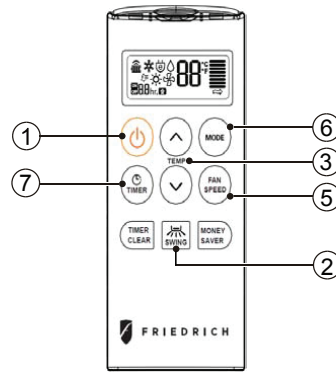
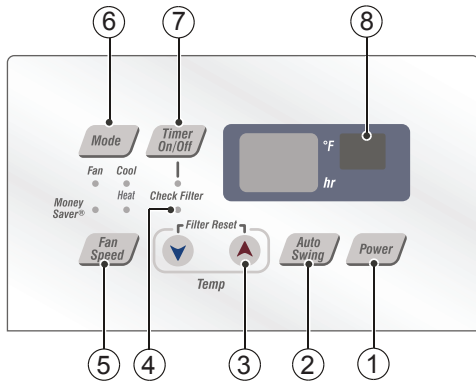


1.4 OPERATING INSTRUCTIONS



Control and Remote Control Operations

1. POWER

Operation begins when this button is pressed and stops when you press the button again.

2. AUTO SWING

This button can automatically control the air flow direction.

3. TEMPERATURE CONTROL

The thermostat monitors room temperature to maintain the desired temperature. The thermostat can be set between 60°F~86°F (16°C~30°C).

4. CHECK FILTER & FILTER RESET

Check Filter: Your 'Check Filter' LED will light up after approximately 250 hours of operation, notifying you that your filter needs to be cleaned.

Filter Reset: press 'Temp ∇ ∆' together to turn off 'Check Filter' light.

**Filter Reset must be done from unit control panel, not remote control*

5. FAN SPEED SELECTOR

For increased power while cooling, select a higher fan speed.

2 speed : Low : High

6. OPERATION MODE SELECTOR

Push the 'Mode' button to rotate between MoneySaver → Cool → Fan Only → Heat.

MoneySaver: The fan will stop when the compressor stops cooling. The fan will turn on approximately every 3 minutes to sample to room air and determine if more cooling is needed.

Cool: fan runs continually for normal cooling operation

Fan Only: Fan-only operation

Heat: fan runs continually for normal heat operation

7. ON/OFF TIMER

ON: If the unit is off, use Timer to set number of hours before unit starts.

- Push Timer button to advance setting from 1hr

- 2hrs - ...24hrs maximum.

OFF: You will usually use shut-off time while you sleep.

- If unit is running, use Timer to set number of hours until shut-off.

- Push Timer button to advance setting from 1hr

2hrs....24hrs maximum.

**Timer Clear: On remote control, 'Timer Clear' button will cancel the timer setting*

8. REMOTE CONTROL SENSOR

To receive the signal from remote controller.

Inserting the Remote Control Batteries

1. Push out the cover on the back of the remote control with your thumb
2. Pay attention to polarity and insert two new AAA 1.5V batteries.
3. Reattach the cover.



NOTE: Do not use rechargeable batteries. Make sure that both batteries are new.

• In order to prevent discharge, remove the batteries from the remote control if the air conditioner is not going to be used for an extended period of time

Keep the remote control away from extremely hot or humid places.

To maintain optimal operation of the remote control, the remote sensor should not be exposed to direct sunlight.

2. DISASSEMBLY INSTRUCTIONS

— Before the following disassembly, POWER SWITCH is set to OFF and disconnected the power cord.

2.1 MECHANICAL PARTS

2.1.1 FRONT GRILLE

1. Open the inlet grille upward or downward.
2. Remove the screw which fastens the front grille.
3. Pull the front grille from the right side.
4. Remove the front grille. (See Fig. 16)
5. Re-install the component by referring to the removal procedure.

NOTICE Mark Δ of inlet grille means opening direction.

2.1.2 CABINET

1. After disassembling the front grille, remove the screws which fasten the cabinet at both sides. Keep these for later use.
2. Remove the two screws which fasten the cabinet at back. (See Fig. 17)
3. Pull the base pan forward.

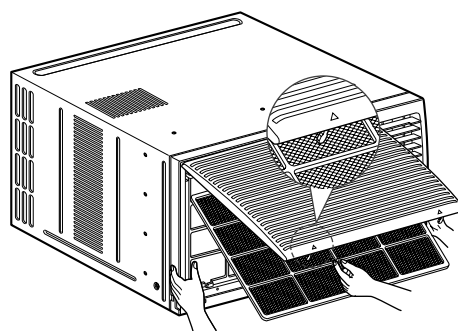
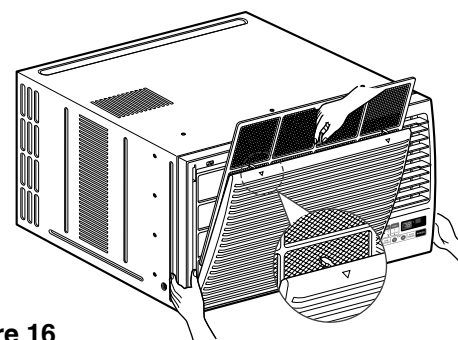


Figure 16



2.1.3 CONTROL BOX

1. Remove the front grille. (Refer to section 1)
2. Pull the base pan forward so that you can remove the 2 screws which fasten the cover control at the right side. (See Fig. 18)
3. Remove the 3 screws which fasten the controlbox. (See Fig. 18)
4. Discharge the capacitor by placing a 20,000 ohm resistor across the capacitor terminals.
5. Disconnect two wire housings in the control box.
6. Pull the control box forward completely.
7. Re-install the components by referring to the removal procedure. (See Fig. 18)

(Refer to the wiring diagram found on page 29~30 in this manual and on the control box.)

