CTF306 BLOOD PLASMA FREEZERS

This Jewett Product is a complete packaged unit ready to operate when plugged into an electrical source. It is not necessary to have a refrigeration serviceman set the unit in operation. The unit has been tested prior to shipment. Read all the instructions before proceeding with installation.

INSPECTION FOR DAMAGE

Un-crate the product and remove all packing and crating materials. Inspect the product and parts thoroughly for damage or missing parts. File all claims for damage with the transportation company immediately. Do not file claims with the manufacturer.

MAINTENANCE INSTRUCTIONS

1. Frequent cleaning of the interior and exterior with water and a good fungicidal detergent that eliminates harmful bacteria, stains and other foreign matter, will keep the unit fresh and new looking.

2. Shelves and/or drawers should be removed from the cabinet and thoroughly scrubbed. Clean door gasket periodically.

3. The unit cooler fan operates continuously when the door is closed and requires no lubrication.

4. The condensing unit needs no oil or other lubrication. The finned condenser can become clogged with lint or dust. The openings between the fins should be kept clean. A vacuum cleaner or small test tube brush works well for this purpose. This should be accomplished on an annual basis. Failure to keep the condenser fins free of dirt and lint will result in erratic operation and may damage the refrigeration system.

5. Annual inspection of the mechanical refrigeration equipment by a qualified serviceman is recommended. A qualified mechanic can frequently make adjustments that will prevent future breakdown.

6. The refrigeration system is charged with refrigerant R134a. If the system is opened for any reason, extreme care should be taken to prevent the entry of moisture-bearing air. A new drier should be installed in the lines when the system is closed.
INSTALLATION INSTRUCTIONS
MODEL CTF306

1. The cabinet will pass through a standard 30" door opening.

2. Inspect the interior, exterior and mechanical equipment for special instruction tags fastened at various points.

3. Move the freezer into the desired location. Make sure the bottom of the freezer is evenly supported. Thin shims under the points of rest can be used to equalize the distribution of weight. If the cabinet sets on an uneven floor, a slight rocking or vibration might result when the condensing unit is set in operation.

4. Make certain the freezer is located so the grill panel is unobstructed.

5. An automatic condensate evaporator eliminates the necessity for a floor drain. For proper elimination of condensation, wafers should be placed in the condensate tray located in the rear of the mechanical compartment in accordance with the instructions packed with the wafers.

6. The condensing unit is shipped with all service valves open and ready for operation. Do not adjust the refrigerant valves or the temperature control.

7. Use of electrical characteristics, other than those specified on the serial plate will cause permanent damage to the mechanism. The serial plate is located inside the freezer at the top of the right hand wall.

8. Operate the freezer for several hours to allow the unit to reach normal operating temperatures before storing product.

NOTE: Erratic operation on initial start-up does not indicate a faulty control. When normal operating temperature is reached, the condensing unit will cycle regularly.
SEQUENCE OF OPERATION

<table>
<thead>
<tr>
<th>Temperature Control Switch</th>
<th>Defrost Switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controls current to the motor compressor and unit cooler fan</td>
<td>Controls current to the defrost heater</td>
</tr>
</tbody>
</table>

*Both switches are located in the temperature control/defrost timer.*

STEP "1": Normal Refrigeration Operation

1. The fan delay control is closed.
2. The defrost heater is off.
3. The condensing unit operates in accordance with the demands of the refrigeration system.
4. The unit cooler fan operates continually. However, the door switch will deactivate the fan motor when the door is opened.
5. Frost builds up slowly on the unit cooler.

STEP "2": - Defrost Cycle

1. The unit cooler defrost cycle is started automatically by the timer at predetermined times.
2. The timer opens the temperature control switch which breaks the circuit to the motor compressor and unit cooler fan motor thereby shutting them off; and closes the defrost switch, thereby permitting current to flow to the heater.
3. The heater, recessed in slots, gives up heat directly to the fins of the unit cooler. This heat raises unit cooler and refrigerant temperature to 32° F. and causes the frost to melt.
4. Frost on the unit cooler is melted and defrost water drips into the heated drain pan and flows down the drain.
5. When frost has completely melted from the unit cooler, the cooler starts to warm up beyond 32° F.
STEP "3": - Unit Cooler Re-Cooling Cycle

1. When the unit cooler warms up to 55°C, the defrost termination control closes. The timer switches back to its normal position (Temperature Control Switch closed, Defrost Switch open). The fan delay control is now open. The heater safety control may open, but under normal operation will remain closed. The heater safety thermostat would open only if the defrost termination fails.

