



**H. C. DUKE & SON, INC.**

2116 - 8th Avenue • East Moline, Illinois 61244

## **Replacement Parts Manual with Illustrations**

**QUALITY PARTS**

**PROTECT**

**YOUR**

**EQUIPMENT**

**Soft Serve  
Freezer Model  
927CMT**

184617-01 8/08

# ILLUSTRATIONS

Parts are listed on each page using terminology that best fits the function of the part. It is very important to know the serial number of the machine when ordering parts because many parts are not interchangeable from one serial number to another of the same model. The illustrations in this manual can be used as a reference for obtaining the correct part description and part number. All returned items must have a Return Authorization Number prior to returning.

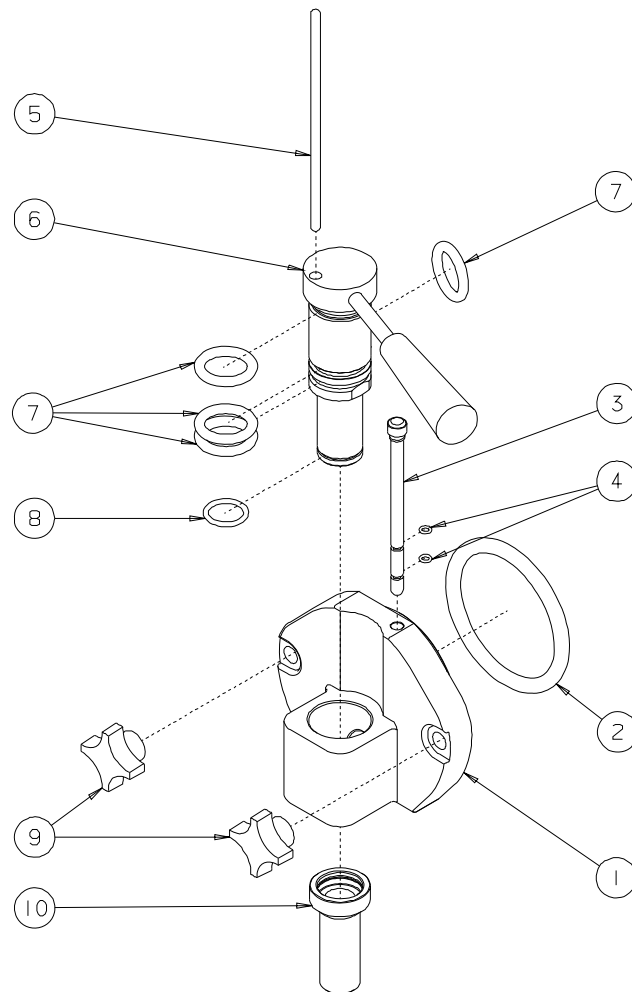
All parts listed in the manual should be ordered through:



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## Table of Contents

|                                 |                                    |    |
|---------------------------------|------------------------------------|----|
| Figure 1                        | Dispense Head Assembly .....       | 1  |
| Figure 2                        | Beater Shaft Assembly .....        | 2  |
| Figure 3                        | Cabinet Parts .....                | 3  |
| Figure 4                        | MTS Hose Assembly .....            | 4  |
| Figure 5                        | Mix Transfer System (MTS) .....    | 5  |
| Figure 6                        | Switch Box .....                   | 6  |
| Figure 7                        | Spigot Switch Assembly .....       | 8  |
| Figure 8                        | Relay Box (MTS) .....              | 9  |
| Figure 9                        | 927CMT Panel Assembly .....        | 10 |
| Figure 10                       | 927CMT Air Cooled Assembly .....   | 12 |
| Figure 11                       | 927CMT Water Cooled Assembly ..... | 14 |
| Figure 12                       | Gear Reducer .....                 | 16 |
| Figure 13                       | Air Cooled Remote Condenser .....  | 17 |
| Accessories .....               |                                    | 18 |
| O-Ring Chart - Soft Serve ..... |                                    | 19 |
| Alphabetized Parts .....        |                                    | 21 |



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**Figure 1 Dispense Head Assembly**

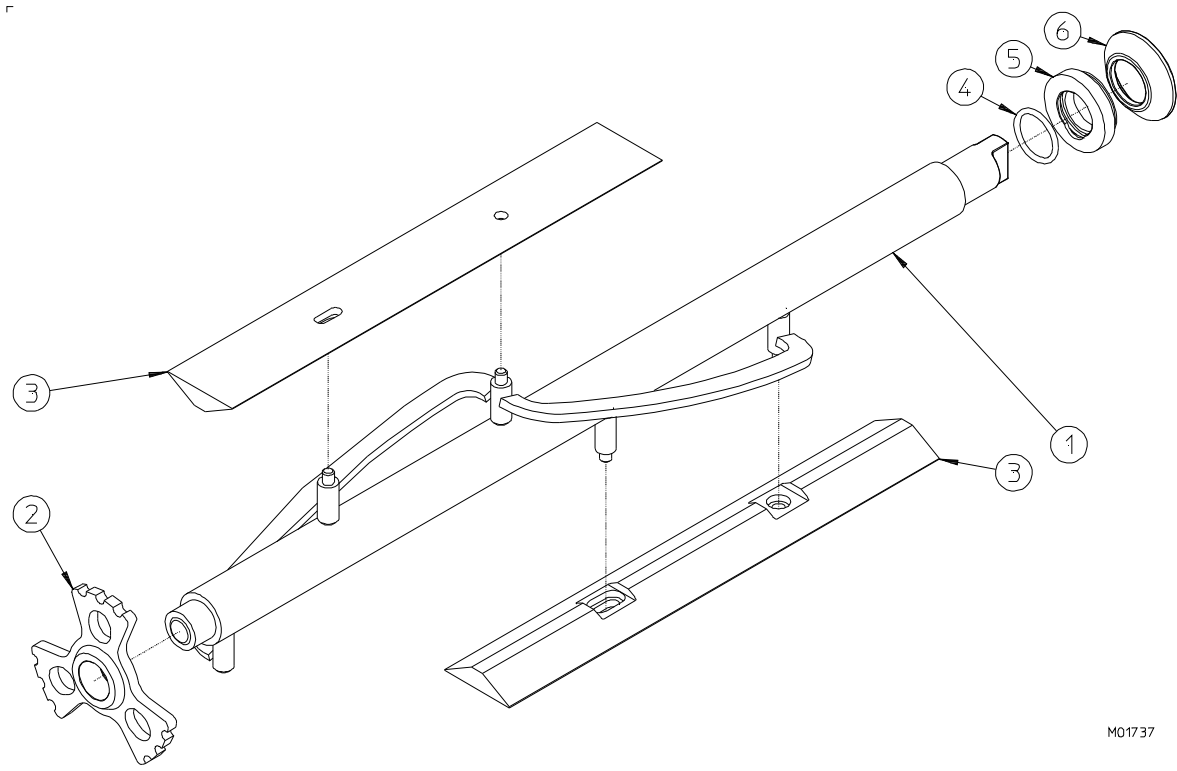
| Item     | Part No.       | Description                         |
|----------|----------------|-------------------------------------|
| * .....  | HC115130 ..... | Head-Assy. Dispense (Complete)      |
| 1 .....  | HC116321 ..... | Head (only)                         |
| 2 .....  | HC150583 ..... | O-ring (Head)                       |
| 3 .....  | HC115129 ..... | Bleeder-Assy.                       |
| 4 .....  | HC150562 ..... | O-ring (Bleeder Assembly)           |
| 5 .....  | HC136126 ..... | Rod-Spigot Switch                   |
| 6 .....  | HC134921 ..... | Spigot-Long Single (less extension) |
| 6A ..... | HC162624 ..... | Handle-Black Tapered                |
| 6B ..... | HC134922 ..... | Handle-Spigot                       |
| 7 .....  | HC159295 ..... | O-ring (Spigot)                     |
| 8 .....  | HC150584 ..... | O-ring (Extension)                  |
| 9 .....  | HC162625 ..... | Knob-Hand                           |
| 9A ..... | HC114341 ..... | Stud-Assy. 1-15/16 inch (not shown) |
| 10 ..... | HC136713 ..... | Extension-Spigot (Cake) (Optional)  |

\* Includes items 1-4, 6-8.

**Not Shown:**

HC116410..... Kit-Dispense Head Switch

**Use only original or authorized replacement parts with this freezer.  
Use of unapproved parts will void warranty.**



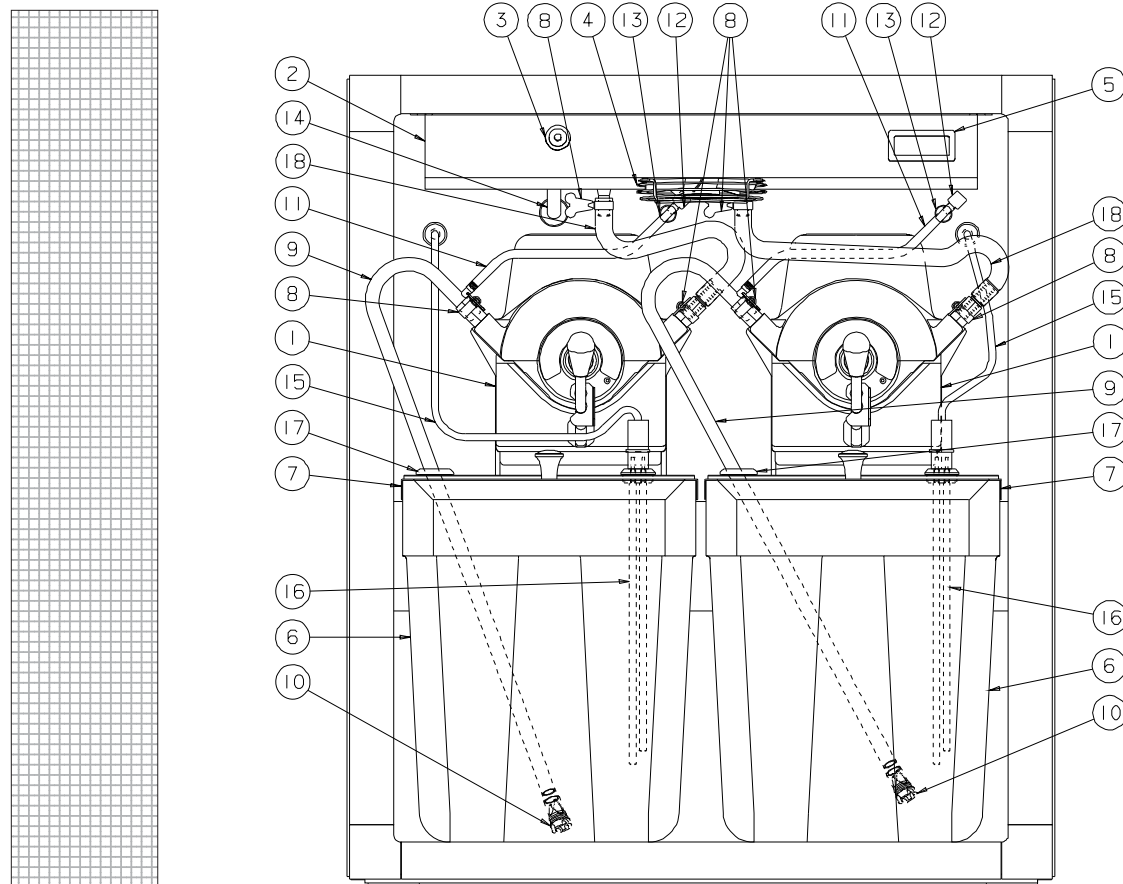
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Figure 2 Beater Shaft Assembly

| Item     | Part No.       | Description              |
|----------|----------------|--------------------------|
| 1 .....  | HC113438 ..... | Shaft-Assy. Beater       |
| 2 .....  | HC196079 ..... | Bushing-Cylinder         |
| 3 .....  | HC137334 ..... | Blade-Scraper Soft Serve |
| 4* ..... | HC160500 ..... | O-ring (Seal)            |
| 5* ..... | HC133098 ..... | Washer-Shaft Seal        |
| 6* ..... | HC160557 ..... | Seal-Beater Shaft        |

