

SERVICE MANUAL

Avallon Medium Room Portable Air Conditioner

MODEL:

APAC120S

APAC120HS



CAUTION: READ ALL SAFETY PRECAUTIONS IN THIS MANUAL BEFORE SERVICING THE UNIT

CONTENTS

CONTENTS.....	1
SAFETY PRECAUTIONS.....	2
ELECTRICAL SAFETY.....	2
GENERAL SAFETY.....	3
1 SPECIFICATIONS.....	4
1.1 APAC120S.....	4
1.2 APAC120HS.....	4
2 EXPLODED VIEW AND PARTS LIST.....	5
2.1 APAC120S.....	5
2.2 APAC120HS.....	7
3 WIRING DIAGRAM.....	9
3.1 APAC120S.....	9
3.2 APAC120HS.....	9
4 REFRIGERANT SYSTEM DIAGRAM.....	10
4.1 APAC120S.....	10
4.2 APAC120HS.....	10
5 MODES AND OPERATING CONDITIONS.....	11
5.1 TERMS AND DEFINITIONS.....	11
5.2 COOLING MODE – (BLUE INDICATOR LIGHT).....	11
5.3 FAN ONLY MODE (GREEN INDICATOR LIGHT).....	11
5.4 DEHUMIDIFY MODE (YELLOW INDICATOR LIGHT).....	12
5.5 HEAT MODE - APAC120HS ONLY (RED INDICATOR LIGHT).....	12
5.6 AUTOMATIC MODE.....	12
5.7 OVERFLOW PREVENTION.....	12
5.8 COMPRESSOR PROTECTION.....	12
6 TROUBLESHOOTING.....	13

SAFETY PRECAUTIONS

WARNING: This manual and the information contained herein is intended for use by certified technicians. The manufacturer or seller is not responsible for the interpretation or misuse of the information provided, nor does it assume any liability in connection with its use.

The safeguards and warnings indicated in this manual do not cover all possible conditions which may occur. Common sense, caution, and care must be exercised.

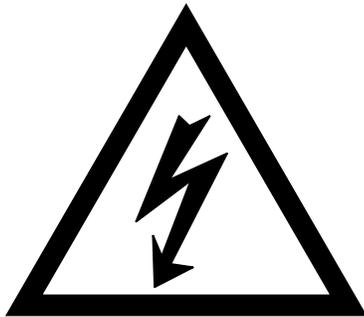
- To prevent electric shock, always unplug an appliance from the power supply before attempting any service.
- Disconnect the power cord by grasping the plug, not the cord.
- Do not bypass, cut, or remove the grounding plug.
- Prevent water from spilling onto electric elements or the machine parts.
- Always refer to the rating label on the appliance for rated current and voltage.
- Always check line voltage and amperage.
- Always use exact replacement parts.
- Any attempt to repair a major appliance may result in personal injury and property damage.

Electrical Safety

- Do not exceed the power outlet ratings.
- It is recommended that the unit be connected to its own circuit.
- A standard electrical supply that is properly grounded in accordance with the National Electrical Code and all state and local codes and ordinances is required.
- Do not use outlets that can be turned off by a switch or pull chain.
- Always turn the unit off and unplug it from the outlet when cleaning.
- Unplug the unit if it is not going to be used for an extended period of time.
- Do not operate the unit with a power plug missing the ground plug, a damaged cord, or a loose socket.
- Be sure the appliance is properly grounded.
- Do not bypass, cut, or remove the grounding plug.
- If the power cord is damaged, it must be replaced by the manufacturer or a qualified technician.
- Do not use extension cords or power strips with this unit. You may need to contact an electrician if it is necessary to use a longer cord or if you do not have a properly grounded outlet. Do not modify the power cord's length or share the outlet with other appliances.
- Do not start or stop the unit by switching the electrical circuit's power on and off.
- Immediately unplug the unit if it makes strange sounds, emits an odor or smoke and contact customer service.
- Do not remove any part of the casing unless instructed by an authorized technician.
- Before the appliance is removed from service or discarded, remove any doors and cut off the power cord.

General Safety

- Always unplug an appliance from the power supply before attempting any service. Disconnect the power cord by grasping the plug, not the cord.
- Do not allow children or pets to play on or in the appliance.
- This machine is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the machine by a person responsible for their safety.
- Do not install or store this appliance where it will be exposed to the weather.
- Disconnect from the power socket before cleaning or maintenance.
- If the plug (power cord) is damaged, it must be replaced by the manufacturer or an authorized service representative.
- This machine shall be repaired only by an authorized service representative. Only genuine replacement parts should be used.
- If connected to a circuit protected by fuses, use time-delay fuses with this appliance.
- Do not lean items against the glass door.
- Please do not close the door with excessive force. If it is found difficult to close the door, please check for obstruction.
- When you plan to dispose of this unit in the future, please comply with the local waste disposal regulations. Remove any doors so that children and pets will not be trapped in the unit.



