

HAIER

TOP MOUNTED REFRIGERATOR FREEZER

SERVICE MANUAL

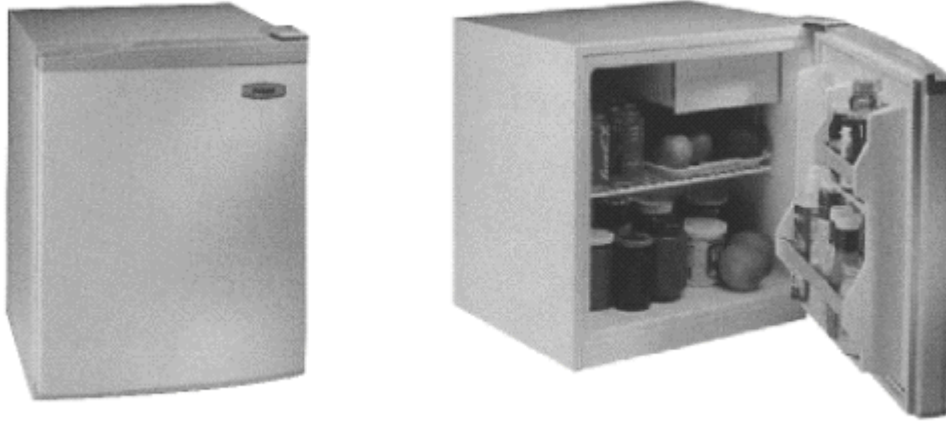
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SPECIFICATIONS

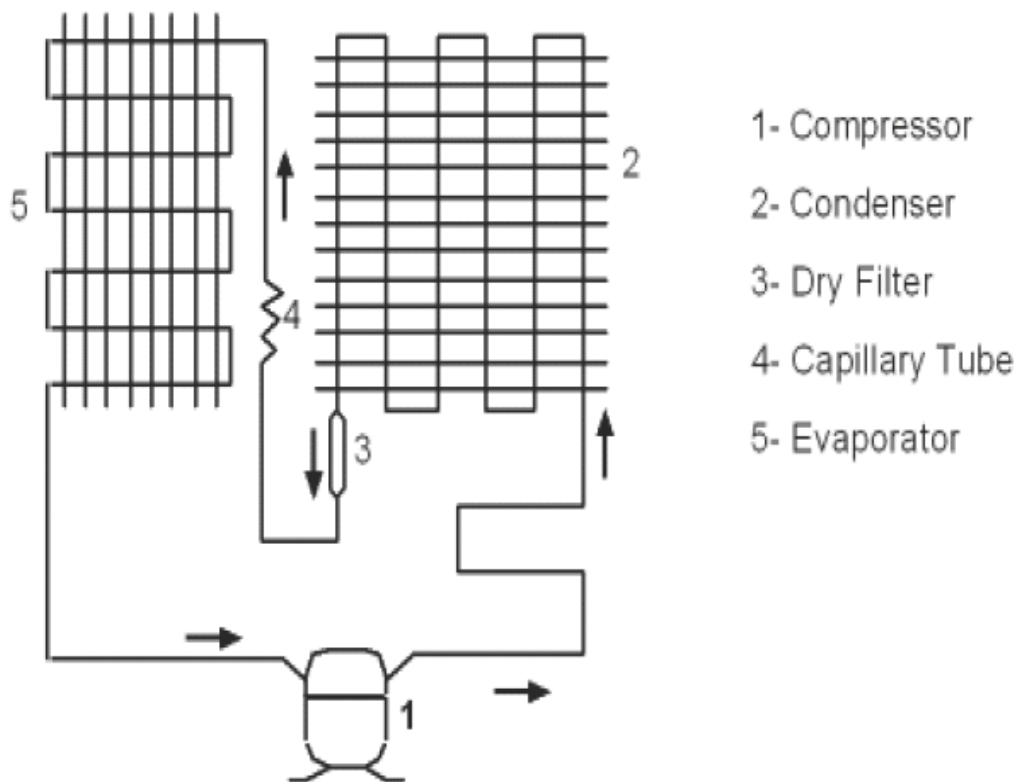


Model	BC-50P/HSE02WNAWW
Cavity Supply (V/Hz)	115/60
Power Consumption (kW•h/year)	315
Unit Dimensions (WDH)(mm)	20x20x21
Unit Weight (Lbs)	46.3
Box Dimensions (WDH)(mm)	20x20x22
Box Weight (Lbs)	55.1
Box Cubic (Cubic Feet)	5.4