\* Items 4,5,6 can be ordered together as:  
HC111875..... Seal-Assy. Shaft

Use only original or authorized replacement parts with this freezer.  
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**Figure 3 Cabinet Parts**

| Item    | Part No.    | Description                                                                                                                                                                                                                 | Item                                                      | Part No. | Description                                                           |
|---------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|----------|-----------------------------------------------------------------------|
| 1 ....  | HC116012    | MTS-Assy. Housing<br>(See Figure 5)                                                                                                                                                                                         | 11 .....                                                  | HC138170 | Tube-Air 11 in. (Hose)                                                |
| 2 ....  | HC117129-01 | Shroud-Assy. Evaporator includes<br>HC150532 .... Cord-Assy. Male Plug<br>HC151105 .... Fan-Open 230v<br>HC151076 .... Guard-Fan Open<br>HC150509 .... Switch-Door Push<br>Button<br>HC161004 .... Thermometer<br>(Cabinet) | 12 .....                                                  | ---      | Meter-Air<br>(Order by Meter Number)                                  |
| 2A .    | HC155111    | Coil-Evaporator                                                                                                                                                                                                             | 13 .....                                                  | HC117092 | Retainer-Assy. Air Line                                               |
| 2B .    | HC150533    | Cord-Assy. Female Plug                                                                                                                                                                                                      | 14 .....                                                  | HC196068 | Tubing-.375 x .500 OD PVC                                             |
| 3 ...   | HC150509    | Switch-Door Push Button                                                                                                                                                                                                     | 14A ....                                                  | HC138919 | Tube-Drain Support                                                    |
| 4 ...   | HC151076    | Guard-Fan Open                                                                                                                                                                                                              | 14B ....                                                  | HC160738 | Clamp-Hose (Drain)                                                    |
| 5 ...   | HC161004    | Thermometer (Cabinet)                                                                                                                                                                                                       | 15 .....                                                  | HC150537 | Cordset-Mix Level Probe                                               |
| 6 ...   | HC196100    | Tank-Mix 6 Gallon                                                                                                                                                                                                           | 15A ....                                                  | HC150536 | Receptacle-Molded Level<br>Sensor                                     |
| 7 ...   | HC117553    | Cover-Assy. Mix Tank Front                                                                                                                                                                                                  | 16 .....                                                  | HC115397 | Probe-Assy. Mix Level<br>10-3/4" includes<br>HC137120 Base-Probe Mtg. |
| 7A .    | HC140446    | Cover-Rear Mix                                                                                                                                                                                                              | 17 .....                                                  | HC199033 | Boot-Mix Tube (Seal)                                                  |
| 8 ...   | HC116065    | Clamp-Assy. Soft Hose 5/8                                                                                                                                                                                                   | 18 .....                                                  | HC116094 | Hose-Assy. Mix Braided                                                |
| 9 ...   | HC116069    | Tube-Assy. Pickup                                                                                                                                                                                                           | 18A ....                                                  | HC138184 | Hose-Transfer Black Line                                              |
| 10 .... | HC199032    | Duckbill-Inlet (Valve)                                                                                                                                                                                                      | <b>Not Shown:</b><br>HC162006 .... Plug-Button Flush Type |          |                                                                       |

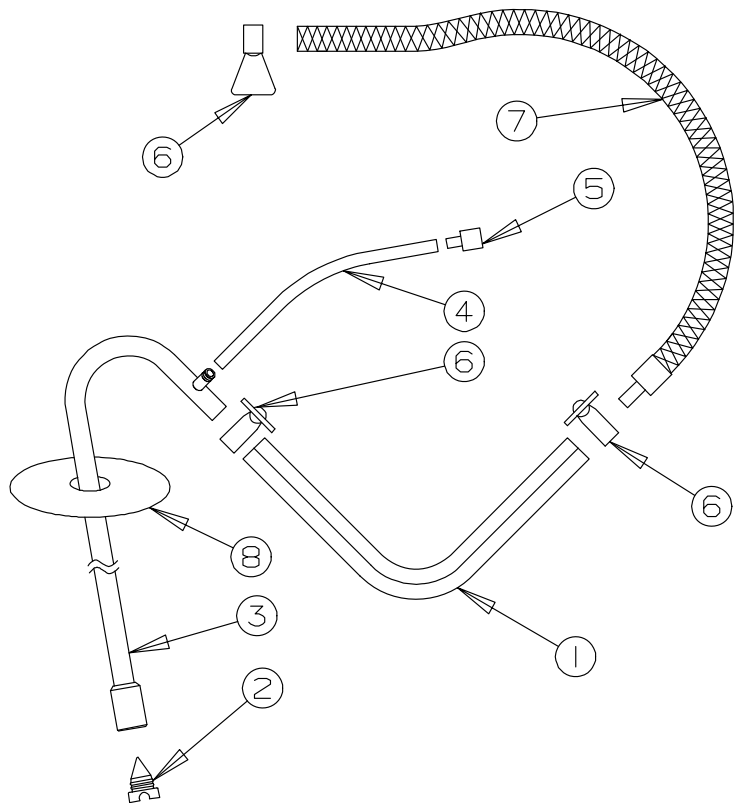
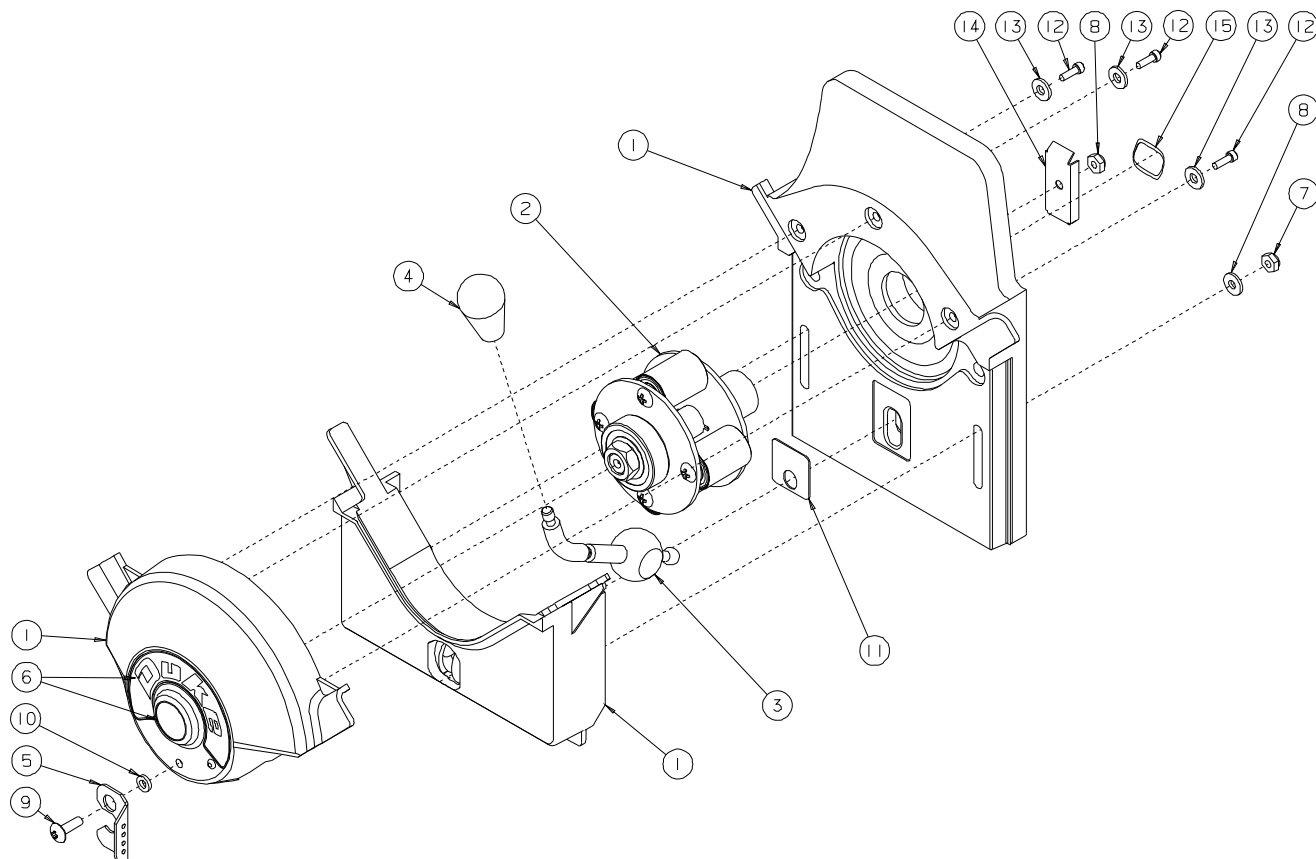


Figure 4 MTS Hose Assembly

| Item    | Part No.       | Description                       |
|---------|----------------|-----------------------------------|
| 1 ..... | HC138184 ..... | Hose-Transfer Black Line          |
| 2 ..... | HC199032 ..... | Duckbill-Inlet (Valve)            |
| 3 ..... | HC116069 ..... | Tube-Assy. Pickup                 |
| 4 ..... | HC138170 ..... | Tube-Air 11 in. (Hose)            |
| 5 ..... | ---            | Meter-Air (Order by meter number) |
| 6 ..... | HC116065 ..... | Clamp-Assy. Soft Hose 5/8         |
| 7 ..... | HC116094 ..... | Hose-Assy. Braided                |
| 8 ..... | HC199033 ..... | Boot-Mix Tube                     |

Use only original or authorized replacement parts with this freezer.  
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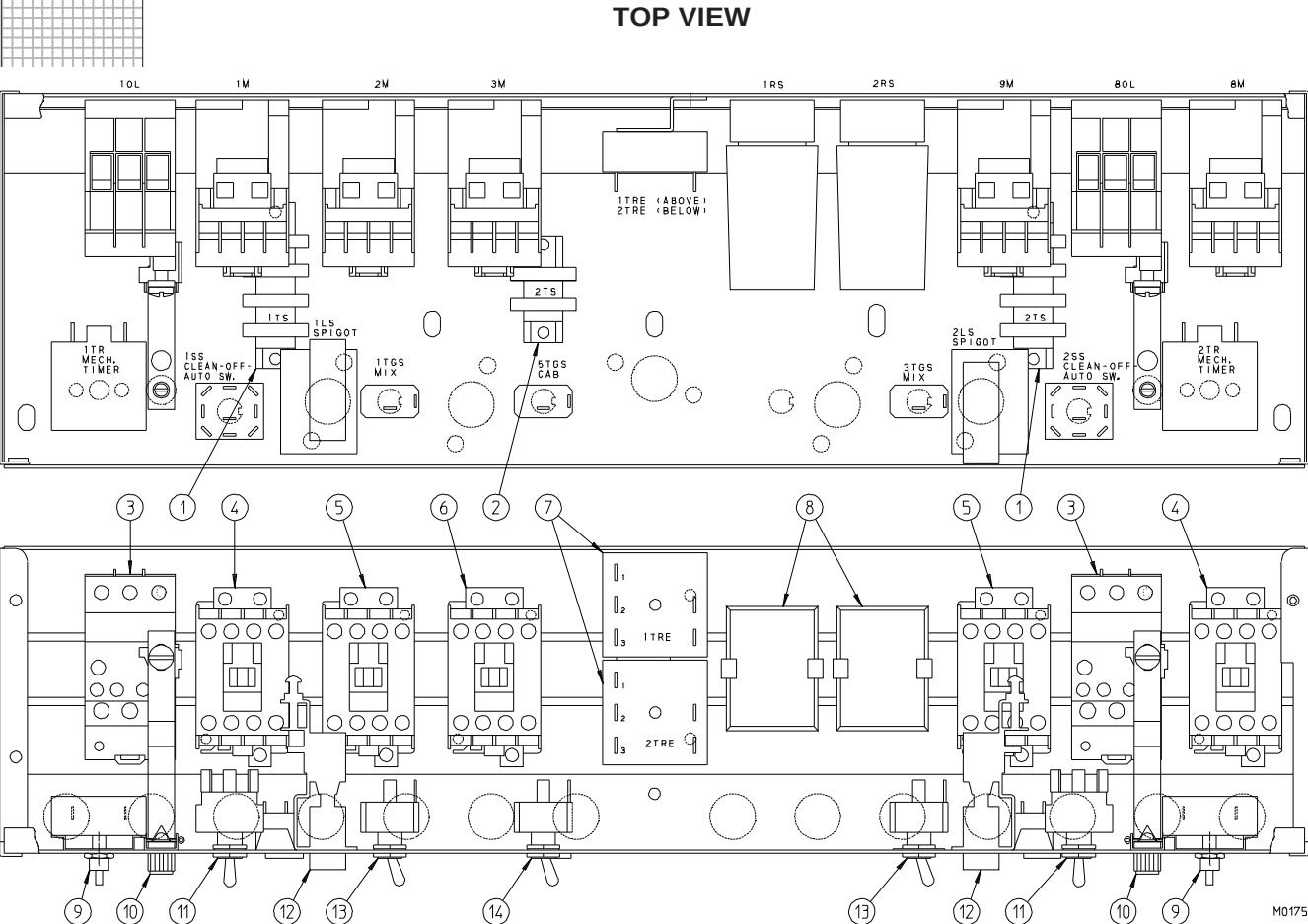
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# Figure 5 Mix Transfer System (MTS)