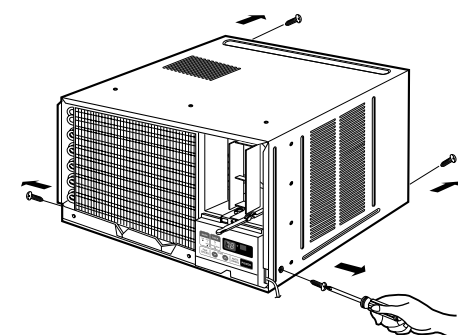


Figure 17

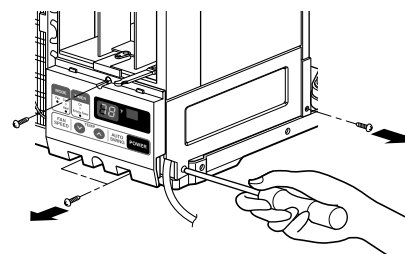


Figure 18

2.2 AIR HANDLING PARTS

2.2.1 Cover (at the top)

1. Remove the front grille. (Refer to section 1)
2. Remove the cabinet. (Refer to section 2)
3. Remove 11 screws which fasten the brace and covers.
4. Remove the covers and the brace. (See Fig. 19)
5. Re-install the components by referring to the removal procedure, above.

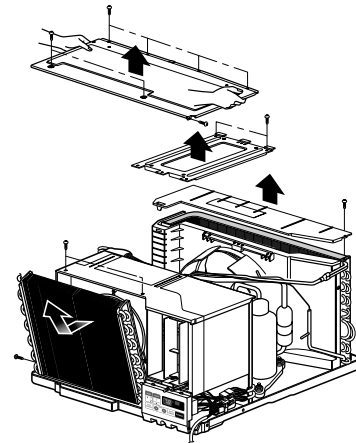


Figure 19

2.2.2 BLOWER

1. Remove the cover. (Refer to 2.2.1)
2. Remove the 3 screws which fasten the evaporator at the left side and the top side. (See Fig. 19)
3. Move the evaporator sideward carefully.
4. Remove the 2 terminals carefully (See Fig. 20).
5. Remove the 3 screws which fasten the Heater Cover. (See Fig. 20)
6. Remove the Heater Cover. (See Fig. 20)
7. Remove the orifice from the air guide carefully. (See Fig. 21)
8. Remove the clamp which secures the blower with plier. (See Fig. 21)
9. Remove the blower with plier or your hand without touching blades. (See Fig. 22)
10. Re-install the components by referring to the removal procedure, above.

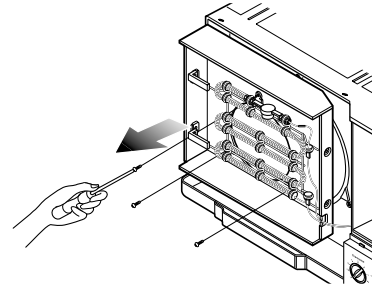


Figure 20

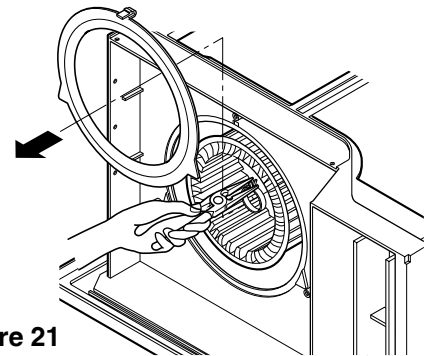


Figure 21

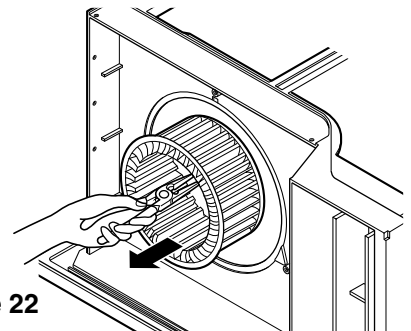


Figure 22

2.2.3 Fan

1. Remove the cabinet. (Refer to section 2)
2. Remove the brace and shroud cover. (Refer to section 4)
3. Remove the side cover with 2 screws. (See Fig. 23)
4. Remove the 5 or 6 screws which fasten the condenser.
5. Move the condenser sideways carefully.
6. Remove the clamp which secures the fan.
7. Remove the fan. (See Fig. 23)
8. Re-install the components by referring to the removal procedure, above.

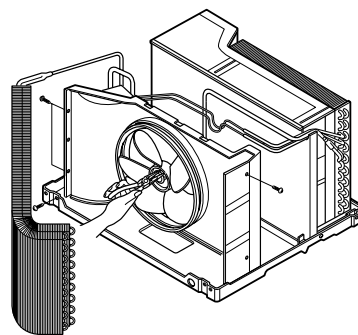


Figure 23

2.2.4 Shroud

1. Remove the fan. (Refer to section 6)
2. Remove the 2 screws which fasten the shroud.
3. Remove the shroud. (See Fig. 24)
4. Re-install the component by referring to the removal procedure, above.

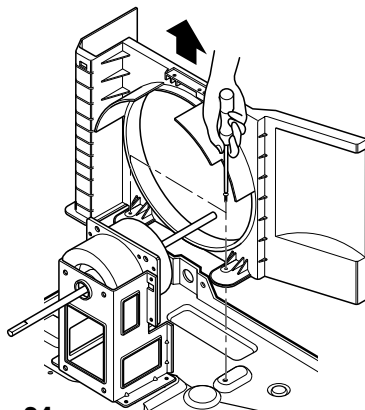


Figure 24

2.3 ELECTRICAL PARTS

2.3.1 Motor

1. Remove the cabinet. (Refer to section 2)
2. Remove the cover control and disconnect a wire housing in control box. (Refer to section 3)
3. Remove the blower. (Refer to section 5)
4. Remove the fan. (Refer to section 6)
5. Remove the 4 screws which fasten the motor. (See Fig. 25)
6. Remove the motor.
7. Re-install the components by referring to the removal procedure, above.

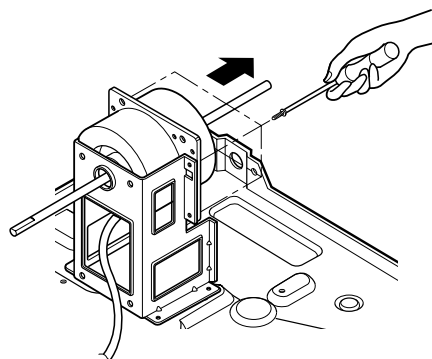


Figure 25

2.3.2 Compressor

1. Remove the cabinet. (Refer to section 2)
2. Discharge the refrigerant system using Freon™ Recovery System. If there is no valve to attach the recovery system, install one (such as a watco a-1) before venting the Freon™. Leave the valve in place after servicing the system.
3. Disconnect the 3 leads from the compressor.
4. After purging the unit completely, unbraid the suction and discharge tubes at the compressor connections.
5. Remove the 3 nuts and the 3 washers which fasten the compressor. (See Fig. 26)
6. Remove the compressor.
7. Re-instill the components by referring to the removal procedure, above.

