

**CENTRAL  
PNEUMATIC® INDUSTRIAL**  
**COMPRESSED AIR  
DRYER**

**Model 40211  
ASSEMBLY and OPERATING  
INSTRUCTIONS**



3491 Mission Oaks Blvd., Camarillo, CA 93011  
Visit our Web site at <http://www.harborfreight.com>

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**For technical questions and replacement parts, please call 1-800-444-3353**

## Specifications

|  |                         |
|--|-------------------------|
| Power Source   | 110/120 Volts, 60 Hz    |
| Horsepower   | 1/4 HP                  |
| Max. Operating Pressure                              | 140 PSI                 |
| Recommended Operating Pressure                       | 100 PSI                 |
| Air Inlet / Outlet                                   | 1/2" Steel Pipe -14 NPT |
| Flow Capacity  | 21.6 C.F.M.             |
| Pressure/Temperature Range<br>For R-134A Refrigerant | 32 - 39 PSI (2-8°C)     |

**Note:** This Compressed Air Dryer uses R-134A Refrigerant.

**Note:** Not for medical use. Do not use for hyperbaric chambers.

### Save This Manual

You will need the manual for the safety warnings and precautions, assembly instructions, operating and maintenance procedures, parts list and diagram. Keep your invoice with this manual. Write the invoice number on the inside of the front cover. Keep the manual and invoice in a safe and dry place for future reference.

### Safety Warnings and Precautions

**WARNING:** When using tool, basic safety precautions should always be followed to reduce the risk of personal injury and damage to equipment.

**Read all instructions before using this tool!**

1. **Keep work area clean.** Cluttered areas invite injuries.
2. **Observe work area conditions.** Do not use machines or power tools in damp or wet locations. Don't expose to rain. Keep work area well lighted. Do not use electrically powered tools in the presence of flammable gases or liquids.
3. **Keep children away.** Children must never be allowed in the work area. Do not let them handle machines, tools, extension cords, or air hoses.
4. **Store idle equipment.** When not in use, tools must be stored in a dry location to inhibit rust. Always lock up tools and keep out of reach of children.
5. **Use the right tool for the job.** Do not attempt to force a small tool or attachment to do the work of a larger industrial tool. There are certain applications for which this tool was designed. It will do the job better and more safely at the rate for which it was intended. Do not modify this tool and do not use this tool for a purpose for which it was not intended .
6. **Dress properly.** Do not wear loose clothing or jewelry as they can be caught in moving parts. Protective, electrically non-conductive clothes and non-skid footwear are recommended when working. Wear restrictive hair covering to contain long hair.
7. **Use eye and ear protection.** Always wear ANSI approved impact safety goggles. Wear a full face shield if you are producing metal filings or wood chips. Wear an ANSI approved dust mask or respirator when working around metal, wood, and chemical dusts and mists.

