

**50TC—*16
Single Package Rooftop
Cooling Only
with Puron® (R-410A) Refrigerant
Size 16**



Electrical Data Supplement

NOTE: Read the entire instruction manual before starting the installation

This supplement only applies to 50TC size 16 units when the 10th digit of the Model Number is a “3”, as shown in the Model Number Nomenclature diagram below. Check the Unit Nameplate (see Figs. 1 & 2). If the digit in the 10th position is not a “3” discard this document.

MODEL NUMBER NOMENCLATURE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
5	0	T	C	-	D	1	6	A	3	A	5	-	0	A	0	A	0

Unit Heat Type

50 = Electric Heat
Packaged Rooftop

Model Series - WeatherMaker

TC = Standard Efficiency

Heat Size

- = None (Field Installed Accessory)

Refrig. Systems Options

A = Single stage cooling models
B = Single stage cooling models
with Humidi-MiZer
D = Two stage cooling models
E = Two stage cooling models
with Humidi-MiZer

Indoor Fan Options

1 = Standard Static Option
2 = Medium Static Option
3 = High Static Option

Sensor Options

A = None
B = RA Smoke Detector
C = SA Smoke Detector
D = RA + SA Smoke Detector
E = CO2
F = RA Smoke Detector and CO2
G = SA Smoke Detector and CO2
H = RA + SA Smoke Detector and CO2

Cooling Tons

16 = 15 ton

SAFETY CONSIDERATIONS

Improper installation, adjustment, alteration, service, maintenance, or use can cause explosion, fire, electrical shock or other conditions which may cause personal injury or property damage. Consult a qualified installer, service agency, or your distributor or branch for information or assistance. The qualified installer or agency must use factory-authorized kits or accessories when modifying this product. Refer to the individual instructions packaged with the kits or accessories when installing.

Follow all safety codes. Wear safety glasses and work gloves. Use quenching cloths for brazing operations and have a fire extinguisher available. Read these instructions thoroughly and follow all warnings or cautions attached to the unit. Consult local building codes and appropriate national electrical codes (in USA, ANSI/NFPA70, National Electrical Code (NEC); in Canada, CSA C22.1) for special requirements.

It is important to recognize safety information. This is the safety-alert symbol . When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, CAUTION, and NOTE. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies hazards which **could** result in personal injury or death. CAUTION is used to identify unsafe practices, which **may** result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

Nameplate Location

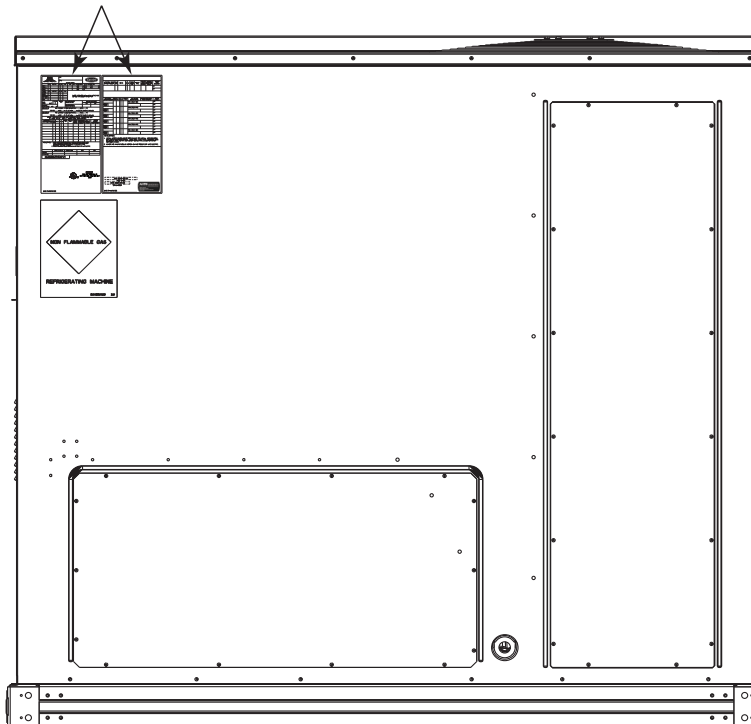


Fig. 1 - Location of Unit Nameplate

CAUTION

ELECTRICAL HAZARD

Failure to follow this caution may result in personal injury or product and property damage.