1 Specifications

1.1 APAC120S

MODEL	APAC120S
VOLTAGE / FREQUENCY	AC 115 V / 60 Hz
INPUT POWER	1,000 W
CURRENT	9.5 A
COOLING CAPACITY (SACC)	5400 BTU
COOLING CAPACITY (ASHRAE)	12000 BTU
AIR FLOW VOLUME	126 CFM (Hi)
DEHUMIDIFYING VOLUME	80 Pints/Day
COLOR	Silver and Grey
COOLANT	R410A
TIMER	24 Hour
DIMENSIONS (HEIGHT X WIDTH X DEPTH)	29 ³ / ₁₆ " X 17 ³ / ₁₆ " X 15 ¹ / ₁₆ "
WEIGHT	68 Pounds

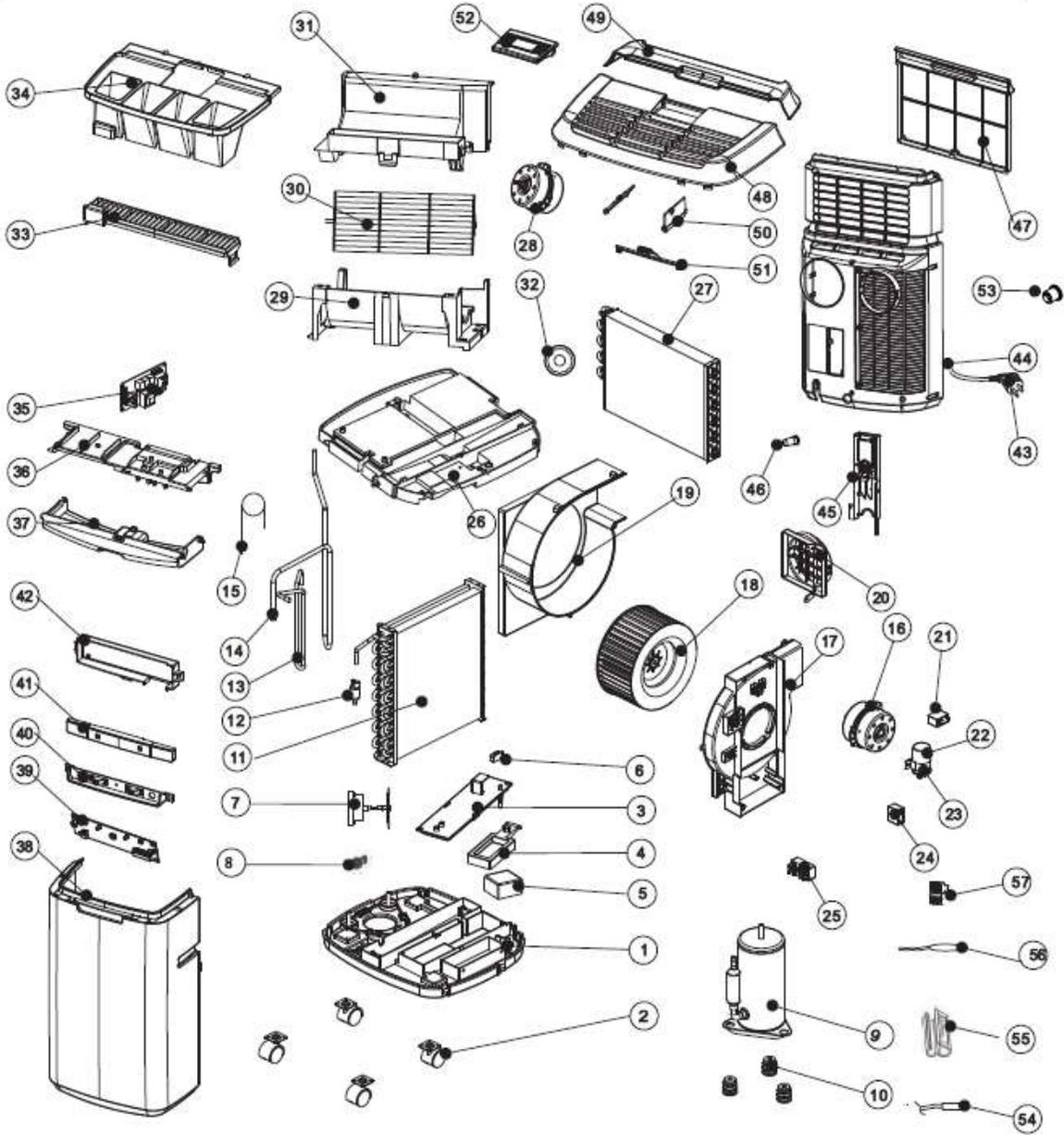
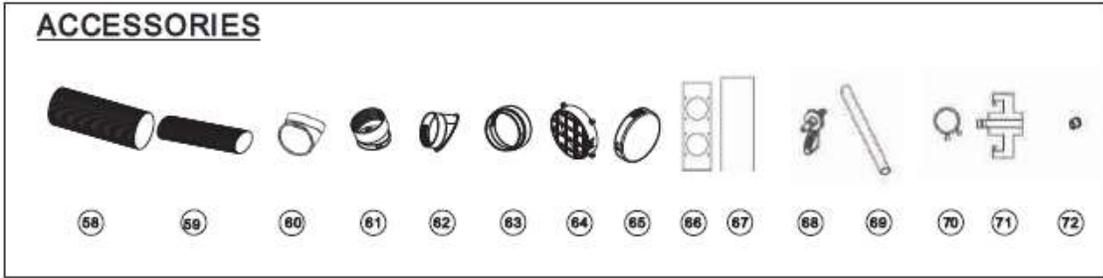
1.2 APAC120HS