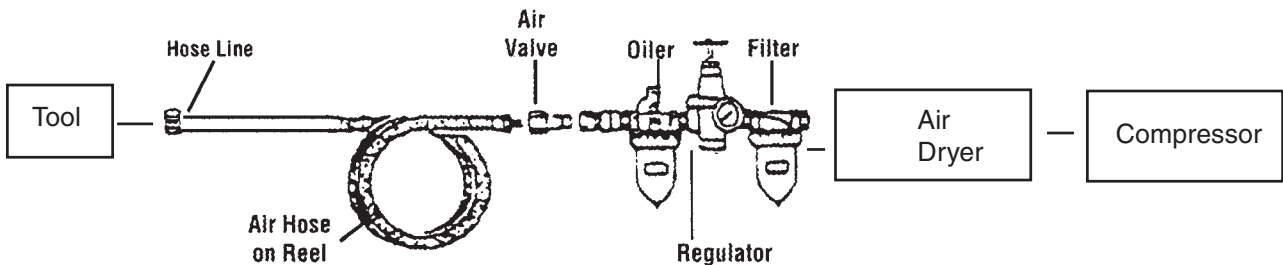
8. **Do not overreach.** Keep proper footing and balance at all times. Do not reach over or across running machines or air hoses.
9. **Maintain tools with care.** Keep tools clean for better and safer performance. Follow instructions for lubricating and changing accessories. Inspect tool cords and air hoses periodically and, if damaged, have them repaired by an authorized technician. The handles must be kept clean, dry, and free from oil and grease at all times.
10. **Remove adjusting keys and wrenches.** Check that keys and adjusting wrenches are removed from the tool or machine work surface before plugging it in.
11. **Avoid unintentional starting.** Be sure the switch is in the Off position when not in use and before plugging in.
12. **Stay alert.** Watch what you are doing, use common sense. Do not operate any tool when you are tired.
13. **Check for damaged parts.** Before using any tool, any part that appears damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment and binding of moving parts; any broken parts or mounting fixtures; and any other condition that may affect proper operation. Any part that is damaged should be properly repaired or replaced by a qualified technician. Do not use the tool if any switch does not turn On and Off properly.
14. **Guard against electric shock.** Prevent body contact with grounded surfaces such as pipes, radiators, ranges, and refrigerator enclosures.
15. **Replacement parts and accessories.** When servicing, use only identical replacement parts. Use of any other parts will void the warranty. Only use accessories intended for use with this tool. Approved accessories are available from Harbor Freight Tools.
16. **Do not operate tool if under the influence of alcohol or drugs.** Read warning labels on prescriptions to determine if your judgment or reflexes are impaired while taking drugs. If there is any doubt, do not operate the tool.
17. **Use proper size and type extension cord.** If an extension cord is required, it must be of the proper size and type to supply the correct current to the tool without heating up. Otherwise, the extension cord could melt and catch fire, or cause electrical damage to the tool. Check your compressor's manual for the appropriate size cord.
18. **Maintenance.** For your safety, maintenance should be performed regularly by a qualified technician.
19. **Compressed air only.** Never use combustible gases as a power source.

**Note: Performance of the compressor (if powered by line voltage) may vary depending on variations in local line voltage. Extension cord usage may also affect tool performance.**

**Warning:** The warnings, cautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

## Unpacking

When unpacking, check to make sure the parts listed on page 9 are included. If any parts are missing or broken, please call Harbor Freight Tools at the number on the cover of this manual as soon as possible.



Recommended Air Line Components

For best service you should incorporate an oiler, regulator, and inline filter, as shown in the diagram above. Hoses, couplers, oilers, regulators, and filters are all available at Harbor Freight Tools.

**Note:** You will need to prepare valves and couplers (not included) from the compressor to the Air Dryer (1/2" Steel Pipe-14 NPT) and from the Air Dryer (1/2" Steel Pipe-14 NPT) to the tool. Use pipe thread seal tape or pipe dope in all of the connections. If you are not using an automatic oiler system, before operation, add a few drops of Pneumatic Tool Oil to the airline connection. Add a few drops more after each hour of continual use. Check the air connection for leaks before use.