2. The compressor starts.

3. The unit cooler fan motor remains OFF, so that warm air will not enter the refrigerated space.

4. The evaporator coil cools down approaching operating temperatures.

STEP "4": - Return to Normal Operation

1. When the coil temperature reaches 16°F. (−8.9°C.), the fan control switch closes. Current flows to the fan motor and the unit returns to normal operation.
TEMPERATURE CONTROL

This freezer uses a Dixell XR60 temperature control:

![Temperature Control Display](image)

Control operation is described in detail on the following three insert pages.
Digital controller with defrost and fans management
XR60C

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6. MAIN FUNCTIONS 2
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1. GENERAL WARNING

1.1 PLEASE READ BEFORE USING THIS MANUAL
- This manual is part of the product and should be kept near the instrument for easy and quick reference.
- The instrument shall not be used for purposes different from those described hereunder. It cannot be used as a safety device.
- Check the application limits before proceeding.

1.2 SAFETY PRECAUTIONS
- Check the supply voltage is correct before connecting the instrument.
- Do not expose to water or moisture; use the controller only within the operating limits avoiding sudden temperature changes with high atmospheric humidity to prevent formation of condensation.
- Warning: disconnect all electrical connections before any kind of maintenance.
- Fit the probe where it is not accessible by the End User. The instrument must not be opened.
- In case of failure or faulty operation send the instrument back to the distributor or to "Direkt s.r.l." (see address) with a detailed description of the fault.
- Consider the maximum current which can be applied to each relay (see Technical Data).
- Ensure that the wires for probes, loads and the power supply are separated and far enough from each other, without crossing or intertwining.
- In case of applications in industrial environments, the use of mains filters (our mod. FT1) in parallel with inductive loads could be useful.

2. GENERAL DESCRIPTION
Model XR60C, 32x74 mm format, is a microprocessor based controller, suitable for applications on medium or low temperature ventilating refrigerating units. It has three relay outputs to control compressor, fan, and defrost, which can be either electrical or reverse cycle (hot gas). It is also provided with two NTC or PT100 probe inputs, one for temperature control, the other, to be located onto the evaporator, to control the defrost termination temperature and to managed the fan. The instrument is fully configurable through special parameters that can be easily programmed through the keyboard.

3. CONTROLLING LOADS

3.1 COMPRESSOR
The regulation is performed according to the temperature measured by the thermostat probe with a positive differential from the set point; if the temperature increases and reaches set point plus differential the compressor is started and then turned off when the temperature reaches the set point value again.

In case of fault in the thermostat probe the start and stop of the compressor are timed through parameters "COn" and "COF".

3.2 DEFROST
Two defrost modes are available through the "DfT" parameter: defrost through electrical heater (DfT = EL) and hot gas defrost (DfT = Mf). Other parameters are used to control the interval between defrost cycles (DfT), its maximum length (MfD) and two defrost modes: timed or controlled by the evaporator's probe (P2).

At the end of defrost dripping time is started, its length is set in the FST parameter. With FST=0 the dripping time is disabled.

3.3 CONTROL OF EVAPORATOR FANS
The fan control mode is selected by means of the "FnC" parameter:
- FnC = C: fans will switch ON and OFF with the compressor and not run during defrost;
- FnC = S: fans will run even if the compressor is off, and not run during defrost;
- FnC = C: fans will switch ON and OFF with the compressor and run during defrost;
- FnC = S: fans will run continuously also during defrost.

An additional parameter "FSR" provides the setting of temperature, detected by the evaporator probe, above which the fans are always OFF. This is used to make sure circulation of air only if its temperature is lower than set in "FSR".

3.3.1 Forced activation of fans
This function managed by the Fct parameter is designed to avoid short cycles of fans, that could happen when the controller is switched on or after a defrost, when the room air warms the evaporator.

Functioning: if the difference of temperature between the evaporator and the room probes is more than the value of the Fct parameter, the fans are switched on.

With Fct=0 the function is disabled.

4. FRONT PANEL COMMANDS

SET: To display target set point; in programming mode it selects a parameter or confirm an operation.
- (DEP) To start a manual defrost
- (UP): To see the last temperature alarm happened; in programming mode it browse the parameter codes or increases the displayed value.
- (DOWN): To see the last temperature alarm happened; in programming mode it browse the parameter codes or decreases the displayed value.

KEY COMBINATIONS:
- To lock & unlock the keyboard.
- To enter in programming mode.
- To return to the room temperature display.

4.1 USE OF LEDS
Each LED function is described in the following table.

<table>
<thead>
<tr>
<th>LED</th>
<th>MODE</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>Compressor enabled</td>
<td></td>
</tr>
<tr>
<td>ON</td>
<td>Defrost enabled</td>
<td></td>
</tr>
<tr>
<td>ON</td>
<td>Fans enabled</td>
<td></td>
</tr>
<tr>
<td>ON</td>
<td>Fans delay after defrost in progress.</td>
<td></td>
</tr>
<tr>
<td>ON</td>
<td>An temperature alarm happened</td>
<td></td>
</tr>
</tbody>
</table>

5. TEMPERATURE ALARM AND ITS DURATION RECORDING (HACCP)
XR60C signals and records temperature alarms, together with their duration and max value reached. See drawing:
6.1 HOW TO SEE THE ALARM DURATION AND MAX (MIN) TEMPERATURE

If the alarm LED is on, an alarm has taken place. To set the kind of alarm, the max (min) reached temperature and alarm duration do as follows:

1. Push the Up or Down key.
2. On the display the following message is shown:
   "HAC" for high temperature alarm (LAC) for the minimum alarm), followed by the Maximum (Minimum) temperature.
   Then the "MIN" (MAX) message is displayed, followed by the "Duration" in h:mm.
3. Then the instrument displays the temperature once again.

