



# TECHNICAL MANUAL

## PBC/PBE/PBH Through-The-Wall R-410A Air Conditioners & Heat Pumps

- All safety information must be followed  
See Installation instructions for more safety precautions.
- Refer to the appropriate Parts Catalog for part number information.
- Models listed on page 3.



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.

RT4271001  
May 2010



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# PRODUCT IDENTIFICATION



The model number is used for positive identification of component parts used in manufacturing. Please use this number when requesting service or parts information.

PBC092E00AX  
PBC122E00AX

PBC093E00AX  
PBC123E00AX


PBE093E35AX  
PBE123E35AX

PBH092E12AX  
PBH093E35AX  
PBH113E35AX

 **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.

To avoid death, personal injury or property damage due to electrical shock:


- Observe all local codes and ordinances.
- Disconnect electrical power to unit before servicing.
- Ground appliance properly.
- Check with a qualified electrician if you are not sure this appliance is properly grounded.
- DO NOT ground to gas line.
- DO NOT ground to cold water pipe if pipe is interrupted by plastic, non-metallic gaskets, or other insulating (non-conducting) materials.
- DO NOT modify plug on power cord. If plug does not fit electrical outlet, have proper outlet installed by qualified electrician.
- DO NOT have a fuse in the neutral or ground circuit. A fuse in the neutral or ground circuit could result in an electrical shock.
- DO NOT use an extension cord with this appliance.
- DO NOT use an adapter plug with this appliance.
- DO NOT pinch power cord.
- DO NOT REMOVE warning tag from power cord.


 **WARNING**


**HIGH TEMPERATURE STRESS HAZARD**  
This room air conditioner is not meant to provide unattended cooling or life support for persons or animals that are unable to react to failure of the 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 ward off or guard against such an occurrence.

 **WARNING** The United States Environmental Protection Agency (“EPA”) has issued various regulations regarding the introduction and disposal of refrigerants introduced into this unit. Failure to follow these regulations may harm the environment and can lead to the imposition of substantial fines. These regulations may vary by jurisdiction. Should questions arise, contact your local EPA office.

 **WARNING** Do not connect or use any device that is not design certified by Goodman for use with this unit. Serious property damage, personal injury, reduced unit performance and/or hazardous conditions may result from the use of such non-approved devices.

 **WARNING** To prevent the risk of property damage, personal injury, or death, do not store combustible materials or use gasoline or other flammable liquids or vapors in the vicinity of this appliance.

# PRODUCT DESIGN

PBC, PBE and PBH through-the-wall room air conditioners are designed for window installations in residential applications and are available in 9,000 through 18,000 BTUH sizes. They are designed for 208/230/115 volt single phase applications.

The provided filter must be installed and under no circumstances should the unit be operated without the filter in place.

## ***Location and Clearances***

Be sure electrical service is adequate for chosen model of air conditioner or heat pump. Complete electrical rating for unit is found on serial plate located behind front grille. Electrical outlet must be close enough to unit for power cord to reach without strain.

Air conditioner should be the only appliance on individual circuit.

For personal safety and to avoid possible damage to appliance or home, observe all safety instructions.

## **NOTES:**

1. Mechanical experience is required to install the air conditioner or heat pump.
2. Installation can take from 1 to 3 hours, depending on installer's knowledge and skill.
3. If you encounter problems during installation, call our consumer information line toll-free at 1-877-376-0214 (U.S. and Canada only). If your problem cannot be resolved by phone, contact an authorized Amana® brand servicer. *Contact and service will be at your expense.*