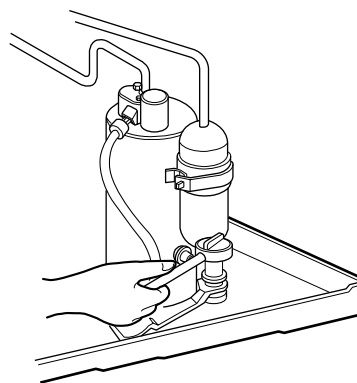


Figure 26

2.3.3 CAPACITOR

1. Remove the control box. (Refer to section 3)
2. Remove the screw and knobs which fasten the display panel.
3. Disconnect the 2 leads from the rocker switch and remove the panel.
4. Remove a screw and unfold the control box. (See Fig. 27)
5. Remove the screw and the clamp which fastens the capacitor. (See Fig. 27)
6. Disconnect all the leads of capacitor terminals.
7. Re-install the components by referring to the removal procedure, above.

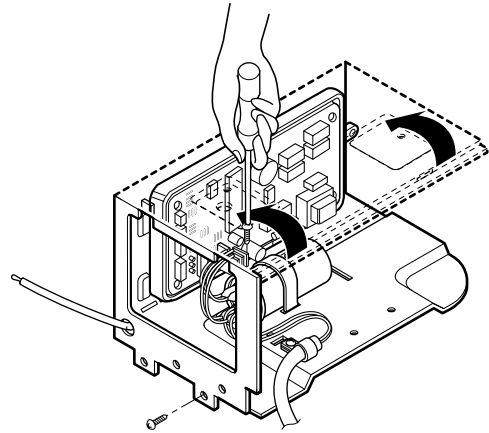


Figure 27

2.3.4 POWER CORD

1. Remove the control box. (Refer to section 3)
2. Unfold the control box. (Refer to section 10)
3. Disconnect the grounding screw from the control box.
4. Disconnect 2 receptacles.
5. Remove a screw which fastens the clip cord.
6. Pull the power cord. (See Fig. 28)
7. Re-install the component by referring to the removal procedure, above.
(Use only one ground-marked hole for ground connection.)
8. If the supply cord of this appliance is damaged, it must be replaced by the special cord.
(The special cord means the cord which has the same specification marked on the supply cord fitted to the unit.)

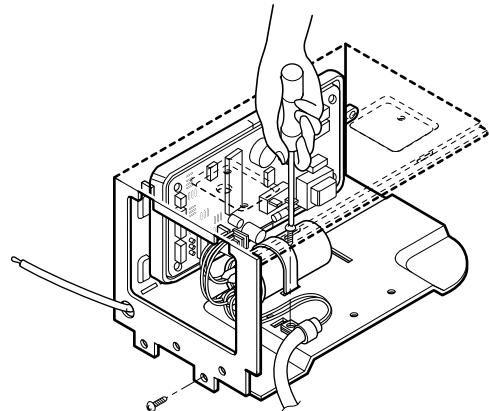


Figure 28

2.3.5 THERMISTOR

1. Remove the control box. (Refer to section 3)
2. Unfold the control box. (Refer to section 10)
3. Disconnect the thermistor terminals from main P.W.B assembly.
4. Remove the thermistor.
5. Re-install the components by referring to the removal procedure above. (See Figure 30)

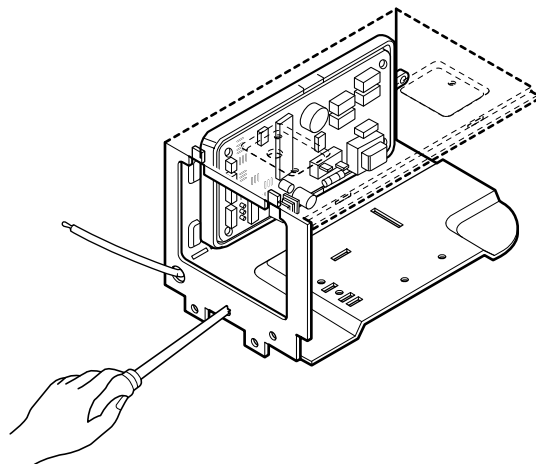


Figure 29

2.3.6 SYNCHRONOUS MOTOR

1. Remove the control box. (Refer to section 3)
2. Unfold the control box. (Refer to section 10)
3. Remove the crankshaft.
4. Disconnect all the leads of the synchronous motor.
5. Remove the 2 screws which fasten the synchronous motor. (See Fig. 30)
6. Re-install the components by referring to the removal procedure, above.

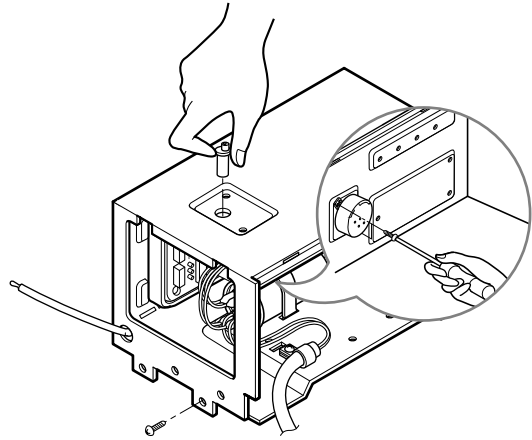


Figure 30

2.4 REFRIGERATION CYCLE



CAUTION: Discharge the refrigerant system using Freon™ Recovery System. If there is no valve to attach the recovery system, install one (such as a WATCO A-1) before venting the Freon™. Leave the valve in place after servicing the system.