NOTE:1: if an alarm is still occurring the "Min" shows the partial duration.
NOTE:2: the alarm is recorded when the temperature back to normal values.

5.2 HOW TO RESET A RECORDED ALARM OR ONE THAT IS STILL OCCURRING

1. Hold the SET key pressed for more than 3 s, while the recorded alarm is displayed.
2. To confirm the operation, the "ST" message starts blinking and the normal temperature will be displayed.

6. MAIN FUNCTIONS

6.1 HOW TO SEE THE SETPOINT

SET 1. Push and immediately release the SET key: the display will show the Set point value;
2. Push and immediately release the SET key or wait for 5 seconds to display the probe value again.

6.2 HOW TO CHANGE THE SETPOINT

1. Push the SET key for more than 2 seconds to change the Set point value;
2. The value of the set point will be displayed and the LED starts blinking;
3. To change the Set value push the + or - arrow within 10 s.
4. To memorize the new set point value push the SET key again or wait 10 s.

6.3 HOW TO START A MANUAL DEFROST

Push the DEF key for more than 2 seconds and a manual defrost will start.

6.4 HOW TO CHANGE A PARAMETER VALUE

To change the parameter's value operate as follows:

1. Enter the Programming mode by pressing the Set and DOWN key for 3 s (LED1 starts blinking).
2. Select the required parameter.
   SET 3. Press the "SET" key to display its value (now only the LED is blinking).
4. Use "UP" or "DOWN" to change its value.
5. Press "SET" to store the new value and move to the following parameter.

6.5 THE HIDDEN MENU

The hidden menu includes all the parameters of the instrument.

6.5.1 HOW TO ENTER THE HIDDEN MENU

1. Enter the Programming mode by pressing the Set & DOWN key for 3 s (LED1 and LED2 start blinking).
2. When a parameter is displayed keep pressed the Set+ for more than 7 s. The Pr2 label will be displayed immediately followed by the HY parameter: NOW YOU ARE IN THE HIDDEN MENU.
3. Select the required parameter.
4. Press the "SET" key to display its value. (Now only the LED is blinking).
5. Use + or - to change its value.
6. Press "SET" to store the new value and move to the following parameter.

6.6 HOW TO MOVE A PARAMETER FROM THE HIDDEN MENU TO THE FIRST LEVEL AND VICEVERSA

Each parameter present in the HIDDEN MENU can be removed or put into "THE FIRST LEVEL" (user level) by pressing "SET + + - - - ".

In HIDDEN MENU when a parameter is present in First Level the decimal point is on.

5.6 HOW TO LOCK THE KEYBOARD

1. Keep pressed for more than 3 s the UP and DOWN keys.
2. The "PON" message will be displayed and the keyboard will be locked. At this point it will be possible only to see the set point or the MAX or MIN temperature stored
3. If a key is pressed more than 3 s the "PON" message will be displayed.

6.7 TO UNLOCK THE KEYBOARD

Keep pressed together for more than 3 s the + and - keys, till the "PON" message will be displayed.

5.8 THE CONTINUOUS CYCLE

When defrost is not in progress, it can be activated by holding the + + key pressed for about 3 s.

The compressor operates in continuous mode for the time set through the "CC" parameter.
The cycle can be started before the end of the set time using the same activation key + - for 3 s.

7. PARAMETERS

NOTE: the parameters preceded by dots are in the Hidden Menu.

REGULATION

Hy Differential: (0.1 0.1 0.1+25 °C 1+25 °C) Intervention differential for set point.
Compressor Cut In is Set Point Plus Differential (Hy). Compressor Cut OUT is when the temperature reaches the set point.

LS Minimum set point: (-50 °C SET/-50 °C SET). Sets the minimum acceptable value for the set point.
US Maximum set point: (SET=110 °C SET=230 °F). Set the maximum acceptable value for set point.

Ok Thermostat probe calibration: (-120 °C AND 120 °C). Allows to adjust possible offset of the thermostat probe.

P2P Evaporator probe presence: + + not present: the defrost stops by time; y y: present: the defrost stops by temperature.

GE Evaporator probe calibration: (-120 0.12 0.12 °C, +120 °F, +120 °C). Allows to adjust possible offset of the evaporator probe.

