

## CB15 SERIES UNITS

## I - INTRODUCTION

The CB15 features a two cabinet design consisting of a C15 coil and a B15 blower. The C15 was originally released only in the 920 size for use with the HS13 condensing unit. In 1980 two additional sizes (900 & 1200) were developed for installation with the Lennox condenser line. The C15-900 replaces the original C15-920. The C15 coil requires a field installed expansion valve. The suction line is a 1-1/8" sweat connection.

The B15 blower utilizes a sulky belt drive blower. Three cabinet sizes are available (B15-41, B15-46 and B15-65). The B15-65 mates to the C15-1120 coil.

The Original CB15-920 and the CB15-900 units are designed for horizontal installation only. The CB15-1200 installs either up-flow or horizontally. Figure 1 shows a CB15 cutaway.

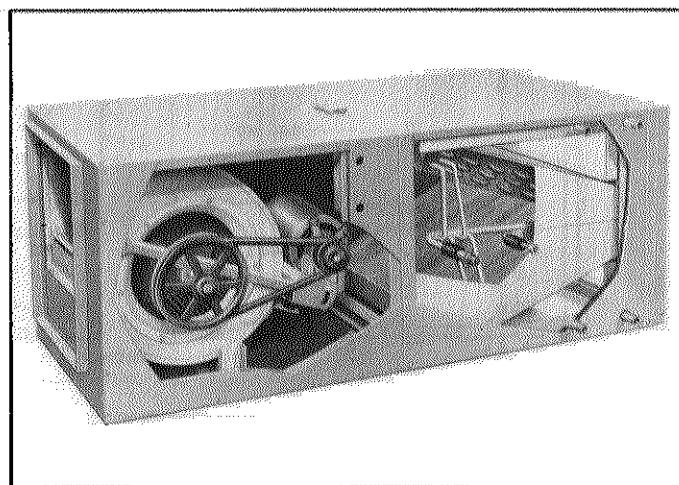


FIGURE 1

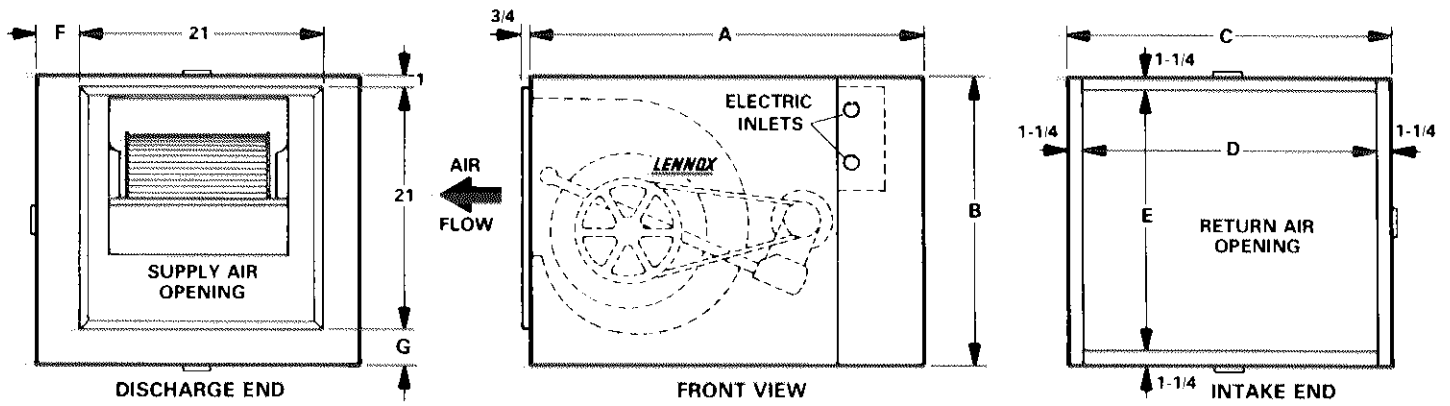
## II - UNIT INFORMATION

## A - Specifications

Model No.		CB15-900/41	CB15-900/46	CB15-1200/65	CB15-920/41	CB15-920/46
Blower section		B15-41	B15-46	B15-65	B15-41	B15-46
Evaporator coil section		C15-900	C15-900	C15-1200	C15-920	C15-920
Evaporator Coil	Net face area (sq. ft.)	6.0	6.0	8.05	6.4	6.4