MODEL	APAC120HS
BTUs	Cooling: 12,000 Heating: 10,000
VOLTAGE / FREQUENCY	115 V / 60 Hz
INPUT POWER	1,000 W
CURRENT	9.5 A
COOLING CAPACITY (SACC)	5500 BTU
COOLING CAPACITY (ASHRAE)	12000 BTU
AIR FLOW VOLUME	126 CFM (Hi)
DEHUMIDIFYING VOLUME	80 Pints/Day
COLOR	Silver and Grey
COOLANT	R410A
TIMER	24 Hour
DIMENSIONS (HEIGHT X WIDTH X DEPTH)	29 ³ / ₁₆ " X 17 ³ / ₁₆ " X 15 ¹ / ₁₆ "
WEIGHT	69 Pounds

The above data is subject to change without notice. Please refer to the rating label on the unit.

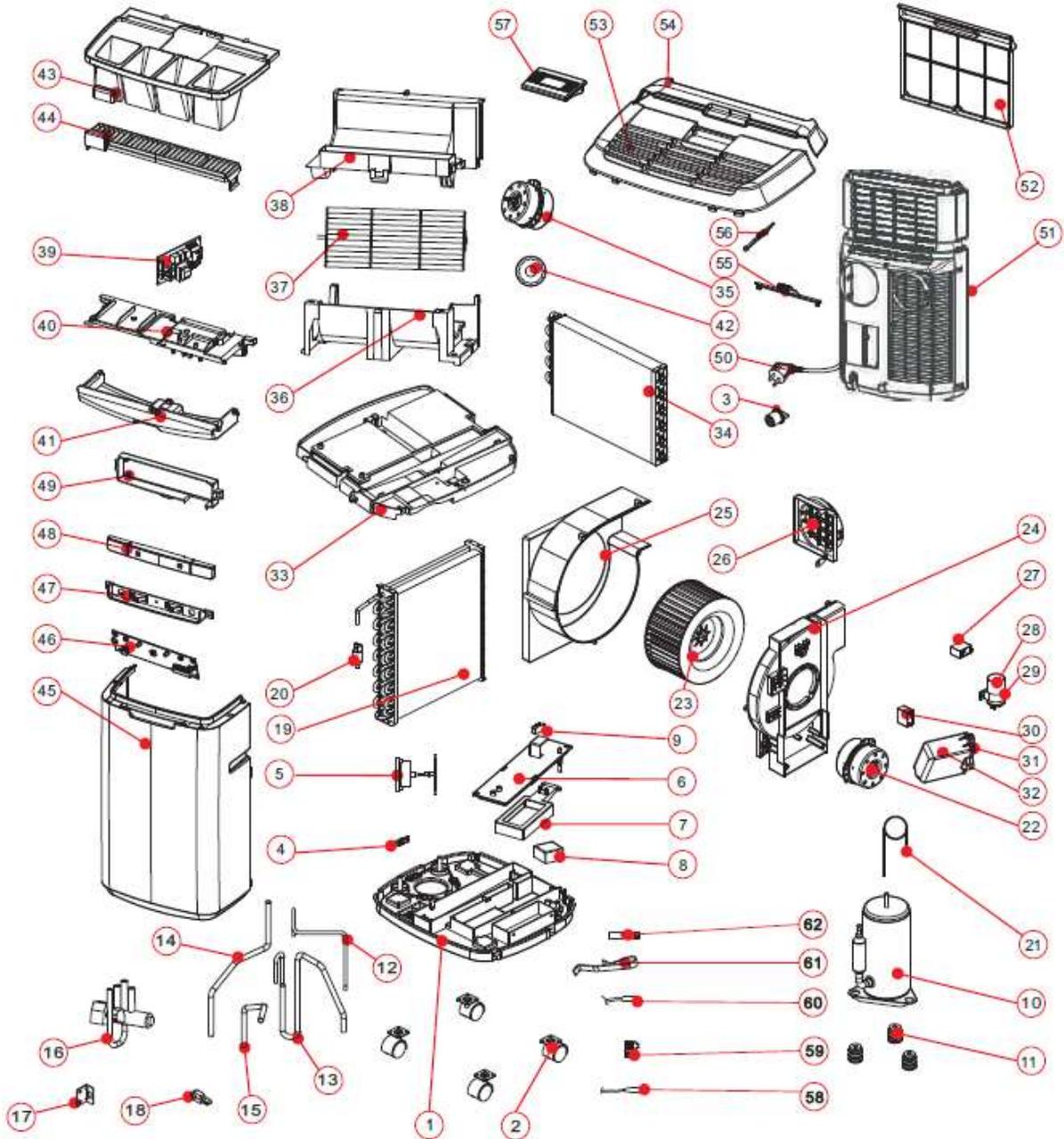
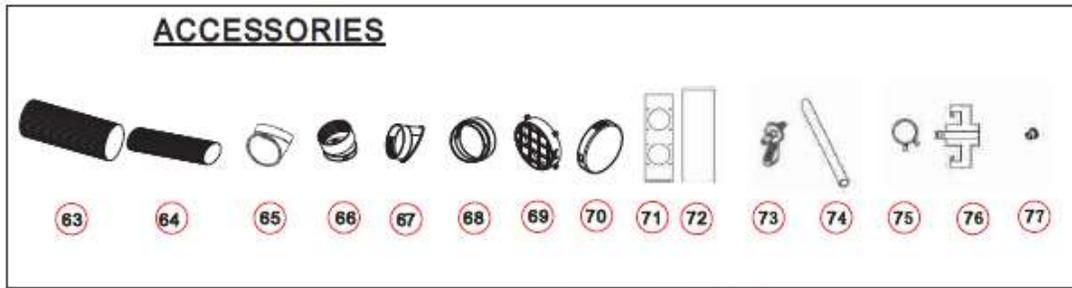
2 Exploded View and Parts List

2.1 APAC120S



NO	PART NAME	NO	PART NAME
1	BASE PLATE	37	TOP COVER
2	CASTOR	38	FRONT PANEL
3	DRAIN BUCKET COVER	39	CONTROL PCB
4	FLOAT BRACKET	40	LIGHT BOARD
5	FLOAT	41	PUSH BUTTONS
6	FLOAT SWITCH	42	BRACKET
7	WATER FLINGER MOTOR	43	POWER SUPPLY CORD
8	STRIKE	44	REAR PANEL
9	COMPRESSOR	45	BRACKET
10	RUBBER FOOT	46	RUBBER PLUG