GdS Outputs activation delay at start up: (2+25 mm). This function is enabled at the initial start of the instrument and inhibits any output activation for the period of time set in the parameter.

AC Anti-short cycle delay: (0 50 min) minimum interval between the compressor stops and the following restart.

CCr Compressor ON time during continuous cycle: (0 24.0 h, ros. 10 min) Allows to set the length of the continuous cycle: compressor stays on without interruption for the continuous time. Can be used, for instance, when the room is filled with new products.

CCn Compressor ON time with faulty probe: (0 255 min) time during which the compressor is active in case of faulty thermostat probe. With CCn=0 compressor is always OFF.

COF Compressor OFF time with faulty probe: (0 255 min) time during which the compressor is OFF in case of faulty thermostat probe. With COF=0 compressor is always active.

DISPLAY

GF Temperature measurement unit:
*°C=Celsius; °F=Fahrenheit. WARNING: When the measurement unit is changed the set point and the values of the parameters Hy, LS, US, Lt, ALU and ALL have to be checked and modified if necessary.

R2 Resolution for °C: (In = °C, CE = 0.1 °C) allows decimal point display.

Led Display: select which probe is displayed by the instrument: Pt = Thermostat probe; Pz = Evaporator probe.

DEFROST

df Defrost type: E1 = electrical heater; n = hot gas
def Defrost termination temperature: (-50 50 °C)

When P2P = n, (not evaporator probe: timed defrost) it sets the defrost duration, when P2P = y (defrost end based on temperature) it sets the maximum duration for defrost.

dSd Start defrost delay: (0 99 min) This is useful when different start defrost times are necessary to avoid overloading the plant.

dTd Temperature displayed during defrost: (t = real temperature; t = temperature at defrost start; SET = set point; DEF = "DEF" label)

dAd MAX display delay after defrost: (0 255 min). Sets the maximum time between the end of defrost and the restarting of the real room temperature display.

FdT Drip time: (0 120 min) time interval between reaching defrost termination temperature and the restoring of the control's normal operation. This time allows the evaporator to eliminate water drops that might have formed due to defrost.
8.3 SERIOUS ALARM MODE (1F = bAL)
When the digital input is activated, the unit will wait for "did" delay before signaling the "CA" alarm message. The relay outputs are switched OFF. The alarm will stop as soon as the digital input is de-activated.

8.4 PRESSURE SWITCH (1F = PAL)
If during the interval time set by "did" parameter, the pressure switch has reached the number of activation of the "nPS" parameter, the "CA" pressure alarm message will be displayed. The compressor and the regulation are stopped. When the digital input is ON the compressor is always OFF.
If the nPS activation in the did time is reached, switch off and on the instrument to restart normal regulation.

8.5 START DEFROST (1F = dFR)
It starts a defrost if there are the right conditions. After the defrost is finished, the normal regulation will restart only if the digital input is disabled otherwise the instrument will wait until the "nAd" safety time is expired.

8.6 INVERSION OF THE KIND OF ACTION: HEATING-COOLING (1F = Hr)
This function allows to invert the regulation of the controller, from cooling to heating and viceversa.

8.7 DIGITAL INPUT POLARITY
The digital input polarity depends on the "1H" parameter.
1H=CL: the input is activated by closing the contact.
1H=QP: the input is activated by opening the contact.

9. INSTALLATION AND MOUNTING
Instrument XR60C shall be mounted on vertical panel, in a 29x71 mm hole, and fixed using the special bracket supplied.
To obtain an IP65 protection grade use the front panel rubber gasket (mod. RG-C) as shown in figure.

The temperature range allowed for correct operation is 0-60 °C. Avoid places subject to strong vibrations, corrosive gases, excessive dirt or humidity. The same recommendations apply to probes. Let air circulate by the cooling holes.

10. ELECTRICAL CONNECTIONS
The instrument is provided with screw terminal block to connect cables with a cross section up to 2.5 mm². Before connecting cables make sure the power supply complies with the instrument’s requirements. Separate the probe cables from the power supply cables, from the outputs and the power connections. Do not exceed the maximum current allowed on each relay, in case of heavier loads use a suitable external relay.

10.1 PROBE CONNECTION
The probes shall be mounted with the bulb upwards to prevent damages due to casual liquid infiltration. It is recommended to place the thermostat probe away from air streams to correctly measure the average room temperature. Place the defrost termination probe among the evaporator fins in the coldest place, where most ice is formed, far from heaters or from the warmest place during defrost, to prevent premature defrost termination.

11. HOW TO USE THE HOT KEY

11.1 HOW TO PROGRAM A HOT KEY FROM THE INSTRUMENT (UPLOAD)
1. Program one controller with the front keypad.
2. When the controller is ON, insert the "Hot key" and push any key; the "uPL" message appears followed by flashing "End".
3. Push "SET" key and the End will stop flashing.
4. Turn OFF the instrument remove the "Hot Key", then turn it ON again.