| Item                                       | Part No.    | Description                               |
|--------------------------------------------|-------------|-------------------------------------------|
| *                                          | HC116012    | MTS-Assy. Housing (Complete)              |
| 1                                          | HC117054    | MTS-Assy. Housing w/o roller              |
| 2                                          | HC116009-01 | Kit-Roller Complete                       |
| 3                                          | HC116164    | Handle-Assy. Round (MTS)                  |
| 4                                          | HC162627    | Knob-Oval Taper (Handle-MTS)              |
| 5                                          | **          | Hook-Swing (Lock-MTS)                     |
| 6                                          | HC165021    | Decal-Duke Mix Transfer                   |
| 7                                          | HC159421    | Nut-EL Stop #10-32                        |
| 8                                          | HC160157    | Washer-1/2 x .196 x 1/16                  |
| 9                                          | HC160026    | Screw-TRPM #10-32 x 5/8 SST (Swing Hook)  |
| 10                                         | HC160158    | Washer-Flat .190 x .365 x .075 SST        |
| 11                                         | HC138142    | Plate-Pivot Cover                         |
| 12                                         | HC160307    | Screw-SKHC #10-32 x 7/16 SST              |
| 13                                         | HC159962    | Washer-Flat #10 SST                       |
| 14                                         | HC117125    | Actuator-Assy. Slide                      |
| 15                                         | HC160173    | Washer-Spring Wave SST                    |
| * Includes all above items except item 15. |             |                                           |
| ** Order by freezer serial number          |             |                                           |
| <b>Not Shown:</b>                          |             |                                           |
|                                            | HC159219    | Screw-TRPM 1/4 -20 x 1 SST (MTS Mounting) |
|                                            | HC151129    | Gearmotor-1/8 HP 115/208-230v (MTS)       |
|                                            | HC138369    | Bushing-Alignment                         |
|                                            | HC116312    | Gauge-Assy. Pressure Test                 |
|                                            | HC116411    | Kit-MTS Slide Switch                      |
|                                            | HC118607    | Kit-Roller Slide Clearance                |

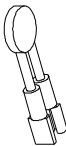
Use only original or authorized replacement parts with this freezer.  
Use of unapproved parts will void warranty.

Figure 6 Switch Box (Sheet 1 of 2)

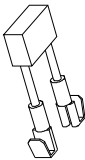


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**Detailed Drawings of  
Filter and MOV Assemblies**



Item #1A  
MOV-Assy.  
HC116188



Item #2A  
Filter-Assy.  
HC116125

**Use only original or authorized replacement parts with this freezer.  
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## Figure 6 Switch Box (Sheet 2 of 2)

| Item     | Part No.       | Description                                                                                                                                                                          |
|----------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 .....  | HC150795 ..... | Strip-Terminal                                                                                                                                                                       |
| 1A ..... | HC116188 ..... | MOV-Assy. (See Detailed Drawings)                                                                                                                                                    |
| 2 .....  | HC150798 ..... | Strip-Terminal                                                                                                                                                                       |
| 2A ..... | HC116125 ..... | Filter-Assy. (See Detailed Drawings)                                                                                                                                                 |
| 3 .....  | HC120361 ..... | Relay-Assy. O.L. T1 7.2-10A (1 phase) includes<br>HC150063 ..... Adaptor-Overload Din Rail T1<br>HC150064 ..... Adaptor-Reset Threaded T1<br>HC150061 ..... Relay-Overload 7.2-10A   |
| α .....  | HC120360 ..... | Relay-Assy. O.L. T1 5.5-7.5A (3 phase) includes<br>HC150063 ..... Adaptor-Overload Din Rail T1<br>HC150064 ..... Adaptor-Reset Threaded T1<br>HC150060 ..... Relay-Overload 5.5-7.5A |
| 4 .....  | HC150155 ..... | Contactor-IEC 23A 208-230v C (Beater Motor)                                                                                                                                          |
| 4A ..... | HC150156 ..... | Coil-Replacement Only                                                                                                                                                                |
| 5 .....  | HC150155 ..... | Contactor-IEC 23A 208-230v C (Compressor)                                                                                                                                            |
| 5A ..... | HC150156 ..... | Coil-Replacement Only                                                                                                                                                                |
| 6 .....  | HC150155 ..... | Contactor-IEC 23A 208-230v C (Cabinet)                                                                                                                                               |
| 6A ..... | HC150156 ..... | Coil-Replacement Only                                                                                                                                                                |
| 7 .....  | HC150208 ..... | Timer-12 Sec. Delay on Break                                                                                                                                                         |
| 8 .....  | HC150202 ..... | Indicator-Mix Level                                                                                                                                                                  |
| 8A ..... | HC150119 ..... | Socket-Octal Terminal                                                                                                                                                                |
| 8B ..... | HC150120 ..... | Clip-Retainer (Set of 2)                                                                                                                                                             |
| 9 .....  | HC150218 ..... | Timer-5 Minute Mechanical                                                                                                                                                            |
| 9A ..... | HC162604 ..... | Knob-Timer (not shown)                                                                                                                                                               |
| 10 ..... | HC120362 ..... | Lever-Assy. Reset T1 includes<br>HC159036 ..... Button-Reset                                                                                                                         |
| 11 ..... | HC150465 ..... | Switch-Toggle 3PDT Center Off (Selector)                                                                                                                                             |
| 12 ..... | HC113903 ..... | Switch-Assy. Spigot (See Figure 7)                                                                                                                                                   |
| 13 ..... | HC159235 ..... | Switch-Toggle SPST (Mix Transfer System)                                                                                                                                             |
| 14 ..... | HC159235 ..... | Switch-Toggle SPST (Cabinet)                                                                                                                                                         |

Use only original or authorized replacement parts with this freezer.  
Use of unapproved parts will void warranty.

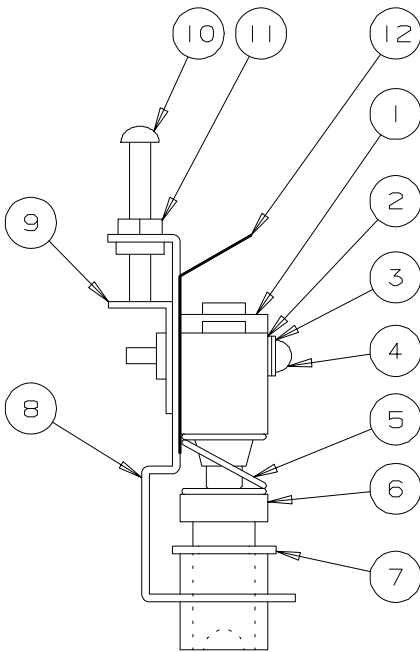
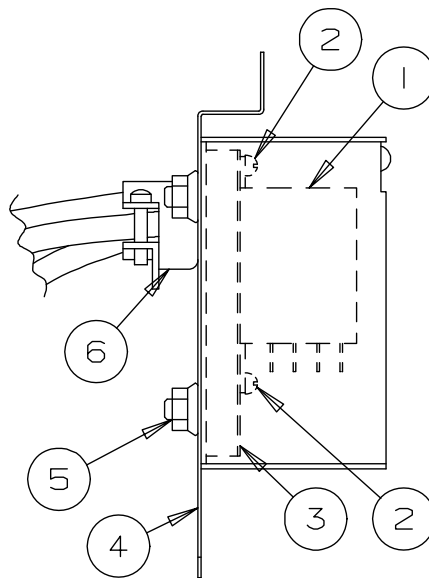


Figure 7      Spigot Switch Assembly

| Item | Part No. | Description                      |
|------|----------|----------------------------------|
| *    | HC113903 | Switch-Assy. Spigot              |
| 1    | HC150456 | Switch-Snap Button               |
| 2    | HC160393 | Washer-Flat #6 Brass             |
| 3    | HC160392 | Washer-Ext. Tooth #6 ZN          |
| 4    | HC160296 | Screw-RDHM #6-32 x 1-1/4 SST     |
| 5    | HC162321 | Spring-Spigot Switch             |
| 6    | HC136124 | Button-Spigot Switch             |
| 7    | HC160303 | Ring-Retaining 1/2 External      |
| 8    | HC113902 | Bracket-Assy. Spigot Switch Mtg. |
| 9    | HC113901 | Bracket-Assy. Adjusting          |
| 10   | HC160267 | Screw-RDHM #8-32 x 7/8 Brass     |
| 11   | HC160102 | Nut-Hex #8-32 ZN                 |
| 12   | HC135744 | Insulator-Switch                 |

\* Includes all items above.

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## Figure 8 Relay Box - MTS

| Item | Part No. | Description                |
|------|----------|----------------------------|
| *    | HC119208 | Box-Assy. Relay (Complete) |
| 1    | HC150381 | Relay-Flange Base w/Cover  |
| 2    | HC160308 | Screw-RDHM #6-32 x 5/16 ZN |
| 2A   | HC160116 | Nut-Speed #6-32 BKOX       |
| 3    | HC138159 | Bracket-Flange Relay Mtg.  |
| 4    | HC139805 | Support-MTS                |
| 5    | HC159950 | Screw-HXSf 1/4-20 x 1/2 ZN |
| 5A   | HC159951 | Nut-HXSf 1/4-20 ZN         |
| 6    | HC150828 | Connector-1/2              |

\* Includes all above.