	Tube diam. (in.) & no. of rows	1/2 — 3	1/2 — 3	1/2 — 3	3/8 — 3	3/8 — 3
	Fins per inch	13	13	13	13	13
	Suction line od (in.)	1-1/8 (sweat)	1-1/8 (sweat)	1-1/8 (sweat)	1-1/8 (sweat)	1-1/8 (sweat)
Liquid line od (in.)		1/2 (flare)	1/2 (flare)	1/2 (flare)	1/2 (flare)	1/2 (flare)
Refrigerant		R-22	R-22	R-22	R-22	R-22
Condensate drain (mpt) in.		(2) 3/4	(2) 3/4	(2) 3/4	(2) 3/4	(2) 3/4
Blower wheel nom. diam. x width (in.)		12 x 12	12 x 12	15 x 15	12 x 12	12 x 12
Blower motor hp		1/6	1/4	1/3	1/6	1/4
Maximum usable hp		.225	.337	.450	.225	.337
RPM range with drives furnished		375 — 550	510 — 685	370 — 570	375 — 550	510 — 685
Electrical Characteristics		208/230V-60hz-1ph	208/230V-60hz-1ph	208/230V-60hz-1ph	208/230V-60hz-1ph	208/230V-60hz-1ph
Number of packages in shipment		2	2	2	2	2
Shipping Weight (lbs.)	Blower section	120	120	185	120	120
	Evaporator coil section	120	120	140	120	120

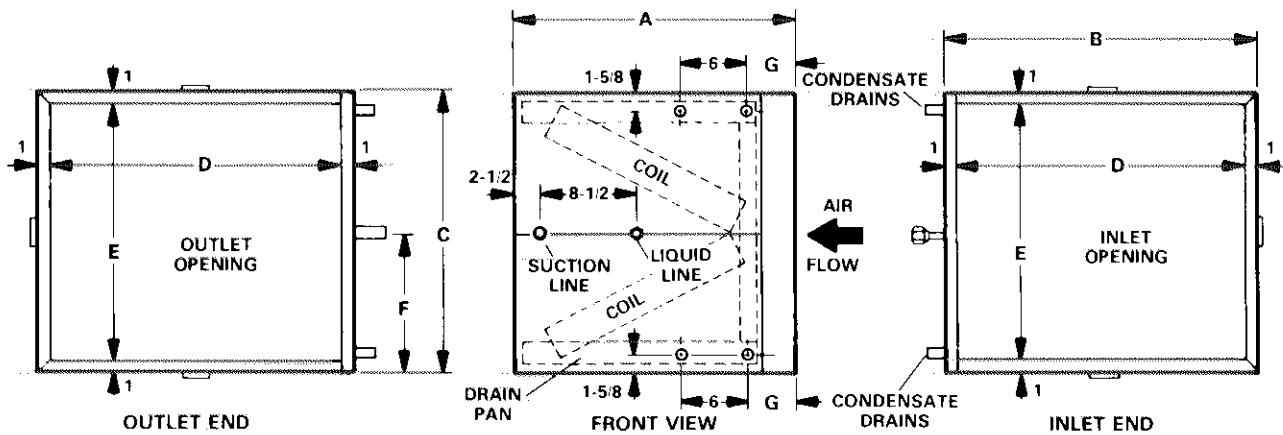
## B - DIMENSIONS

### B15 BLOWER SECTION



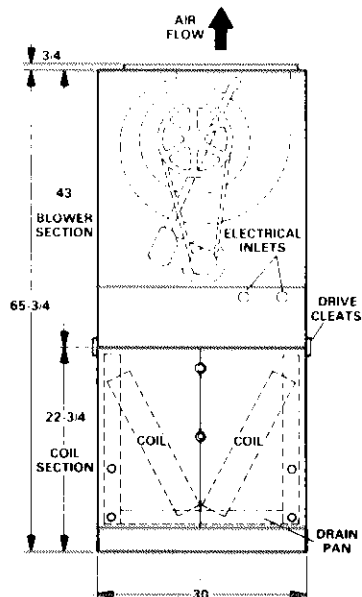
Model No.	A	B	C	D	E	F	G
B15-41	34	25	28	26	23	3-5/8	3
B15-46	34	25	28	26	23	3-5/8	3
B15-65	29-3/4	30	34	31-1/2	27-1/2	6-3/8	7-7/8

