

Scientemp Corp.

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OPERATING AND INSTALLATION MANUAL MODEL 34-20A

This cabinet has passed the
QUALITY CONTROL INSPECTION
and meets the high standards at Scientemp Corp.
This inspection includes the complete refrigeration
system, cabinet construction and finish.

ABOUT YOUR SCIENTEMP FREEZER

Your freezer is best located in a well-ventilated room. Provide a small space around the freezer for ventilation. The condenser of the freezer is located on the insulation side of the outer case. Therefore, during operation the outer case (or shell) will feel warm to the touch. From this shell condenser the heat removed from inside the freezer radiates from the case and is dispersed into the air. For this reason the outer surface should be kept reasonably clean and free of any wrapping, covers or objects that will limit the dispersing of the heat from the freezer shell. Avoid placing the freezer in locations exposed to direct sun light, heat registers or other heat sources.

The refrigeration system of a Scientemp freezer is hermetically sealed. It requires no maintenance. However, in areas where excessive dust and or dirt collect, it will help to vacuum or blow off the dust or dirt in the unit compartment periodically.

The fan motor has lifetime lubrication. It requires no maintenance.

Defrosting: Accumulation of frost may be removed in a couple of ways.

- 1.) While the freezer is running the frost may be removed with a plastic or wooden scraper or spatula, do not use metal or sharp objects such as an ice pick. This will prevent serious damage to the finish of the inner-liner of the freezer. The frost and ice may be collected in a pan, towel or any device to prevent it from falling to the bottom of the freezer or onto the material stored in the freezer. Most of the frost and ice collects near the top edge and is easily removed.
- 2.) In the case where the freezer is not loaded, frost and ice may be removed by disconnecting the power until the frost and ice thaw. After defrosting, dry the freezer compartment interior and turn on the power.

Freezers are shipped from the factory with the indicating digital control programmed for proper operation. All but the temperature settings are locked-out to avoid misuse. Operating temperature settings may be adjusted. The temperature sensor is a type "T" thermocouple located on the front wall of the inner-liner.

It is recommended to keep the freezer operating at a temperature below freezing rather than turning the freezer off and on.

CAUTION

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Using Your Low Temperature Freezer

Any temperature below 0 deg Centigrade or 32 deg Fahrenheit provides a potential condition to cause freezing of water or material containing water. Material containing water solutions of sodium (salt) or sugar will freeze at slightly lower temperature, depending on the content of the solution.

Because all warm-blooded creatures are composed of a great percent of water with salinity, they are subject to freezing whenever the body cells, parts or extremities reach temperatures below freezing. Therefore, it behooves the use of caution whenever you use a freezer or handle a frozen product that is at temperatures below 0 deg Centigrade or 32 deg Fahrenheit.

When skin freezes

When your skin is exposed to subfreezing temperatures for an extended amount of time, it can freeze. Your blood vessels constrict in response to dropping temperatures. This reduces the flow of blood and, therefore, the amount of oxygen to the tissues. When water in these tissues freezes and forms ice crystals, cell structure is destroyed.

Tissue damage from cell death interrupts circulation in the smallest blood vessels. Blood clots form and blood flow is further diverted away from the frozen tissue. At this point, your skin temperature drops and the injured area grows even colder.

The first sign of frostbite may be a slightly painful tingling sensation, which often is followed by numbness. Your skin may look pale, and feel hard, cold and numb.

In the event of frost bite, re-warming is vital. Carefully and gradually re-warm frostbitten areas. Place your hands directly on the skin of warmer areas of your body. If possible, immerse your hands in water that is slightly above normal body temperature (about 100 F or 37.8 C), or which feels warm to someone else, until your normal color returns. Do not use direct heat. Seek medical attention as quickly as you can.

After thawing

Frostbitten areas will turn red and throb, or burn with pain, as they thaw. Even with mild frostbite, normal sensation may not return immediately. When frostbite is severe, the area will probably remain numb until it heals completely.

Severe frostbite damages nerves and can permanently change your sense of touch in the affected area.