The electrical data contained in this document is only for use with 50TC size 16 units which display a “3” in the 10th position of the 18 digit model number as displayed on the unit’s nameplate.

See Fig. 1 for location of the unit’s nameplate.

See Fig. 2 for details of the 18 digit model number.

WARNING

ELECTRICAL SHOCK HAZARD

Failure to follow this warning could cause personal injury or death.

Before performing service or maintenance operations on unit, always turn off main power switch to unit and install lockout tag. Unit may have more than one power switch.

Carrier Corporation 3310 WEST MORRIS STREET INDIANAPOLIS, IN 46231 U.S.A.										MODEL 50TC-D16A3A5-0A0A0 SERIAL																			
FACTORY CHARGED																													
COMP. A		QTY	VOLTS	AC	PH	HZ	RLA	LRA	REF. SYSTEM R-410A	TEST PRESSURE GAGE																			
COMP. B									LBS	kg	HI	PSI	kPa																
COMP. C									LBS	kg	LO	PSI	kPa																
FAN MTR		QTY	VOLTS	AC	PH	HZ	FLA																						
OUTDOOR																													
INDOOR																													
PWR EXHAUST																													
ELEC. HEAT																													
OTHER																													
CHARGE SYSTEM PER INSTALLATION INSTRUCTIONS SUITABLE FOR OUTDOOR INSTALLATION																													
POWER SUPPLY		VOLTS	PH	HZ	MIN. CKT AMPS	MAX FUSE OR HACR BREAKER PER NEC		MIN UNIT DISCONNECT																					
								FLA LRA																					
PERMISSIBLE VOLTAGE AT UNIT		MAX	MIN	MAX OVERCURRENT PROTECTION DEVICE																									
DOWN SUPPLY		MIN. CLEARANCE TO COMBUSTIBLE MATERIALS INCHES.....mm.																											
		FOR FIRST INCHES.....mm. OF DUCT WHEN kW. ELECTRIC HEATER IS INSTALLED.																											
SIDE SUPPLY		MIN. CLEARANCE TO COMBUSTIBLE MATERIALS INCHES.....mm.																											
		FOR FIRST INCHES.....mm. OF DUCT WHEN kW. ELECTRIC HEATER IS INSTALLED.																											
*FOR INSTALLATION ON COMBUSTIBLE FLOORING OR CLASS A, B, OR C ROOFING MATERIAL																													
ACCESSORY POWER EXHAUST OR HEATER MODEL NUMBER		CHECK HERE	VOLTS	PH	HZ	HEATER FLA	MIN. CKT. AMPS	FUSE OR HACR BREAKER PER NEC	MAXIMUM OVERCURRENT PROTECTION DEVICE	SINGLE PT. BOX MODEL NUMBER	MINIMUM UNIT DISCONNECT																		
											FLA LRA																		
INSTALLER NOTE: 1. INSTALL ACCESS HEATER PER INSTALL INSTR ENCLOSED WITH HEATER. MARK SPACE "CHECK HERE" FOR MODEL USED. USE MIN CKT AMPS AND MAX OVER- CURRENT DEVICE AMPS LISTED FOR HEATER. IF NO HEATER IS USED MARK SPACE "CHECK HERE" FOR NONE. 2. HEATERS ARE MANUFACTURED BY EMERSON HEATING PRODUCTS OR TUTCO ELECTRIC.																													
CAPACITY Btu/Hr		CAPACITY kW		EER		COP																							
COOLING																													
HP HEATING																													
THIS EQUIPMENT COMPLIES WITH THE 2004 REQUIREMENTS OF ASHRAE 90.1																													
LISTED COOLING PORTION OF HEATING AND COOLING UNIT 36N2																													
DATE OF MANUFACTURE:																													

ACCESSORY POWER EXHAUST NUMBER	CHECK HERE	VOLTS	PH	HZ	POWER EXHAUST FLA	MIN CKT AMPS	FUSE OR HACR BREAKER PER NEC	MAXIMUM OVERCURRENT PROTECTION DEVICE	MINIMUM UNIT DISCONNECT
									FLA LRA