### C15 COIL SECTION

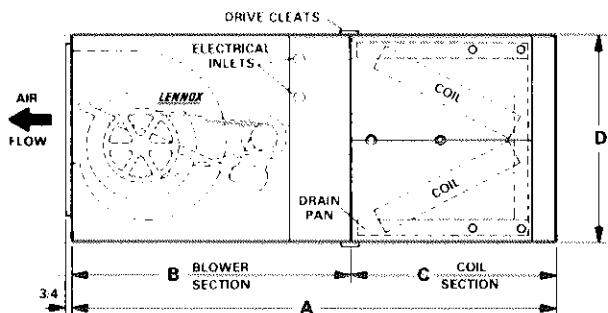


Model No.	A	B	C	D	E	F	G
C15-900	25	28	25	26	23	12-1/2	4-1/4
C15-920	25	28	25	26	23	12-1/2	4-1/4
C15-1200/65	22-1/4	34	30	31-1/2	27-1/2	15	1-13/16

### UP-FLO — CB15-1200/65 ONLY



### CB15 BLOWER COIL UNIT — HORIZONTAL



Model No.	A	B	C	D
CB15-900/41	59	34	25	25
CB15-900/46	59	34	25	25
CB15-920/41	59	34	25	25
CB15-920/46	59	34	25	25
CB15-1200/65	62	29-3/4	22-1/4	30

## C - Blower Data

**CB15-900/41 BLOWER PERFORMANCE**

Air Volume (cfm)	STATIC PRESSURE EXTERNAL TO UNIT (Inches Water Gauge)					
	0		.10		.20	
	RPM	BHP	RPM	BHP	RPM	BHP
600	---	---	---	---	440	.09
800	---	---	375	.07	470	.13
1000	---	---	425	.11	510	.17
1200	405	.11	475	.16	550	.22
1400	470	.17	533	.22	---	---

NOTE — Air volume data measured external to the unit with the coil section included.

**CB15-920/46 BLOWER PERFORMANCE**

Air Volume (cfm)	STATIC PRESSURE EXTERNAL TO UNIT (Inches Water Gauge)					
	0		.10		.20	
	RPM	BHP	RPM	BHP	RPM	BHP
1000	285	.11	390	.13	475	.16
1200	340	.13	435	.16	515	.19
1400	400	.17	480	.20	565	.24
1600	455	.24	530	.25	610	.30
1800	510	.27	580	.31	650	.36

NOTE — Air volume data measured external to the unit with the coil section included.

**CB15-900/46 BLOWER PERFORMANCE**

Air Volume (cfm)	STATIC PRESSURE EXTERNAL TO UNIT (Inches Water Gauge)					
	0		.10		.20	
	RPM	BHP	RPM	BHP	RPM	BHP
1000	---	---	---	---	510	.17
1200	---	---	475	.16	550	.23
1400	470	.17	533	.22	600	.30
1600	537	.25	592	.32	---	---

NOTE — Air volume data measured external to the unit with the coil section included.

**CB15-1200/65 BLOWER PERFORMANCE**

Air Volume (cfm)	STATIC PRESSURE EXTERNAL TO UNIT (Inches Water Gauge)					
	0		.10		.20	
	RPM	BHP	RPM	BHP	RPM	BHP
1600	---	---	338	.12	400	.17
1800	---	---	365	.16	422	.21
2000	330	.14	391	.21	445	.27
2200	363	.20	419	.26	469	.33
2400	395	.26	450	.33	493	.39
2600	428	.34	475	.40	---	---

NOTE — Air volume data measured external to the unit with the coil section included.

**CB15-920/41 BLOWER PERFORMANCE**

Air Volume (cfm)	STATIC PRESSURE EXTERNAL TO UNIT (Inches Water Gauge)			
	0		.10	
	RPM	BHP	RPM	BHP
600	170	.08	310	.09
800	225	.09	350	.10
1000	285	.11	390	.13
1200	340	.13	435	.16
1400	400	.17	480	.20

NOTE — Air volume data measured external to the unit with the coil section included.