NOTE: the "Err" message is displayed for failed programming. In this case push again any key if you want to reset the upload again or remove the "Hot key" to abort the operation.
12. ALARM SIGNALS

<table>
<thead>
<tr>
<th>Message</th>
<th>Cause</th>
<th>Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;P1&quot;</td>
<td>Room probe failure</td>
<td>Compressor output according to par. &quot;C01&quot; and &quot;C0F&quot;</td>
</tr>
<tr>
<td>&quot;P2&quot;</td>
<td>Evaporator probe failure</td>
<td>Defrost end is timed</td>
</tr>
<tr>
<td>&quot;V1A&quot;</td>
<td>Maximum temperature alarm</td>
<td>Outputs unchanged</td>
</tr>
<tr>
<td>&quot;V1B&quot;</td>
<td>Minimum temperature alarm</td>
<td>Outputs unchanged</td>
</tr>
<tr>
<td>&quot;V1A&quot;</td>
<td>Door open</td>
<td>Compressor and fans restarts</td>
</tr>
<tr>
<td>&quot;V1B&quot;</td>
<td>External alarm</td>
<td>Outputs unchanged</td>
</tr>
<tr>
<td>&quot;C1A&quot;</td>
<td>Serious external alarm (1F+4A1)</td>
<td>All outputs OFF</td>
</tr>
<tr>
<td>&quot;C1A&quot;</td>
<td>Pressure switch alarm (1F+4A1)</td>
<td>All outputs OFF</td>
</tr>
</tbody>
</table>

12.1 ALARM RECOVERY

Probe alarms "P1" and "P2" start some seconds after the fault in the related probe; they automatically stop some seconds after the probe restarts normal operation. Check connections before replacing the probe.

Temperature alarms "V1A" and "V1B" automatically stop as soon as the thermostat temperature returns to normal values and when defrost starts.

Alarms "V1A" and "C1A" (with 1F+4A1) recover as soon as the digital input is disabled. Alarm "C1A" (with 1F+4A1) recovers only by switching off and on the instrument.

13. TECHNICAL DATA

- Housing: self-extinguishing ABS.
- Case: XR60C frontal: 300x14 mm, depth 60 mm.
- Mounting: XR60C panel mounting in a 71x232mm panel cut-out.
- Protection: IP20, Frontal Protection: IP65 with frontal gasket RG-C (optional).
- Connections: Screw terminal block is 2.5 mm² wiring.
- Power supply: according to the model: 12Vac/dc, ±10%; 24Vac/dc, ±10%; 230Vac ±10%, 50/60Hz; 110Vac ±10%, 50/60Hz.
- Power absorption: 3VA max.
- Display: 3 digits, red LED, 14.2 mm high.
- Inputs: 2 NTC or PTC probes.
- Digital input: free contact

Relay outputs:
- Compressor: SPST relay 8(3)A; 250Vac or SPST relay 16(6)A; 250Vac
- Defrost: SPDT relay 8(3)A, 250Vac
- Fan: SPST relay 8(3)A, 250Vac

Data storage: on the non-volatile memory (EEPROM).

Kind of action: 1B, Pollution grade: normal, Software class: A.

Operating temperature: 0-60°C; Storage temperature: -30-85°C.

Relative humidity: 20-85% (no condensing).


Resolution: 0.1°C or 1°C or 1°F (selectable).

Accuracy (ambient temp. 25°C): ±0.7°C ±1 digit

14. CONNECTIONS

14.1 XR60C – 12VAC/DC OR 24 VAC/DC

- Digital input:
  - NTC probes (10kΩ, V=5V)
  - PTC probes (±5V)

- Relay output:
  - Compressor: SPST relay 8(3)A; 250Vac or SPST relay 16(6)A; 250Vac
  - Defrost: SPDT relay 8(3)A, 250Vac
  - Fan: SPST relay 8(3)A, 250Vac

- Digital input configuration:
  - P1/P1
  - P2/P2

- Digital input configuration:
  - P1/P1
  - P2/P2

- Digital input configuration:
  - P1/P1
  - P2/P2

NOTE: The compressor relay is 8(3)A or 16(6)A according to the model.

14.2 XR60C – 120VAC OR 230 VAC

- Digital input:
  - NTC probes (10kΩ, V=5V)
  - PTC probes (±5V)

- Relay output:
  - Compressor: SPST relay 8(3)A; 250Vac or SPST relay 16(6)A; 250Vac
  - Defrost: SPDT relay 8(3)A, 250Vac
  - Fan: SPST relay 8(3)A, 250Vac

- Digital input configuration:
  - P1/P1
  - P2/P2

- Digital input configuration:
  - P1/P1
  - P2/P2

- Digital input configuration:
  - P1/P1
  - P2/P2

NOTE: The compressor relay is 8(3)A or 16(6)A according to the model.