* Specifications are subject to change without prior notice

REFRIGERATING PRINCIPLE

Schematic Diagram Of Refrigerating Principle

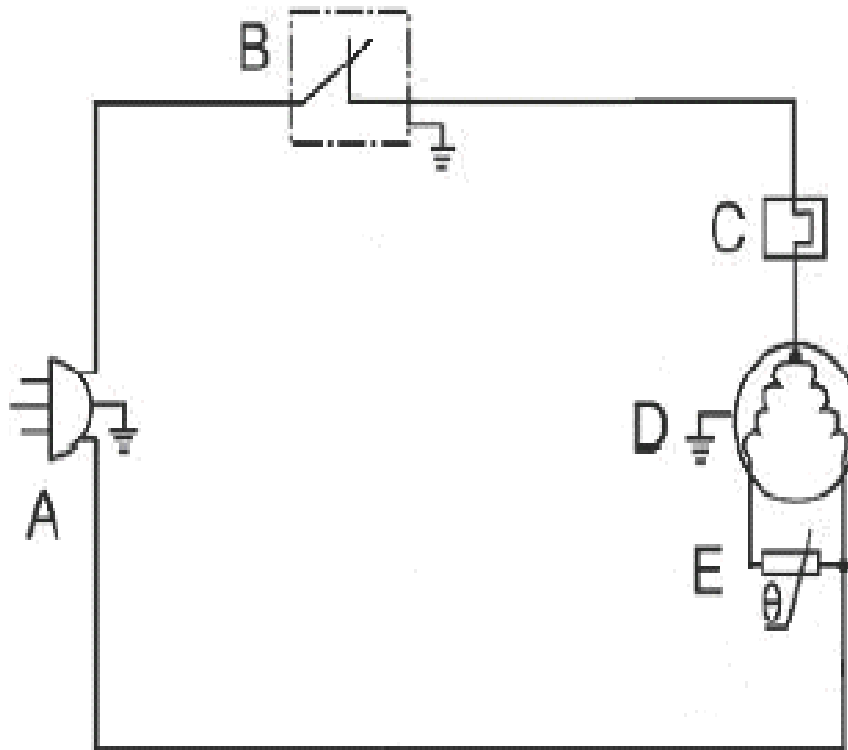


Brief Description Of Refrigerating Principle

For the forced air-cooling single-system refrigerator, there is only a finned evaporator mounted generally at the rear of its freezer compartment. This evaporator achieves refrigeration of refrigerator and freezer compartment. Cool air is sent to the refrigerator and freezer compartment by air ducts, the temperature in the freezer compartment is regulated with the freezer thermostat whereas the temperature in its refrigerator compartment is controlled by regulating the throttle or alternatively, using a refrigerator to control the start and stop functions of compressor and matching the evaporator to control the freezer temperature.