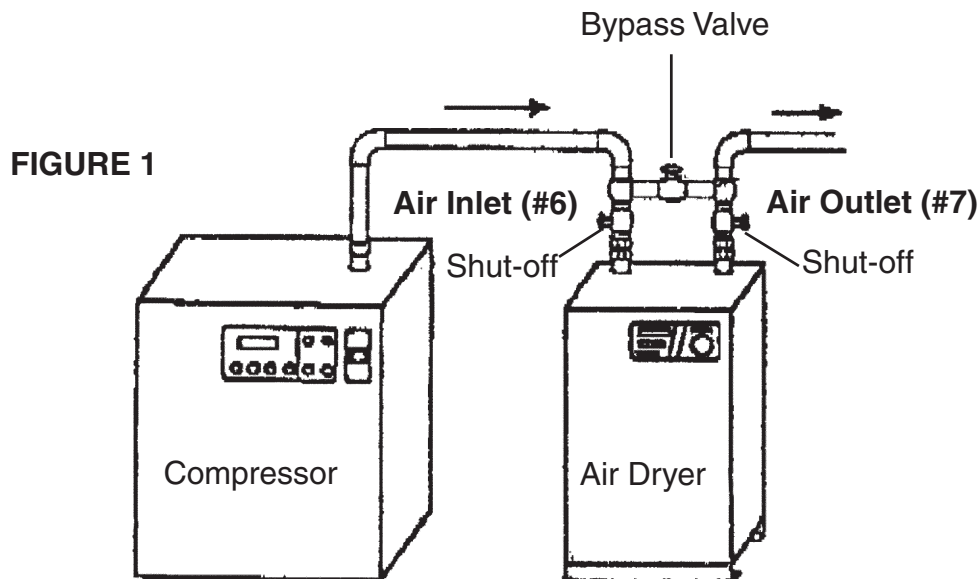
## Installation

1. Install the Air Dryer at least 2 feet from the wall on all four sides. This will give the unit proper ventilation and allow space for maintenance and repair.
2. Make sure the floor is level.
3. Do not expose the unit to rain or any moisture.
4. Install the unit out of direct sunlight and away from any heat sources. Otherwise, the cooling function of the unit will continually run, eventually overheating the Air Dryer.
5. Position a small bucket to capture foul water from the drain hose at the bottom of the unit. Condensation water can be piped to a floor drain, if available; be sure to follow local plumbing codes.

**Note:** Electrical installation and installation of a recommended bypass valve (not included) are covered on page 5.

## Installation (continued)

**Note:** We recommend that a bypass valve (not included) be added between the **Air Inlet (#6)** and the **Air Outlet (#7)** for applications when the Air Dryer is not needed. **The bypass valve must be installed by a plumber or an authorized service technician.** See **FIGURE 1**.



**Note to professional installer:** The shut-offs (not included) for both the air inlet and air outlet, must be plumbed below the horizontal piping containing the bypass valve. See **FIGURE 1**.

### Using the bypass valve (not using the Air Dryer).

If you do not wish to use the Air Dryer with a certain application follow these steps:

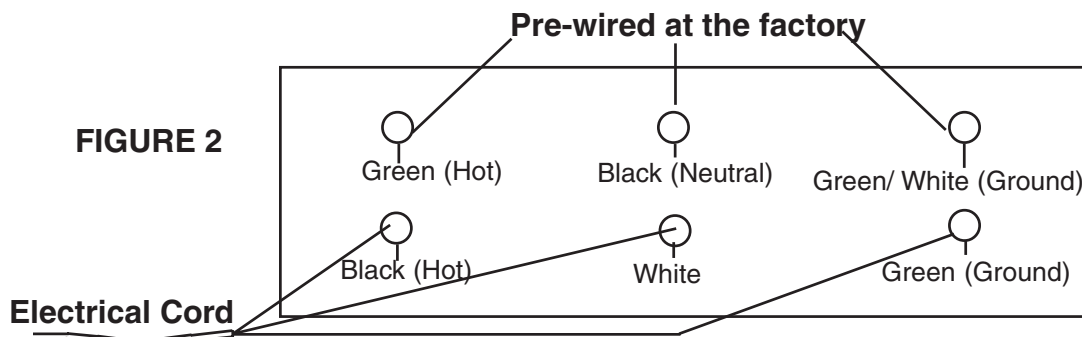
1. Turn off and unplug the compressor and the Air Dryer.
2. Engage the shut-off valves, closing both of the air inlets.
3. Open the bypass valve.
4. Plug in and turn on your compressor and you're ready to work without the Air Dryer.

### Using the Air Dryer without the bypass valve.

1. Before plugging in the compressor or the Air Dryer, open both of the shut-off valves.
2. Close the bypass valve.
3. Plug in and turn on the Compressor and Air Dryer.

## Electrical Installation

Instructions for the following wiring diagram are on page 6.