# SPECIFICATIONS

PBC\*\*\*E00AX

MODEL	PBC092E00AX	PBC122E00AX	PBC093E00AX	PBC123E00AX
Cooling (BTU's)	9200	11800	9200 8900	11800 11400
@ EER	9.8	9.4	9.8	9.8
Cooling Watts	940	1260	940 - 910	1200 - 1160
Cooling Amps	8.6	11.6	4.4 - 4.7	5.6 - 6.0
Voltage	115	115	230 -208	230 -208
Plug Type	Parallel	Parallel	Tandem	Tandem
Power Cord Rating	15 amp	15 amp	15 amp	15 amp
Power Cord Type	LCDI	LCDI	LCDI	LCDI
Power Cord length	8 feet	8 feet	6 feet	6 feet
Dehumidification: pints / hour	41 oz./hr	55 oz./hr	41 oz./hr	55 oz./hr
Fan Speeds				
CFM cooling : High-Low	275	275	275	275
Fan Only Speed	3 Speed	3 Speed	3 Speed	3 Speed
Controls				
Thermostat temp. range	64° - 86°	64° - 86°	64° - 86°	64° - 86°
Outercase : insulation panels	PBWS01A	PBWS01A	PBWS01A	PBWS01A
Condensate Drain Spout	Yes on Outercase	Yes on Outercase	Yes on Outercase	Yes on Outercase
Thermostatic Drain Valve	Yes	Yes	Yes	Yes
Adjustable changeover thermostat	---	---	---	---
Chassis Size	26" TTW	26" TTW	26" TTW	26" TTW
Chassis Height	15.625"	15.625"	15.625"	15.625"
Chassis Width	26"	26"	26"	26"
Chassis Depth	16.875"	16.875"	16.875"	16.875"

# SPECIFICATIONS

PBE\*\*\*E00AX

MODEL	PBE093E35AX	PBE123E35AX
Cooling (BTU's)	9200 8900	11800 11400
@ EER	9.8	9.8
Cooling Watts	940 - 910	1200 - 1160
Cooling Amps	4.4 - 4.7	5.6 - 6.0
Electric Heat	11000 - 9000	11000 - 9000
Electric Heat Watts	3500 - 2900	3500 - 2900
Electric Heat Amps	15 / 14	15 / 14
Heatpump	---	---
Heatpump Watts	---	---
Heatpump Amps	---	---
Fan Watts Indoor	64 Indoor	64 Indoor
Fan Watts Outdoor	123 Outdoor	123 Outdoor
Voltage	230 -208	230 -208
Plug Type	Perpendicular	Perpendicular
Power Cord Rating	20 amp	20 amp
Power Cord Type	LCDI	LCDI
Power Cord length	6 feet	6 feet
Dehumidification: pints / hr.	41 oz./hr	55 oz./hr
Fan Speeds		
CFM cooling : High-Low	265/-	265/-
Fan Only Speed	3 Speed	3 Speed
Controls		
Thermostat temp. range	64° - 86°	64° - 86°
Outercase : insulation panels	PBWS01A	PBWS01A
Condensate Drain Spout	Yes on Outercase	Yes on Outercase
Thermostatic Drain Valve	Yes	Yes
Adjustable changeover thermostat	---	---
Chassis Size	26"	26"
Chassis Height	15.625"	15.625"
Chassis Width	26"	26"
Chassis Depth	16.875"	16.875"

# SPECIFICATIONS

PBH\*\*\*E00AX

MODEL	PBH092E12AX	PBH093E35AX	PBH113E35AX
Cooling (BTU's)	9000	9000 8700	11500 11100
@ EER	9.4	9.4	9.4
Cooling Watts	960	960 - 930	1220 - 1180
Cooling Amps	8.8	4.5 - 4.8	5.7 - 6.2
Electric Heat	3900	11000 - 9000	11000 - 9000
Electric Heat Watts	1150	3500 - 2900	3500 - 2900
Electric Heat Amps	11	15 / 14	15 / 14
Heatpump (BTU's)	8500	8500 8200	11000 10700
@ C.O.P.	2.9	2.9	2.7
Heatpump Watts	860	860 - 830	1195 - 1160
Heatpump Amps	7.7	4.0 - 4.2	5.2 - 5.6
Fan Watts Indoor	64 Indoor	64 Indoor	64 Indoor
Fan Watts Outdoor	123 Outdoor	123 Outdoor	123 Outdoor
Voltage	115	230 -208	230 -208
Plug Type	Parallel	Perpendicular	Perpendicular
Power Cord Rating	15 amp	20amp	20amp
Power Cord Type	LCDI	LCDI	LCDI
Power Cord length	8 feet	6 feet	6 feet
Dehumidification: pints / hr.	41 oz./hr	41 oz./hr	55 oz./hr
Fan Speeds			
CFM cooling : High-Low	265/-	265/-	265/-
Fan Only Speed	3 Speed	3 Speed	3 Speed
Controls			
Thermostat temp. range	64° - 86°	64° - 86°	64° - 86°
Outercase : insulation panels	PBWS01A	PBWS01A	PBWS01A
Condensate Drain Spout	Yes on Outercase	Yes on Outercase	Yes on Outercase
Thermostatic Drain Valve	Yes	Yes	Yes
Adjustable changeover thermostat	Yes	Yes	Yes
Chassis Size	26"	26"	26"
Chassis Height	15.625"	15.625"	15.625"
Chassis Width	26"	26"	26"
Chassis Depth	16.875"	16.875"	16.875"