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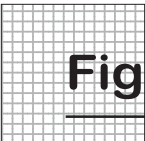
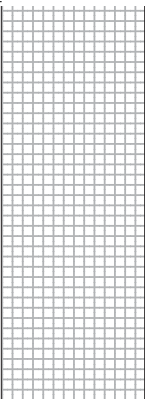
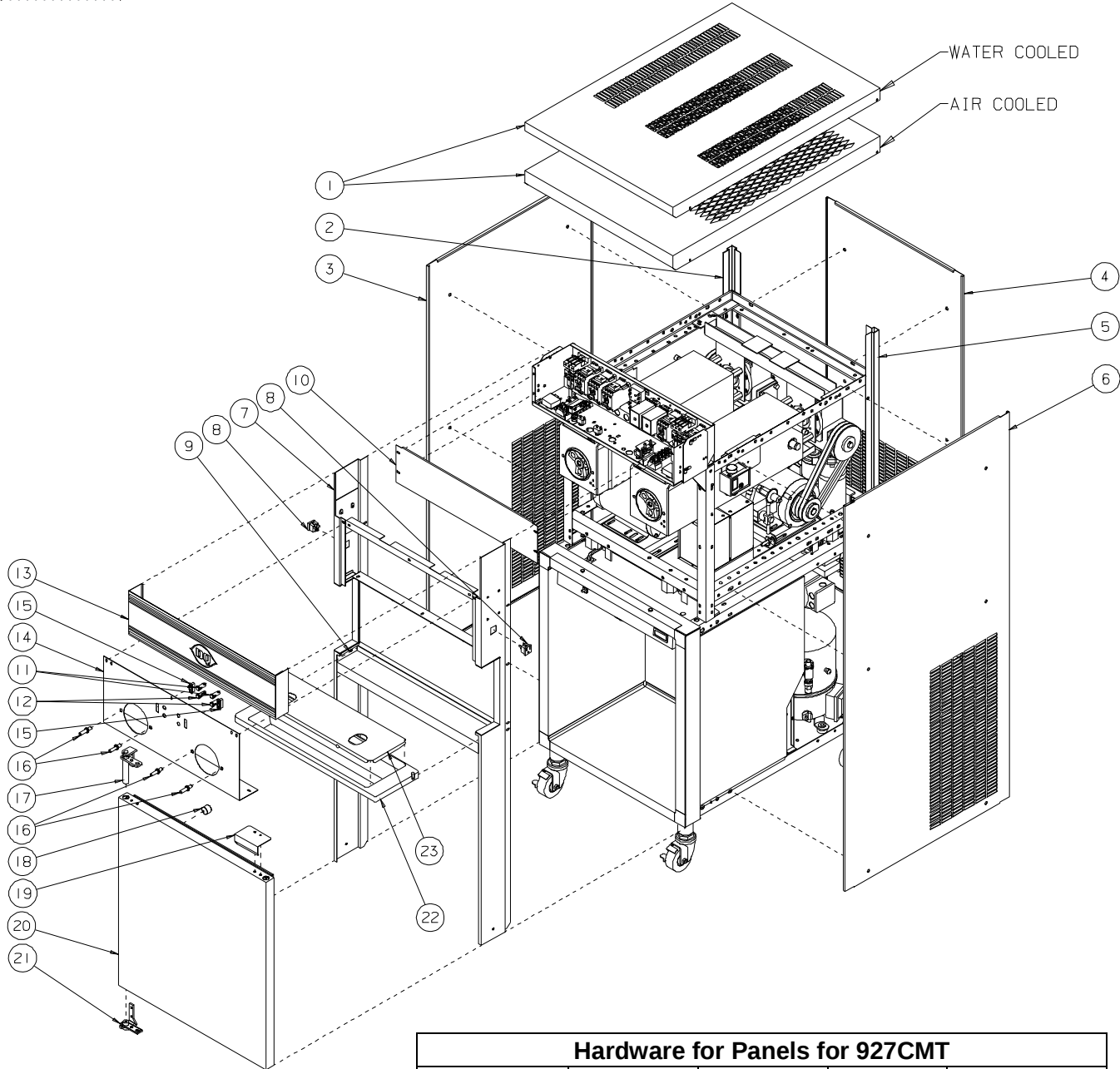


Figure 9 927CMT Panel Assembly (sheet 1 of 2)



| Hardware for Panels for 927CMT |          |           |          |                    |
|--------------------------------|----------|-----------|----------|--------------------|
| Panel                          | Screw    | Nut-Speed | Spacer   | Nut-Speed on Frame |
| Channel-Rear                   | HC160048 | HC160117  | n/a      | n/a                |
| Dispense                       | HC160076 | HC159132  | n/a      | n/a                |
| Front                          | HC160076 | n/a       | n/a      | HC159067           |
| Rear                           | HC159219 | HC160114  | HC138456 | n/a                |
| Side                           | HC159219 | HC160114  | HC138456 | n/a                |
| Top                            | HC160305 | n/a       | n/a      | n/a                |
| Trimstrip                      | HC160076 | HC159067  | n/a      | n/a                |
| n/a – Not Applicable           |          |           |          |                    |

Use only original or authorized replacement parts with this freezer.  
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# Figure 9 927CMT Panel Assembly (sheet 2 of 2)

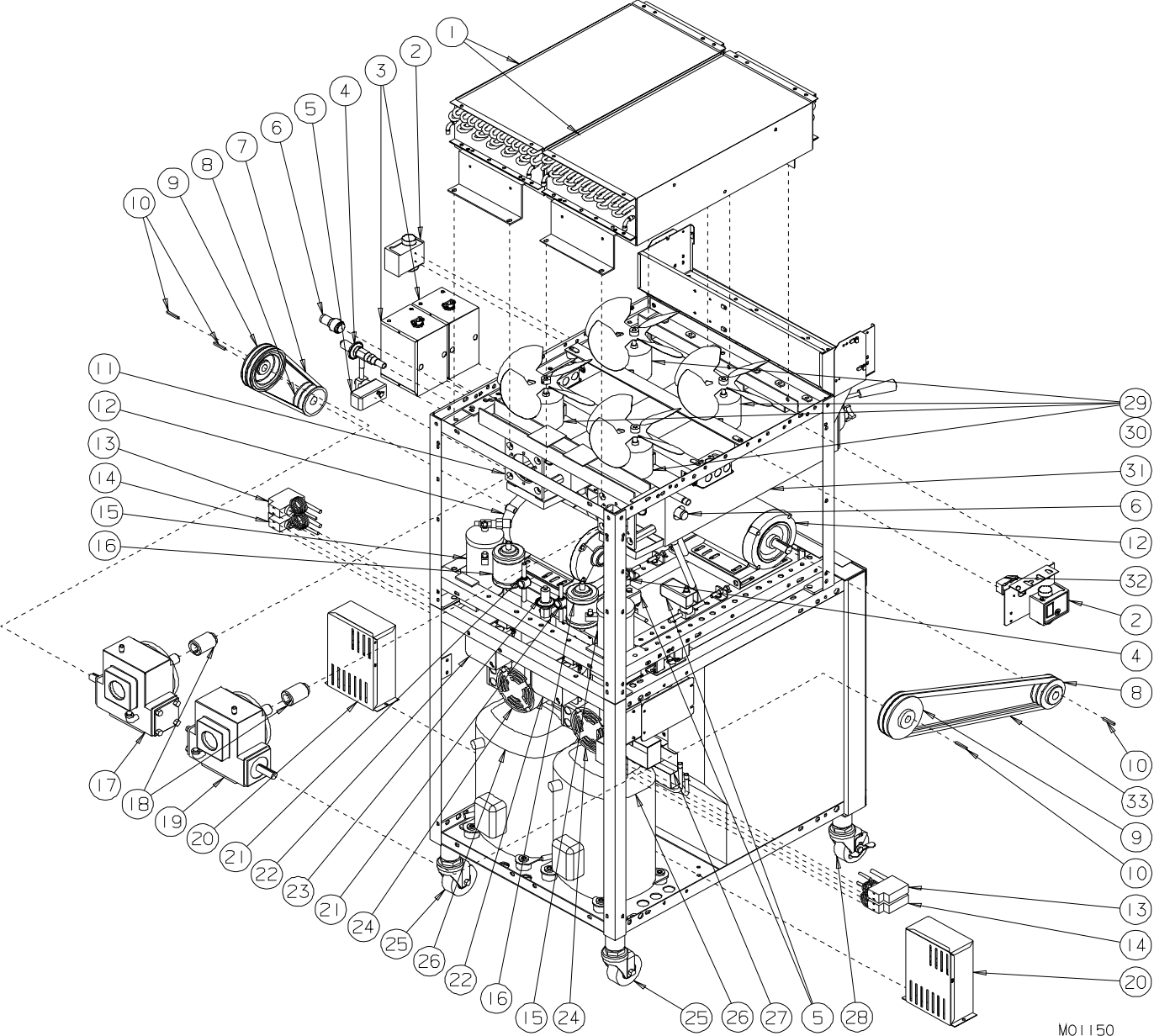
| Item     | Part No.       | Description                                  |
|----------|----------------|----------------------------------------------|
| 1 .....  | HC116567 ..... | Panel-Assy Top (AC)                          |
| or ....  | HC114157 ..... | Panel-Assy. Top (WC and ACR)                 |
| 2 .....  | HC135254 ..... | Channel-Rear LH                              |
| 3 .....  | HC136289 ..... | Panel-Side LH                                |
| 4 .....  | HC136313 ..... | Panel-Rear (AC and WC)                       |
| or ....  | HC138982 ..... | Panel-Upper Rear (ACR)                       |
|          | HC138983 ..... | Panel-Lower Rear (ACR)                       |
| 5 .....  | HC130021 ..... | Channel-Rear RH                              |
| 6 .....  | HC136216 ..... | Panel-Side RH                                |
| 7 .....  | HC115115 ..... | Panel-Assy Front includes                    |
|          | HC159175 ...   | Catch-Bullet (Drip Tray Button)              |
|          | HC160289 ...   | Nut-Push Round (Clip for Button)             |
| 8 .....  | HC159050 ..... | Receptacle-Snap In                           |
| 9 .....  | HC159175 ..... | Catch-Bullet (Drip Tray Button)              |
| 9A ...   | HC160289 ..... | Nut-Push Round (Clip for Button) (Not Shown) |
| 10 ..... | HC116355 ..... | Cover-Assy. Electric Box                     |
| 11 ..... | HC150561 ..... | Light-Pilot Red (Compressor)                 |
| 12 ..... | HC150562 ..... | Light-Pilot Amber (Beater Motor)             |
| 13 ..... | HC119336-02 .. | Trimstrip-Assy. 26 in. IDQ                   |
| 14 ..... | HC140133 ..... | Panel-Dispense                               |
| 15 ..... | HC150540 ..... | Light-Indicator "Add Mix"                    |
| 16 ..... | HC114341 ..... | Stud-Assy. Cylinder                          |
| 17 ..... | HC162045 ..... | Hinge-Pivot 1-3/8" Top LH includes           |
|          | HC162052 ....  | Spring L.H.                                  |
| 18 ..... | HC118597 ..... | Actuator-Assy. Door Switch                   |
| 19 ..... | HC136199 ..... | Pull-Door (Handle)                           |
| 20 ..... | HC114260-03 .. | Door Assy-Complete 26 in. IDQ includes       |
|          | HC160563 ..... | Gasket-Magnetic                              |
|          | HC136199 ..... | Door-Pull                                    |
| 21 ..... | HC162046 ..... | Hinge-Pivot 1-3/8" Bottom LH                 |
| 22 ..... | HC196108-01 .. | Tray-Drip 26" White                          |
| 23 ..... | HC114608 ..... | Insert-Assy. Drip Tray Assy                  |
|          | includes       |                                              |
|          | HC199030 ..... | Bumper-Rubber                                |

AC = Air Cooled  
ACR = Air Cooled Remote  
WC = Water Cooled  
LH = Left hand side of freezer when facing front.  
RH = Right hand side of freezer when facing front.

| Panel Decals & Labels |                            |
|-----------------------|----------------------------|
| Part No.              | Description                |
| HC165119              | 6"(15cm) Air Flow          |
| HC165025              | Beater Warning             |
| HC164031              | Blade Installation         |
| HC165249              | Cleaning Instructions      |
| HC165093              | Clear Overlay              |
| HC164027              | CMT Connection             |
| HC165013              | CMT Patent                 |
| HC165061              | Duke Logo                  |
| HC-165166             | IDQ Logo (Door)            |
| HC164128              | Trimstrip LH               |
| HC164129              | Trimstrip RH               |
| HC164127              | Operating Instructions     |
| HC165126              | Panel Removal              |
| HC165124              | Top Air Discharge          |
| HC165440-02           | Trimstrip IDQ 26 in (66cm) |
| HC165246              | Warning Pressurized        |

Use only original or authorized replacement parts with this freezer.  
Use of unapproved parts will void warranty.