PRINCIPLE OF ELECTRIC CONTROL

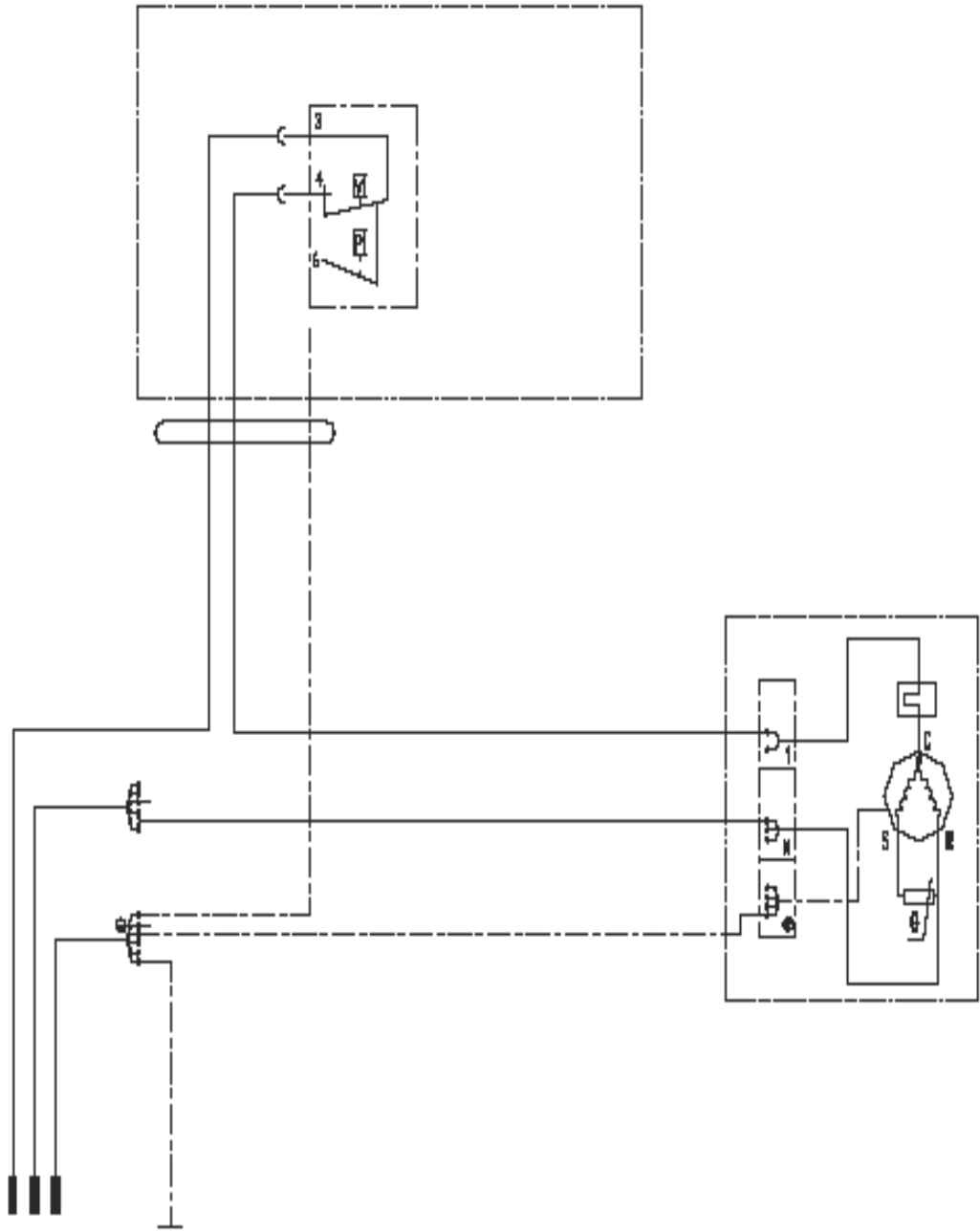
Schematic Circuit Diagram



- A POWER PLUG
- B THERMOSTAT
- C OVERLOAD PROTECTOR
- D COMPRESSOR
- E PTC

Brief Description of Control Principle BC-50P/HSE02WNAWW is a direct cooling single-system refrigerator without freezer compartment; a mechanical type of control is

generally adopted. The thermostat directly controls the start and stop function of the compressor, and hence the refrigerator temperature.



TROUBLESHOOTING AND REPAIRS

6.1 Normal Refrigerator Functions

A domestic refrigerator is comprised of an electric control system and a refrigerating system. Since both systems work together, it is difficult to tell whether or not the refrigerating system is in good working condition. If any part of the refrigerating system or electric control does not work properly, the refrigerator's efficiency will decline, operating properties will destabilize, and in worst cases, it will not function at all.

Sending refrigerators to a service department can be difficult since they are generally large. At times, normal phenomena are incorrectly diagnosed as troubles. Before we deal with the recurrent problems of refrigerators, here is a brief outline of normal occurrences that should not be considered as problems. If any of the occurrences listed below happens, you can continue to use your refrigerator:

1. Rumbling sounds

When the compressor of a refrigerator stops running, a rumbling sound will be heard from the evaporator. This sound is caused by the flow of refrigerant in the evaporator tube. The refrigerant flows momentarily after the compressor has stopped running. This sound, therefore, does not constitute a problem.

2. Clicking noises

Refrigerators often make clicking noises. This is also normal. It is the result of the intake or release of the armature of a current dead weight start relay when the compressor is started. The compressor motor makes a clicking sound while it is running. This sound is faint in the daytime but becomes louder at night.

3. Hot refrigerator parts

The compressor consists of an electric motor and a compressing apparatus. During its normal operation, the temperature of the motor's starter core and windings will range between 100°F-110°F. The temperature of the piston and cylinder of the compressing mechanism is normally 100°F due to the heat produced when compressing the refrigerant. Most of the heat radiates through the compressor casing to the air, therefore the temperature of the casing is generally between 85°F and 90°F. It becomes extremely hot, particularly in summer when the ambient temperature is higher than usual. All these are normal phenomena.

4. Crackling sounds

For the direct cooling refrigerator, an irregular crackling sound is caused by expansion and contraction of the compressor. This sound will not affect the normal operation of the refrigerator.

6.2 Common Problems Of A Refrigerator And Their Solutions

Refrigerator problems are closely related to the quality of components, level of workmanship, and owner maintenance. The parameters generally used to determine the working conditions of a refrigerator include the temperature inside the refrigerator, the operating rate, electrical power consumption, noise level, and other functional indices. If any of these indices passes their permissible range, there is a fault with the refrigerator.

During the entire service life of a refrigerator, the probability of problems' occurring within a specific time is called its failure rate. A comparison between the control circuit system of a refrigerator and its refrigerating system indicates that the failure rate of the former is higher. When troubleshooting, the first thing you must do is to determine whether the source of the problem is the control system or the refrigerating system.

There is usually no troubleshooting instrument for the domestic refrigerator. The location and nature of problems must therefore be determined according to their respective features. Experience in servicing is very important for troubleshooting. Well-experienced service technicians can correctly identify and solve problems based on their comprehensive analysis of the characteristics of the particular problems as well as the operating conditions for various kinds of refrigerators.