2.4.1 CONDENSER

1. Remove the cabinet. (Refer to section 2)
2. Remove the brace and the shroud cover. (Refer to section 4)
3. Remove 2 screws which fasten the side cover. (See Fig. 31)
4. Remove the 5 or 6 screws which fasten the condenser.
5. After discharging the refrigerant completely, unbraid the interconnecting tube at the condenser connections.
6. Remove the condenser.
7. Re-install the components by referring to notes. (See Fig. 31)

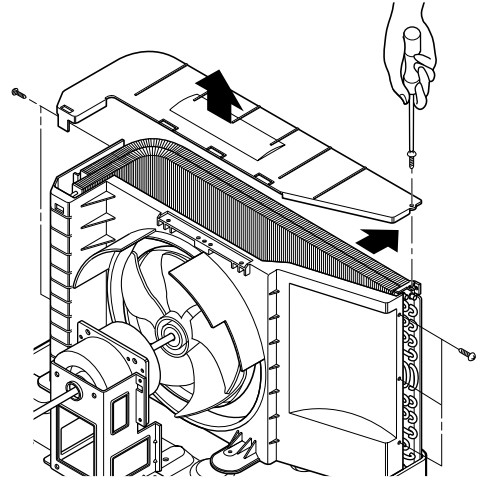


Figure 31

2.4.2 EVAPORATOR

1. Remove the cabinet. (Refer to section 2)
2. Remove the top cover and the brace. (Refer to section 4)
3. Discharge the refrigerant completely.
4. Remove the 3 screws which fasten the evaporator at the left side and the top side.
5. Move the evaporator sideward carefully and then unbraid the interconnecting tube at the evaporator connectors.
6. Remove the evaporator.
7. Re-install the components by referring to notes. (See Fig. 32)

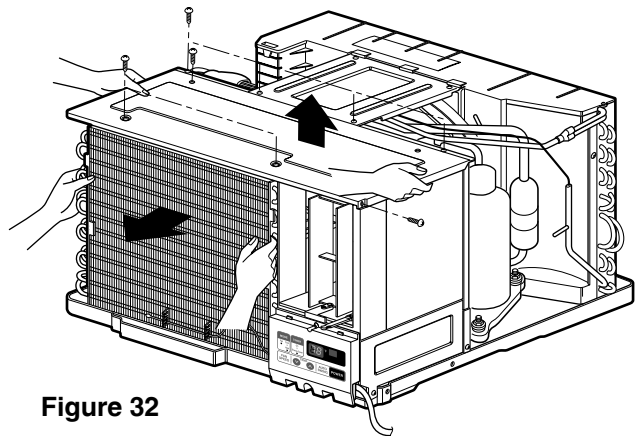


Figure 32

2.4.3 CAPILLARY TUBE

1. Remove the cabinet. (Refer to section 2)
2. Remove the brace. (Refer to section 4)
3. After discharging the refrigerant completely, unbraid the interconnecting tube at the capillary tube.
4. Remove the capillary tube.
5. Re-install the components by referring to notes.

NOTICE

- Replacement of the refrigeration cycle.

1. When replacing the refrigeration cycle, be sure to discharge the refrigerant system using a Freon™ recovery System.
If there is no valve to attach the recovery system, install one (such as a WATCO A-1) before venting the Freon™. Leave the valve in place after servicing the system.
2. After discharging the unit completely, remove the desired component, and unbrace the pinch-off tubes.
3. Solder service valves into the pinch-off tube ports, leaving the valves open.
4. Solder the pinch-off tubes with Service valves.
5. Evacuate as follows.
 - 1) Connect the vacuum pump, as illustrated Fig. 35A.
 - 2) Start the vacuum pump, slowly open manifold valves A and B with two full turns counterclockwise and leave the valves closed.The vacuum pump is now pulling through valves A and B up to valve C by means of the manifold and entire system.



CAUTION: If high vacuum equipment is used, just crack valves A and B for a few minutes, then open slowly with the two full turns counterclockwise. This will keep oil from foaming and being drawn into the vacuum pump.

- 3) Operate the vacuum pump for 20 to 30 minutes, until 600 microns of vacuum is obtained. Close valves A and B, and observe vacuum gauge for a few minutes. A rise in pressure would indicate a possible leak or moisture remaining in the system. With valves A and B closed, stop the vacuum pump.
- 4) Remove the hose from the vacuum pump and place it on the charging cylinder. See Fig. 35B. Open valve C.
Discharge the line at the manifold connection.
- 5) The system is now ready for final charging.

6. Recharge as follows :

- 1) Refrigeration cycle systems are charged from the High-side. If the total charge cannot be put in the High-side, the balance will be put in the suction line through the access valve which you installed as the system was opened.
- 2) Connect the charging cylinder as shown in Fig. 35B.
With valve C open, discharge the hose at the manifold connection.
- 3) Open valve A and allow the proper charge to enter the system. Valve B is still closed.
- 4) If more charge is required, the high-side will not take it. Close valve A.
- 5) With the unit running, open valve B and add the balance of the charge.
 - a. Do not add the liquid refrigerant to the Low-side.
 - b. Watch the Low-side gauge; allow pressure to rise to 30 lbs.
 - c. Turn off valve B and allow pressure to drop.
 - d. Repeat steps B and C until the balance of the charge is in the system.
- 6) When satisfied the unit is operating correctly, use the pinch-off tool with the unit still running and clamp on to the pinch-off tube. Using a tube cutter, cut the pinch-off tube about 2 inches from the pinch-off tool. Use sil-fos solder and solder pinch-off tube closed. Turn off the unit, allow it to set for a while, and then test the leakage of the pinch-off connection.

Equipment needed: Vacuum pump, Charging cylinder, Manifold gauge, Brazing equipment. Pin-off tool capable of making a leak-proof seal, Leak detector, Tubing cutter, Hand Tools to remove components, Service valve.