**PERFORMANCE DATA**

**PBC\*\*\*E00AX**

**PBC "E" MODEL 230V**

**OUTDOOR TEMP**

MODEL	ID WB ENT	ID DB ENT	TOTAL BTUH	SEN BTUH 85	SHR	TOTAL BTUH	SEN BTUH 95	SHR	TOTAL BTUH	SEN BTUH 105	SHR	TOTAL BTUH	SEN BTUH 115	SHR
PBC093	61	75	8675	6555	76	8230	6335	77	7745	6100	79	7235	5860	81
		80	8630	7675	89	8195	7450	91	7720	7210	93	7330	7330	100
		85	8775	8775	100	8420	8420	100	8050	8050	100	7630	7630	100
	67	75	9815	5265	54	9375	5065	54	8760	4860	55	8185	4760	58
		80	9720	6510	67	9200	6085	66	8650	5875	68	8080	5595	69
		85	9560	7575	79	9120	7445	82	8505	7170	84	7970	6745	85
	73	75	11030	3950	36	10450	3735	36	9860	3520	36	9235	3295	36
		80	10905	5045	46	10335	4835	47	9725	4615	47	9095	4390	48
		85	10765	6140	57	10190	5930	58	9575	5710	60	8940	5485	61
PBC123	61	75	11175	11175	100	10535	8370	79	9810	8035	82	8770	7645	87
		80	11130	10140	91	10495	9825	94	9750	9465	97	8875	9055	102
		85	11410	11410	100	10880	10880	100	10230	10230	100	9540	9540	100
	67	75	12660	6895	54	12100	6660	55	11230	6300	56	10365	5950	57
		80	12520	8290	66	11800	7990	68	11025	7675	70	10130	7345	73
		85	12315	9750	79	11705	9500	81	10820	9160	85	9915	8825	89
	73	75	14290	5070	35	13515	4780	35	12725	4495	35	11825	4175	35
		80	14120	6510	46	13335	6220	47	12530	5930	47	11535	5580	48
		85	13930	7950	57	13165	7670	58	12265	7375	60	11260	7000	62



**PERFORMANCE DATA**

**PBC\*\*\*E00AX**

**PBE "E" MODEL 208V**

MODEL	ID WB ENT	ID DB ENT	TOTAL BTUH	SEN BTUH 85	SHR	TOTAL BTUH	SEN BTUH 95	SHR	TOTAL BTUH	SEN BTUH 105	SHR	TOTAL BTUH	SEN BTUH 115	SHR
PBC093	61	75	8375	6255	75	7930	6035	76	7445	5800	78	6935	5560	80
		80	8330	7375	89	7895	7150	91	7420	6910	93	7030	7030	100
		85	8475	8475	100	8120	8120	100	7750	7750	100	7330	7330	100
	67	75	9515	4965	52	9075	4765	53	8460	4560	54	7885	4460	57
		80	9420	6210	66	8900	5785	65	8350	5575	67	7780	5295	68
		85	9260	7275	79	8820	7145	81	8205	6870	84	7676	6445	84
PBC123	61	75	10730	3650	34	10150	3435	34	9560	3220	34	8935	2995	34
		80	10605	4745	45	10035	4535	45	9425	4315	46	8795	4090	47
		85	10465	5840	56	9890	5630	57	9275	5410	58	8640	5185	60
	67	75	10775	10775	100	10135	7970	79	9410	7635	81	8370	7245	87
		80	10730	9740	91	10095	9425	93	9350	9065	97	8475	8655	102
		85	11010	11010	100	10480	10480	100	9830	9830	100	9140	9140	100
73	75	12260	6495	53	11700	6260	53	10830	5900	54	9965	5550	56	
	80	12120	7890	65	11400	7590	67	10625	7275	68	9730	6945	71	
	85	11915	9350	78	11305	9095	80	10420	8760	84	9515	8420	89	
73	75	13890	4670	34	13115	4380	33	12325	4095	33	11425	3775	33	
	80	13720	6110	45	12935	5820	45	12130	5530	46	11135	5180	47	
	85	13530	7550	56	12765	7270	57	11865	6975	59	10860	6600	61	