11	CONDENSER	47	AIR FILTER
12	Y TUBE	48	TOP COVER PLATE A
13	DISCHARGE PIPE	49	TOP COVER PLATE B
14	SUCTION PIPE	50	AIR DEFLECTOR
15	CAPILLARY TUBE	51	BAR
16	FAN MOTOR	52	REMOTE CONTROL
17	FAN HOUSING	53	RUBBER PLUG
18	BLOWER WHEEL	54	INDOOR TEMPERATURE SENSOR
19	FAN HOUSING	55	BRACKET
20	BRACKET	56	EVAPORATOR SENSOR
21	CAPACITOR FOR FAN MOTOR	57	BRACKET
22	CAPACITOR FOR COMPRESSOR	58	LARGE EXHAUST HOSE
23	CAPACITOR BRACKET	59	SMALL EXHAUST HOSE
24	CAPACITOR FOR FAN MOTOR	60	EXHAUST HOSE CONNECTOR
25	TERMINAL BLOCK	61	EXHAUST HOSE CONNECTOR
26	MIDDLE PLATE	62	EXHAUST HOSE CONNECTOR
27	EVAPORATOR	63	EXHAUST HOSE CONNECTOR
28	FAN MOTOR	64	GRATED CONNECTOR
29	FAN HOUSING	65	EXHAUST CAP
30	CROSS FLOW FAN	66	WINDOW PLATE WITH HOLES
31	FAN HOUSING	67	WINDOW PLATE
32	BEARING	68	DRAIN PIPE CONNECTOR
33	DISCHARGE GRILLE A	69	DRAINAGE PIPE
34	DISCHARGE GRILLE B	70	SPRING CLAMP
35	MAIN PCB	71	NOZZLE
36	BRACKET	72	RUBBER CAP