Caution: Use protective clothing when contacting the inside of a freezer or products stored in a freezer. Hands should be dry and protected by using gloves. Insulated gloves are best for extended use when handling frozen product. Arms should be protected by sleeves or arm-length insulated gloves. Other parts of the body that may be exposed to the cold should be protected by coats, insulated aprons, etc.

Frozen packages are hard and often slippery, therefore foot protection should be considered such as hard-toed shoes or foot guards in the event that a package would be dropped.

Your freezer must be electrically grounded to prevent electric shock.

Provide a space around the freezer for ventilation.

INSTALLATION & OPERATION
OF
SCIENTEMP MODERATE LOW COLD CABINETS

MODELS 34-05, 34-07, 34-09, 34-15, 34-20, & 34-25

Scientemp Corp., and its management are dedicated to the production of the most dependable and serviceable product in the industry. The instructions are intended to assist in obtaining the optimum performance from your low temp freezer.

LOCATION: The cabinet should be placed in a location where the air will circulate around the outer case. A minimum of a 2" clearance is recommended for proper air circulation. The unit should rest firmly on all four mounting points.

ELECTRICAL CONNECTION: Electrical connection should be made in compliance with local codes. We suggest a separate circuit with a fused disconnect be installed. To avoid the possibility of an accidental disconnect you may want to consider a direct connection to the electrical source. No less than a No. 14 gauge wire should be used for the electrical connection. (Countries outside the US are not supplied with an electric cord. Follow your country's electric codes.)

LID SEAL: If the lid gasket does not seal along the front edge, relieve the compression of the gasket along the back edge by loosening the hinge screws where they attach to the cabinet. Raise the lid slightly and then retighten the screws.

THE SUB LID: These lids are for the protection of your materials and should be used in place.

SERVICE INSTRUCTION: If the cabinet is not operating properly, we recommend that you have a qualified refrigeration service man check it to analyze the problem. In case of major difficulties, the factory may be contacted before repair is started. In all contacts with the factory, give the model and serial number.

REFRIGERATION SYSTEM

- **REFRIGERATION SYSTEM**

The refrigeration system consists of a hermetically sealed compressor, cold wall evaporator and shell condenser.

- **DRIER**

The drier is installed in the system just before the capillary tube. Its purpose is to trap minute particles of foreign material and absorb any moisture in the system.

- **LIQUID CONTROL AND HEAT EXCHANGE**

Liquid refrigerant control to the evaporator of the system is accomplished by the use of a capillary tube. This capillary tube is soldered to the suction line to form a heat exchanger, which sub cools the liquid refrigerant to maintain high efficiency within the system.

- **REFRIGERATION SERVICE EVACUATION**

Moisture in a refrigeration system is directly or indirectly the cause of more problems and complaints than all other factors combined. When large amounts are present, system freeze ups will occur. Even in minute amounts, moisture will combine with refrigerants to form an acid. The corrosive action of this acid forms sludge which will plug the lines and the drier. Since most field type vacuum pumps cannot pull a low enough vacuum to remove moisture from the system, it is recommended that the system be triple evacuated, breaking each time with dry refrigerant. Use care to purge the air from the system

- **CHARGING REFRIGERATION SYSTEM**

Since capillary tube systems have small critical refrigerant charges, we recommend that a field charge either be weighed in or put in from a portable charge cylinder. After maximum vacuum has been obtained as detailed above, attach charging cylinder to the suction line making sure to purge air from hose with refrigerant. With the unit running, allow refrigerant to run slowly into the system until the desired charge is reached.

OVERCHARGE: When the cabinet has pulled down to operating temperature an indication of an overcharge is that the suction line will be cooler than normal with the compressor running. Running time will be higher than normal. Suction line will sweat or frost. Reclaim excessive refrigerant from the system very carefully in small amounts waiting several minutes for the system to balance.

UNDERCHARGE: An undercharge or shortage of refrigerant will result in any of the following:

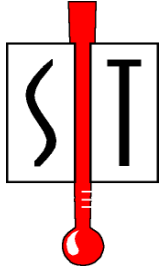
1. Lower than normal head pressure.
2. Lower than normal suction pressure.
3. Excessive or continuous operation of compressor.
4. Higher than normal cabinet temperature.