# PERFORMANCE DATA

PBE\*\*\*E00AX

## PBE "E" MODEL 230V

### OUTDOOR TEMP

MODEL	ID WB ENT	ID DB ENT	TOTAL BTUH	SEN BTUH 85	SHR	TOTAL BTUH	SEN BTUH 95	SHR	TOTAL BTUH	SEN BTUH 105	SHR	TOTAL BTUH	SEN BTUH 115	SHR
PBE092		75	8675	6555	76	8230	6335	77	7745	6100	79	7235	5860	81
	61	80	8630	7675	89	8195	7450	91	7720	7210	93	7330	7330	100
		85	8775	8775	100	8420	8420	100	8050	8050	100	7630	7630	100
	67	75	9815	5265	54	9375	5065	54	8760	4860	55	8185	4760	58
		80	9720	6510	67	9200	6085	66	8650	5875	68	8080	5595	69
	73	85	9560	7575	79	9120	7445	82	8505	7170	84	7970	6745	85
PBE123		75	11030	3950	36	10450	3735	36	9860	3520	36	9235	3295	36
	61	80	10905	5045	46	10335	4835	47	9725	4615	47	9095	4390	48
		85	10765	6140	57	10190	5930	58	9575	5710	60	8940	5485	61
	67	75	11175	11175	100	10535	8370	79	9810	8035	82	8770	7645	87
		80	11130	10140	91	10495	9825	94	9750	9465	97	8875	9055	102
	73	85	11410	11410	100	10880	10880	100	10230	10230	100	9540	9540	100
PBE123		75	12660	6895	54	12100	6660	55	11230	6300	56	10365	5950	57
	67	80	12520	8290	66	11800	7990	68	11025	7675	70	10130	7345	73
		85	12315	9750	79	11705	9500	81	10820	9160	85	9915	8825	89
PBE123		75	14290	5070	35	13515	4780	35	12725	4495	35	11825	4175	35
	73	80	14120	6510	46	13335	6220	47	12530	5930	47	11535	5580	48
		85	13930	7950	57	13165	7670	58	12265	7375	60	11260	7000	62

**PERFORMANCE DATA**

**PBE\*\*\*E00AX**

**PBE "E" MODEL 208V**

MODEL	ID WB ENT	ID DB ENT	TOTAL BTUH	SEN BTUH 85	SHR	TOTAL BTUH	SEN BTUH 95	SHR	TOTAL BTUH	SEN BTUH 105	SHR	TOTAL BTUH	SEN BTUH 115	SHR
<b>PBE093</b>	61	75	8375	6255	75	7930	6035	76	7445	5800	78	6935	5560	80
		80	8330	7375	89	7895	7150	91	7420	6910	93	7030	7030	100
		85	8475	8475	100	8120	8120	100	7750	7750	100	7330	7330	100
	67	75	9515	4965	52	9075	4765	53	8460	4560	54	7885	4460	57
		80	9420	6210	66	8900	5785	65	8350	5575	67	7780	5295	68
		85	9260	7275	79	8820	7145	81	8205	6870	84	7676	6445	84
	73	75	10730	3650	34	10150	3435	34	9560	3220	34	8935	2995	34
		80	10605	4745	45	10035	4535	45	9425	4315	46	8795	4090	47
		85	10465	5840	56	9890	5630	57	9275	5410	58	8640	5185	60
<b>PBE123</b>	61	75	10775	10775	100	10135	7970	79	9410	7635	81	8370	7245	87
		80	10730	9740	91	10095	9425	93	9350	9065	97	8475	8655	102
		85	11010	11010	100	10480	10480	100	9830	9830	100	9140	9140	100
	67	75	12260	6495	53	11700	6260	53	10830	5900	54	9965	5550	56
		80	12120	7890	65	11400	7590	67	10625	7275	68	9730	6945	71
		85	11915	9350	78	11305	9095	80	10420	8760	84	9515	8420	89
	73	75	13890	4670	34	13115	4380	33	12325	4095	33	11425	3775	33
		80	13720	6110	45	12935	5820	45	12130	5530	46	11135	5180	47
		85	13530	7550	56	12765	7270	57	11865	6975	59	10860	6600	61