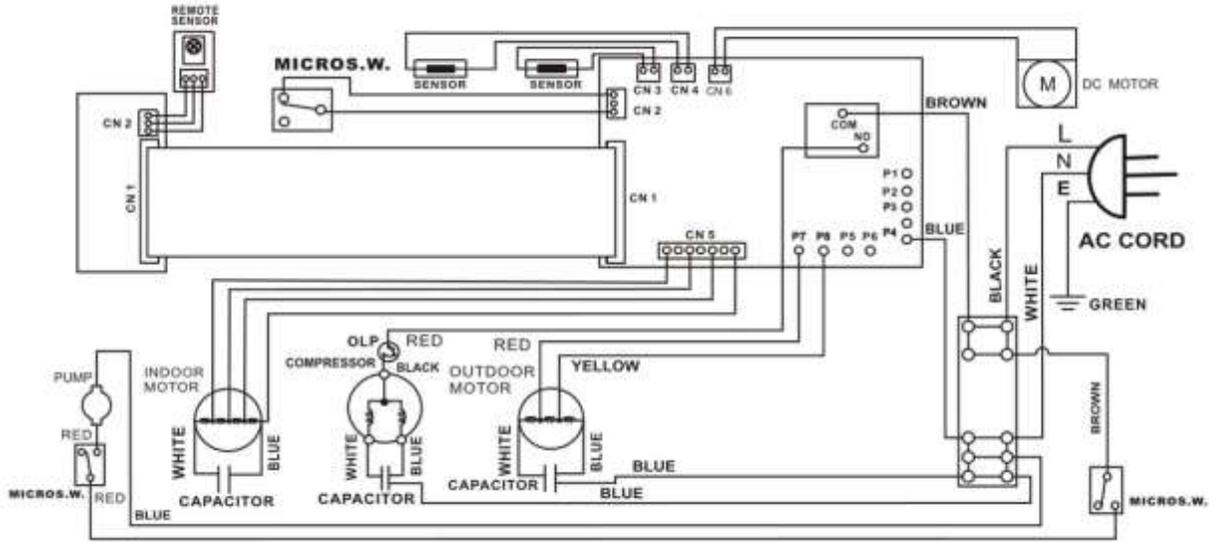
2.2 APAC120HS



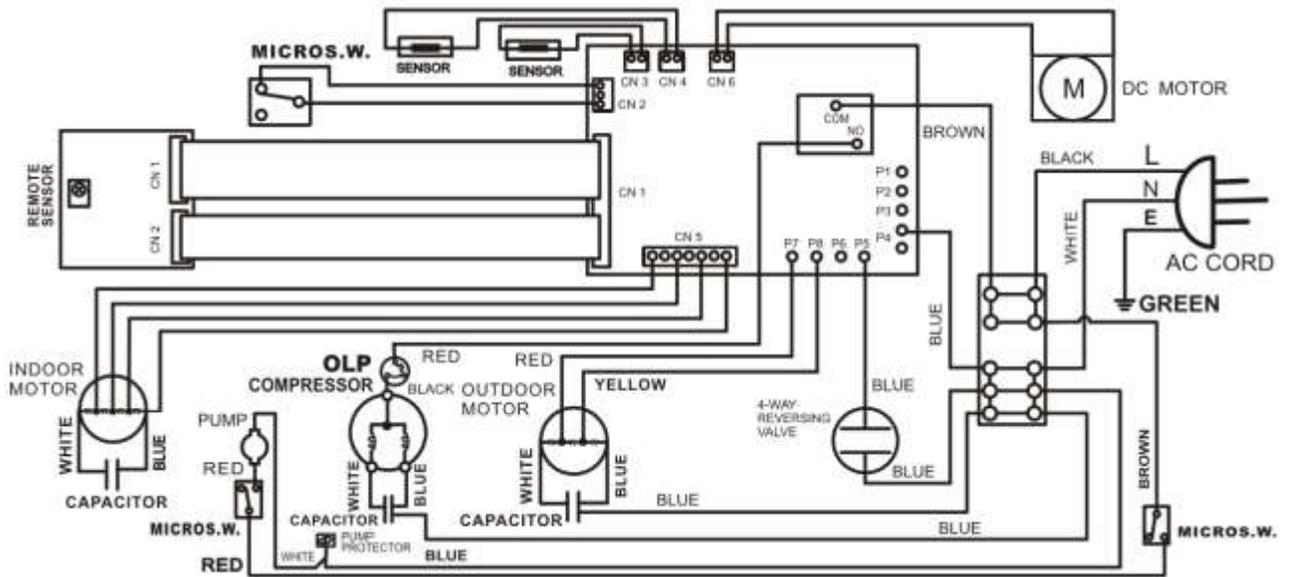
NO.	PART NAME	NO.	PART NAME
1	BASE PLATE	40	BRACKET
2	CASTOR	41	TOP COVER
3	RUBBER PLUG	42	BEARING
4	STRIKE	43	DISCHARGE GRILLE A
5	WATER FLINGER MOTOR	44	DISCHARGE GRILLE B
6	DRAIN BUCKET COVER	45	FRONT PANEL
7	FLOAT BRACKET	46	CONTROL PCB
8	FLOAT	47	LIGHT BOARD
9	FLOAT SWITCH	48	PUSH BUTTONS
10	COMPRESSOR	49	BRACKET
11	RUBBER FOOT	50	POWER SUPPLY CORD
12	DISCHARGE PIPE	51	REAR PANEL
13	SUCTION PIPE	52	AIR FILTER
14	CONDENSER PIPE	53	TOP COVER PLATE A
15	CONDENSER PIPE	54	TOP COVER PLATE B
16	4-WAY REVERSING VALVE	55	BAR
17	BRACKET	56	AIR DEFLECTOR
18	RUBBER	57	REMOTE CONTROL
19	CONDENSER	58	SENSOR