## Electrical Installation (continued)

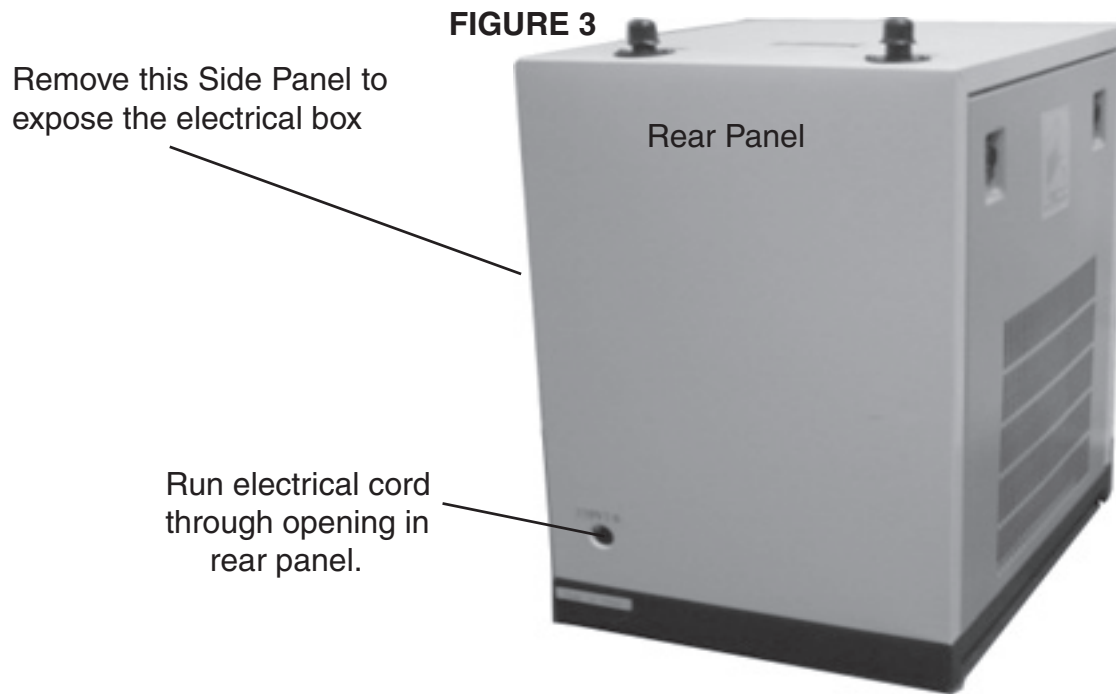
Refer to **FIGURE 2** on page 5.

**Note: Wiring must be done by a professionally certified electrician.**

1. Remove the side panel.
2. The top three wires of the electrical box are pre-wired at the factory.
3. The wires from the electrical cord (not included) must be rated for a minimum of 10-1/2 load rated amps, and the plug on the electrical cord must be three pronged (recommended 12 gauge, 3 conductor electrical cord). Wire the bottom three wires as indicated in the wiring diagram in **FIGURE 2** on page 5.

**Note:** Make sure you run the wires through the hole in the rear panel using a UL approved cable clamp (not provided), so that you can close the unit when you are finished wiring.

See **FIGURE 3**.



## Operation

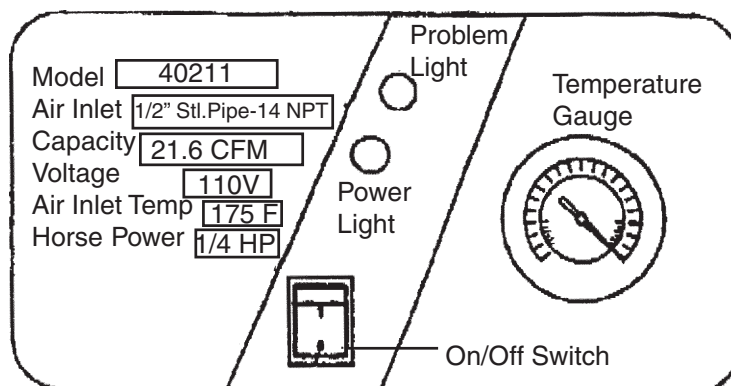
**Note:** If problem light is on, turn off Air Dryer and let the unit cool. Try it again after it cools. If the light is still lit, take the unit to an authorized service technician.