15. DEFAULT SETTING VALUES

<table>
<thead>
<tr>
<th>Label</th>
<th>Name</th>
<th>Range</th>
<th>°C/F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set</td>
<td>Set point</td>
<td>5 - 125°C</td>
<td>41 - 257°F</td>
</tr>
<tr>
<td>Hi</td>
<td>Temperature</td>
<td>125°C</td>
<td>257°F</td>
</tr>
<tr>
<td>Lo</td>
<td>Temperature</td>
<td>2°C</td>
<td>3.6°F</td>
</tr>
<tr>
<td>US</td>
<td>Maximum set point</td>
<td>30°C</td>
<td>86°F</td>
</tr>
<tr>
<td>US</td>
<td>Minimum set point</td>
<td>5°C</td>
<td>41°F</td>
</tr>
<tr>
<td>&gt;Date</td>
<td>Temperature probe calibration</td>
<td>0°C</td>
<td>32°F</td>
</tr>
<tr>
<td>&gt;DF</td>
<td>Defrost probe calibration</td>
<td>5°C</td>
<td>41°F</td>
</tr>
<tr>
<td>&gt;D2</td>
<td>Defrost time</td>
<td>2 - 10 minutes</td>
<td>20 - 60 seconds</td>
</tr>
<tr>
<td>&gt;DF</td>
<td>Defrost probe calibration</td>
<td>5°C</td>
<td>41°F</td>
</tr>
<tr>
<td>&gt;DF</td>
<td>Defrost probe calibration</td>
<td>5°C</td>
<td>41°F</td>
</tr>
<tr>
<td>&gt;DF</td>
<td>Defrost probe calibration</td>
<td>5°C</td>
<td>41°F</td>
</tr>
</tbody>
</table>

NOTES: The compressor relay is 8(3)A or 16(6)A according to the model.

12Vac supply: connect to the terminals 7 and 8.
HINGE & LATCH ADJUSTMENTS

HINGE ADJUSTMENT

1. Remove exterior hinge cover plate by opening the refrigerator door. Place a screwdriver under interior portion of cover, and gently pry cover outward. Pull straight out. Close cover.

2. Loosen the three (3) screws "B" which hold adjusting plate "C" in position.

3. To tighten gasket seal, place hand against exterior of door near hinges; gently press in on door so gasket sits firmly against cabinet face. Tighten screws "B".

4. When adjustment is complete, if hinges are adjusted so gasket seal is too tight, door will tend to spring open. Door must be readjusted. To test gasket seal - insert a dollar bill (or piece of paper of similar size) between the gasket and the cabinet opening; close door - a slight resistance to removal of the dollar bill (test strip) should be felt - check perimeter of door. If latch is loose, see latch-adjusting information.

5. Replace cover plate "A"

NOTE: To accomplish different offsets, shims are utilized. If replacing hinges, make sure to reuse any shims furnished on the cabinet.

LATCH & STRIKE ADJUSTMENT

1. Latch as fastened to door.

2. For up or down adjustment (proper latch engagement,) loosen mounting screws "B".

3. Strike plate "C" remains in position.

4. Move strike "D" up or down as required and tighten screws "B" when adjustment is satisfactory. No play will be present in the latch handle with the door closed.

5. For in and out adjustment (proper gasket seal) loosen screw "E". Adjust in or out as required and tighten screw when adjustment is satisfactory.