20	Y TUBE	59	COVER
21	CAPILLARY TUBE	60	SENSOR
22	FAN MOTOR	61	BRACKET
23	BLOWER WHEEL	62	SENSOR
24	FAN HOUSING	63	LARGE EXHAUST HOSE
25	FAN HOUSING	64	SMALL EXHAUST HOSE
26	BRACKET	65	EXHAUST HOSE CONNECTOR
27	CAPACITOR FOR FAN MOTOR	66	EXHAUST HOSE CONNECTOR
28	CAPACITOR FOR COMPRESSOR	67	EXHAUST HOSE CONNECTOR
29	CAPACITOR BRACKET	68	EXHAUST HOSE CONNECTOR
30	CAPACITOR FOR FAN MOTOR	69	GRATED CONNECTOR
31	CAPACITOR BRACKET	70	EXHAUST CAP
32	CAPACITOR COVER	71	WINDOW PLATE WITH HOLES
33	MIDDLE PLATE	72	WINDOW PLATE
34	EVAPORATOR	73	DRAIN PIPE CONNECTOR
35	FAN MOTOR	74	DRAINAGE PIPE
36	FAN HOUSING	75	SPRING CLAMP
37	CROSS FLOW FAN	76	NOZZLE
38	FAN HOUSING	77	RUBBER CAP
39	MAIN PCB		