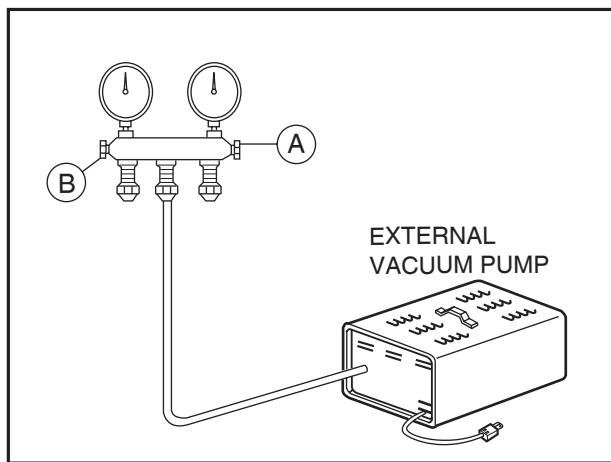
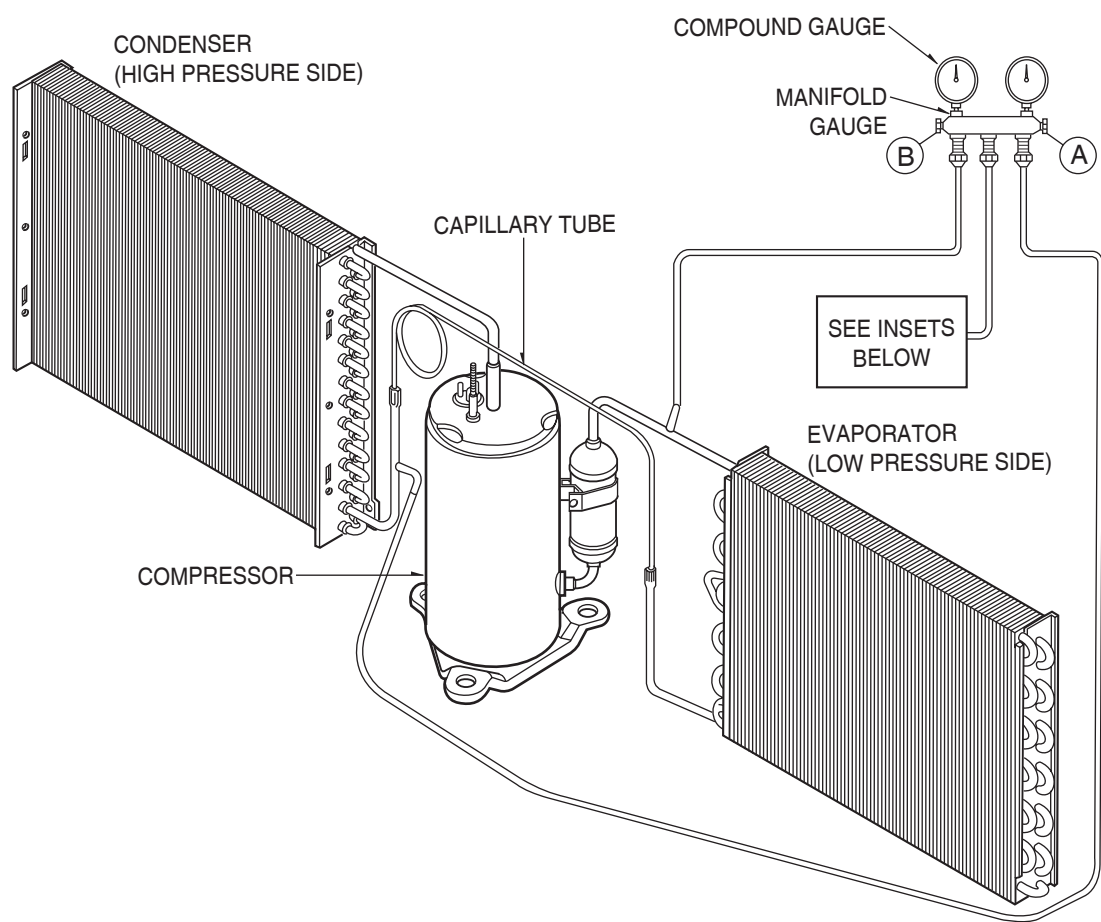


Figure 31A-Pulling Vacuum

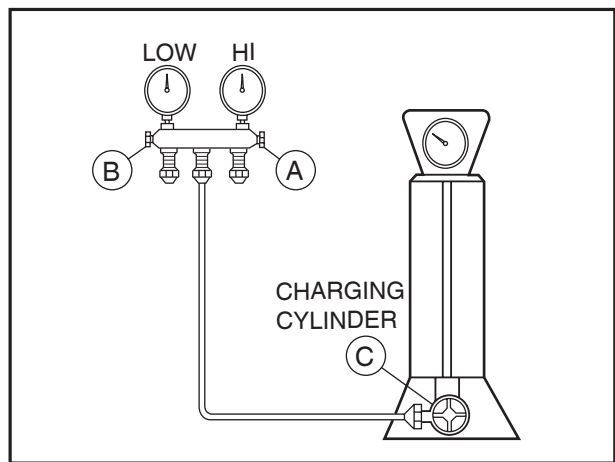
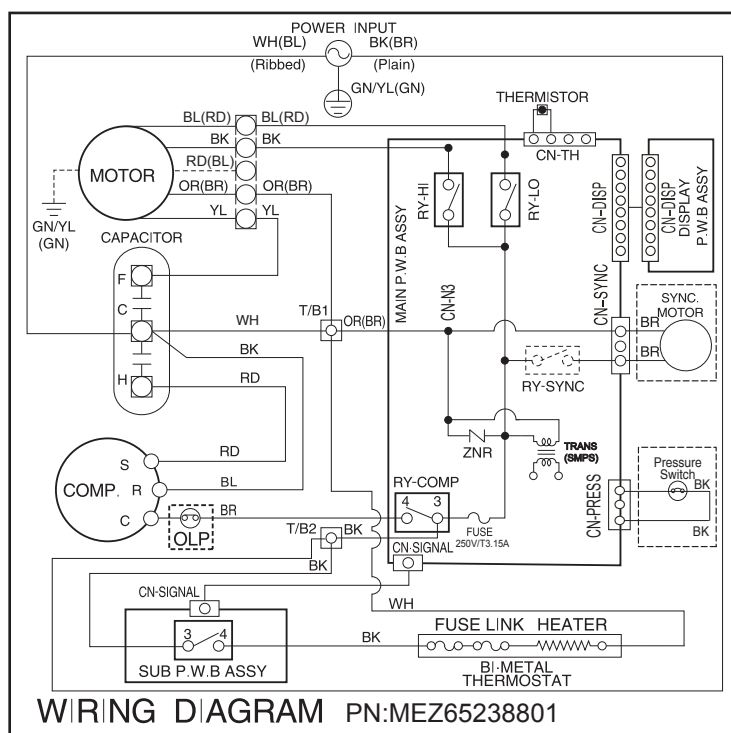


Figure 31B-Charging

3. SCHEMATIC DIAGRAM

3.1 CIRCUIT DIAGRAM

■ ELECTRIC HEATING MODEL



Fault Codes

Error No.	Error Item	Error Content
CH01	Indoor Air Sensor Error	Indoor air sensor open or short
CH09	EEPROM CheckSum Error	EEPROM reading date error
CH34	High Pressure Error	As high pressure, comp off over 10 times in 1 hour.