Three Essential Things To Note During A Checkup

1. Look

- a.** Check the tubing of the refrigerating system for cracks and various welding points for leakages. If there is a leakage, a distinct oil stain will be seen.
- b.** Check the tubing of the refrigerating system for cracks and various welding points for leakages. If there is a leakage, a distinct oil stain will be seen.
- c.** Check the suction and exhaust pressure valves of the compressor to see whether they are normal.
- d.** Pay attention to the rate at which the temperature decreases in both the refrigerator and freezer compartments.
- e.** Check the environment to see whether it is suitable for the refrigerator.
- f.** Check refrigerator door seal, case, table surface, and heat insulation layer.

2. Listen

a. Listen to the noises made while the compressor is running. During the normal operation of compressor, a slight and uniform humming sound due to undulation of electric currents will be heard. The sounds listed below indicate a malfunction.

- Humming sounds from a fully enclosed aggregate unit indicate that the motor was not started properly.
- Clattering sounds from the start relay indicate that the start contacts cannot be released normally.
- Whistling sounds indicate the release of high-pressure gas from a crack in the pressure tube inside the compressor.
- Clucking sounds indicate that the suspended spring inside the compressor has broken
- Knocking sounds from inside the compressor indicates that a large quantity of moist refrigerant vapor or refrigerating oil has leaked into the compressor cylinder.
- Striking sounds from metal parts inside the compressor indicate that moving parts are loose.

b. Listen to the gas flowing in the evaporator by opening the refrigerator door while the compressor is in operation. Normally, refrigerant circulating in the evaporator produces a gentle whistling accompanied by a sound similar to water flowing. If only the whistling can be heard and there is no sound similar to water flowing, then the refrigerant has already percolated. If neither sound can be heard, the filter or capillary is clogged.

3. Touch and Feel

a. Feel the compressor while it is running. Its temperature should be less than 90°F. Its temperature may exceed 90°F if it has been running for an extended period of time.

b. After the compressor has operated for 5~10 minutes, feel the condenser. The temperature of its upper part should be higher than that of its lower part (or its right part is hotter than its left part, depending on the type of condenser coil). This indicates that the refrigerant is circulating properly. If the condenser is not hot, then the refrigerant is leaking. If the condenser is hot for only a few minutes and then cools down, the filter and capillary are clogged. If hot air is blown out of the forced air-cooling condenser, the system is out of order.

c. Feel the filter's temperature. Normally, the temperature on the filter's surface should be a little higher than the ambient temperature. If the filter is lower than the ambient temperature, then the meshes of its screen are clogged. This obstructs the flow of refrigerant and causing a drop in temperature due to throttling.

d. Feel the temperature of exhaust gas from the refrigerating system. The exhaust gas should be very hot as the normal working state. If the refrigerator has an enclosed compressor refrigerating system, there should be no frost or condensation on the gas suction tube, otherwise, there is some problem with the system (frosting may show when starting machine, this is normal condition).

Because a refrigerator is a combination of several components, they are similar.

In case a problem occurs, do not make a hasty conclusion based on only one problem. It is advisable to analyze or conduct troubleshooting comprehensively because several problems may share a common problem and several problems may occur simultaneously due to a certain fault.

6.3 Analysis Of Problem And Troubleshooting

A. Poor Refrigerating Effect

The so-called “Poor refrigerating effect “refer to the situation where the refrigerator operates normally, but does not cool to the temperature indicated by the thermostat. Possible causes are discussed and analyzed below:

1. Leakage of refrigerant

Analysis

The refrigerant leakage will result in an insufficient refrigerating capacity. This will lead to lower gas suction and exhaust pressure as well as hotter exhaust gas. The exhaust tube will become extremely hot, and the sound of gas flowing from outlet of the capillary will become louder than usual. After shut down, the balance pressure in the system is lower than the saturation pressure corresponding to the same ambient temperature.

Remedy

Locate the refrigerant leak points immediately and note leaking points and parts. Repair them and recharge refrigerant. In troubleshooting, pay particular attention to possible leaking points; check main connection points for oil seepage and tubing for cracks, if leakages are not severe, charge system with nitrogen and detect with best commonly adopted method. Repair, evacuate, charge system with refrigerant and turn on refrigerator to make test run. Drain the system of the nitrogen before refill with refrigerant.

2. Too much refrigerant charged in the system

Analysis

a. If amount of refrigerant in the system exceeds its nominal capacity, the excess refrigerant will displace the evaporator. This will reduce the heat-dissipation area and decrease the refrigerating efficiency. Malfunctions caused by excess refrigerant are: gas suction and exhaust pressures increase, condenser becomes hotter, the electric current of the compressor rises, frost forms on the evaporator and gas return tube, and the refrigerator temperature drops slowly.

b. In case of excessively charged refrigerant, the liquid refrigerant that cannot evaporate in the evaporator will return to the compressor. This will cause “liquid striking.” The liquid refrigerant evaporates and effervesces as soon as it flows into the refrigerating oil at the bottom of compressor. If the condition is severe, foams will cover the inside the compressor housing and be sucked by the piston, causing damage to the components of compressor.