**FIGURE 4**

**Note:** The gauge should always be in a range between 32 - 39 PSI (2-8°C).

If not, turn off Air Dryer and let the unit cool.

Try it again after it cools. If the light is still lit, take the unit to an authorized service technician.



REV 01/03; 08/03; 01/05; REV 11/05



## Operation (continued)

**Note:** The Air Dryer works using “Refrigerant 134A”. The refrigerant system does not need to be serviced unless the unit begins to leak. If the unit leaks refrigerant, take it to an authorized service technician.

**Note:** Decide whether you want to use the Air Dryer or bypass the unit. Follow the instructions for using or not using the bypass valve on page 5. If you set the valves for “Using the Air Dryer”, follow the instructions below.

1. Turn on the unit with the Switch on the control panel. See **FIGURE 4** on page 6.
2. If, after the unit has warmed up, you don't hear the fan running, there is likely not enough pressure to turn on the pressure switch. Turn off the unit and the compressor. Close the **Air Inlet (#6)**. Then, turn the Air Dryer back on and it will build up pressure in a few minutes. Open the **Air Inlet (#6)**. Turn on your compressor and let air in slowly at first. During operation, dry air will pass through the unit to the tool or application.
3. When you are finished, stop the air compressor first. Continue to run the Air Dryer until all of the compressed air runs through the system.
4. Turn off the Air Dryer.

**Note:** If the Air Dryer stops and the Problem Light (See **FIGURE 4** on page 6) goes on, the unit is running at too high of a temperature or pressure. Let the unit cool. Unplug the Air Dryer. Open the side panel (See **FIGURE 3** on page 6) and push the reset button on the **Pressure Switch (#14)**. See the Assembly drawing on page 10. Plug in the unit and restart. If the Problem Light stays on, or comes on continually, take the unit to an authorized service technician.

## Troubleshooting

**Warning!!** Repairing this unit (other than trying to reset the **Pressure Switch (#14)**, as mentioned above) should only be performed by an authorized service technician.

**Problem 1:** Unit shuts off by itself.

**Reason:** Temperature or pressure is too high or fan is overheated. Or, the **Condenser (#11)** is dirty.

**Solution:** Reset pressure switch as described in the note above, or clean the **Condenser (#11)** as described in Maintenance on page 8.

**Problem 2:** No power light when the unit is on.

**Reason:** Loose connections at wiring panel.

**Solution:** Check the connections and tighten.

**Problem 3:** Unit won't cool/dry air.

**Reason:** Water in the refrigeration unit because of: Auto drain blocked, bad valve, bad connection to capacitor, bad capacitor, bad fan unit, low air pressure.

**Solution:** Clean auto drain and tube, replace valve, check capacitor connection, replace capacitor, replace fan unit, turn up air pressure on compressor.

