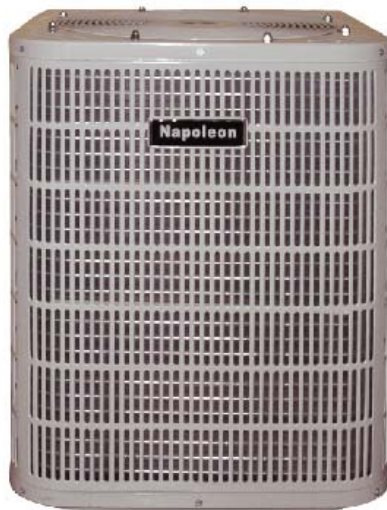




Installation & Operation Manual Central Air Conditioner

**10 to 13 SEER 1.5 to 5 Tons
Models: NC18-60A1VAR
NC18-60C1VAR
NC18-60D1VAR**



The information contained in this booklet is subject to change without notice.

! WARNING

- These instructions are intended as an aid to qualified, licensed service personnel for proper installation, adjustment and operation of this unit. Read these instructions thoroughly before attempting installation or operation of this unit. **Failure to follow these instructions may result in improper installation, adjustment, service or maintenance possibly resulting in fire, electrical shock, property damage, personal injury or death.**
- This product is designed and manufactured to permit installation in accordance with National Codes. **It is the installer's responsibility to install the product in accordance with National Codes and/or prevailing local codes and regulations.** The manufacturer assumes no responsibility for equipment installed in violation of any codes or regulations.
- **The United States Environmental Protection Agency (EPA) has issued various regulations regarding the introduction and disposal of refrigerants in this unit.** Failure to follow these regulations may harm the environment and can lead to the imposition of substantial fines. Because these regulations may vary due to the passage of new laws we suggest that any work on this unit be done by a certified technician should you have questions please contact the local EPA office.
- The manufacturer's warranty does not cover any damage or defect to the air conditioner caused by the attachment or use of any components, accessories or devices (other than those authorized by the manufacturer) into, onto, or in conjunction with the air conditioner. **You should be aware that the use of unauthorized components, accessories or devices may adversely affect the operation of the air conditioner and may also endanger life and property.** The manufacturer disclaims any responsibility for such loss or injury resulting from the use of such unauthorized components, accessories or devices. **Attach the service panel to the outdoor unit securely.** If the service panel is not attached securely, it could result in a fire or an electric shock due to dust, water, etc.
- **MESSAGE TO OWNER**
These instructions should be carefully read and kept near the product for future reference. While the instructions are addressed primarily to the installer, useful maintenance information is included. Have your installer acquaint you with the operating characteristics of the product and periodic maintenance requirements.

TABLE OF CONTENT

1. Introduction-----	3
2. Nomenclature of Model Number-----	3
3. Specification-----	4
4. Unit Inspection-----	8
5. Equipment Protection From Environment-----	8
6. Installation-----	8
6.1 General-----	8
6.2 Unit Clearances-----	9
6.3 Refrigerant piping-----	9
6.4 Electrical wiring-----	13
7. System Startup-----	14
8. Operation-----	15
9. Miscellaneous-----	15
9.1 Replacement parts-----	15
9.2 Troubleshooting guide-----	16
9.3 Wiring diagram-----	17

1. INTRODUCTION

This manual contains the installation and operating instructions for your new air conditioner. Improper installation can result in unsatisfactory operation or dangerous conditions. Carefully read this manual and any instructions packaged with separate equipment required to make up the system prior to installation. Give this manual to the owner and explain its provisions. The owner should retain this manual for the future reference.

2. NOMENCLATURE FOR MODEL NUMBER

N	Brand symbol – N: Napoleon
C	System type – C: Air Conditioner; R Heat Pump.
24	Normal capacity in (000) BTU
A	SEER designation. A=10, B=11, C=12, D=13, E=14
1	Design series. 1-1 st Generation
V	Electric: V=208/230-1-60; C=208/230-3-60, D=460-3-60, Y=575-3-60
A	Body Style
R	Compressor type
	EXAMPLE: NC24A1VAR

3.SPECIFICATION

The dimensions for the condensing unit are illustrated in **Figure 1**. Physical and electrical specifications are provided in **Table 1** for 10 SEER systems respectively.