SERVICE AND ANALYSIS CHART

REFRIGERATION SYSTEM

MALFUNCTION	POSSIBLE CAUSE	SOLUTION
Compressor will not start - no hum.	<ol style="list-style-type: none"> 1. Line cord not plugged in. 2. Control stuck in open position. 3. Wiring improper or loose. 	<ol style="list-style-type: none"> 1. Plug in line cord. 2. Repair or replace control. 3. Check wiring against diagram.
Compressor will not start- hums but trips on overload protector	<ol style="list-style-type: none"> 1. Improperly wired. 2. Low voltage to unit. 3. Starting capacitor defective. 4. Compressor motor has a winding open or shorted. 	<ol style="list-style-type: none"> 1. Check wiring against diagram. 2. Determine reason and correct. 3. Determine reason and replace. 4. Determine reason and correct, replace if necessary.
Compressor starts but does not switch off of start winding.	<ol style="list-style-type: none"> 1. Low voltage to unit 2. Relay failing to open. 3. Run capacitor defective. 4. Compressor motor has a winding open or shorted. 	<ol style="list-style-type: none"> 1. Determine reason and correct. 2. Determine reason and correct replace if necessary. 3. Determine reason and replace. *4. Replace the compressor.
Compressor starts and runs, but short cycles on overload protector.	<ol style="list-style-type: none"> 1. Additional current passing through overload protector. 2. Low voltage to unit. 3. Overload protector defective. 4. Run capacitor defective. 5. Excessive discharge pressure. 6. Compressor too hot-return gas hot. 	<ol style="list-style-type: none"> 1. Check wiring diagram. Check for added fan motors, pumps, etc. connected to wrong side of protector. 2. Determine reason and correct. 3. Check current, replace protector. 4. Determine reason and replace. *5. Check ventilation, restrictions in cooling medium, restrictions in refrigeration. *6. Check refrigerant charge (fix leak if necessary)
Run capacitor open, shorted or blown	<ol style="list-style-type: none"> 1. Improper capacitor. 2. Excessively high line voltage 	<ol style="list-style-type: none"> 1. Determine correct size and replace. 2. Determine reason and correct.
Relay defective or burned out.	<ol style="list-style-type: none"> 1. Incorrect Relay 2. Line voltage too high or too low. 3. Relay influenced by loose vibrating mounting 	<ol style="list-style-type: none"> 1. Check and replace 2. Determine reason and replace. 3. Remount rigidly.
Space temperature too high	<ol style="list-style-type: none"> 1. Improper overcharge. 2. Inadequate air circulation. 	<ol style="list-style-type: none"> *1. Recover refrigerant and recharge with proper charge. 2. Improve air movement.
Unit noisy	<ol style="list-style-type: none"> 1. Loose parts or mountings 2. Tubing rattle 3. Bent fan blade causing vibration. 4. Fan motor bearings worn. 	<ol style="list-style-type: none"> 1. Find and tighten 2. Reform to be free of contact. 3. Replace blade. 4. Replace motor.

*** ALL SERVICING MUST COMPLY WITH STATE AND FEDERAL REQUIREMENTS.
 FEDERAL LAW REQUIRES THAT SOME REFRIGERANT BE RECOVERED PRIOR TO SERVICING.**



ScientempTM

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Standard Warranty

Applies Only Within the Continental United States

SCIENTEMP WARRANTS TO THE ORIGINAL PURCHASER

FIRST 18 MONTHS – The cabinet and all of its parts shall be free of defects in material and workmanship under normal use and service for a period of 18 months from the date the unit has been shipped from our facility. Scientemp's sole obligation under this warranty shall be limited, at its option, to either repairing or replacing any part of the cabinet determined by an authorized service agent to be defective. Scientemp reserves the right to repair the freezer at our facilities.

THE SCIENTEMP STANDARD WARRANTY DOES NOT COVER

TRANSPORTATION COSTS – Scientemp shall not be responsible for transportation or incidental costs incurred in connection with the repair or replacement of a cabinet or any of its parts.