3 Wiring Diagram

3.1 APAC120S

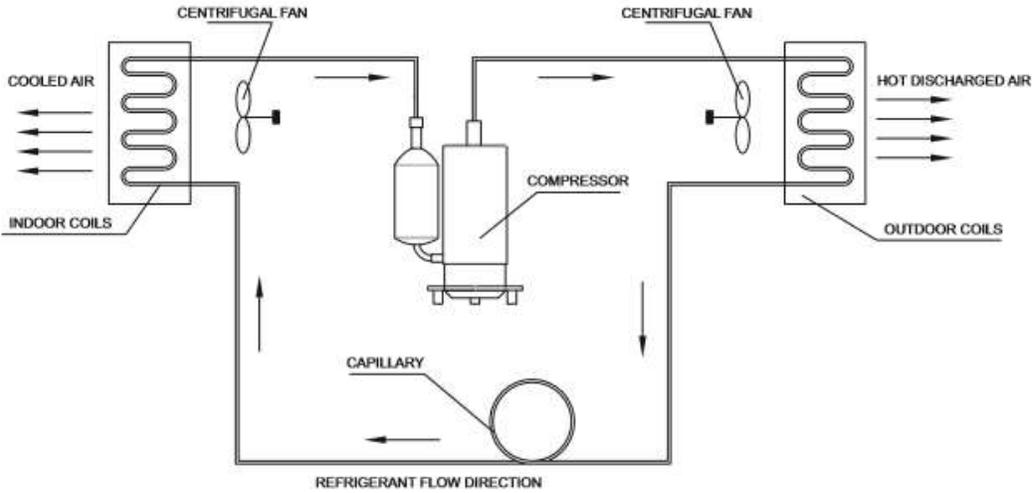


3.2 APAC120HS

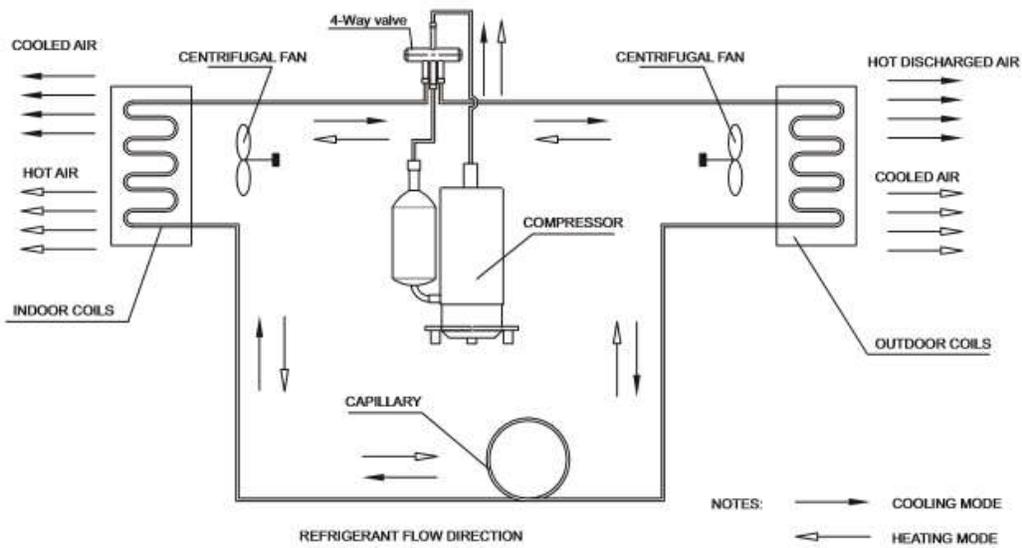


4 Refrigerant System Diagram

4.1 APAC120S



4.2 APAC120HS



5 Modes and Operating Conditions

5.1 Terms and Definitions

TA: Ambient indoor temperature.

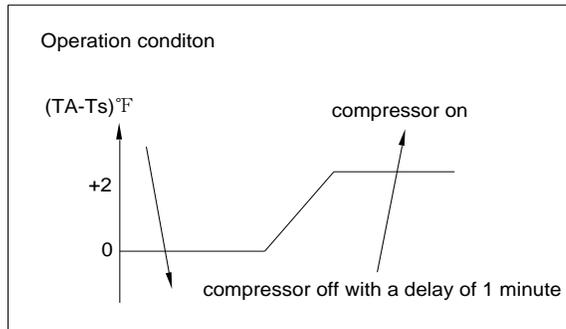
TS: Set temperature.

5.2 Cooling Mode – (Blue Indicator Light)

The cooling temperature can be set from 64 to 90°F.

The timer function works in cooling mode.

The compressor will run when the difference between the set temperature and the actual ambient room temperature conforms to the chart below:



When $TA \leq TS$ (for 1 minute) the compressor turns off.

When $TA > TS + 2^\circ\text{F}$ the compressor turns on.

5.3 Fan Only Mode (Green Indicator Light)

If the temperature can't be controlled by the selected mode and the room ambient temperature is shown on the display the unit will default to fan only mode.

The readout can only display a temperature of 32 to 99 °F (0 to 37°C.) If the temperature is out of that range the display will show LO or HI.

The Timer function works in fan only mode.

5.4 Dehumidify Mode (Yellow Indicator Light)

In this mode, the air conditioner will operate as a dehumidifier. Because the conditioned space is closed or sealed, some degree of cooling will continue to occur.