## D - Expansion Valve Usage

MODEL NUMBER	CONDENSING UNIT SIZE						
	1-1/2 TON	2 TON	2-1/2 TON	3 TON	3-1/2 TON	4 TON	5 TON
CB15-900/41	LB-25778CE	LB-25778CG	LB-25778CF	LB-25778CF	---	---	---
CB15-900/46	---	---	---	---	LB-25778CF	LB-25778CC	LB-25778CD
CB15-920/41	---	---	LB-25778CF	LB-25778CF	LB-25778CF	---	---
CB15-920/46	---	---	---	---	---	---	---
CB15-1120/65	---	---	---	---	---	LB-25778CC	LB-25778CD

## III - COMPONENTS

Figure 2 shows a CB15 exploded view.

### 1 - Indoor Blower Relay

Initiates blower motor operation when thermostat is set to "on" or whenever there is a compressor demand.

### 2 - Timer Motor

This timer keeps the indoor blower motor operating approximately 3 minutes at the end of a cooling cycle.

### 3 - Transformer

230 Volt primary/24 volts secondary — 50VA. The secondary is protected by a 2.5 amp type C fuse.

## CB15 EXPLODED VIEW

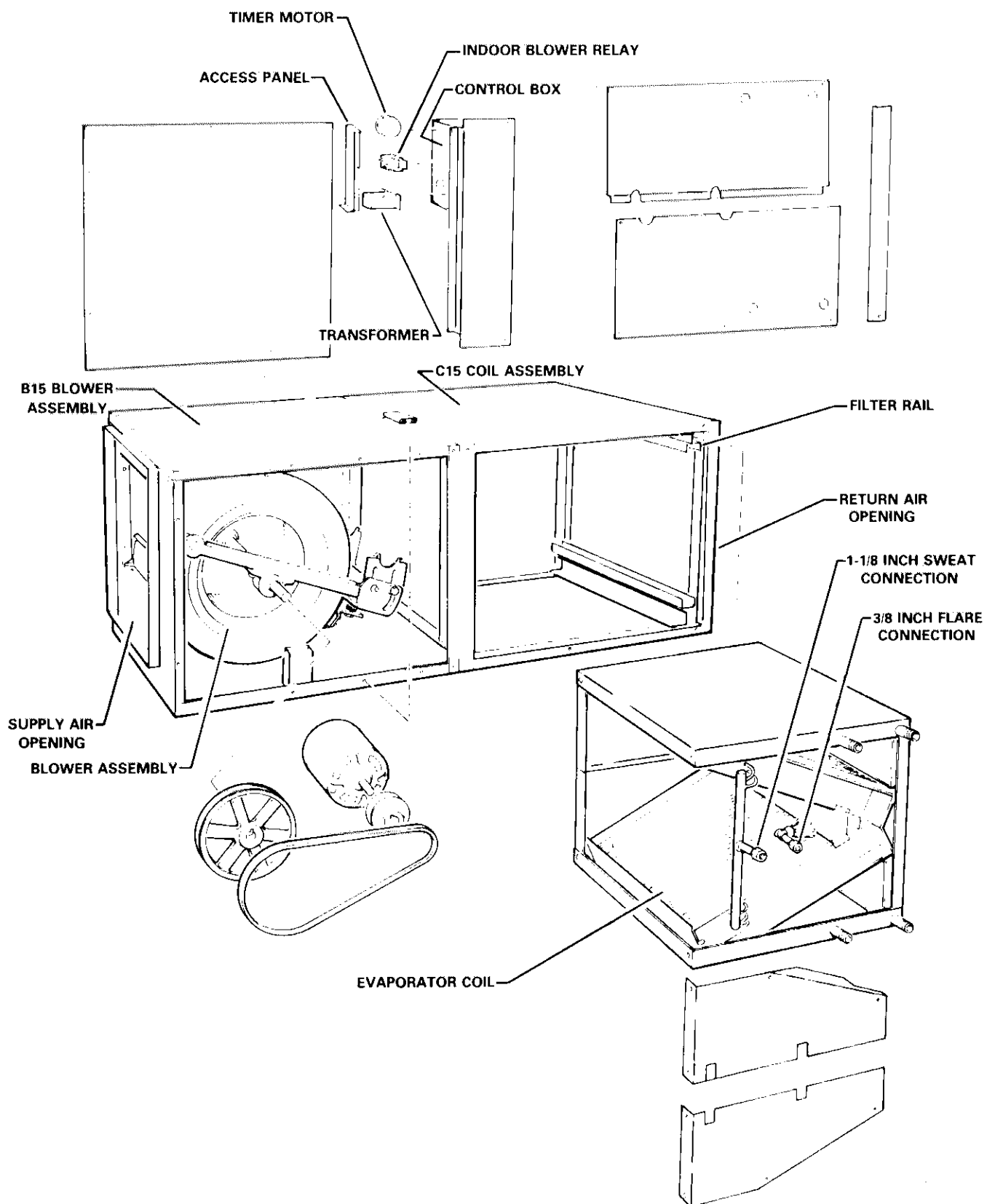


FIGURE 2

## IV - BLOWER SPEED AND BELT TENSION ADJUSTMENTS

CFM checks must be made with a clean filter, unit panels in place and a dry evaporator coil (blower only operating). To find actual CFM, measure the coil pressure drop as follows and then compare to Table 1.

- 1 - Remove snaphole plugs from unit test holes. Connect zero end of an inclined manometer to entering air side of coil. Refer to Figure 3. Insert hoses 1/4 inch past the inside edge of cabinet insulation. Seal around hoses with permagum or sealing compound.