Remedy

According to the operating procedures, it is mandatory to turn the machine off and several minutes later, open the refrigerant charging tube and let the refrigerant flow from out, replace the dry filter, refill the refrigerant after evacuating and seal the charging port.

3. Air left in the refrigerating system

Analysis

Residual air in the refrigerating system will reduce its refrigerating efficiency. Major effects are increase in the segment from the compressor outlet to the condenser inlet and an increase in gas suction and exhaust pressures. However, the gas exhaust pressure will not exceed its rated value. Due to the air in the system, both the gas exhaust pressure and temperature will rise. In addition, the sound of gas flowing will become intermittent and louder.

Remedy

After shut down for several minutes, open the tubing, evacuate it and recharge the system with refrigerant.

4. Low efficiency of compressor

Analysis

Low efficiency of a refrigerating compressor refers to the actual reduction of gas discharge capacity and the corresponding reduction of refrigerating capacity under the condition that the refrigerant in the system is unchanged. This typically occurs when the compressor has been in use for a long time.

Remedy

Measure the high and low pressures with pressure gauges to see whether they are normal. If an abnormal sound comes from the compressor or the temperature of its casing is too high, cut the discharge port open and operate the compressor. Inspect to see if there is pressure at the discharge port with your finger. In a normal compressor, it is difficult to block the discharge port with your finger.

5. Refrigerating oil left in evaporator tubing

Analysis

During the refrigerating cycles, small amounts of refrigerating oil may remain in the evaporator tubing after a long time of operation. The presence of oil will affect heat conduction and result in poor refrigerating effect.

Remedy

It is quite difficult to analyze the presence of oil left in the evaporator tubing because several other faults show similar symptoms. It can generally be accessed based on the frost formed on the evaporator. If the frost does not cover the evaporator and loosely formed, you can conclude that the deterioration of refrigerating effect is due to the accumulation of refrigerating oil left in the evaporator tubing. To clear off refrigerating oil left in the evaporator, dismantle the evaporator, clean and dry it. In case it is difficult to

dismantle, charge refrigerant from the evaporator inlet to wash it several times and clean and dry it with nitrogen.

6. Flow obstructed in refrigerating system

Analysis

Because the refrigerating system is not well cleaned before use, some of the filter screen meshes are clogged by dirt accumulated in the filter after using it for some time resulting in a decrease in flow rate resulting in a poorer refrigerating effect. The problems caused by this kind of slight clogging in the system are as follows: the gas discharge pressure is lower, the temperature of discharged gas drops down, the position clogged has a temperature lower than that in normal conditions, severe clogging and even dew condensation as frosting may show

Remedy

Purge the tubing and replace the dry filter with a new one or clean it thoroughly and refill the system with refrigerant and seal the charging port.

B. No refrigerating

The situation where the compressor runs normally but without or little frost showing on the evaporator and where the refrigerator temperature does not drop down is termed as “no refrigerating”.

There are many causes for this problem and it is relatively complex too. In servicing special attention should be given to root cause of the problem. Three main potential causes are analyzed below:

1. All refrigerant in the system leaks out

Analysis

Leaking points in the refrigerating system have not been identified and repaired much earlier, allowing refrigerant to leak out completely. There are two kinds of leaks:

i. Slow leaks and **ii.** Fast leaks. Symptoms of total leakage of refrigerant are:

- The compressor can be started easily (if there is no damage to the compressor parts)
- The operating current becomes low
- The gas suction pressure increases
- The discharge pressure decreases
- The temperature of the gas discharge tube drops
- There is no sound of gas eruption from the liquid in the evaporator, and
- No gas gushes out of the process tube when cut after shutdown

Remedy

Check the whole machine more carefully for possible leaking areas, after leaking points are found, repair points or replace them with new parts according to specific circumstances and evacuate the system and finally charge refrigerant.

1. Refrigerating system is clogged

a. Clogged with ice

Analysis

This is typically a result of a poor drying of refrigerating systems, improper air cleaning or blowing or substandard water content. The symptoms of this condition are:

- Irregular refrigeration, extreme frosting at the clogged area,
- Evaporation temperature drops below 0°C or 32°F,
- Water accumulates and gradually clogs the narrow part of the capillary,
- Frost to melt at the evaporator, there is no sound of gas flowing,
- The gas suction pressure becomes a vacuum.

Note that these phenomena will appear intermittently. In order to determine whether it is clogged with ice, heat-suspicious points with hot water. If the sound of gas flowing is heard and the gas suction pressure rises, the problem is that the system is clogged by ice.