• **Table 1: Model: HC18-60A1VAR**

MODEL:	NC18A1VAR	NC24A1VAR	NC30A1VAR	NC36A1VAR	NC42A1VAR	NC48A1VAR	NC60A1VAR
	208/230-1-60 197-253						
Unit Supply Voltage	208/230-1-60						
Normal Voltage Range	197-253						
Compressor Brand	Bristol			Sanyo		Bristol	
Minimum Circuit Amps	10.1	12.9	16.2	19.4	24.3	28.1	37.6
Max Fuse or Max CKT BKT (HACR per NEC)	15	12.9	25	30	40	45	60
Compressor	Rated Load Amps	7.4	9.6	11.8	14.4	18.3	21.3
	Locking Running Amps	48	60	73	88	130	149
Fan Motor	Full load Amps	0.86	0.86	1.4	1.4	1.43	1.43
	Rated HP	1/8	1/8	1/5	1/5	1/3	1/3
Liquid Line OD - In (mm)	3/8"(9.52)	3/8"(9.52)	3/8"(9.52)	3/8"(9.52)	3/8"(9.52)	3/8"(9.52)	3/8"(9.52)
	5/8"(15.88)	5/8"(15.88)	3/4"(19.05)	3/4"(19.05)	3/4"(19.05)	3/4"(19.05)	7/8"(22.2)
Vapor Line OD - In (mm)	49.47 (1400)	63.60 (1800)	88.34 (2500)	93.64 (2650)	115.19 (3260)	122.97 (3480)	137.81 (3900)
	23*23*24 (585*585*605)	23*23*24 (585*585*605)	23*23*31 1/2 (585*585*805)	23*23*31 1/2 (585*585*805)	30 1/4*30 1/4*31 1/2 (770*770*805)	30 1/4*30 1/4*31 1/2 (770*770*805)	30 1/4*30 1/4*35 1/2 (770*770*905)
Shipping Dimensions - In (mm) WPD*H	25*25*28 1/4 (632*632*719)	25*25*28 1/4 (632*632*719)	25*25*26 (632*632*919)	25*25*26 (632*632*919)	32 3/4*32 3/4*36 (832*832*930)	32 3/4*32 3/4*36 (832*832*930)	32 3/4*32 3/4*40 1/2 (832*832*1030)
	123 (56)	123 (57)	134 (61)	141 (64)	209 (95)	209 (95)	220 (100)
Approx shipping Weight - Lbs (kg)	141 (64)	143 (65)	158 (72)	165 (75)	231 (105)	231 (105)	246 (112)
					222(101)	222(101)	242(110)



Figure 1

Table 2: System Cooling Capacity

Outdoor Unit	With This Indoor Air handler					
Model Number	Air Handler	Compressor brand	Cooling Capacity (Btu/h)		SEER	Rated CFM (Outdoor)
			Sensible	Total		
NC18A1VAR	HB2400VA1M20	Bristol	13000	18000	10	1850
NC24A1VAR	HB2400VA1M20	Bristol	17000	24000	10	1850
NC30A1VAR	HB3000VA1M20	Bristol	20000	28000	10	1950
NC36A1VAR	HB3600VA1M20	Bristol	24000	34000	10	1950
NC42A1VAR	HB4200VA1M25	Sanyo	28400	40000	10	2700
		Bristol	29160	40500	10	2700
NC48A1VAR	HB4800VA1M25	Sanyo	33120	46000	10	2900
		Bristol	33120	46000	10	2900
NC60A1VAR	HB6000VA1M25	Sanyo	10170	55800	10	2900
		Bristol	40180	56000	10	2900

The dimensions for the condensing unit are illustrated in **Figure 1**. Physical and electrical specifications are provided in **Table 3** for 12 Seer systems respectively.

Table 3: model: NC18-60C1VAR

MODEL:	NC18C1VAR	NC24C1VAR	NC30C1VAR	NC36C1VAR	NC42C1VAR	NC48C1VAR	NC60C1VAR
Unit Supply Voltage							
Normal Voltage Range	208/230-1-60						
Compressor Brand	197-253						
	Bristol			Bristol			
Minimum Circuit Amps per NEC)					H29A	H20J	H29A
	10.1	13.4	16.2	17.7	22.3	21	24.8
	15	25	25	30	40	35	40
	7.4	9.6	11.8	13	16.7	16	18.7
Compressor							
Rated Load Amps							
Locking							
Running Amps	48	60	73	85	105	90	135
Full load Amps	0.86	1.4	1.4	1.43	1.43		1.43
Rated HP	1/8	1/5	1/5	1/3	1/3	1/3	1/3
Nominal RPM	850	1075	1075	1075	1075	1075	1075
Liquid Line OD-In(mm)	3/8"(9.52)	3/8"(9.52)	3/8"(9.52)	3/8"(9.52)	3/8"(9.52)		3/8"(9.52)
Vapor Line OD-In(mm)	5/8"(15.88)	3/4"(19.05)	3/4"(19.05)	3/4"(19.05)	7/8"(22.2)		7/8"(22.2)
R-22 Charge - OZ (g)	74.2 (2100)	91.87(2600)	88.34 (2500)	102.47(2900)			125.44(3550) 127.21(4850) 171.38(4850) 183.75(5200)
Net Dimensions - In (mm) WPD*H	23*23*27 3/4 (585*585*705)	23*23*27 3/4 (585*585*705)	23*23*31 1/2 (585*585*805)	30 1/4*30 1/4*27 3/4 (770*770*705)	30 1/4*30 1/4*35 1/2 (770*770*905)		30 1/4*30 1/4*31 1/2 (770*770*805)
Shipping Dimensions - In (mm) WPD*H	25*25*32 1/4 (632*632*819)	25*25*32 1/4 (632*632*819)	25*25*36 (632*632*919)	32 3/4*32 3/4*32 1/2 (832*832*830)	32 3/4*32 3/4*40 1/2 (832*832*1030)		32 3/4*32 3/4*36 (832*832*930)
Net Weight - Lbs (kg)	123 (56)	125 (57)	139 (63)	196 (89)	231 (105)		298 (135)
Approx shipping Weight - Lbs (kg)	141 (64)	143 (65)	152(69)	222(101)	257(117)		321 (146)