**Figure 10 927CMT Air Cooled Asembly and Air Cooled Remote Assembly (also See Figure 13)(1 of 2)**



**Figure 10 927CMT Air Cooled Assembly and Air Cooled Remote Assembly (also See Figure 13)(2 of 2)**

| Item     | Part No.          | Description                                                                     | Item     | Part No.          | Description                                                                        |
|----------|-------------------|---------------------------------------------------------------------------------|----------|-------------------|------------------------------------------------------------------------------------|
| 1 .....  | HC155120 .....    | Condenser-Air (AC)                                                              | 21 ..... | HC155059 .....    | Glass-Sight                                                                        |
| 2 .....  | HC119989 .....    | Kit-Thermostat & Retainer (Cylinder)                                            | 22* .... | HC119208 .....    | Box-Assy. Relay complete (MTS)<br>(See Figure 8)                                   |
| 3* ..... | .....             | Box-Assy. Capacitors (1 Phase)<br>(Beater Motor) includes<br>HC150318 .....     | 23 ..... | HC155449 .....    | Valve-Automatic Expansion<br>(Cabinet)                                             |
|          |                   | HC150872 .....                                                                  | 23A ...  | HC165531 .....    | Insulator-Expansion Valve                                                          |
| 4 .....  | HC155490 .....    | Valve-Automatic Expansion (Cylinder)                                            | 24 ..... | HC151129 .....    | Gearmotor-1/8 HP (MTS)                                                             |
| 4A ....  | HC165531 .....    | Insulator-Expansion Valve                                                       | 25 ..... | HC162106 .....    | Caster-1-1/4 ST PT w/o Brake                                                       |
| 5 .....  | HC155421 .....    | Valve-Solenoid 208-240v                                                         | 26 ..... | HC119541 .....    | Compressor-Assy. 208-230/3/60<br>includes Bristol compressor and<br>HC155054 ..... |
| 5A ....  | HC155434 .....    | Kit-Repair Solenoid Valve                                                       |          | HC155419 .....    | Drier-Filter<br>Valve-Access                                                       |
| 6 .....  | HC117014 .....    | Kit-Pressure Switch Field Repl.                                                 | or ..... | HC119540 .....    | Compressor-Assy (1 Phase)<br>includes Bristol compressor and<br>HC151463 .....     |
| 6A ....  | HC116105 .....    | Nut-Assy. Pressure Switch                                                       |          |                   | HC151436 .....                                                                     |
| 6B ....  | HC138827-01 ..... | Spacer-Curved Pressure Switch                                                   |          |                   | HC151462 .....                                                                     |
| 7 .....  | HC153162 .....    | Belt-V (RH)                                                                     |          |                   | HC155054 .....                                                                     |
| 8 .....  | HC153626 .....    | Sheave-7/8 Bore 3.75OD 3.00PD<br>(Driver Pulley)                                |          |                   | Drier-Filter<br>HC155419 .....                                                     |
| 8B ....  | HC160495 .....    | Screw-SK Set 1/4-20 x 1/4                                                       | 27 ..... | HC117133 .....    | Pan-Assy. Condensate                                                               |
| 9 .....  | HC153625 .....    | Sheave-3/4 Bore 4.75OD 4.50PD<br>(Driven Pulley)                                | 28 ..... | HC162105 .....    | Caster-1-1/4 ST PT w/o Brake                                                       |
| 9A ....  | HC160495 .....    | Screw-SK Set 1/4-20 x 1/4                                                       | 29 ..... | HC151077-01 ..... | Motor-Fan 50w 230v 50/60 Hz<br>(AC)                                                |
| 10 ..... | HC153322 .....    | Key-Drive 3/16 SQ x 1-1/2                                                       | 30 ..... | HC159023 .....    | Blade-Fan 11 in. 36° (AC)                                                          |
| 11 ..... | HC118822 .....    | Cylinder-Assy. Complete RH                                                      | 31 ..... | HC118821 .....    | Cylinder-Assy. Complete LH                                                         |
| 12 ..... | HC151052 .....    | Motor-2HP 208/230/460-3-60                                                      | 32 ..... | HC118813 .....    | Kit-CAB Thermostat (Cabinet)                                                       |
| or ..... | HC118140 .....    | Kit-Motor & Capacitor includes<br>(1 Phase)<br>HC150318 .....                   | 33 ..... | HC153171 .....    | Belt-V (LH)                                                                        |
|          |                   | HC150872 .....                                                                  |          |                   |                                                                                    |
| 13 ..... | HC120494 .....    | Kit-HPCO 155450 Field                                                           |          |                   |                                                                                    |
| 14 ..... | HC120496 .....    | Kit-LPCO 155701 Field (AC)                                                      |          |                   |                                                                                    |
| or ..... | HC120498 .....    | Kit-LPCO 155705 Field (ACR)                                                     |          |                   |                                                                                    |
| 15 ..... | HC155071 .....    | Receiver-3 LB. 3/8 ID Sweat<br>w/o Valve (AC)                                   |          |                   |                                                                                    |
| or ..... | HC155058 .....    | Receiver-12 lb. Sweat Horizontal<br>(ACR) (not shown)                           |          |                   |                                                                                    |
| 15A ...  | HC155419 .....    | Valve-Access                                                                    |          |                   |                                                                                    |
| 16 ..... | HC155054 .....    | Drier-Filter 16 cu. in.                                                         |          |                   |                                                                                    |
| 17 ..... | HC153356 .....    | Reducer-Gear RH (See Figure 12)                                                 |          |                   |                                                                                    |
| 18 ..... | HC111964 .....    | Coupling-Assy. 1" Drive                                                         |          |                   |                                                                                    |
| 19 ..... | HC153355 .....    | Reducer-Gear LH (See Figure 12)                                                 |          |                   |                                                                                    |
| 20 ..... | HC151367 .....    | Box-Assy. Capacitors & Relay<br>(1 Phase)(Bristol Compressor)<br>HC151463 ..... |          |                   |                                                                                    |
|          |                   | HC151436 .....                                                                  |          |                   |                                                                                    |
|          |                   | HC151462 .....                                                                  |          |                   |                                                                                    |

\* Location may vary.

#### Not Shown:

HC161216 ..... Sensor-10K Thermistor  
HC118594 ..... Tube-Assy. Lower Heat  
HC114374 ..... Tube-Assy. Drain

AC = Air Cooled

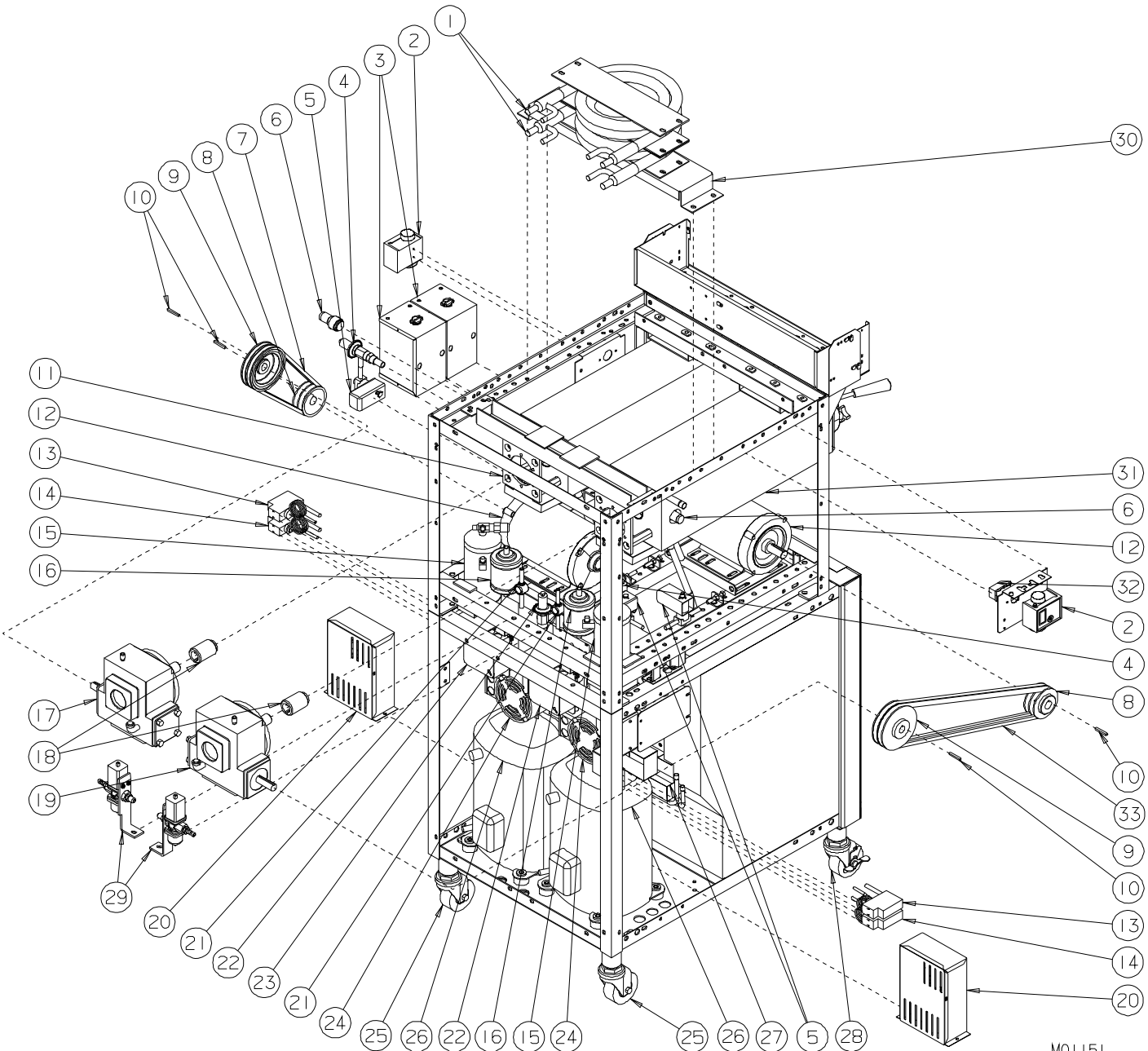
ACR = Air Cooled Remote

LH = Left hand side of freezer when facing front.

RH = Right hand side of freezer when facing front.

**Use only original or authorized replacement parts with this freezer.  
Use of unapproved parts will void warranty.**

Figure 11 927CMT Water Cooled Assembly ( 1 of 2 )



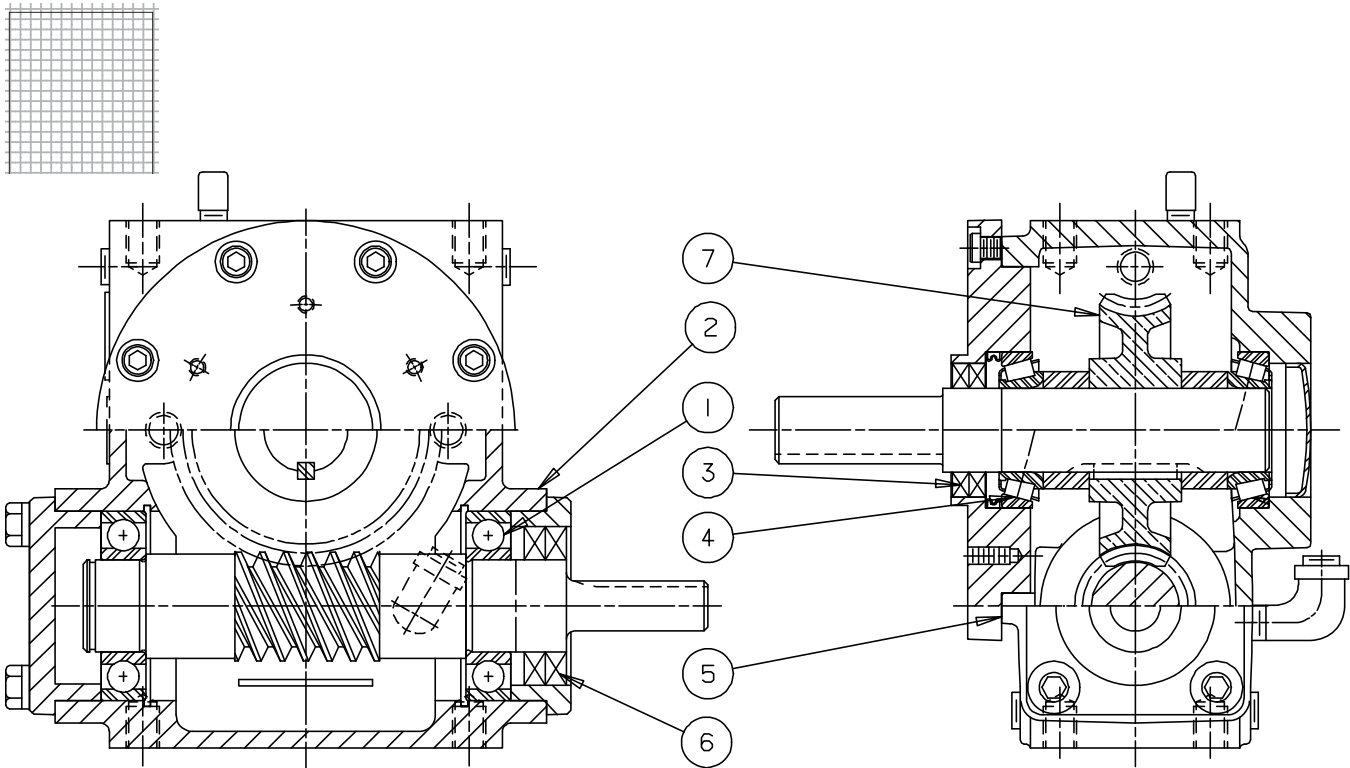
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Use only original or authorized replacement parts with this freezer.  
Use of unapproved parts will void warranty.