ACCESSORY HEATER NUMBER	CHECK HERE	VOLTS	PH	HZ	HEATER FLA	FUSE OR HACR BREAKER PER NEC	MAXIMUM OVERCURRENT PROTECTION DEVICE	MINIMUM UNIT DISCONNECT
								FLA
SINGLE PT BOX MODEL NUMBER							MIN. CIRCUIT AMPS	FLA LRA
SINGLE PT BOX MODEL NUMBER							MIN. CIRCUIT AMPS	FLA LRA
SINGLE PT BOX MODEL NUMBER							MIN. CIRCUIT AMPS	FLA LRA
SINGLE PT BOX MODEL NUMBER							MIN. CIRCUIT AMPS	FLA LRA
SINGLE PT BOX MODEL NUMBER							MIN. CIRCUIT AMPS	FLA LRA
SINGLE PT BOX MODEL NUMBER							MIN. CIRCUIT AMPS	FLA LRA

INSTALLER NOTE:

1. INSTALL ACCESS HEATER AND/OR POWER EXHAUST PER INSTALL INSTR ENCLOSED WITH HEATER AND POWER EXHAUST. MARK SPACE "CHECK HERE" FOR MODEL USED. USE MIN CKT AMPS AND MAX OVER CURRENT DEVICE AMPS LISTED FOR HEATER AND POWER EXHAUST.
2. HEATERS ARE MANUFACTURED BY EMERSON HEATING PRODUCTS OR TUTCO ELECTRIC.

MODEL NUMBER BAR CODE

MODEL NUMBER

SERIAL NUMBER BAR CODE

SERIAL NUMBER

DATE OF MANUFACTURE:

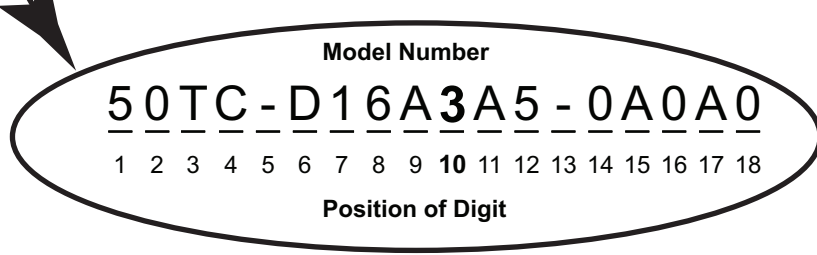


Fig. 2 - Unit Nameplate with Model Number Detail

C101306

50TC--*16

Table 1 – Unit Wire/Fuse or HACR Breaker Sizing Data

UNIT	NOM. V – Ph – Hz	IFM TYPE	ELEC. HTR			P.E.	NO C.O. or UNPWR C.O.								
			CRHEATER ***A00	Nom (kW)	FLA		FLA	NO P.E.				w/ P.E. (pwrd fr/unit)			
								MCA	FUSE or HACR BRKR	DISC. SIZE		MCA	FUSE or HACR BRKR	DISC. SIZE	
										FLA	LRA			FLA	LRA
50TC–D16	208/230 – 3 – 60	STD	NONE	–	–	3.8	68.3	80	71	396	72.1	80	76	400	
			291A00	12.4/16.5	34.4/39.7		68.3/68.3	80/80	71/71	396/396	72.1/72.1	80/80	76/76	400/400	
			294A00	25.2/33.5	69.9/80.6		96.8/110.1	100/125	89/101	396/396	101.5/114.9	110/125	93/106	400/400	
			288A00,294A00	32.7/43.5	90.7/104.7		122.8/140.3	125/150	113/129	396/396	127.5/145.0	150/150	117/133	400/400	
			291A00,294A00	37.6/50.0	104.3/120.3		139.8/129.7	150/150	129/147	396/396	144.5/134.4	150/150	133/151	400/400	
			294A00,294A00	50.3/67.0	139.7/161.2		149.1/170.6	175/200	169/194	396/396	153.8/175.3	175/200	174/198	400/400	
		MED	NONE	–	–	3.8	70.8	80	74	413	74.6	90	79	417	
			291A00	12.4/16.5	34.4/39.7		70.8/70.8	80/80	74/74	413/413	74.6/74.6	90/90	79/79	417/417	
			294A00	25.2/33.5	69.9/80.6		99.9/113.3	100/125	92/104	413/413	104.6/118.0	110/125	96/109	417/417	
			288A00,294A00	32.7/43.5	90.7/104.7		125.9/143.4	150/150	116/132	413/413	130.6/148.1	150/150	120/136	417/417	
			291A00,294A00	37.6/50.0	104.3/120.3		142.9/132.8	150/150	131/150	413/413	147.6/137.6	150/150	136/154	417/417	
			294A00,294A00	50.3/67.0	139.7/161.2		152.2/173.7	175/200	172/197	413/413	157.0/178.5	175/200	177/201	417/417	
		HIGH	NONE	–	–	3.8	77.8/75.8	100/100	82/80	424	81.6/79.6	100/100	87/84	428	
			291A00	12.4/16.5	34.4/39.7		77.8/75.8	100/100	82/80	424/424	81.6/79.6	100/100	87/84	428/428	
			294A00	25.2/33.5	69.9/80.6		108.6/119.5	110/125	100/110	424/424	113.4/124.3	125/125	104/114	428/428	
			288A00,294A00	32.7/43.5	90.7/104.7		134.6/149.6	150/150	124/138	424/424	139.4/154.4	150/175	128/142	428/428	
			291A00,294A00	37.6/50.0	104.3/120.3		151.6/139.1	175/175	139/156	424/424	156.4/143.8	175/175	144/160	428/428	
			294A00,294A00	50.3/67.0	139.7/161.2		161.0/180.0	175/200	180/203	424/424	165.7/184.7	175/200	185/207	428/428	
	460 – 3 – 60	STD	NONE	–	–	1.8	34.0	45	35	234	35.8	45	37	236	
			292A00	16.5	19.9		34.0	45	35	234	35.8	45	37	236	
			295A00	33.5	40.3		54.6	60	50	234	56.9	60	52	236	
			289A00,295A00	43.5	52.3		69.6	70	64	234	71.9	80	66	236	
			292A00,295A00	50.0	60.2		64.5	70	73	234	66.7	70	75	236	
			295A00,295A00	67.0	80.6		84.9	90	97	234	87.1	100	99	236	
		MED	NONE	–	–	1.8	35.0	45	37	243	36.8	45	39	245	
			292A00	16.5	19.9		35.0	45	37	243	36.8	45	39	245	
			295A00	33.5	40.3		55.9	60	51	243	58.1	60	53	245	
			289A00,295A00	43.5	52.3		70.9	80	65	243	73.1	80	67	245	
			292A00,295A00	50.0	60.2		65.7	80	74	243	68.0	80	76	245	
			295A00,295A00	67.0	80.6		86.1	100	98	243	88.4	100	100	245	
		HIGH	NONE	–	–	1.8	38.2	50	40	248	40.0	50	42	250	
			292A00	16.5	19.9		38.2	50	40	248	40.0	50	42	250	
			295A00	33.5	40.3		59.9	60	55	248	62.1	70	57	250	
			289A00,295A00	43.5	52.3		74.9	80	69	248	77.1	80	71	250	
			292A00,295A00	50.0	60.2		69.7	80	78	248	72.0	80	80	250	
			295A00,295A00	67.0	80.6		90.1	100	101	248	92.4	100	104	250	
	575 – 3 – 60	STD	NONE	–	–	3.8	26.5	30	28	184	30.3	40	32	188	
			293A00	16.5	15.9		26.5	30	28	184	30.3	40	32	188	
			296A00	33.5	32.2		43.8	45	40	184	48.5	50	45	188	
			290A00,296A00	43.5	41.8		55.8	60	51	184	60.5	70	56	188	
			293A00,296A00	50.0	48.1		51.6	60	59	184	56.4	60	63	188	
			296A00,296A00	67.0	64.4		67.9	80	77	184	72.7	80	82	188	
		MED	NONE	–	–	3.8	26.5	30	28	184	30.3	40	32	188	
			293A00	16.5	15.9		26.5	30	28	184	30.3	40	32	188	
			296A00	33.5	32.2		43.8	45	40	184	48.5	50	45	188	
			290A00,296A00	43.5	41.8		55.8	60	51	184	60.5	70	56	188	
			293A00,296A00	50.0	48.1		51.6	60	59	184	56.4	60	63	188	
			296A00,296A00	67.0	64.4		67.9	80	77	184	72.7	80	82	188	
		HIGH	NONE	–	–	3.8	29.8	35	31	187	33.6	40	36	191	
			293A00	16.5	15.9		29.8	35	31	187	33.6	40	36	191	
			296A00	33.5	32.2		47.9	50	44	187	52.6	60	48	191	
			290A00,296A00	43.5	41.8		59.9	60	55	187	64.6	70	59	191	
			293A00,296A00	50.0	48.1		55.7	60	62	187	60.5	70	67	191	
			296A00,296A00	67.0	64.4		72.0	80	81	187	76.8	80	85	191	

NOTE: See page 6 for table legend and notes.