6. The stainless steel hex head cap screw is 10/32" X 5/16" long, or use JEWETT part number BLT03C02A006. Use box wrench, open-end wrench, or ratchet to tighten. Do not use a nut driver or pliers.
<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>POSSIBLE CAUSE</th>
<th>POSSIBLE CORRECTIVE STEP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td>Compressor will not start, no hum</td>
<td>1. Line disconnect switch open.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Fuse blown or breaker tripped.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Thermal overload tripped.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Control contacts stuck in open position.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. Loose wiring.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7. Improper wiring</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8. Liquid line solenoid valve will not open.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10. Liquid line solenoid will not open.</td>
</tr>
<tr>
<td><strong>B</strong></td>
<td>Compressor will not start, hums but trips on thermal overload.</td>
<td>1. Low voltage to unit.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Start capacitor failure or wrong.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Run capacitor failure or wrong.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Start relay failure or wrong.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Motor electrical trouble.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. Internal mechanical trouble in compressor.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7. Improper wiring</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8. Excessively high discharge pressure.</td>
</tr>
<tr>
<td><strong>C</strong></td>
<td>Compressor starts, but does not switch off of start winding.</td>
<td>1. Low voltage to unit.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Run capacitor failure or wrong.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Start capacitor failure or wrong.</td>
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<tr>
<td></td>
<td></td>
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<tr>
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<td></td>
<td>8. Excessively high discharge pressure.</td>
</tr>
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<td>SYMPTOM</td>
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<td>POSSIBLE CORRECTIVE STEP</td>
</tr>
<tr>
<td>---------</td>
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</tr>
<tr>
<td>D Compressor starts and runs, but short cycles on overload protector.</td>
<td>1. Excessively high discharge pressure.</td>
<td>1. See high discharge pressure symptom.</td>
</tr>
<tr>
<td></td>
<td>2. Low voltage to unit.</td>
<td>2. Determine reason and correct.</td>
</tr>
<tr>
<td></td>
<td>3. High voltage to unit.</td>
<td>3. Determine reason and correct.</td>
</tr>
<tr>
<td></td>
<td>4. Thermal overload protector defective.</td>
<td>4. Check current, Replace protector.</td>
</tr>
<tr>
<td></td>
<td>5. Run capacitor failure or wrong.</td>
<td>5. Replace run capacitor.</td>
</tr>
<tr>
<td></td>
<td>6. Motor electrical trouble.</td>
<td>6. Check motor for open windings, Short circuit or burn out.</td>
</tr>
<tr>
<td></td>
<td>7. Improper wiring causing additional current to pass through overload protector.</td>
<td>7. Check wiring diagram. Check for added fan motors, heaters, etc., connected to wrong side of protector.</td>
</tr>
<tr>
<td>E Compressor starts and runs, but short cycles on temperature or pressure controls.</td>
<td>1. Differential set too close.</td>
<td>1. Widen differential.</td>
</tr>
<tr>
<td></td>
<td>2. High discharge pressure.</td>
<td>2. See high discharge pressure symptom.</td>
</tr>
<tr>
<td></td>
<td>3. Low discharge pressure.</td>
<td>3. See low discharge pressure symptom.</td>
</tr>
<tr>
<td>F Compressor runs long or continuously.</td>
<td>1. Shortage of refrigerant.</td>
<td>1. Leak check and repair.</td>
</tr>
<tr>
<td></td>
<td>2. Control contacts stuck or frozen.</td>
<td>2. Clean contacts or replace control.</td>
</tr>
<tr>
<td></td>
<td>3. Refrigerated air space has an excessive load.</td>
<td>3. Determine reason and correct.</td>
</tr>
<tr>
<td></td>
<td>5. Evaporator coil iced.</td>
<td>5. Defrost and check defrost circuit.</td>
</tr>
<tr>
<td></td>
<td>6. Restriction in refrigeration system.</td>
<td>6. Determine location and remove.</td>
</tr>
<tr>
<td>G Compressor noisy or vibrating.</td>
<td>1. Flooding of refrigerant into crankcase.</td>
<td>1. Check expansion device and refrigerant charge.</td>
</tr>
<tr>
<td></td>
<td>2. Improper piping support.</td>
<td>2. Relocate tubing or add hangers.</td>
</tr>
<tr>
<td></td>
<td>3. Worn compressor.</td>
<td>3. Replace compressor.</td>
</tr>
<tr>
<td></td>
<td>4. Loose parts or mounting.</td>
<td>4. Find and tighten.</td>
</tr>
<tr>
<td></td>
<td>5. Condenser fan blade loose or impeded.</td>
<td>5. Check and repair.</td>
</tr>
<tr>
<td>H High Discharge pressure.</td>
<td>1. Non-condensables in system.</td>
<td>1. Remove the non-condesables.</td>
</tr>
<tr>
<td></td>
<td>2. System overcharged with refrigerant.</td>
<td>2. Correct the charge.</td>
</tr>
<tr>
<td></td>
<td>3. Discharge shutoff valve partially closed.</td>
<td>3. Open valve.</td>
</tr>
<tr>
<td></td>
<td>5. Dirty condenser.</td>
<td>5. Clean.</td>
</tr>
<tr>
<td>I Low discharge pressure.</td>
<td>1. Suction shutoff valve partially closed.</td>
<td>1. Open valve.</td>
</tr>
<tr>
<td></td>
<td>2. Insufficient refrigerant in system.</td>
<td>2. Check for leaks. Repair and add charge.</td>
</tr>
<tr>
<td></td>
<td>3. Low suction pressure.</td>
<td>3. See low suction pressure symptom.</td>
</tr>
</tbody>
</table>
# TROUBLESHOOTING SERVICE CHART