**Figure 11 927CMT Water Cooled Assembly (2 of 2)**

| Item    | Part No.       | Description                                                                                                                                                           | Item                                                                                                          | Part No.       | Description                                                                                                                                                                                                              |
|---------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.....  | HC155029 ..... | Condenser-Water                                                                                                                                                       | 26....                                                                                                        | HC119541 ..... | Compressor-Assy. (3 Phase)<br>includes Bristol compressor<br>and<br>HC155054 ... Drier-Filter<br>HC155419 ... Valve-Access                                                                                               |
| 2.....  | HC119989 ..... | Kit-Thermostat & Retainer (Cylinder)                                                                                                                                  | or ....                                                                                                       | HC119540 ..... | Compressor-Assy (1 Phase)<br>includes Bristol compressor<br>and<br>HC151463 ... Capacitor-Run<br>HC151436 ... Capacitor-Start<br>HC151462 ... Relay-Comp.Start<br>HC155054 ... Drier-Filter<br>HC155419 ... Valve-Access |
| 3.....  | -----          | Box-Assy. Capacitors & Components<br>(1 Phase) (Beater Motor)<br>HC150318 ... Capacitor-Run<br>HC150872 ... Capacitor-Start                                           | 27....                                                                                                        | HC117133 ..... | Pan-Assy. Condensate                                                                                                                                                                                                     |
| 4.....  | HC155490 ..... | Valve-Automatic Expansion (Cylinder)                                                                                                                                  | 28....                                                                                                        | HC162105 ..... | Caster-1-1/4 ST PT w/Brake                                                                                                                                                                                               |
| 4A....  | HC165531 ..... | Insulator-Expansion Valve                                                                                                                                             | 29....                                                                                                        | HC112080 ..... | Valve-Assy. Water includes<br>HC155410 ... Valve-Water 3/8                                                                                                                                                               |
| 5.....  | HC155421 ..... | Valve-Solenoid                                                                                                                                                        | 29A .                                                                                                         | HC155444 ..... | Kit-Valve Water Repair                                                                                                                                                                                                   |
| 5A....  | HC155434 ..... | Kit-Repair Solenoid Valve                                                                                                                                             | 30....                                                                                                        | HC139877 ..... | Bracket-Condenser Mtg.                                                                                                                                                                                                   |
| 6.....  | HC117014 ..... | Kit-Pressure Switch Field Repl.                                                                                                                                       | 31....                                                                                                        | HC118821 ..... | Cylinder-Assy. Complete LH                                                                                                                                                                                               |
| 6A....  | HC116105 ..... | Nut-Assy. Pressure Switch                                                                                                                                             | 32....                                                                                                        | HC118813 ..... | Kit-CAB Thermostat (Cabinet)                                                                                                                                                                                             |
| 6B ...  | HC138827-01    | Spacer-Curved Pressure Switch                                                                                                                                         | 33....                                                                                                        | HC153171 ..... | Belt-V (LH).                                                                                                                                                                                                             |
| 7.....  | HC153162 ..... | Belt-V (RH)                                                                                                                                                           | * Location may vary.                                                                                          |                |                                                                                                                                                                                                                          |
| 8.....  | HC153626 ..... | Sheave-7/8 Bore 3.25 D 3.00PD<br>(Driver Pulley)                                                                                                                      |                                                                                                               |                |                                                                                                                                                                                                                          |
| 8A....  | HC160495 ..... | Screw-SK Set 1/4-20 x 1/4                                                                                                                                             | <b>Not Shown:</b>                                                                                             |                |                                                                                                                                                                                                                          |
| 9.....  | HC153625 ..... | Sheave-3/4 Bore 4.75OD 4.50PD<br>(Driven Pulley)                                                                                                                      |                                                                                                               |                |                                                                                                                                                                                                                          |
| 9A....  | HC160495 ..... | Screw-SK Set 1/4-20 x 1/4                                                                                                                                             | HC161216 .....                                                                                                |                |                                                                                                                                                                                                                          |
| 10....  | HC153322 ..... | Key-Drive 3/16 SQ x 1-1/2                                                                                                                                             |                                                                                                               |                |                                                                                                                                                                                                                          |
| 11....  | HC118822 ..... | Cylinder-Assy. Complete RH                                                                                                                                            | HC118594 .....                                                                                                |                |                                                                                                                                                                                                                          |
| 12....  | HC151052 ..... | Motor-2 hp. 208/230/460-3-60                                                                                                                                          |                                                                                                               |                |                                                                                                                                                                                                                          |
| or .... | HC118140 ..... | Kit-Motor & Capacitor includes<br>HC150318 ... Capacitor-Run<br>HC150872 ... Capacitor-Start                                                                          | HC114374 .....                                                                                                |                |                                                                                                                                                                                                                          |
| 13....  | HC120495 ..... | Kit-HPCO 155702 Field                                                                                                                                                 |                                                                                                               |                |                                                                                                                                                                                                                          |
| 14....  | HC120496 ..... | Kit-LPCO 155701 Field                                                                                                                                                 | LH = .. Left hand side of freezer when facing front.<br>RH = Right hand side of freezer when facing<br>front. |                |                                                                                                                                                                                                                          |
| 15....  | HC155071 ..... | Receiver-3 LB. 3/8 ID Sweat w/o Valve                                                                                                                                 |                                                                                                               |                |                                                                                                                                                                                                                          |
| 16....  | HC155054 ..... | Drier-Filter 16 cu. in.                                                                                                                                               |                                                                                                               |                |                                                                                                                                                                                                                          |
| 17....  | HC153356 ..... | Reducer-Gear RH (See Figure 12)                                                                                                                                       |                                                                                                               |                |                                                                                                                                                                                                                          |
| 18....  | HC111964 ..... | Coupling-Assy. 1" Drive                                                                                                                                               |                                                                                                               |                |                                                                                                                                                                                                                          |
| 19....  | HC153355 ..... | Reducer-Gear LH (See Figure 12)                                                                                                                                       |                                                                                                               |                |                                                                                                                                                                                                                          |
| 20....  | -----          | Box-Assy. Capacitors &<br>Components (1 Phase)<br>(Bristol Compressor)<br>HC151463 ... Capacitor-Run<br>HC151436 ... Capacitor-Start<br>HC151462 ... Relay-Comp.Start |                                                                                                               |                |                                                                                                                                                                                                                          |
| 21....  | HC155059 ..... | Glass-Sight                                                                                                                                                           |                                                                                                               |                |                                                                                                                                                                                                                          |
| 22* ..  | HC119208 ..... | Box-Assy. Relay (MTS) (See Figure 8)                                                                                                                                  |                                                                                                               |                |                                                                                                                                                                                                                          |
| 23....  | HC155449 ..... | Valve-Automatic Expansion (Cabinet)                                                                                                                                   |                                                                                                               |                |                                                                                                                                                                                                                          |
| 23A .   | HC165531 ..... | Insulator-Expansion Valve                                                                                                                                             |                                                                                                               |                |                                                                                                                                                                                                                          |
| 24....  | HC151129 ..... | Gearmotor -1/8 HP (MTS)                                                                                                                                               |                                                                                                               |                |                                                                                                                                                                                                                          |
| 25....  | HC162106 ..... | Caster-1-1/4 ST PT w/o Brake                                                                                                                                          |                                                                                                               |                |                                                                                                                                                                                                                          |

**Use only original or authorized replacement parts with this freezer.  
Use of unapproved parts will void warranty.**



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Figure 12 Gear Reducers

| Model HCD926               |                |                                        |                   |
|----------------------------|----------------|----------------------------------------|-------------------|
| HC153355 10:1 Ratio A Side |                | HC153356 10:1 Ratio B Side             |                   |
| Item                       | Part No.       | Description                            | Quantity Required |
| 1 .....                    | HC153065 ..... | Bearing-Ball 1.378 ID x 2.835 OD ..... | 2 ea.             |
| 2 .....                    | HC153066 ..... | Gasket-High Speed .....                | 1 ea.             |
| 3 .....                    | HC153067 ..... | Seal-High Speed .....                  | 2 ea.             |
| 4 .....                    | HC153068 ..... | Bearing-Slow Speed Cone 1.25" .....    | 2 ea.             |
| 4A .....                   | HC153069 ..... | Bearing-Slow Speed Cup 2.328" .....    | 2 ea.             |
| 5 .....                    | HC153070 ..... | Gasket-Slow Speed .....                | 1 ea.             |
| 6 .....                    | HC153071 ..... | Seal-Slow Speed .....                  | 2 ea.             |
| 7 .....                    | HC153301 ..... | Gear-Slow Speed .....                  | 1 ea.             |
|                            |                |                                        |                   |
| HC118742 .....             |                | Kit-Reducer Gasket Model HCD926        |                   |

**\*\*Oil-Gear Reducer (per quart)**

**\*\*Note:** To order oil always verify type of oil from the tag located on the gear reducer. Improper oil usage will cause the gear reducer to fail.

Use only original or authorized replacement parts with this freezer.  
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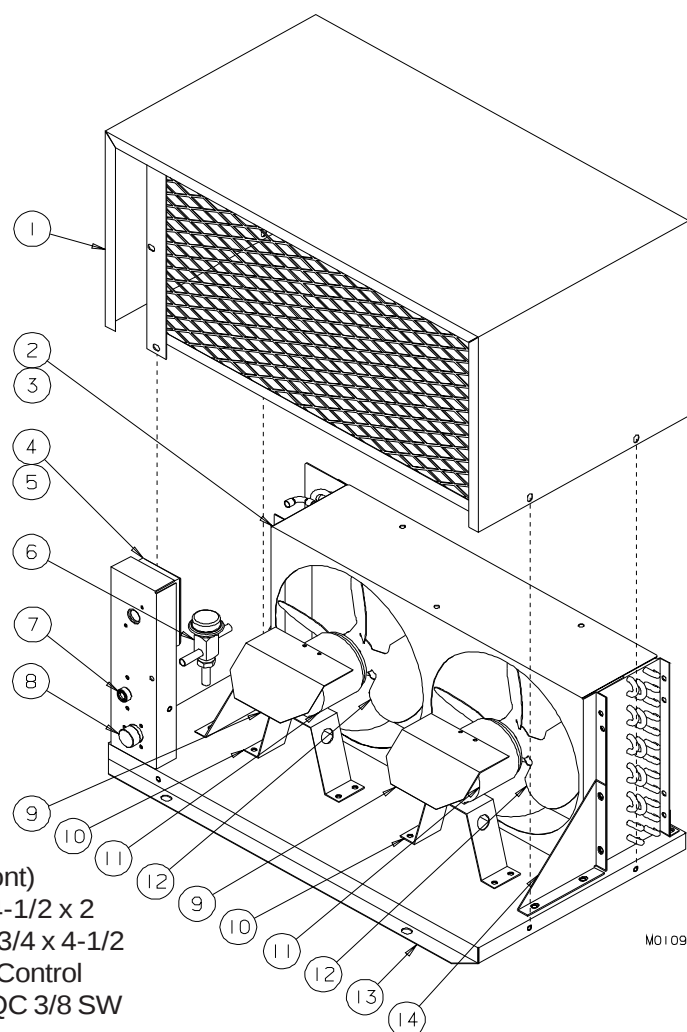
# Figure 13 Air Cooled Remote Condenser Assy.

| Item     | Part No.       | Description                                  |
|----------|----------------|----------------------------------------------|
| * .....  | HC116781-02..  | Condenser-Assy.<br>2 Hp Remote<br>(Complete) |
| 1 .....  | HC117207 ..... | Cover-Assy.<br>Condenser                     |
| 2 .....  | HC155101 ..... | Condenser-Air Rifled                         |
| 3 .....  | HC138465 ..... | Shroud-Fan                                   |
| 3A ..... | HC137628 ..... | Brace-Condenser (Front)                      |
| 4 .....  | HC150732 ..... | Box-Electric 2-3/4 x 4-1/2 x 2               |
| 5 .....  | HC150737 ..... | Cover-Electric Box 2-3/4 x 4-1/2             |
| 6 .....  | HC155454 ..... | Valve-Head Pressure Control                  |
| 7 .....  | HC153420 ..... | Coupling-Refr. 3/8 MQC 3/8 SW                |
| 7A ..... | HC140039 ..... | Plate-Coupling Mtg.                          |
| 8 .....  | HC153418 ..... | Coupling-Refr. 1/2MQC 1/2 SW                 |
| 8A ..... | HC153502 ..... | Flange-Refr. Coupling Mount 1/2              |
| 8B ..... | HC153503 ..... | Cap-Dust Refr. Coupling                      |
| 9 .....  | HC139017 ..... | Shield-Motor Rain                            |
| 10 ..... | HC137632 ..... | Bracket-Fan Condenser                        |
| 11 ..... | HC151072 ..... | Motor-Fan 50W 230V 60Hz R/M                  |
| 12 ..... | HC159029 ..... | Blade-Fan 11" Dia 36°                        |
| 13 ..... | HC117206 ..... | Base-Assy. Condenser                         |
| 14 ..... | HC137629 ..... | Support-Condenser                            |

\* Includes all items above.