4. TROUBLESHOOTING GUIDE

4.1 PIPING SYSTEM

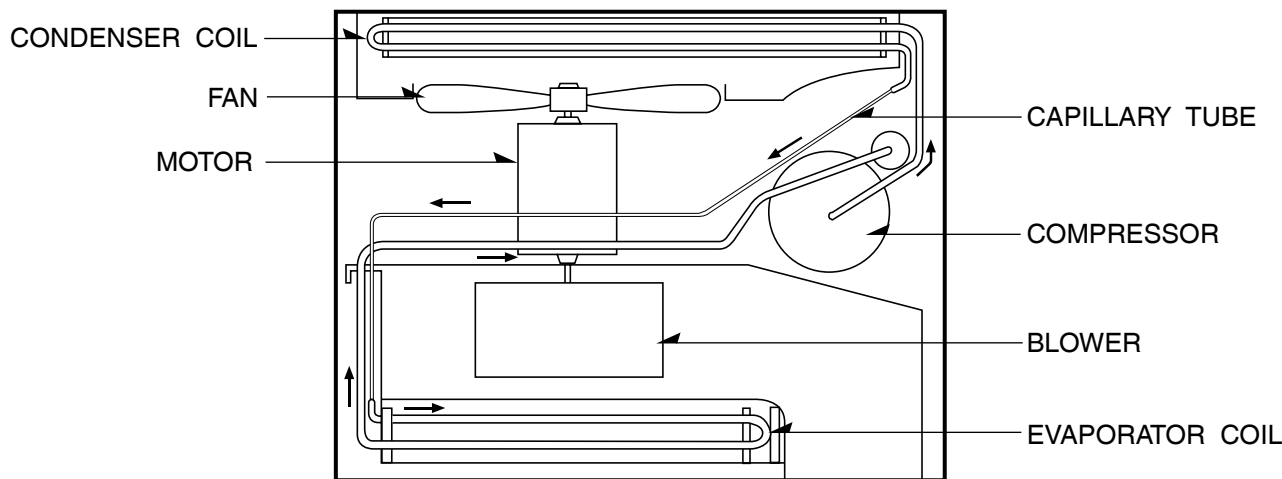
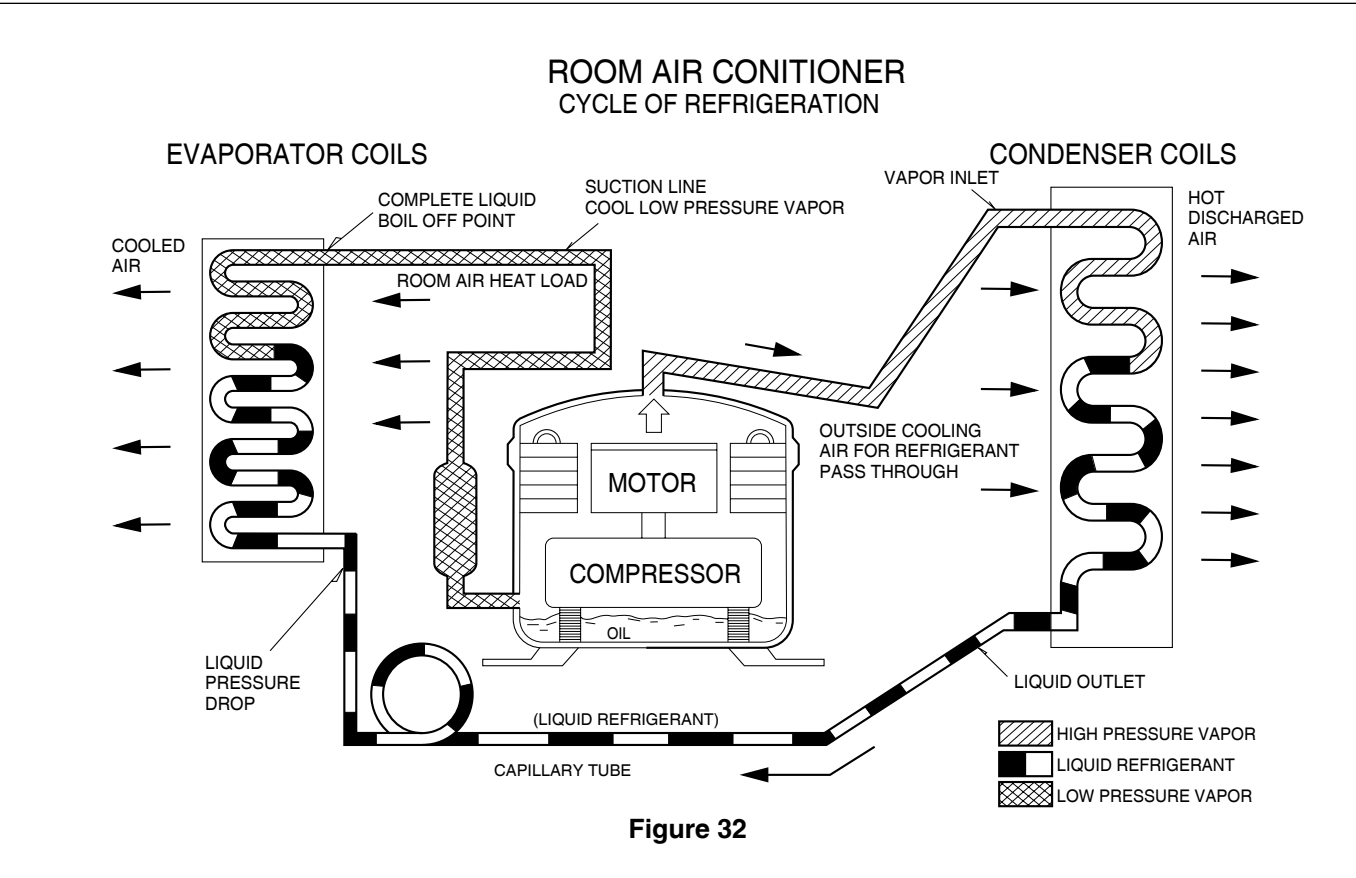


Figure 32 is a brief description of the important components and their function in what is called the refrigeration system. This will help you to understand the refrigeration cycle and the flow of the refrigerant in the cooling cycle.