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<th>SYMPTOM</th>
<th>POSSIBLE CAUSE</th>
<th>POSSIBLE CORRECTIVE STEP</th>
</tr>
</thead>
<tbody>
<tr>
<td>J High suction pressure.</td>
<td>1. Excessive load.</td>
<td>1. Reduce load</td>
</tr>
<tr>
<td></td>
<td>2. Expansion valve overfeeding.</td>
<td>2. Check remote bulb. Adjust superheat.</td>
</tr>
<tr>
<td>K Low suction pressure.</td>
<td>1. Insufficient refrigerant in system.</td>
<td>1. Check for leaks. Repair and add charge.</td>
</tr>
<tr>
<td></td>
<td>2. Restriction in refrigeration system. Check liquid line filter drier or capillary.</td>
<td>2. Determine location and remove.</td>
</tr>
<tr>
<td></td>
<td>3. Expansion valve malfunctioning.</td>
<td>3. Check and reset for proper superheat.</td>
</tr>
<tr>
<td>L Suction line frosted or sweating</td>
<td>1. Expansion valve passing excess refrigerant or is oversized.</td>
<td>1. Readjust valve or replace with smaller valve.</td>
</tr>
<tr>
<td></td>
<td>2. Expansion valve stuck open.</td>
<td>2. Clean valve of foreign particles, and replace if necessary.</td>
</tr>
<tr>
<td></td>
<td>3. Evaporator fan motors not running.</td>
<td>3. Determine reason and correct. Check door switch.</td>
</tr>
<tr>
<td></td>
<td>4. System overcharged with refrigerant.</td>
<td>4. Correct the charge.</td>
</tr>
<tr>
<td>M Liquid line frosted or sweating</td>
<td>1. Restriction in liquid line filter drier.</td>
<td>1. Determine location and remove.</td>
</tr>
<tr>
<td></td>
<td>2. Liquid line shutoff valve partially closed.</td>
<td>2. Open valve.</td>
</tr>
<tr>
<td>N Ice accumulating on ceiling around evaporator and/or on fan guards or blades</td>
<td>1. Defrost duration too long.</td>
<td>1. Adjust defrost termination.</td>
</tr>
<tr>
<td></td>
<td>3. Defective timer.</td>
<td>3. Replace.</td>
</tr>
<tr>
<td></td>
<td>4. Too many defrost cycles per day.</td>
<td>4. Adjust timer for less defrost cycles.</td>
</tr>
<tr>
<td>O Evaporator coil not clearing of frost during defrost cycle.</td>
<td>1. Coil temperature not getting above freezing point during defrost.</td>
<td>1. Check heater operation, or hot gas solenoid valve.</td>
</tr>
<tr>
<td></td>
<td>2. Not enough defrost cycles per day.</td>
<td>2. Adjust timer for more defrost cycles.</td>
</tr>
<tr>
<td></td>
<td>3. Defrost cycle too short.</td>
<td>3. Adjust timer for longer defrost cycle.</td>
</tr>
<tr>
<td></td>
<td>4. Poor door seal.</td>
<td>4. Adjust door latch, install new gasket.</td>
</tr>
<tr>
<td></td>
<td>5. Defective timer or defrost thermostat.</td>
<td>5. Replace defective component.</td>
</tr>
<tr>
<td>P Ice accumulating in drain pan.</td>
<td>1. Defective heater.</td>
<td>1. Replace heater.</td>
</tr>
<tr>
<td></td>
<td>2. Unit not pitched properly.</td>
<td>2. Check and adjust if necessary.</td>
</tr>
<tr>
<td></td>
<td>3. Drain line plugged.</td>
<td>3. Clean drain line.</td>
</tr>
<tr>
<td></td>
<td>4. Defective drain line heater.</td>
<td>4. Replace heater.</td>
</tr>
<tr>
<td></td>
<td>5. Poor contact between drain pan and heater element.</td>
<td>5. Repair.</td>
</tr>
<tr>
<td></td>
<td>6. Defective timer or defrost thermostat.</td>
<td>6. Replace defective component.</td>
</tr>
</tbody>
</table>

**NOTE:** Jewett Refrigerators and Freezers are designed to operate in areas that are heated to 60°F (15.6°C). Installation in unheated areas may require a low temperature compressor protection kit for satisfactory operation.
WEEE Compliance

Great Britain

WEEE Compliance. This product is required to comply with the European Union’s Waste Electrical & Electronic Equipment (WEEE) Directive 2002/96EC. It is marked with the following symbol. Thermo Scientific has contracted with one or more recycling/disposal companies in each EU Member State, and this product should be disposed of or recycling through them. Further information on Thermo Scientific’s compliance with these Directives, the recyclers in your country, and information on Thermo Scientific products which may assist the detection of substances subject to the RoHS Directive are available at www.thermo.com/WEEERoHS

Deutschland


Italia


France

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Important

For your future reference and when contacting the factory, please have the following information readily available:

Model Number: ________________________

Serial Number: ________________________

Date Purchased: ________________________

The above information can be found on the dataplate attached to the equipment. If available, please provide the date purchased, the source of purchase (specific agent/rep organization), and purchase order number.

____________________________________

IF YOU NEED ASSISTANCE:

SALES DIVISION
Phone: 828/658-4455
       800/879-7767
FAX:  828/645-0363

LABORATORY PARTS and SERVICE
Phone: 800/438-4851
FAX:  828/658-2576

TECHNICAL SUPPORT
Phone: 800/438-4851

WEB SITE: www.jewetonline.com

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