Remedy

If there is too much moisture in the refrigerating system, release the refrigerant, purge the tubing with nitrogen, and refill the system with the filtered refrigerant. Another method is to connect a filter with moisture absorbers, such as silica gel or anhydrous calcium chloride, to the refrigerating system. Next, replace the filter, evacuate it again, and fill the system with refrigerant.

b. Refrigerating system clogged with dirt in capillary

Analysis

The capillary inlet is a place where coarse-grained dirt or refrigerant oil in the system settle. When considerable dirt accumulates there, the whole filter screen may be blocked totally, making the refrigerant unable to go through. Clogging with dirt exhibits the same symptoms as that with ice: higher gas suction pressure, lower temperature of discharged gas, and no gas flowing sound from the evaporator. The difference is as follows: if the clogging is caused by dirt, tapping the suspecting clogged point (generally in the capillary or the connection joint of the filter) may cause the refrigerant to flow through partially, resulting in some corresponding change, however, if you heat it with a hot towel, it will have no reaction. No flowing sound can be heard also no periodic change, hence, dirt is generally considered as the cause of clogging

Remedy

Dismantle the system. Remove the dry filter and purge the tubing with nitrogen, install a new filter and evacuate it and fill it with refrigerant.

C. Clogged filter

Analysis

Complete clogging of filter rarely occurs. This is normally caused by is an accumulation of paste-like matter formed from dust on the filter. Tapping the filter with the hand may

remove part of the paste-like matter and when the filter is clogged, it will be cooler than normal.

Remedy

The same solution as described for the capillary clogged with dirt.

3. Problems of Compressor

a. Broken gas suction and discharge valve blocks

Analysis

The compressor works by opening and closing the gas suction valve and discharge valve to suck and discharge the refrigerant. If the valve block is broken, the refrigerant cannot be discharged. This prevents refrigeration.

Remedy

It is difficult to separate this problem from others because they have similar symptoms. When repairing, listen attentively for abnormal or unusual sounds coming from the compressor. Normally, broken pieces of valve block strike against the cylinder. Check to see if the compressor casing is too hot. Secondly, measure the pressure at the high and low-pressure ports of the compressor with pressure gauges. If the gas suction valve block is broken, the suction pressure gauge pointer will swing rapidly and the suction pressure will be very high. However, when the gas discharge valve block is broken, the discharge pressure gauge pointer will swing drastically and the discharge pressure will be very high. In both cases, stop the compressor at once. If possible, open the cylinder cover, check the valve block, and repair it replace with a new one

C. Compressor suddenly stops during operation (running)

Most cause of sudden seizure of compressor is as result of the gas suction pressure and/or discharge pressure haven exceeded their respective prescribed ranges. When this happens, the pressure-operated protective relay automatically shuts off the power to the compressor. Below we discuss the reasons for high gas discharge pressure and low suction pressure.

1. Stoppage/seizure caused by excessively high gas discharge pressure

a. Too much refrigerant charged into the system

Analysis

Loose frosting and poor refrigerating effect may occur if system is excessively charged with refrigerant. Excess refrigerant will occupy additional space in the evaporator. This will reduce its heat dissipating area, and the phenomenon of “liquid striking” may occur. Condensation may occur on the gas return tube, and the gas discharge pressure will rise. When it reaches the threshold value, the protective relay will actuate and shut off the power supply to the compressor.

Remedy

Open the tubing. Re-evacuate and charge the system with a proper quantity of refrigerant.

b. Air left in the system

Analysis

The residual air in the system will circulate with the refrigerant in the system. The major symptoms are higher gas discharge pressure, higher discharged gas temperature, and poor refrigerating effect. The gas discharge pressure will exceed its maximum value when the compressor has run for an extended period of time as a result, making the protective relay actuate to a stop

Remedy

Check for the process of the presence of air in refrigerating system. Normally, this occur by three ways:

- i.** Air gets into system during repairs for lack of attention or carelessness or refrigerator is not properly cleaned when evacuating system
- ii.** Leaking points at the low-pressure end of the refrigerating system. Leak points appear in low temperature parts or assemblies. This is because the evaporation temperature is lower for such low temperature devices, especially at the low-pressure end; it is easier for the air to go into the system. Once it is clear that air does exist in the system, open the tubing, re-evacuate it and then charge it with refrigerant.

2. Stoppage due to electric failures

a. Thermostat is out of control

Analysis

When the thermostat does not work or it's temperature sensor is not properly installed, frequent stoppage is likely to occur.