## Not Shown:

|                |                              |
|----------------|------------------------------|
| HC155058 ..... | Receiver-12 lb. Sweat Horiz. |
| HC120498 ..... | Kit-LPCO 155705 Field        |
| HC120494 ..... | Kit-HPCO 155450 Field        |
| HC155466 ..... | Control-Pressure Fan         |
| HC155487 ..... | Check-Valve 5/8 ODF Sweat    |
| HC119124 ..... | Kit-25 Foot Line Sets 404a   |
| HC119125 ..... | Kit-50 Foot Line Sets 404a   |



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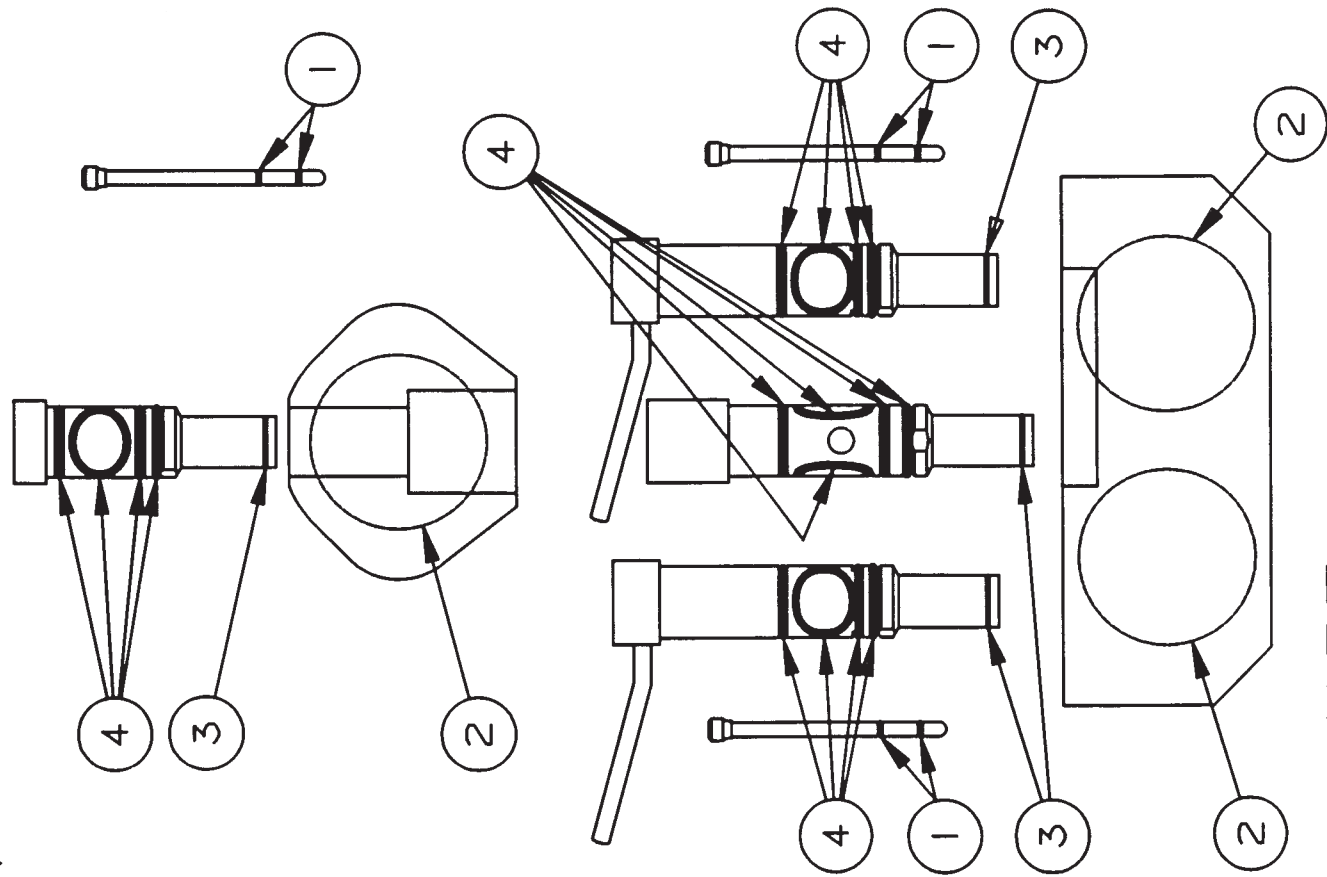
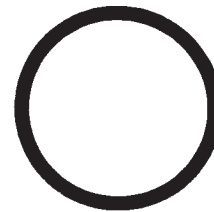
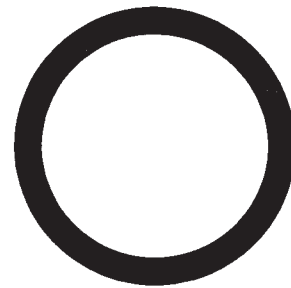
## Accessories

| Part No.          | Description                                                              |
|-------------------|--------------------------------------------------------------------------|
| HC196103 .....    | Bottle-Wash 500ml                                                        |
| HC158009 .....    | Brush-4-inch w/o handle (Cylinder)(Use with Handle HC158012)             |
| HC158018 .....    | Brush-7/16 Dia. x 12 in. Overall Length                                  |
| HC158019 .....    | Brush-9/16 Dia. x 30 in. Overall Length                                  |
| HC158026 .....    | Brush-1 in. Dia. x 12 in. Long                                           |
| HC158037 .....    | Brush-1/4 Dia. x 18-1/2 Overall Length                                   |
| HC162105 .....    | Caster -1-1/4 ST PT w/Brake                                              |
| HC162106 .....    | Caster-1-1/4 ST PT w/o Brake                                             |
| HC184238 .....    | Chart-O-ring Ivory (Laminated)                                           |
| HC158051 .....    | Cup-Overrun Measuring One Pint                                           |
| HC158012 .....    | Handle-Brush 36-inch Fiberglass (Cylinder)<br>(Use with Handle HC158009) |
| HC136567 .....    | Hose-Spigot Drain                                                        |
| HC115538 .....    | Kit-O-ring Head                                                          |
| HC112978 .....    | Leg-6-inch                                                               |
| HC158054A .....   | Lubricant-Lubri-Film (4 oz. tube)                                        |
| HC150736 .....    | Nut-Lock Conduit 1-1/4 in. (Casters)                                     |
| HC158014 .....    | Sanitizer-Stera-Sheen Case/4                                             |
| HC158014A .....   | Sanitizer-Stera-Sheen 4 lb. jar                                          |
| HC158049 .....    | Scale-Overrun                                                            |
| HC117246 .....    | Sensor-Assy. Bag-in-Box (Adapter Kit)                                    |
| HC169374 .....    | Tool-O-ring Removal                                                      |
| HC196006 .....    | Tee-5/8 x 5/8 x 5/8 White (Plastic Hose Connection)                      |
| HC196061 .....    | Tubing-.600ID x .850OD PVC (Mix Line-Std.)                               |
| HC-184818 .....   | Video-Training (Operational) (VHS)                                       |
| HC184818-01 ..... | Video-Training (Operational) (DVD)                                       |

**Use only original or authorized replacement parts with this freezer.  
Use of unapproved parts will void warranty.**



PART NO.  
HC160583 ②



Use only original or authorized replacement parts with this freezer.  
Use of unapproved parts will void warranty.

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20

# Alphabetized Parts List for Model 927CMT

*Important: All parts shown are for standard models designed for 230V/1PH/60HZ or 203-230V/3PH/60HZ.*

| PART DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | PART NUMBER              | QTY | SERIAL NUMBER (FROM - TO)        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----|----------------------------------|
| Actuator-Assy. Door Switch .....                                                                                                                                                                                                                                                                                                                                                                                                                                                   | HC114630                 | 1   | H2Z-1884 — H2F                   |
| Actuator-Assy. Door Switch .....                                                                                                                                                                                                                                                                                                                                                                                                                                                   | HC118597                 | 1   | H2F —                            |
| Actuator-Assy. Slide (MTS) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                   | HC117125                 | 1   | H2Z-1884 —                       |
| Adapter-Star/Spigot (Yogurt Nozzle) .....                                                                                                                                                                                                                                                                                                                                                                                                                                          | HC137870                 | 1   | A2B-162 —                        |
| Adaptor-3/8 ODF x 1<br>(Rotalock Valve-Maneurop Compressor) .....                                                                                                                                                                                                                                                                                                                                                                                                                  | HC151397                 | 2   | H2Z-1884 — A2M                   |
| Adaptor-Overload Din Rail .....                                                                                                                                                                                                                                                                                                                                                                                                                                                    | See Relay-Assy. Overload |     |                                  |
| Base-Probe Mtg. ....                                                                                                                                                                                                                                                                                                                                                                                                                                                               | HC137120                 | 2   | H2Z-1884 —                       |
| Bearing-Ball 1.378 ID x 2.835 OD<br>(HCD926 Gear Reducer) .....                                                                                                                                                                                                                                                                                                                                                                                                                    | HC153065                 | 2   | See Reducer-Gear                 |
| Bearing-High Speed Cone 3/4"<br>(4CB Gear Reducer) .....                                                                                                                                                                                                                                                                                                                                                                                                                           | HC153015                 | 4   | See Reducer-Gear                 |
| Bearing-High Speed Cup 3/4"(4CB Gear Reducer) ....                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC153014                 | 4   | See Reducer-Gear                 |
| Bearing-Slow Speed Cone 1"(4CB Gear Reducer) ....                                                                                                                                                                                                                                                                                                                                                                                                                                  | HC153012                 | 4   | See Reducer-Gear                 |
| Bearing-Slow Speed Cup 1" (4CB Gear Reducer) ....                                                                                                                                                                                                                                                                                                                                                                                                                                  | HC153011                 | 4   | See Reducer-Gear                 |
| Bearing-Slow Speed Cone 1.25"<br>(HCD926 Gear Reducer) .....                                                                                                                                                                                                                                                                                                                                                                                                                       | HC153068                 | 2   | See Reducer-Gear                 |
| Bearing-Slow Speed Cup 2.328"<br>(HCD926 Gear Reducer) .....                                                                                                                                                                                                                                                                                                                                                                                                                       | HC153069                 | 2   | See Reducer-Gear                 |
| Belt-V (LH) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | HC153171                 | 2   | H2Z-1884 —                       |
| Belt-V (RH) (Pulley) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC153162                 | 2   | H2Z-1884 —                       |
| Blade-Fan 11-inch Dia. 26° (R502) A/C .....                                                                                                                                                                                                                                                                                                                                                                                                                                        | HC159020                 | 4   | H2Z-1884 — I2A-2278 <sup>1</sup> |
| Blade-Fan 11-inch Dia. 36° (R404a) A/C .....                                                                                                                                                                                                                                                                                                                                                                                                                                       | HC159023                 | 4   | I2A-2278 <sup>1</sup> —          |
| Blade-Fan 11" Dia 36° (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                  | HC159029                 | 2   | H2Z-1884 —                       |
| Blade-Scraper Soft Serve .....                                                                                                                                                                                                                                                                                                                                                                                                                                                     | HC137334                 | 4   | H2Z-1884 —                       |
| <p>* As Required</p> <p>** Items Included In O-Ring Kit No. HC115538</p> <p>*** LH or RH — Left or right hand is determined as you face the front of freezer.</p> <p>AC = Air Cooled      ACR = Air Cooled Remote      W = Water Cooled</p> <p>NLA No Longer Available</p> <p><sup>1</sup> I2A-2278 designates the complete changeover to R-404a. Serial numbers B2A-376 to I2A-2278 could be R-502 or R-404a. Contact H.C. Duke &amp; Son, Inc. Service Department if unsure.</p> |                          |     |                                  |

Use only original or authorized replacement parts with this freezer.