**Problem 4:** Unit buzzes and won't operate.

**Reason:** Bad capacitor.

**Solution:** Replace capacitor.

**Only done by a qualified electrician or service technician.**

**Problem 5:** Fan isn't working at the correct temperature and pressure.

**Reason:** Bad fan bearing, bad fan capacitor, or bad temperature switch.

**Solution:** Replace fan bearing, fan capacitor, or temperature switch.

**Only done by a qualified electrician or service technician.**

**Problem 6:** Pressure on the inlet or outlet valves increase for no reason.

**Reason:** Bad internal pressure valve.

**Solution:** Replace internal pressure valve.

## Troubleshooting Continued

**Problem 7:** Ice accumulating in the dryer, and/or a pressure loss through the unit.

**Reason:** This may be caused by the formation of ice inside.

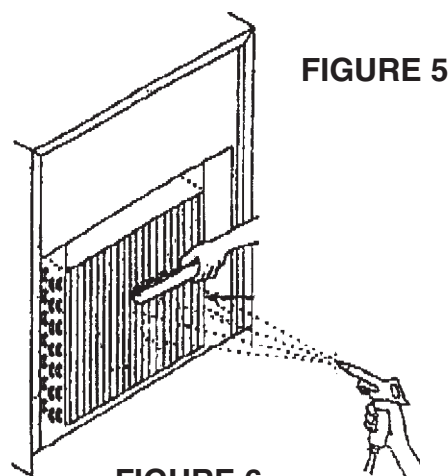
**Solution:** The Hot Gas Bypass Valve (not shown in the Parts List or Assembly Diagram) needs to be adjusted. This adjustment should only be done after consultation with our technical support service at: 1-800-444-3353.

## Maintenance

**Note:** Maintenance must be performed by an authorized service technician.

**Never attempt to adjust the temperature; this adjustment should only be done by an authorized service technician.**

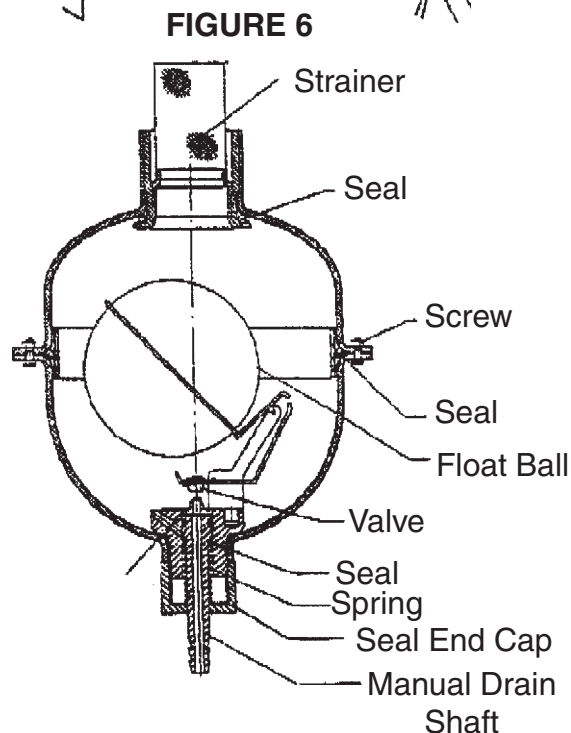
1. See **FIGURE 5**. Periodically clean the **Condenser (#11)**. Use a dust collector and an air gun to clean dirt and debris. Be careful not to get too close to the unit with high pressure as you will damage the unit. If grease or oil are built up and won't blow off, wash it off with a mild detergent.



**FIGURE 5**

**Note:** The internal parts illustrated for step 2 below are a guide for the authorized service technician. They cannot be ordered separately. Only the parts on the parts list on page 9 can be ordered.

2. See **FIGURE 6**. Washing the auto drain. To wash the auto drain, close the 1/2 ball Filter Valve on top of the drain. Pull the manual drain shaft handle to empty the water. Take apart the drain and the fixed screw. Clean the strainer from inside to out. Take apart the manual drain shaft and the seal end cap. Take off the float ball and valve seat. Clean each component and reassemble.