Table 1 — Unit Wire/Fuse or HACR Breaker Sizing Data (cont)

UNIT	NOM. V – Ph – Hz	IFM TYPE	ELEC. HTR			PE.	w/ PWRD C.O.							
			CRHEATER ***A00	Nom (kW)	FLA	FLA	NO PE.				w/ P.E. (pwrd fr/unit)			
							MCA	FUSE or HACR BRKR	DISC. SIZE		MCA	FUSE or HACR BRKR	DISC. SIZE	
									FLA	LRA			FLA	LRA
50TC–D16	208/230–3–60	STD	NONE	–	–	3.8	73.1	80	77	401	76.9	100	81	405
			291A00	12.4/16.5	34.4/39.7		73.1/73.1	80/80	77/77	401/401	76.9/76.9	100/100	81/81	405/405
			294A00	25.2/33.5	69.9/80.6		102.8/116.1	110/125	95/107	401/401	107.5/120.9	110/125	99/111	405/405
			288A00,294A00	32.7/43.5	90.7/104.7		128.8/146.3	150/150	118/135	401/401	133.5/151.0	150/175	123/139	405/405
			291A00,294A00	37.6/50.0	104.3/120.3		145.8/135.7	150/150	134/152	401/401	150.5/140.4	175/150	138/157	405/405
			294A00,294A00	50.3/67.0	139.7/161.2		155.1/176.6	175/200	175/200	401/401	159.8/181.3	175/200	179/204	405/405
		MED	NONE	–	–	3.8	75.6	100	80	418	79.4	100	84	422
			291A00	12.4/16.5	34.4/39.7		75.6/75.6	100/100	80/80	418/418	79.4/79.4	100/100	84/84	422/422
			294A00	25.2/33.5	69.9/80.6		105.9/119.3	110/125	97/110	418/418	110.6/124.0	125/125	102/114	422/422
			288A00,294A00	32.7/43.5	90.7/104.7		131.9/149.4	150/150	121/137	418/418	136.6/154.1	150/175	126/142	422/422
			291A00,294A00	37.6/50.0	104.3/120.3		148.9/138.8	150/150	137/155	418/418	153.6/143.6	175/175	141/160	422/422
			294A00,294A00	50.3/67.0	139.7/161.2		158.2/179.7	175/200	178/202	418/418	163.0/184.5	175/200	182/207	422/422
		HIGH	NONE	–	–	3.8	82.6/80.6	100/100	88/85	429	86.4/84.4	100/100	92/90	433
			291A00	12.4/16.5	34.4/39.7		82.6/80.6	100/100	88/85	429/429	86.4/84.4	100/100	92/90	433/433
			294A00	25.2/33.5	69.9/80.6		114.6/125.5	125/150	105/115	429/429	119.4/130.3	125/150	110/120	433/433
			288A00,294A00	32.7/43.5	90.7/104.7		140.6/155.6	150/175	129/143	429/429	145.4/160.4	150/175	134/148	433/433
			291A00,294A00	37.6/50.0	104.3/120.3		157.6/145.1	175/175	145/161	429/429	162.4/149.8	175/175	149/165	433/433
			294A00,294A00	50.3/67.0	139.7/161.2		167.0/186.0	175/200	186/208	429/429	171.7/190.7	175/225	190/213	433/433
	460–3–60	STD	NONE	–	–	1.8	36.2	45	38	236	38.0	50	40	238
			292A00	16.5	19.9		36.2	45	38	236	38.0	50	40	238
			295A00	33.5	40.3		57.4	60	53	236	59.6	60	55	238
			289A00,295A00	43.5	52.3		72.4	80	67	236	74.6	80	69	238
			292A00,295A00	50.0	60.2		67.2	80	76	236	69.5	80	78	238
			295A00,295A00	67.0	80.6		87.6	100	99	236	89.9	100	101	238
		MED	NONE	–	–	1.8	37.2	50	39	245	39.0	50	41	247
			292A00	16.5	19.9		37.2	50	39	245	39.0	50	41	247
			295A00	33.5	40.3		58.6	60	54	245	60.9	70	56	247
			289A00,295A00	43.5	52.3		73.6	80	68	245	75.9	80	70	247
			292A00,295A00	50.0	60.2		68.5	80	77	245	70.7	80	79	247
			295A00,295A00	67.0	80.6		88.9	100	100	245	91.1	100	102	247
		HIGH	NONE	–	–	1.8	40.4	50	43	250	42.2	50	45	252
			292A00	16.5	19.9		40.4	50	43	250	42.2	50	45	252
			295A00	33.5	40.3		62.6	70	58	250	64.9	70	60	252
			289A00,295A00	43.5	52.3		77.6	80	71	250	79.9	80	73	252
			292A00,295A00	50.0	60.2		72.5	80	81	250	74.7	80	83	252
			295A00,295A00	67.0	80.6		92.9	100	104	250	95.1	100	106	252
	575–3–60	STD	NONE	–	–	3.8	28.2	35	30	186	32.0	40	34	190
			293A00	16.5	15.9		28.2	35	30	186	32.0	40	34	190
			296A00	33.5	32.2		45.9	50	42	186	50.6	60	47	190
			290A00,296A00	43.5	41.8		57.9	60	53	186	62.6	70	58	190
			293A00,296A00	50.0	48.1		53.7	60	60	186	58.5	60	65	190
			296A00,296A00	67.0	64.4		70.0	80	79	186	74.8	80	84	190
		MED	NONE	–	–	3.8	28.2	35	30	186	32.0	40	34	190
			293A00	16.5	15.9		28.2	35	30	186	32.0	40	34	190
			296A00	33.5	32.2		45.9	50	42	186	50.6	60	47	190
			290A00,296A00	43.5	41.8		57.9	60	53	186	62.6	70	58	190
			293A00,296A00	50.0	48.1		53.7	60	60	186	58.5	60	65	190
			296A00,296A00	67.0	64.4		70.0	80	79	186	74.8	80	84	190
		HIGH	NONE	–	–	3.8	31.5	40	33	189	35.3	45	38	193
			293A00	16.5	15.9		31.5	40	33	189	35.3	45	38	193
			296A00	33.5	32.2		50.0	60	46	189	54.8	60	50	193
			290A00,296A00	43.5	41.8		62.0	70	57	189	66.8	70	61	193
			293A00,296A00	50.0	48.1		57.9	60	64	189	62.6	70	69	193
			296A00,296A00	67.0	64.4		74.2	80	83	189	78.9	80	87	193