Remedy

Adjust the temperature sensor to position until the compressor can be start and stop normally. The in ability to work normally will continue to the stop repeatedly. It is most likely that the mechanical parts or contacts are out of order, disassemble the thermostat and make a thorough checkup and repair it.

b. Overload of electric motor

Analysis

Possibly too many items are in refrigerator resulting in the thermal load exceeding its refrigerating capacity; or in the case of the power supply voltage decreasing considerably, the current flowing through the motor increases drastically making the thermal protector actuate and blow fuse resulting in motor seizure. If motor continues to run in this situation, its windings will burn out.

Remedy

Reduce the thermal load; check the variation in voltage of the power supply.

c. Abnormal thermal protection

Analysis

The compressor current is within its normal range, but the thermal protector actuates repeatedly.

Remedy

Replace the thermal protector with a new one.

3. Sudden seizure by other factors

Normal seizure

The Start and stop functions of the compressor is generally controlled by a thermostat. When the temperature in the refrigerator reaches its desired value, the thermostat will shut down the compressor automatically. Do not take this normal operation for a problem

D. Compressor does not start.

When compressor will not start, troubleshoot step-by-step for problems considering electrical and mechanical connections.

1. Inspect the power supply to see whether it is connected to the compressor circuit.

Analysis

In case the compressor cannot start, generally it will show in the power supply circuit activities, for example, it may show; power failure; poor contact of switch and a blown fuse. Make a comprehensive analysis of these situations; find out the real cause and correct problem

Remedy

a. Check the input power circuits for proper voltage power supply i.e. the circuit that is connected to the knife switch. This can be determined with a voltmeter or a test pencil. If a blown fuse is found, ascertain and remove its cause, then replace it with a new one of the same specifications.

b. Check the compressor accessories, including its thermal protector and relay. In case the thermal protector is damaged, the compressor cannot be powered on. If the relay is out of order, the motor will not run and hum sound can be heard from it after the compressor is turned on. In that case, shut it down immediately, otherwise, the motor windings will be burned out in case this condition lasts longer.

c. Check the relay contacts and plugs for perfect work reliably. Poor contact may cause the motor not running or humming.

2. Check circuit for normal voltage level

Analysis

If the circuit voltage is obviously lower than its rated value, it will be difficult to start the motor and a hum sound can be heard from it.

Remedy

Measure the voltage with a voltmeter. If it is really too low, advise user to acquire a stabilizer to step up the voltage for efficient work

3. Check the thermal relay for proper contacts**Analysis**

The contacts of thermal relay sometimes may be open due to the leakage of temperature sensing agent from the temperature sensor.

Remedy

Remove the relay cover to check up its contact if it is opened it means that the original setting is not properly set or temperature-sensing agent has leaked out of the temperature sensor. Turn the adjusting stem of this value in the direction of the lower temperature graduation and check the contacts to see whether they are closed. If they are still not closed, dismantle the temperature-sensing disc and immerse it into warm water to see whether the contacts actuate. If not, it can be preliminarily determined that temperature-sensing agent has leaked out. It should be replaced with a new thermostat.

4. Problems of motor and other electrical faults**a. Motor windings are damaged or there is a short circuit between turns****Analysis**

When motor windings are damaged or short-circuited between turns, the fuse will blow continuously and the blow out particularly occurs at that instance where you close the knife switch.

Remedy

Check the terminals and the outer casing for short-circuits and measure the resistance of each phase with a voltmeter. If short circuit occurs or the resistance of a particular phase is low, this means that there is no short circuit in the windings and/or between turns, and that insulation layers are damaged or deteriorated. Another instrument that can also be used in this inspection is a mega meter. If the insulation resistance is lower than $2\text{ M}\Omega$, it means that the insulation layer has breakdown already. If the motor is damaged, repair or replaced it with a new one.

b. Control relay faulty**Analysis**

Overheating, burns or wearing of control relay contacts will normally show as symptoms, these will cause poor contact in electricity.

Remedy

Dismantle it for repairs, or replace it with a new one.

a. Poor electric contractor in thermostat**Analysis**

Damaged contractor and leakage of temperature sensing agent will generally occur if this is true.

Remedy

Replace the old one with a new one.

d. Check the terminals for loose connection and electric circuits for other malfunctions

5. Mechanical Faults Of Compressor

a. Seizure of shaft

This is normally caused by poor lubrications: insufficient quantity of lubricant, clogging in the lubricant oil's line, or intermittent lubricant oil supply. Dirt and other interference in the lubricant will increase its viscosity and cause the shaft to be seized. Copper plating may also result in the seizure of the shaft.

b. Seizing of piston

This is caused by a small fit clearance between the piston and cylinder or expansion due to heat.

Remedy

When the refrigerator is switched on, the compressor will not start running. A slight hum sound will be heard and several seconds later, the thermal protective relay will actuate and open the contacts. This process will occur repeatedly, but the compressor will not start.

E. Compressor does not stop

Mostly, the compressor runs continuously (for several hours/ unending).