# PERFORMANCE DATA

PBH\*\*\*E00AX

## PBH "E" MODEL 115V

### OUTDOOR TEMP

MODEL	ID WB ENT	ID DB ENT	TOTAL BTUH	SEN BTUH 85	SHR	TOTAL BTUH	SEN BTUH 95	SHR	TOTAL BTUH	SEN BTUH 105	SHR	TOTAL BTUH	SEN BTUH 115	SHR
PBH092	61	75	8490	6320	74	8040	6100	76	7550	5860	78	7055	5620	80
		80	8425	7375	88	7985	7145	89	7515	6905	92	7010	6990	100
		85	8485	8485	100	8120	8120	100	7725	7725	100	7305	7305	100
	67	75	9620	5105	53	9160	4975	54	8560	4700	55	7985	4600	58
		80	9505	6090	64	9000	5860	65	8450	5685	67	7875	5370	68
		85	9345	7285	78	8910	7145	80	8295	6870	83	7720	6600	85
	73	75	10810	3875	36	10250	3665	36	9650	3445	36	9035	3220	36
		80	10680	4905	46	10120	4695	46	9515	4475	47	8890	4250	48
		85	10545	5930	56	9975	5720	57	9365	5500	59	8735	5275	60

# PERFORMANCE DATA

PBH\*\*\*E00AX

## PBH "E" MODEL 230V

### OUTDOOR TEMP

MODEL	ID WB ENT	ID DB ENT	TOTAL BTUH	SEN BTUH 85	SHR	TOTAL BTUH	SEN BTUH 95	SHR	TOTAL BTUH	SEN BTUH 105	SHR	TOTAL BTUH	SEN BTUH 115	SHR
PBH093	61	75	8490	6320	74	8040	6100	76	7550	5860	78	7055	5620	80
		80	8425	7375	88	7985	7145	89	7515	6905	92	7010	6990	100
		85	8485	8485	100	8120	8120	100	7725	7725	100	7305	7305	100
	67	75	9620	5105	53	9160	4975	54	8560	4700	55	7985	4600	58
		80	9505	6090	64	9000	5860	65	8450	5685	67	7875	5370	68
		85	9345	7285	78	8910	7145	80	8295	6870	83	7720	6600	85
PBH123	61	75	10810	3875	36	10250	3665	36	9650	3445	36	9035	3220	36
		80	10680	4905	46	10120	4695	46	9515	4475	47	8890	4250	48
		85	10545	5930	56	9975	5720	57	9365	5500	59	8735	5275	60
	67	75	10890	8450	78	10265	8155	79	9560	7830	82	8720	7450	85
		80	10850	9880	91	10230	9575	94	9500	9225	97	8825	8825	100
		85	11120	11120	100	10605	10605	100	9970	9970	100	9300	9300	100
73	75	12335	6720	54	11790	6490	55	10940	6140	56	10100	5800	57	
	80	12200	8080	66	11500	7785	68	10745	7480	70	9870	7160	73	
	85	12000	9500	79	11405	9255	81	10545	8930	85	9660	8600	89	
73	75	13930	4945	35	13170	4660	35	12400	4380	35	11525	4070	35	
	80	13760	6345	46	12995	6065	47	12210	5780	47	11240	5440	48	
	85	13580	7750	57	12830	7575	58	11950	7190	60	10975	6820	62	