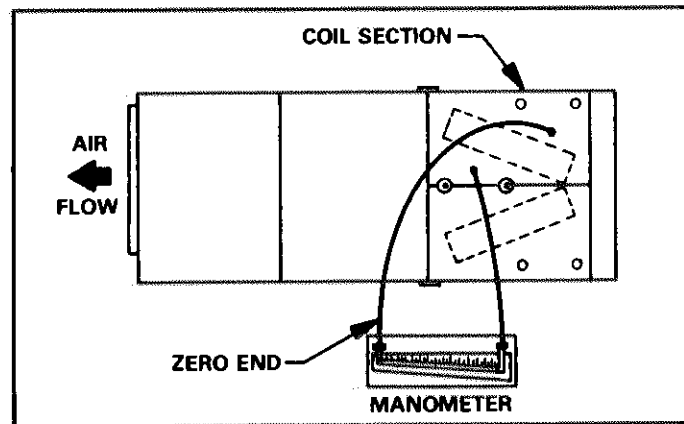


FIGURE 3

- 2 - With only the indoor blower operating, observe manometer reading and compare to Table 1. If reading is above desired air volume, decrease blower speed. If reading is below desired air volume, increase blower speed.

NOTE - A.R.I. testing is based on 450 CFM per ton of cooling.

- 3 - The CB15 blower motor sheave is adjustable. Move sheave halves together to increase blower speed and apart to decrease blower speed. Be sure set screw aligns with sheave flat surface before tightening.

TABLE 1

SIZE UNIT	DRAFT GAUGE READING (DRY EVAPORATOR)			
	AIR VOLUME		READING	
	CFM	M <sup>3</sup> /h	in. water	mm water
C15-900 B15-41	600	1019	.03	.76
	800	1359	.04	1.02
	1000	1699	.06	1.52
	1200	2039	.08	2.03
	1400	2379	.10	2.54
C15-900 B15-46	1600	2719	.12	3.05
	1200	2039	.08	2.03
	1400	2379	.10	2.54
	1600	2719	.12	3.05
	1800	3059	.14	3.56
C15-920 B15-41	800	1359	.02	.57
	1000	1699	.025	.65
	1200	2039	.03	.76
	1400	2379	.04	1.02
	1200	2039	.03	.76
C15-920 B15-46	1400	2379	.04	1.02
	1600	2719	.05	1.27
	1800	3059	.06	1.52
	1800	3059	.07	1.78
	2000	3398	.08	2.03
C15-1200 B15-65	2200	3738	.10	2.54
	2400	4078	.12	3.05
	2600	4417	.13	3.30
	2800	4757	.15	3.81

These are not total resistance readings, but simply pressure drop readings across the coil.