**FIGURE 6**



## Parts List

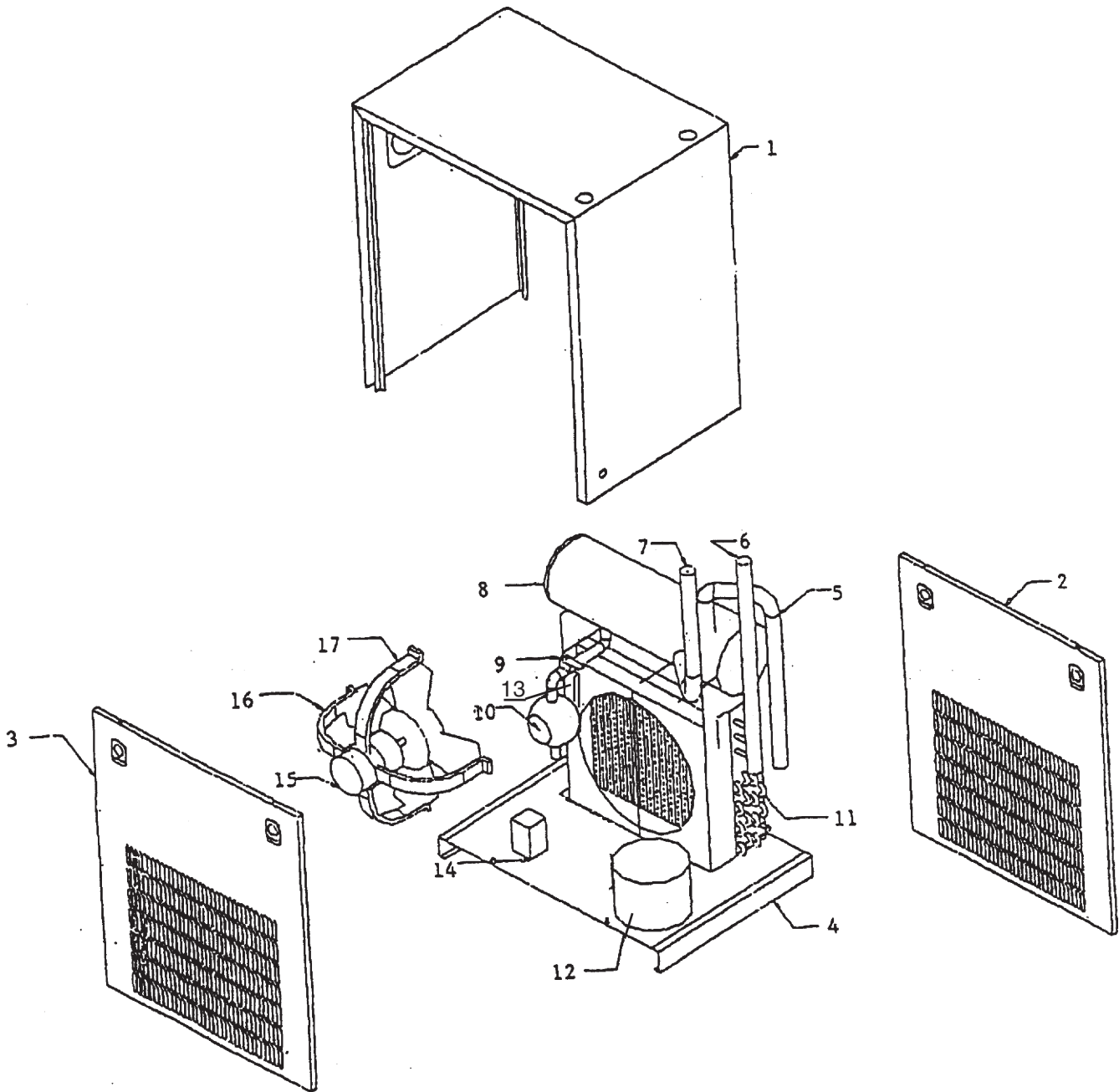
| Part No. | Description                    |
|----------|--------------------------------|
| 1        | U-Housing                      |
| 2        | Left Plate                     |
| 3        | Right Plate                    |
| 4        | Base Plate                     |
| 5        | Connect Pipe                   |
| 6        | Air Inlet                      |
| 7        | Air Outlet                     |
| 8        | Evaporator                     |
| 9        | Filter Valve                   |
| 10       | Drain                          |
| 11       | Condenser                      |
| 12       | Compressor                     |
| 13       | Fan Control<br>Pressure Switch |
| 14       | Pressure Switch                |
| 15       | Fan Motor                      |
| 16       | Fan Bracket                    |
| 17       | Fan                            |