# PERFORMANCE DATA

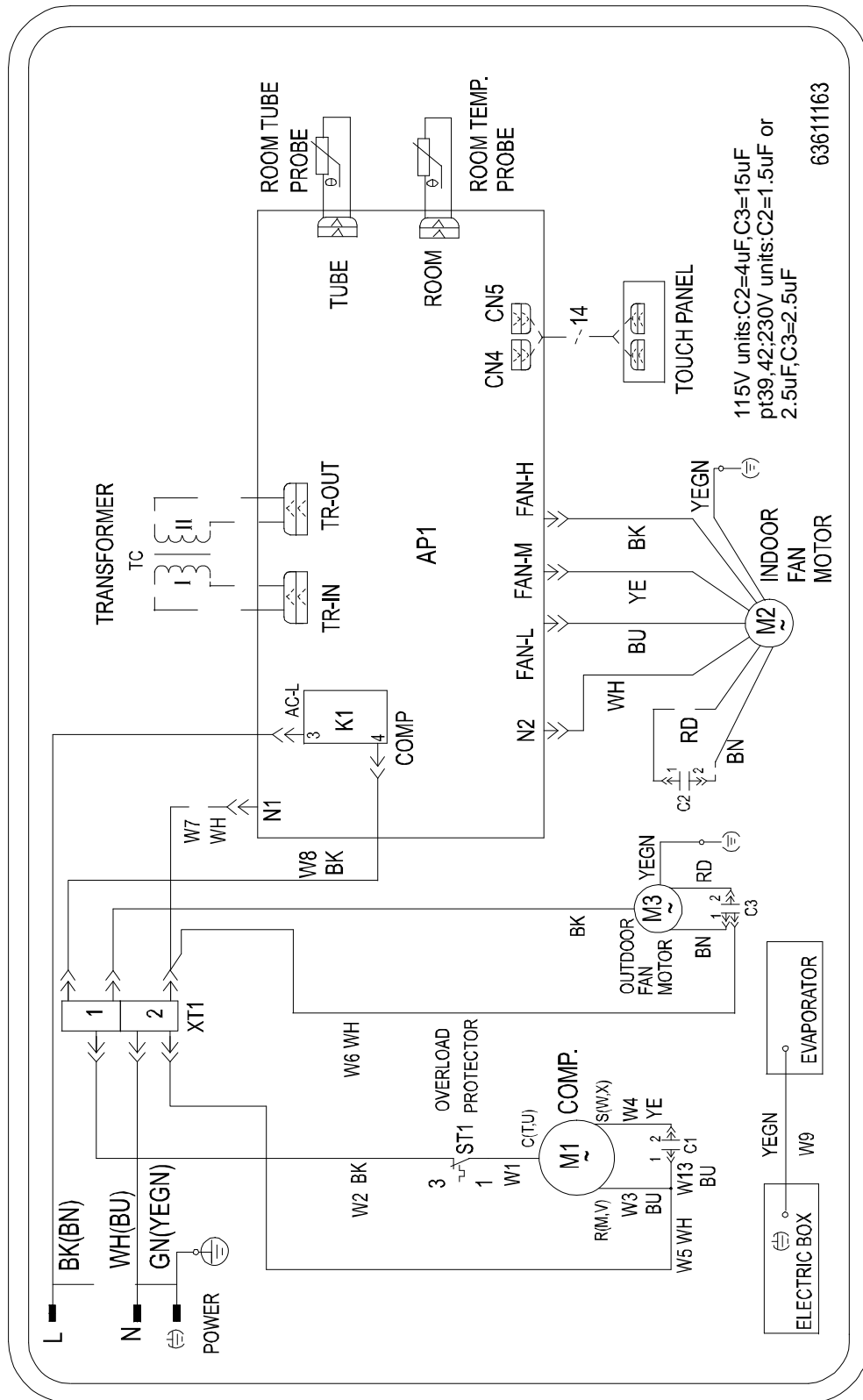
PBH\*\*\*E00AX

## PBH "E" MODEL 208V

MODEL	ID WB ENT	ID DB ENT	TOTAL BTUH	SEN BTUH 85	SHR	TOTAL BTUH	SEN BTUH 95	SHR	TOTAL BTUH	SEN BTUH 105	SHR	TOTAL BTUH	SEN BTUH 115	SHR
PBH093	61	75	8190	6020	74	7740	5800	75	7250	5560	77	6755	5320	79
		80	8125	7075	87	7685	6845	89	7215	6605	92	6710	6690	100
	67	85	8185	8185	100	7820	7820	100	7425	7425	100	7005	7005	100
		75	9320	4805	52	8860	4675	53	8260	4400	53	7685	4300	56
	73	80	9205	5790	63	8700	5560	64	8150	5385	66	7575	5070	67
		85	9045	6985	77	8610	6845	80	7995	6570	82	7420	6300	85
PBH123	61	75	10510	3575	34	9950	3365	34	9350	3145	34	8735	2920	33
		80	10380	4605	44	9820	4395	45	9215	4175	45	8590	3950	46
	67	85	10245	5630	55	9675	5420	56	9065	5200	57	8435	4975	59
		75	10490	8050	77	9865	7755	79	9160	7430	81	8320	7050	85
	73	80	10450	9480	91	9830	9175	93	9100	8825	97	8425	8425	100
		85	10720	10720	100	10200	10205	100	9570	9570	100	8900	8900	100
PBH123	67	75	11935	6320	53	11390	6090	53	10540	5740	54	9700	5400	56
		80	11800	7680	65	11100	7385	67	10345	7080	68	9470	6760	71
	85	11600	9100	78	11005	8855	80	10145	8530	84	9260	8200	89	
PBH123	73	75	13530	4545	34	12770	4260	33	12000	3980	33	11125	3670	33
		80	13360	5945	45	12595	5665	45	11810	5380	46	10840	5040	46
	85	13180	7350	56	12430	7075	57	11550	6790	59	10575	6420	61	