NOTE: See page 6 for table legend and notes.

Legend and Notes for Table 1

LEGEND:

BRKR	–	Circuit breaker
CO	–	Convenience outlet
DISC	–	Disconnect
FLA	–	Full load amps
IFM	–	Indoor fan motor
LRA	–	Locked rotor amps
MCA	–	Minimum circuit amps
PE	–	Power exhaust
PWRD CO	–	Powered convenient outlet
UNPWR CO	–	Unpowered convenient outlet



NOTES:

1. In compliance with NEC requirements for multimotor and combination load equipment (refer to NEC Articles 430 and 440), the overcurrent protective device for the unit shall be fuse or HACR breaker. Canadian units may be fuse or circuit breaker.

2. Unbalanced 3-Phase Supply Voltage

Never operate a motor where a phase imbalance in supply voltage is greater than 2%. Use the following formula to determine the percentage of voltage imbalance.

$$\% \text{ Voltage Imbalance} = 100 \times \frac{\text{max voltage deviation from average voltage}}{\text{average voltage}}$$

Example: Supply voltage is 230-3-60



AB = 224 v
BC = 231 v
AC = 226 v

$$\begin{aligned} \text{Average Voltage} &= \frac{(224 + 231 + 226)}{3} = \frac{681}{3} \\ &= 227 \end{aligned}$$

Determine maximum deviation from average voltage.

(AB) $227 - 224 = 3 \text{ v}$

(BC) $231 - 227 = 4 \text{ v}$

(AC) $227 - 226 = 1 \text{ v}$

Maximum deviation is 4 v.

Determine percent of voltage imbalance.

$$\begin{aligned} \% \text{ Voltage Imbalance} &= 100 \times \frac{4}{227} \\ &= 1.76\% \end{aligned}$$

This amount of phase imbalance is satisfactory as it is below the maximum allowable 2%.

IMPORTANT: If the supply voltage phase imbalance is more than 2%, contact your local electric utility company immediately.

