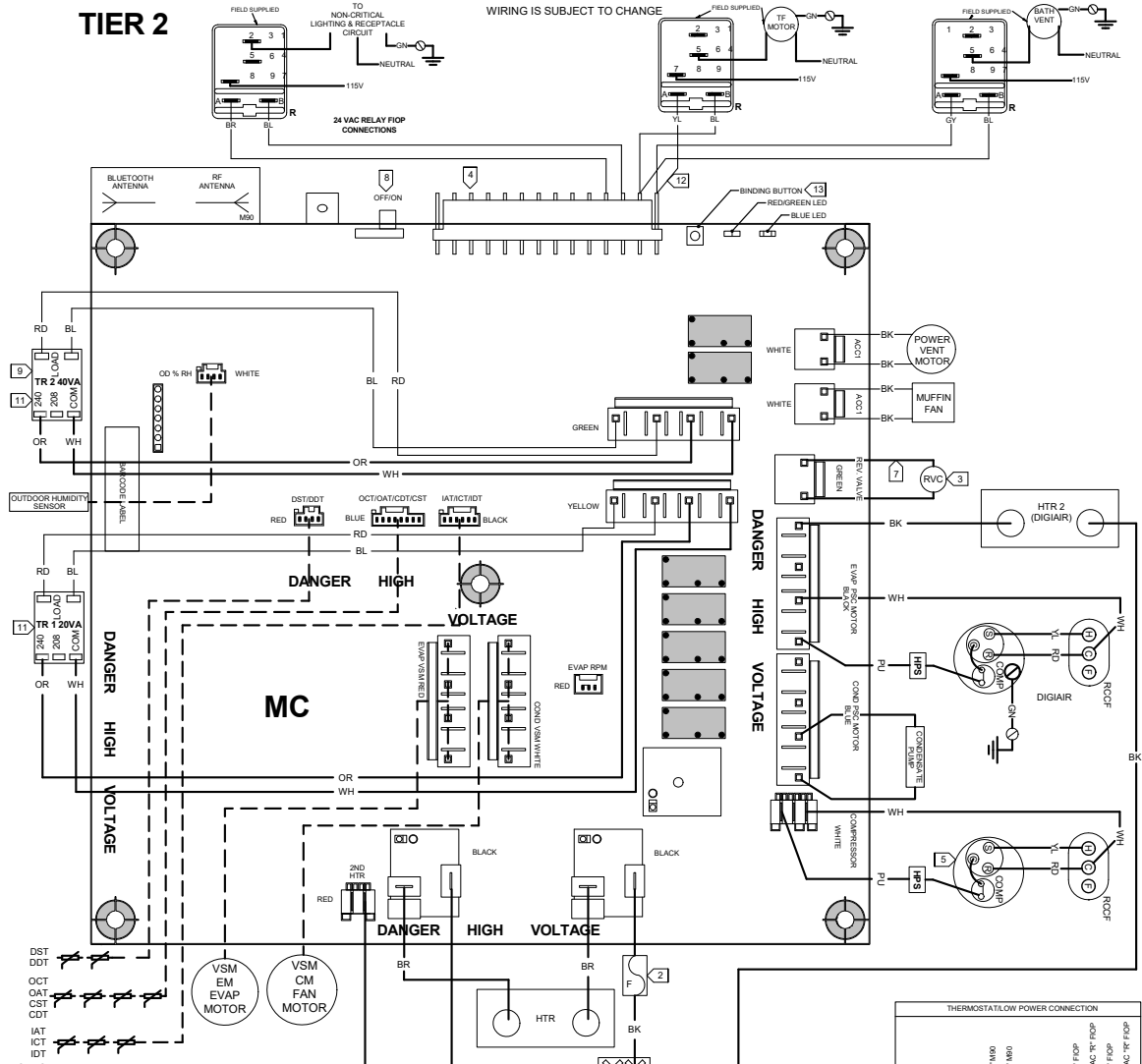
10-936A

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

WIRING DIAGRAMS

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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.



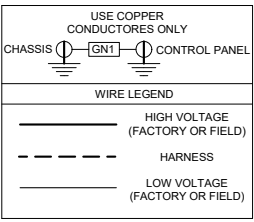
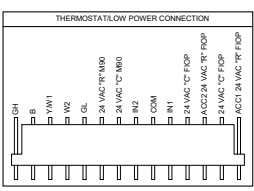
- NOTES:**
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- THERMISTOR WIRE COLOR**
- | | |
|--------------------------------------|--------|
| DST DIGIAIR SUCTION TEMPERATURE | BROWN |
| DDT DIGIAIR DISCHARGE TEMPERATURE | GRAY |
| CCT OUTDOOR COIL TEMPERATURE | BLUE |
| CAT OUTDOOR AMBIENT TEMPERATURE | GREEN |
| CS COMPRESSOR SUCTION TEMPERATURE | VIOLET |
| CDT COMPRESSOR DISCHARGE TEMPERATURE | ORANGE |
| IAT INDOOR AMBIENT TEMPERATURE | BLACK |
| ICT INDOOR COIL TEMPERATURE | RED |
| IDT INDOOR DISCHARGE TEMPERATURE | YELLOW |

COMPONENT LEGEND		WIRE CODE	
CM	OUTDOOR FAN MOTOR	BK	BLACK
COMP	COMPRESSOR	BL	BLUE
EM	EVAPORATOR MOTOR	BL/PK	BLUE WITH PINK STRIPE
F	FUSE	BR	BROWN
FC	FAN CAPACITOR	GR	GREEN
FIOP	FACTORY OR FIELD	GY	GRAY
R	RELAY	OR	ORANGE
HPS	HIGH PRESSURE SWITCH	PK	PINK
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RSC	RELAY	VT	VIOLET
RCCF	RUN CAPACITOR FOR COMPRESSOR, AND FAN	WH	WHITE
RF	REVERSING VALVE COIL	YL	YELLOW
TF	TRANSFER FAN	YL/PK	YELLOW WITH PINK STRIPE
TR	TRANSFER FAN	GN	GROUND
PSC	PERMANENT SPLIT CAPACITOR		
VSM	VARIABLE SPEED MOTOR		

4

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

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



10-937A

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