Table 4: System Cooling Capacity

Outdoor Unit Model Number	With This Indoor Air handler					
	Air Handler	Compressor brand	Cooling Capacity (Btu/h)		SEER	Rated CFM (Outdoor)
			Sensible	Total		
NC18C1VAR	HB2400VC1M20	Bristol	14820	19000	12	1950
NC24C1VAR	HB2400VC1M20	Bristol	18720	24000	12	1950
NC30C1VAR	HB3000VC1M20	Bristol	23400	30000	12	1950
NC36C1VAR	HB3600VC1M25	Bristol	25920	36000	12	2700
NC42C1VAR	HB3600VC1M25	Bristol	30240	42000	12	2900
NC48C1VAR	HB3600VC1M35	Bristol	34560	48000	12	2900
NC60C1VAR	HB3600VC1M35	Bristol	41800	58000	12	2900

The dimensions for the condensing unit are illustrated in **Figure 1**. Physical and electrical specifications are provided in **Table 5** for 13 SEER systems respectively.

Table 5: Model: NC18-60D1VAR

MODEL:		NC18D1VAR	NC24D1VAR	NC30D1VAR	NC36D1VAR	NC42D1VAR	NC48D1VAR	NC60D1VAR
Unit Supply Voltage		208/230-1-60						
Normal Voltage Range		197-253						
Compressor Brand		Bristol						
Minimum Circuit Amps		8.6	11.6	12.4	15.9	17.7	21.8	33.3
Max Fuse or Max CKT.BKT (HACR per NEC)		15	20	20	25	30	35	55
Compressor	Rated Load Amps	6.2	8.6	9.2	11.7	13.0	15.8	25.0
	Locking Running Amps	41	60	60	73	85	90	150
Fan Motor	Full load Amps	0.86	0.86	0.86	1.3	1.43	2.0	2.0
	Rated HP	1/8	1/8	1/8	1/4	1/3	1/3	1/3
	Nominal RPM	1000	840	840	850	1075	960	880
Liquid Line OD-In(mm)		3/8"(9.52)	3/8"(9.52)	3/8"(9.52)	3/8"(9.52)	3/8"(9.52)	3/8"(9.52)	3/8"(9.52)
Vapor Line OD-In(mm)		3/4"(19.05)	3/4"(19.05)	3/4"(19.05)	7/8"(22.2)	7/8"(22.2)	7/8"(22.2)	7/8"(22.2)
R-22 Charge - OZ (g)		93.64(2650)	102.47(2900)	121.91(3450)	134.28(3800)	148.41(4200)	178.45(5050)	196.11(5550)
Net Dimensions - In (mm) W*D*H		23*23*31 1/2 (585*585*805)	30 1/4*30 1/4*27 3/4 (770*770*705)	30 1/4*30 1/4*31 1/2 (770*770*805)	30 1/4*30 1/4*30 1/4*31 1/2 (770*770*805)	30 1/4*30 1/4*35 1/2 (770*770*905)	30 1/4*30 1/4*31 1/2 (770*770*805)	30 1/4*30 1/4*35 1/2 (770*770*905)
		24 3/4*24 3/4*36 (632*632*919)	32 3/4*32 3/4*32 1/2 (832*832*830)	32 3/4*32 3/4*36 (832*832*930)	32 3/4*32 3/4*36 3/4*36 (832*832*930)	32 3/4*32 3/4*40 1/2 (832*832*1030)	32 3/4*32 3/4*36 1/2 (832*832*930)	32 3/4*32 3/4*40 1/2 (832*832*1030)
Net Weight - Lbs (kg)		156 (71)	194 (88)	198 (90)	203 (92)	231 (105)	244 (108)	258 (117)
Approx shipping Weight - Lbs (kg)		167 (76)	209 (95)	216(98)	220 (100)	249(113)	262 (119)	282 (128)

Table 6: System Cooling Capacity

Outdoor Unit Model Number	With This Indoor Air handler					
	Air Handler	Compressor brand	Cooling Capacity (Btu/h)		SEER	Rated CFM (Outdoor)
			Sensible	Total		
NC18D1VAR	HB2400VD1M20	Bristol	13300	18000	13	1950
NC24D1VAR	HB2400VD1M20	Bristol	17700	24000	13	1950
NC30D1VAR	HB3000VD1M22	Bristol	20669	28000	13	1950
NC36D1VAR	HB3600VD1M22	Bristol	25900	35000	13	2700
NC42D1VAR	HB3600VD1M22	Bristol	29600	40000	13	2900
NC48D1VAR	HB3600VD1M22	Bristol	34800	47000	13	2900
NC60D1VAR	HB3600VD1M22	Bristol	40700	55000	13	2900