WARNING

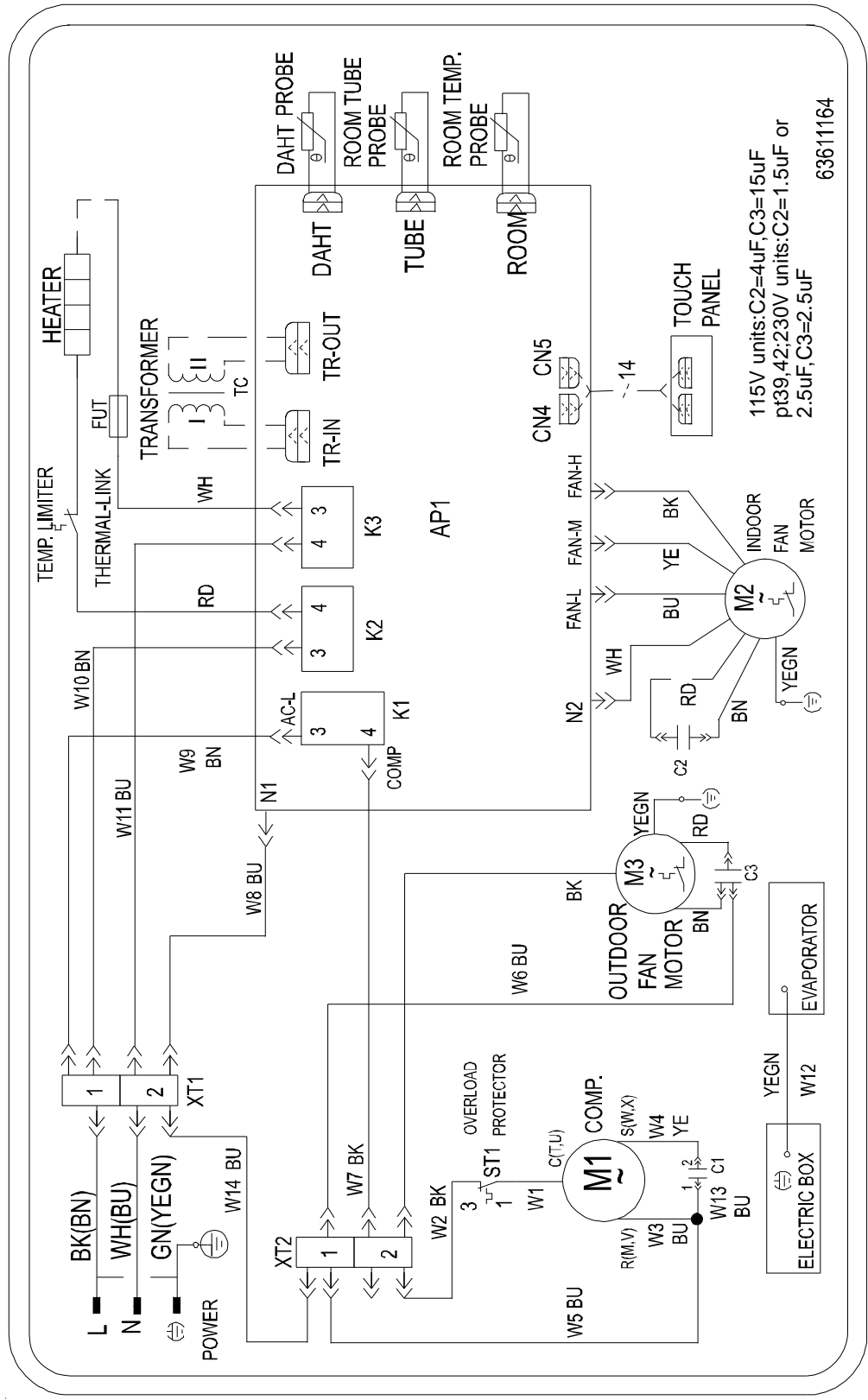
HIGH VOLTAGE!  
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.