ABUSE, MISUSE, ACCIDENTS – Scientemp shall not be responsible for parts or assemblies which upon inspection are determined by an authorized Scientemp Service Agent to have been subjected to misuse, neglect, alteration, accident, abuse, damage during transit or delivery, or by fire or flood.

CONSEQUENTIAL DAMAGES – IN NO EVENT SHALL SCIENTEMP CORP BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, PRODUCT LOSS OR PRODUCT SPOILAGE CLAIMS, NOR FOR ANY DELAY IN THE PERFORMANCE OF THIS WARRANTY DUE TO CAUSES BEYOND ITS CONTROL.

GENERAL

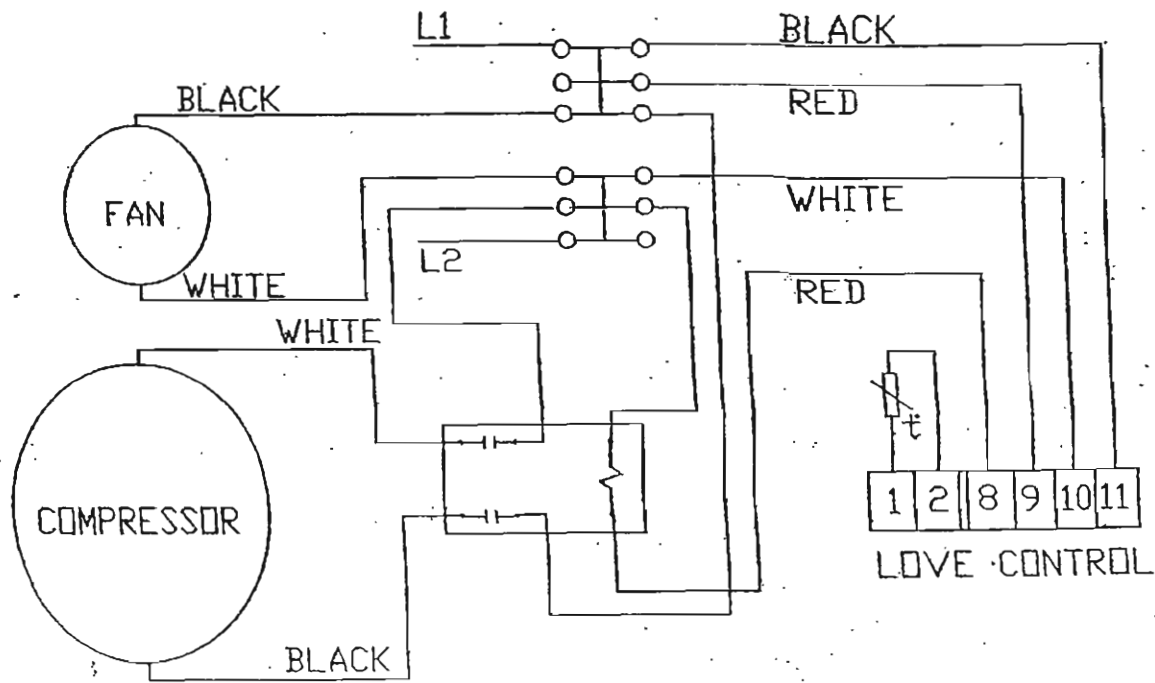
The standard warranty and any service contract related to the STANDARD WARRANTY shall apply only to the products sold and used within the boundaries of the Continental United States.

Users may file warranty claims either directly with Scientemp Corp, 3565 S. Adrian Hwy, Adrian, MI 49221, or with the seller from whom the cabinet was purchased. All claims must be supported by information concerning the alleged defect and specifically identified by the Serial Number of the cabinet.

THERE ARE NO OTHER WARRANTIES EXPRESS, IMPLIED, OR STATUTORY, EXCEPT THIS WARRANTY, WHICH IS IN LIEU OF ALL OTHER WARRANTIES INCLUDING TO THE EXTENT PERMITTED BY LAW, ANY IMPLIED WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

DO NOT DRILL HOLES IN CABINET

Refrigeration tubing and wiring is routed through the cabinet walls. Leaks, wet insulation or electrical problems caused by drilling holes are not covered by warranty.



34 SERIES WIRING DIAGRAM