If the food placed in the refrigerator is not too much, there may be the following two situations:

- i Control system is probably out of order
- ii. The control system works normally but there are problems in the refrigerating system or other parts

1. Temperature Is Set Improperly

a. The temperature control knob is set to the “coldest” position. This position is to be used for fast freezing or continuous running, its temperature for power off is too low, therefore, the compressor won't stop and the temperature in the refrigerator becomes lower and lower.

b. Inspection method: check the temperature control knob to see whether it is set in the position “coldest”.

2. Thermostat is malfunctioning and makes the compressor running continuously
Analysis

When the thermostat doesn't work normally, it will make the compressor run continuously resulting in low temperature achieved in the refrigerator. The fault is generally due to the fact that the contacts of the thermostat cannot be released.

Remedy

Dismantle the thermostat and make a thorough checkup. If it is completely out of order, replace with a new one.

3. Evaporation temperature is too high in refrigerating system, resulting in lower refrigerating capacity and continuous running of compressor

Analysis

Leakage of refrigerant and clogging in a refrigerating system will directly affect its refrigerating capacity. Due to the reduction in its refrigerating capacity, the refrigerator temperature cannot reach its rated value. In this situation, the thermostat won't work causing the compressor to run continuously. When the evaporation temperature in the system is too high, the temperature sensing agent in the temperature sensor is also gets hotter hence, the thermostat is unable to cut off the power supply to the compressor and stop it.

Remedy

If it is clear that the refrigerant in the system is insufficient in quantity, recharge it with refrigerant. In case clogging occurs, disassemble the part where it is blocked. If the evaporation temperature is too high, settle this problem with an appropriate quantity of refrigerant.

4. Non - stoppage of compressor due to damaged heat-insulation layer inside case body and/or door seal

Analysis

When the heat-insulation layer inside the case body deteriorates or the door seal does not closely touch the doorframe, the temperature in the refrigerator will rise and makes the compressor run continuously.

Remedy

Check the heat-insulation layer for damaged parts. Repair it if damaged to improve its heat-insulation property. If the door has deformed or the door seal is not tightly sealed against the case body, repair them.

5. Too much food is placed in the refrigerator, or is placed too densely, resulting in poor Ventilation or poor conditions for temperature sensing hence no stoppage of the compressor.

6. Too high ambient temperature, poorer ventilation and heat dissipation make the compressor run without stopping.

F. Electric leakage of refrigerator

1. Slight electric leakage

Electric insulation has deteriorated due to dump effect resulting in slight electric leakage.

2. Serious electric leakage

Refrigerator case has become live due to faults occurred in some electric devices or the erroneous wiring in installing power cord plug or outlet by the user. This is very dangerous.

3. Electric leakage test

a. Slight electric leakage

A tingle sense will be experienced as soon as you touch the metal parts of the refrigerator with the hand. When you test them with a test pencil, its neon lamp will come on. In that case, the first thing you need to do is to determine whether the grounding is perfect. If the grounding has no problem, turn off the refrigerator immediately, then check the insulation of electric circuits with a voltmeter

b. Serious electric leakage

Do not touch the casing/ body of the refrigerator, its door handle or other metal parts with your hand. When you test the refrigerator with a test pencil, it will light up intensively. Measure the resistance between the power cord plug and the case body with a voltmeter, the reading will be zero (0Ω); in the worse case, the fuse will blow. Check the 3-prong outlet to see whether the live wire and the null line are inversely connected. One possibility is that the live wire and null line of the outdoor power supply circuit have been inversely connected; this makes the null line become a live wire.

G. Stronger vibration and loader noise

1. Refrigerator placed improperly

a. Uneven ground

Uneven ground will cause the refrigerator to be placed unsteadily, causing stronger vibration and noise during its operation.

b. Leveling screws not properly adjusted

If the leveling screws on refrigerator legs have not been adjusted properly, vibration and noise will still occur even if the refrigerator has been placed on a level ground.

2. Abnormal noise from compressor

Three suspended spring inside the compressor case are out of balance, and strike against the case, moreover, the wear of compressor parts may cause noise sometimes.

3. Resonance of tubing and loosening of parts

Improper and compact lying of tubes or the loosening of parts may cause Vibration

4. Large noise of the fan

a. The fan motor is loose.

b. Noise is produced by normal operation of the fan.

c. The impellers are not tightly fixed or eccentrically assembled.

Remedy

For a: Fasten the fan motor.

For b or c: Replace the fan motor or impellers.

5. Inspection method

To find the sources of noise, press the vibration spot with your hand, while the refrigerator is in operation, carefully observe whether the vibration becomes weaker or vanishes. If the refrigerator has not been levelly placed, put a level meter on the top table and adjust the leveling screws on its legs. In case noise occurs from the compressor, strike different locations on the side surface of its case using a rubber hammer or hand hammer with a wood block in-between to determine whether the suspended springs are out of balance or in balance