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

**WARNING**

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

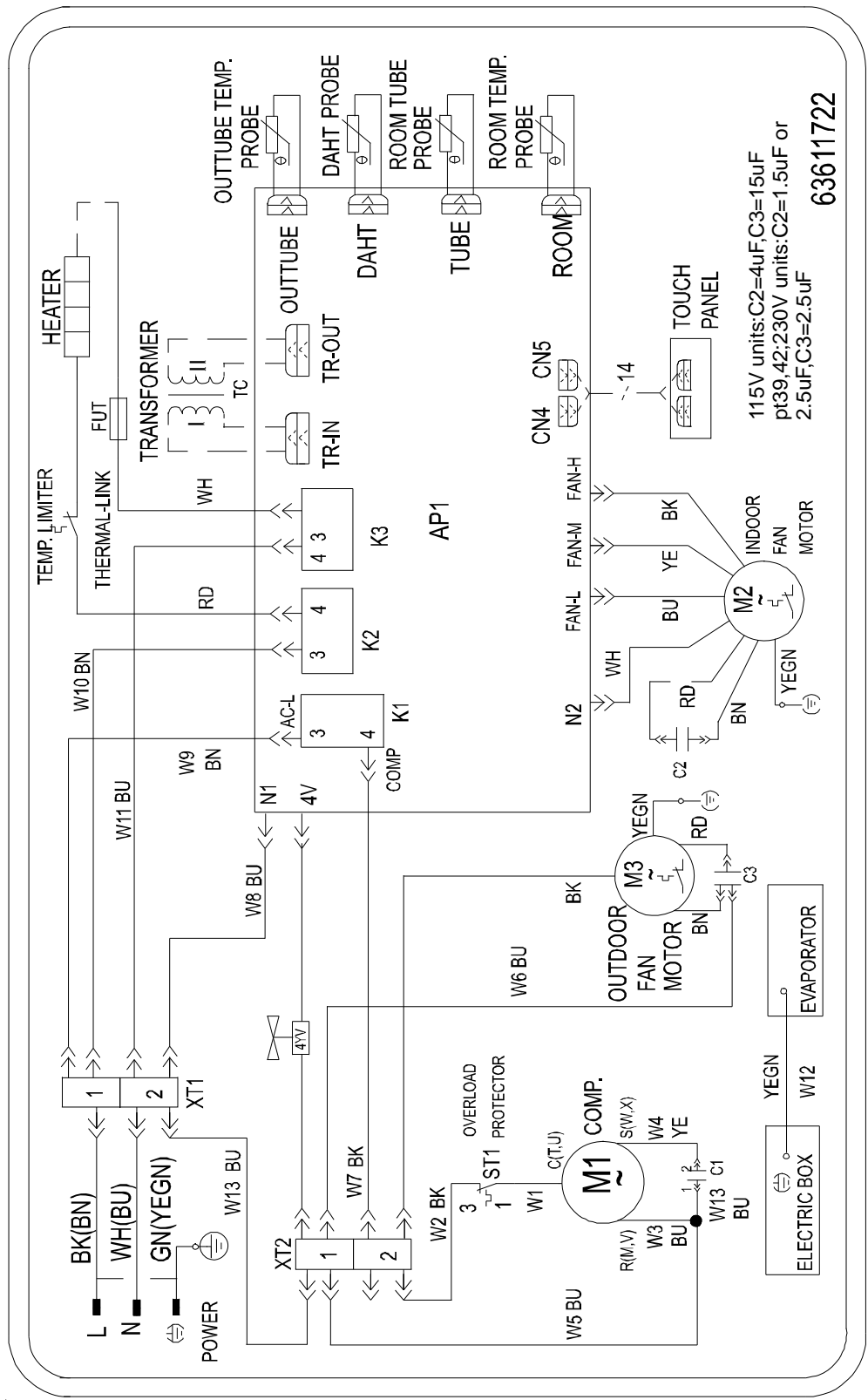


Wiring is subject to change, always refer to the wiring diagram on the unit for the most up-to-date wiring.



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115V units: C2=4uF, C3=15uF  
 pf39,42;230V units: C2=1.5uF or  
 2.5uF, C3=2.5uF

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# TROUBLESHOOTING

CODE		STATUS	CORRECTIVE ACTION
1	F1	Outdoor ambient thermostat not registering on the board.	Replace or re-connect the thermostat
2	F2	Outdoor ambient thermostat not registering on the board.	Replace or re-connect the thermostat
3	F4	Outdoor coil thermostat not registering on the board	Replace or re-connect the thermostat
4	FJ	Indoor discharge thermostat not registering on the board	Replace or re-connect the thermostat