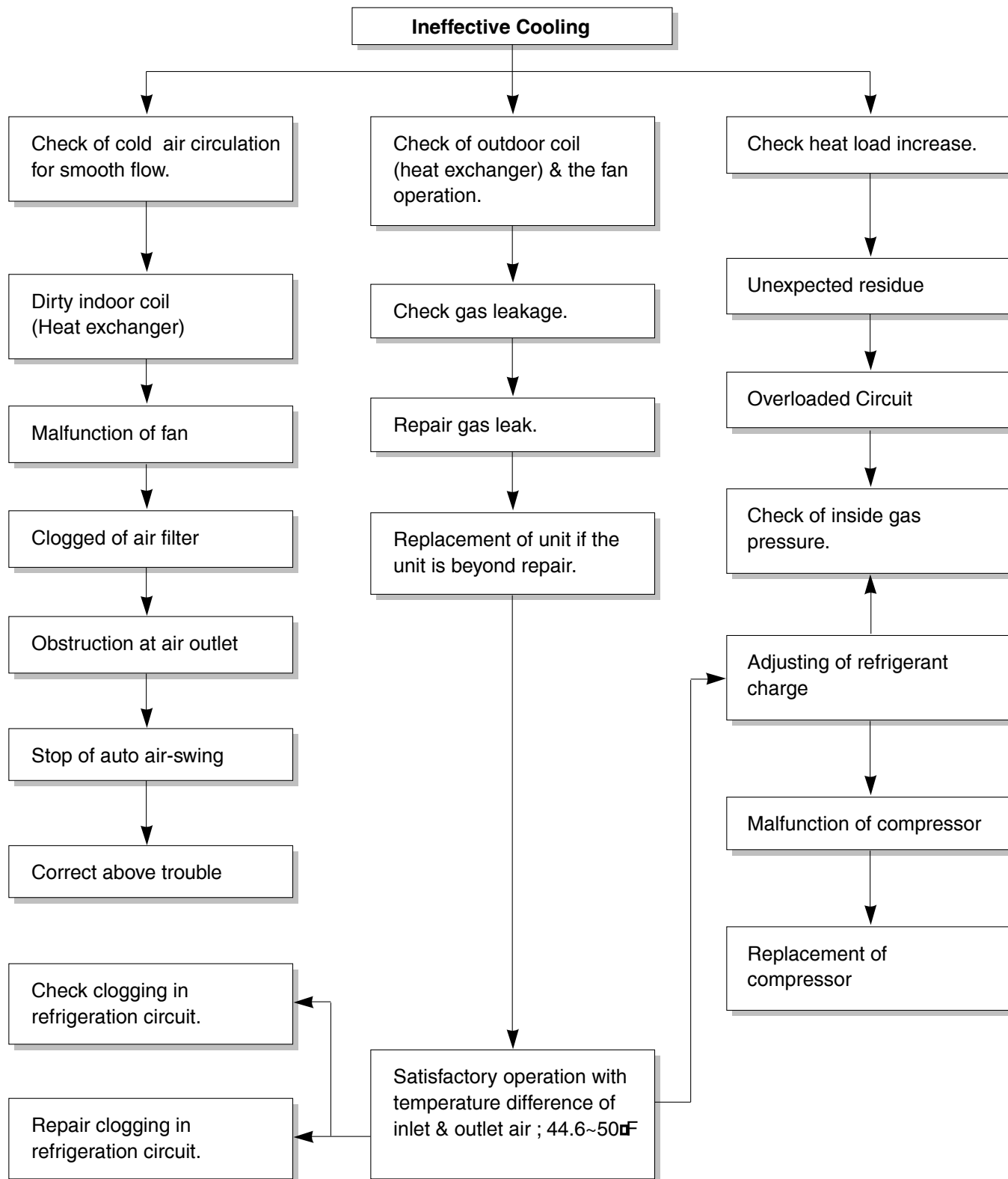


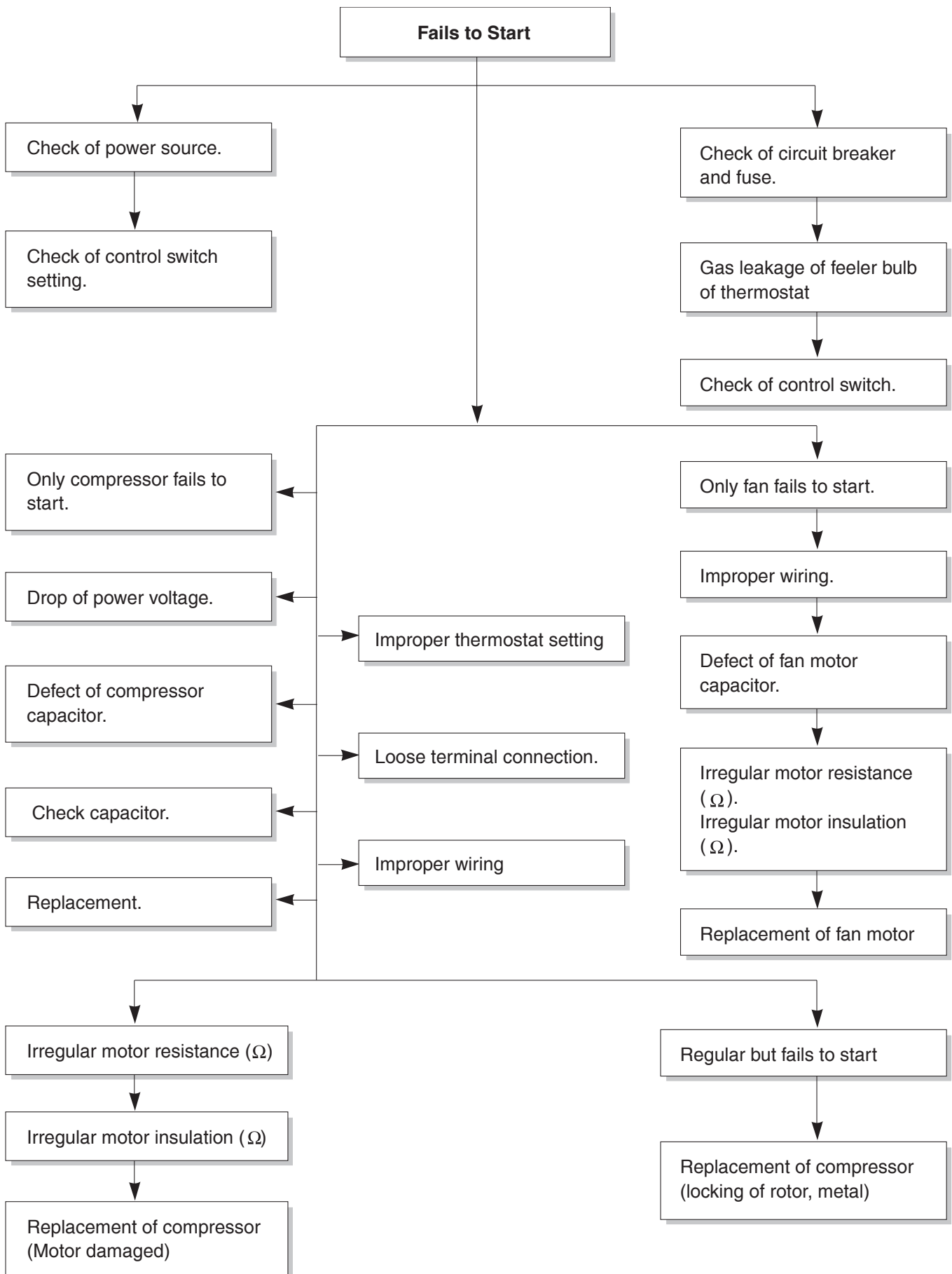
4.2 TROUBLESHOOTING GUIDE

In general, possible trouble is classified in two causes.

The one is called Starting Failure which is caused from an electrical defect, and the other is Ineffective Air Conditioning caused by a defect in the refrigeration circuit and improper application.

Unit is running but cooling is ineffective





COMPLAINT	CAUSE	REMEDY
Fan motor will not run.	No power	Check voltage at outlet. Correct if none.
	Power supply cord	Check voltage to rotary switch. If none, check power supply cord. Replace cord if circuit is open.
	Rotary switch	Check switch continuity. Refer to wiring diagram for terminal identification. Replace switch if defective.
	Wire disconnected or connection loose	Connect wire. Refer to wiring diagram for terminal identification. Repair or replace loose terminal.
	Capacitor (Discharge capacitor before testing.)	Test capacitor. Replace if not within $\pm 10\%$ of manufacturer's rating. Replace if shorted, open, or damaged.
	Will not rotate	Fan blade hitting shroud or blower wheel hitting scroll. Realign assembly. Units using slinger ring condenser fans must have $\frac{1}{4}$ to $\frac{5}{16}$ inch clearance to the base. If it is hitting the base, shim up the bottom of the fan motor with mounting screw(s). Check fan motor bearings; if motor shaft will not rotate, replace the motor.
Fan motor runs intermittently	Revolves on overload.	Check voltage. See limits on this page. If not within limits, call an electrician. Test capacitor. Check bearings. Does the fan blade rotate freely? If not, replace fan motor. Pay attention to any change from high speed to low speed. If the speed does not change, replace the motor.
Fan motor noise.	Grommets	Check grommets; if worn or missing, replace them.
	Fan	If cracked, out of balance, or partially missing, replace it.
	Turbo fan	If cracked, out of balance, or partially missing, replace it.
	Loose set screw	Tighten it.
	Worn bearings	If knocking sounds continue when running or loose, replace the motor. If the motor hums or noise appears to be internal while running, replace motor.

COMPLAINT	CAUSE	REMEDY
Compressor will not run, but fan motor runs.	Voltage	Check voltage. See the limits on the preceding page. If not within limits, call an electrician.