If the room temperature is below 77°F, the fan will always run on low speed while in dehumidify mode.

If you do not use the exhaust hose in Dehumidifying mode, you must manually drain the water from the unit. Additionally, the ambient temperature in the room will probably rise by a few degrees if you do not use the exhaust hose.

You will be not be able to change the thermostat temperature or fan speed while in dehumidify mode.

5.5 Heat Mode - APAC120HS Only (Red Indicator Light)

Your air conditioner can work as a heat pump and provide supplementary heating.

The unit must be vented to the outside so that it can expel the cold air out of the exhaust.

Heating is activated only when the ambient temperature is below 77°F. In this mode, the desired temperature can be set between 61°F and 77°F.

5.6 Automatic Mode

In Automatic mode, the unit will cool, dehumidify or heat (APAC120HS only) depending on the ambient temperature.

As the temperature in the room changes, the mode and fan speed will change automatically.

The front panel lights will change depending on the mode.

You cannot select a specific temperature in this mode.

5.7 Overflow Prevention

When water is detected in the reservoir for 3 seconds overflow prevention will occur.

The control panel lights blink red.

5.8 Compressor Protection

If power is interrupted, the compressor will only restart after a 3 minute delay.

6 Troubleshooting

Problem	Possible Cause	Solution
Unit does not turn on.	Wall plug is disconnected.	Insert plug firmly into proper wall outlet.
	House fuse blown or circuit breaker tripped.	Replace fuse with time delay type or reset circuit breaker.
	Power cord is tripped.	Press the RESET button on the power cord. If power cord is damaged replace power cord.
	Unit is turned OFF.	Turn unit ON and set to desired setting.
	Ribbon cable to control panel is disconnected.	Remove outer shell and reconnect cable.
	Loose or disconnected wiring on main PCB.	Remove outer shell. Check all connections to the PCB and reconnect any loose or disconnected leads.
	Condensate water tray is full and/or water light is on.	Drain condensate water. Make sure water level switch is operating correctly and not stuck in "full" position or being interfered with.
Unit does not blow cold air.	Room temperature is below 61°F(16°C.)	Cooling will not occur until room temperature rises above 61°F(16°C.)
	Unit is not in cooling mode.	Set the unit to cooling mode – blue light is on.
	Set temperature is too high.	Set to a Lower temperature.
	Air filter is dirty.	Clean filter.
	Exhaust air duct is installed incorrectly or blocked.	Connect exhaust duct so if functions correctly. Clear blockage.
	Refrigerant leak.	Find leak and repair. Recharge with refrigerant.
	Evaporator is frosted.	The unit needs to defrost and will resume normal operation after it is finished.
Unit blows cold air but does not lower room temperature.	Fan speed is set too low.	Increase fan speed to improve air flow.
	Exhaust air duct is not installed, is installed incorrectly or blocked.	Connect exhaust duct so if functions correctly. Clear blockage.
	Room area is too large.	Reduce room size, add another unit or larger unit.
	Open windows or doors.	Close all open windows and doors.
	Ambient temperature is too high.	The unit may not work if the room temperature is above 90°F.

	Room has too many heat sources.	Remove/shut off additional heat sources. Close curtains/blinds to minimize the amount of direct sunlight entering the room.
	Filter is dirty.	Clean filter.
	The condenser coils are dirty.	Carefully vacuum the coils clean.
Front panel lights blink red.	Water reservoir is full.	Drain unit.
Unit continues to operate after water tray is full or water full protection occurs frequently.	Water level switch is open or short circuited.	Check water level switch connections or replace water level switch if defective.
	Water level switch is stuck in "empty" position.	Make sure water level switch is operating correctly and not stuck or being interfered with.
Unit leaks.	Drain plug is removed.	Attach the drain plug.
	Base plate is cracked.	Replace base plate.
Sounds or vibration.	When unit is turned on or off the outer shell "pops" or "clicks."	Normal sound. Outer shell is contracting or expanding and will stop after a few minutes.
	When unit is turned on or off "boiling" or "running water" is heard.	Normal sound. The cause is refrigerant flowing inside the system and will stop after a few minutes.
	Foreign objects inside the unit are interfering with fans or other moving parts.	Remove foreign objects.
	Unit is not level.	Make sure unit is on a level surface.
	Compressor vibration.	Tighten bolts holding compressor to chassis.
Room too cold.	Set temperature is too low.	Adjust the set temperature.

DATE	REVISION NOTES
04/16/2018	INITIAL DOCUMENT