### PLEASE READ THE FOLLOWING CAREFULLY

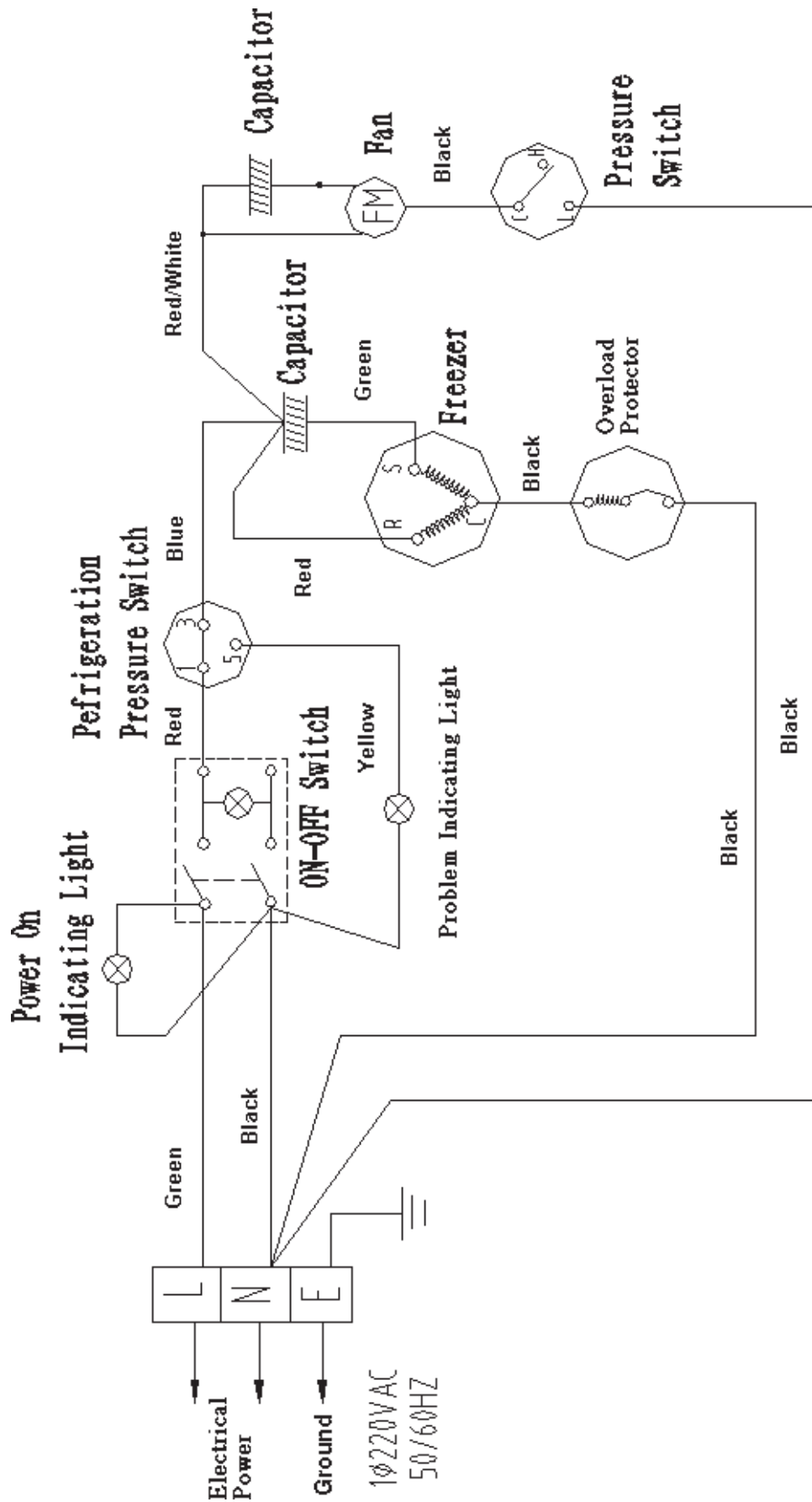
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**NOTE:** Some parts are listed and shown for illustration purposes only and are not available individually as replacement parts.

# Assembly Drawing



# SCHEMATIC DIAGRAM



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