	Wiring	Check the wire connections, if loose, repair or replace the terminal. If wires are off, refer to wiring diagram for identification, and replace. Check wire locations. If not per wiring diagram, correct.
	Rotary	Check for continuity, refer to the wiring diagram for terminal identification. Replace the switch if circuit is open.
	Thermostat	Check the position of knob. If not at the coldest setting, advance the knob to this setting and restart unit. Check continuity of the thermostat. Replace thermostat if circuit is open.
	Capacitor (Discharge capacitor before servicing.)	Check the capacitor. Replace if not within $\pm 10\%$ of manufacturers rating. Replace if shorted, open, or damaged.
	Compressor	Check the compressor for open circuit or ground. If open or grounded, replace the compressor.
	Overload	Check the compressor overload, if externally mounted. Replace if open. (If the compressor temperature is high, remove the overload, cool it, and retest.)

ROOM AIR CONDITIONER VOLTAGE LIMITS

NAME PLATE RATING	MINIMUM	MAXIMUM
115V	103.5V	126.5V
208/230V	187V	253V

COMPLAINT	CAUSE	REMEDY
Compressor cycles on overload.	Voltage	Check the voltage. See the limits on the preceding page. If not within limits, call an electrician.
	Overload	Check overload, if externally mounted. Replace if open. (If the compressor temperature is high, remove the overload, cool, and retest.)
	Fan motor	If not running, determine the cause. Replace if required.
	Condenser air flow restriction	Remove the cabinet. inspect the interior surface of the condenser; if restricted, clean carefully with a vacuum cleaner (do not damage fins) or brush. Clean the interior base before reassembling.
	Condenser fins (damaged)	If condenser fins are closed over a large area on the coil surface, head pressures will increase, causing the compressor to cycle. Straighten the fins or replace the coil.
	Capacitor	Test capacitor.
	Wiring	Check the terminals. If loose, repair or replace.
	Refrigerating system	Check the system for a restriction.
Insufficient cooling or heating	Air filter	If restricted, clean or replace.
	Exhaust damper door	Close if open.
	Unit undersized	Determine if the unit is properly sized for the area to be cooled.
Excessive noise.	Blower or fan	Check the set screw or clamp. If loose or missing, correct. If the blower or fan is hitting air guide, rearrange the air handling parts.
	Copper tubing	Remove the cabinet and carefully rearrange tubing not to contact cabinet, compressor, shroud, and barrier.