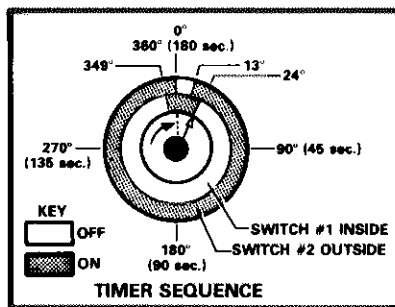
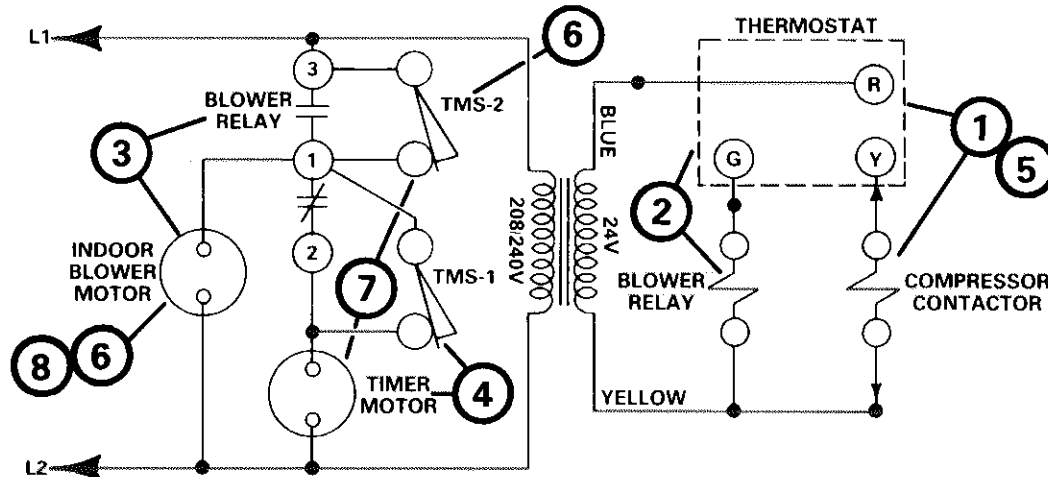
- 4 - After check is completed, re-insert snaphole plugs.
- 5 - Maximum life and wear can only be obtained from belts if proper pulley alignment and belt tension are maintained. Initially tension new belts at the maximum deflection force recommended (1/64 in. per inch of span), and then re-tension belt after a 24-48 hour run in period. This allows belt to stretch and seat in grooves.

To remove or tension belt, loosen the bolt on the hinged motor cradle and slide up or down.

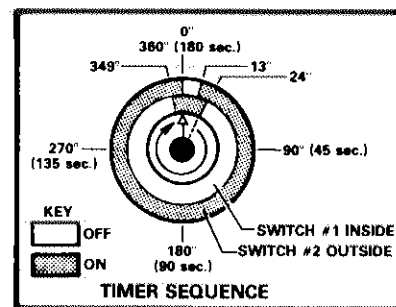
## V - SEQUENCE OF OPERATION

Figure 4 explains CB15 operation.

## CB15 SEQUENCE OF OPERATION



**STEP 4  
DETAIL**



**STEP 7  
DETAIL**

- 1 - On a cooling demand the thermostat makes to the "Y" leg of thermostat. This energizes the compressor contactor to initiate cooling.
- 2 - If the thermostat is set on "auto", the indoor blower relay is energized simultaneously through the "G" leg of thermostat.
- 3 - The N.O. indoor relay contacts make to power the blower motor.
- 4 - As the relay contacts make in step 3, the timer motor is also energized through switch 1. The timer rotates 24° before switch 1 breaks to stop motor. Switch 2 makes at 13°, but cannot power timer motor since N.C. indoor blower relay contacts are now open.
- 5 - As the cooling demand is satisfied the thermostat breaks the control circuit. This de-energizes the compressor contactor and the indoor blower relay.
- 6 - The indoor blower motor continues running through timer switch 2.
- 7 - With N.C. indoor blower relay again closed, timer motor is powered through switch 2. Motor revolves from 24° to 360° before switch breaks to stop motor. It takes approximately 3 minutes to travel the distance. Switch 1 makes at 349° in preparation for next cycle.
- 8 - With switch 2 open, the indoor blower motor is de-energized.

**FIGURE 4**