# Alphabetized Parts List for Model 927CMT

*Important: All parts shown are for standard models designed for 230V/1PH/60HZ or 203-230V/3PH/60HZ.*

| PART<br>DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                        | PART<br>NUMBER | QTY | SERIAL NUMBER<br>(FROM – TO) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----|------------------------------|
| Bleeder-Assy. ....                                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC115129       | 2   | H2Z-1884 —                   |
| Bracket-Assy. Adjusting (Spigot Switch) .....                                                                                                                                                                                                                                                                                                                                                                                                                              | HC113901       | 2   | H2Z-1884 —                   |
| Bracket-Assy. Spigot Switch Mtg. ....                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC113902       | 2   | H2Z-1884 —                   |
| Button-Spigot Switch .....                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC136124       | 2   | H2Z-1884 —                   |
| Bolt-Pivot (NLA use Hinge-162045) .....                                                                                                                                                                                                                                                                                                                                                                                                                                    | HC162054       | 1   | H2Z-1884 —                   |
| Boot-Mix Tube (Seal) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC199033       | 2   | H2Z-1884 —                   |
| Bottle-Wash .....                                                                                                                                                                                                                                                                                                                                                                                                                                                          | HC196103       | 1   | H2Z-1884 —                   |
| Box-Assy Relay .....                                                                                                                                                                                                                                                                                                                                                                                                                                                       | HC116072       | 2   | H2Z-1884 —                   |
| Box-Electric 2-3/4x4-1/2x2 (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                     | HC150732       | 1   | H2Z-1884 —                   |
| Bracket-Assy. Electric Box (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                     | HC117197       | 1   | H2Z-1884 —                   |
| Bracket-Capacitor and Relay Box (1 ph) .....                                                                                                                                                                                                                                                                                                                                                                                                                               | HC135923       | 1   | H2Z-1884 —                   |
| Bracket-Fan Condenser (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                          | HC137632       | 2   | H2Z-1884 —                   |
| Bracket-Flange Relay Mtg. (MTS Relay Box) .....                                                                                                                                                                                                                                                                                                                                                                                                                            | HC138159       | 1   | H2Z-1884 —                   |
| Brush-1 in. dia x 12 in. Long .....                                                                                                                                                                                                                                                                                                                                                                                                                                        | HC158026       | 1   | H2Z-1884 —                   |
| Brush-4 in. dia w/o Handle .....                                                                                                                                                                                                                                                                                                                                                                                                                                           | HC158009       | 1   | H2Z-1884 —                   |
| Brush-4 in. w/36 in. Handle (NLA)<br>(Use p/n HC158009 & Handle HC158012) .....                                                                                                                                                                                                                                                                                                                                                                                            |                | 1   | H2Z-1884 —                   |
| Brush-7/17 Dia x 12 in Overall Length .....                                                                                                                                                                                                                                                                                                                                                                                                                                | HC158018       | 1   | H2Z-1884 —                   |
| Brush-9/16 Dia x 30 in. Overall Length .....                                                                                                                                                                                                                                                                                                                                                                                                                               | HC158019       | 1   | H2Z-1884 —                   |
| Bumper-Rubber (Drip Tray Insert) .....                                                                                                                                                                                                                                                                                                                                                                                                                                     | HC199030       | 4   | H2Z-1884 —                   |
| Bushing-Alignment (Loaner) .....                                                                                                                                                                                                                                                                                                                                                                                                                                           | HC138369       | 1   | H2Z-1884 —                   |
| Bushing-Alignment (Purchase) .....                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC138369-01    | 1   | H2Z-1884 —                   |
| Bushing-Cylinder (Beater Shaft Assembly) .....                                                                                                                                                                                                                                                                                                                                                                                                                             | HC196079       | 2   | H2Z-1884 —                   |
| Button-Reset .....                                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC159036       | 2   | H2Z-1884 —                   |
| Button-Spigot Switch .....                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC136124       | 2   | H2Z-1884 —                   |
| <p>* As Required<br/> ** Items Included In O-Ring Kit No. HC115538<br/> *** LH or RH — Left or right hand is determined as you face the front of freezer.<br/> AC = Air Cooled      ACR = Air Cooled Remote      W = Water Cooled<br/> NLA No Longer Available</p> <p><sup>1</sup> I2A-2278 designates the complete changeover to R-404a. Serial numbers B2A-376 to I2A-2278 could be R-502 or R-404a. Contact H.C. Duke &amp; Son, Inc. Service Department if unsure.</p> |                |     |                              |

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# Alphabetized Parts List for Model 927CMT

*Important: All parts shown are for standard models designed for 230V/1PH/60HZ or 203-230V/3PH/60HZ.*

| PART<br>DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                | PART<br>NUMBER       | QTY | SERIAL NUMBER<br>(FROM - TO) |           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----|------------------------------|-----------|
| Cap-Dust Refr. Coupling (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                | HC153503             | 1   | C2I                          | —         |
| Capacitor-Beater Motors .....                                                                                                                                                                                                                                                                                                                                                                                                                                                      | See Motor-Beater     |     |                              |           |
| Capacitor-Compressor .....                                                                                                                                                                                                                                                                                                                                                                                                                                                         | See Compressor-Assy. |     |                              |           |
| Caster-1-1/4 ST w/ Brake .....                                                                                                                                                                                                                                                                                                                                                                                                                                                     | HC162105             | 2   | H2Z-1884                     | —         |
| Caster-1-1/4 ST w/o Brake .....                                                                                                                                                                                                                                                                                                                                                                                                                                                    | HC162106             | 2   | H2Z-1884                     | —         |
| Catch-Bullet (Button-Drip Tray) .....                                                                                                                                                                                                                                                                                                                                                                                                                                              | HC159175             | 2   | H2Z-1884                     | —         |
| Channel-Rear LH .....                                                                                                                                                                                                                                                                                                                                                                                                                                                              | HC135254             | 1   | H2Z-1884                     | —         |
| Channel-Rear RH .....                                                                                                                                                                                                                                                                                                                                                                                                                                                              | HC130021             | 1   | H2Z-1884                     | —         |
| Chart-O-ring Ivory .....                                                                                                                                                                                                                                                                                                                                                                                                                                                           | HC184238             | 1   | H2Z-1884                     | —         |
| Clamp-Assy. Soft Hose 5/8 .....                                                                                                                                                                                                                                                                                                                                                                                                                                                    | HC116065             | 6   | H2Z-1884                     | —         |
| Clamp-Hose (Drain) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                           | HC160738             | 1   | H2Z-1884                     | —         |
| Clip-Retainer (Set of 2)(Switch Box) .....                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC150120             | 4   | H2Z-1884                     | —         |
| Coil-Evaporator (Cabinet MJ70) .....                                                                                                                                                                                                                                                                                                                                                                                                                                               | HC155109             | 1   | H2Z-1884                     | — K2B-277 |
| Coil-Evaporator (Cabinet-Ceiling Type) .....                                                                                                                                                                                                                                                                                                                                                                                                                                       | HC155111             | 1   | K2B-278                      | —         |
| Coil-Replacement Only (Beater Motor, Cabinet,<br>Compressor) (Switch Box) (Contactor HC150106)<br>(NLA use Contactor p/n HC150155) .....                                                                                                                                                                                                                                                                                                                                           | HC150108             | 5   | H2Z-1884                     | — C2G-583 |
| Coil-Replacement Only (Beater Motor, Cabinet,<br>Compressor) (Switch Box)(Contactor HC150135)<br>(NLA use Contactor p/n HC150155) .....                                                                                                                                                                                                                                                                                                                                            | HC150134             | 5   | C2G-584                      | — D2J-990 |
| Coil-Replacement Only (Beater Motor, Cabinet,<br>Compressor) (Switch Box)(Contactor HC150155) .....                                                                                                                                                                                                                                                                                                                                                                                | HC150156             | 5   | D2J-991                      | —         |
| Compressor-Assy (1 Phase)(NLA use #HC118234) .                                                                                                                                                                                                                                                                                                                                                                                                                                     | HC116973             | 2   | H2Z-1884                     | — G2E     |
| Box-Assy. Capacitor & Relay .....                                                                                                                                                                                                                                                                                                                                                                                                                                                  | HC151356             | 2   | H2Z-1884                     | — G2E     |
| Capacitor-Run .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                | HC150362             | 2   | H2Z-1884                     | — G2E     |
| Capacitor-Start .....                                                                                                                                                                                                                                                                                                                                                                                                                                                              | HC150361             | 2   | H2Z-1884                     | — G2E     |
| Relay-Start .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | HC150363             | 2   | H2Z-1884                     | — G2E     |
| Drier-Filter .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC155054             | 2   | H2Z-1884                     | — G2E     |
| <p>* As Required</p> <p>** Items Included In O-Ring Kit No. HC115538</p> <p>*** LH or RH — Left or right hand is determined as you face the front of freezer.</p> <p>AC = Air Cooled      ACR = Air Cooled Remote      W = Water Cooled</p> <p>NLA No Longer Available</p> <p><sup>1</sup> I2A-2278 designates the complete changeover to R-404a. Serial numbers B2A-376 to I2A-2278 could be R-502 or R-404a. Contact H.C. Duke &amp; Son, Inc. Service Department if unsure.</p> |                      |     |                              |           |

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# Alphabetized Parts List for Model 927CMT

*Important: All parts shown are for standard models designed for 230V/1PH/60HZ or 203-230V/3PH/60HZ.*

| PART DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | PART NUMBER    | QTY     | SERIAL NUMBER (FROM - TO) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------|---------------------------|
| Compressor-Assy (1 Phase)(Tecumseh-AV) .....                                                                                                                                                                                                                                                                                                                                                                                                                                       | HC118234 ..... | 2 ..... | H2E — I2H                 |
| Box-Assy. Capacitor & Relay .....                                                                                                                                                                                                                                                                                                                                                                                                                                                  | HC151362 ..... | 2 ..... | H2E — I2H                 |
| Capacitor-Run .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                | HC150399 ..... | 2 ..... | H2E — I2H                 |
| Capacitor-Start .....                                                                                                                                                                                                                                                                                                                                                                                                                                                              | HC150398 ..... | 2 ..... | H2E — I2H                 |
| Relay .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | HC150401 ..... | 2 ..... | H2E — I2H                 |
| Drier-Filter .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC155054 ..... | 2 ..... | H2E — I2H                 |
| Valve-Access .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC155419 ..... | 2 ..... | H2E — I2H                 |
| Compressor-Assy (1 Phase)(Maneurop) .....                                                                                                                                                                                                                                                                                                                                                                                                                                          | HC118685 ..... | 2 ..... | J2H — A2M                 |
| Adaptor-3/8 ODF x 1 (Rotalock Valve) .....                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC151397 ..... | 2 ..... | J2H — A2M                 |
| Capacitor-Run .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                | HC151447 ..... | 2 ..... | J2H — A2M                 |
| Kit-Compr. Start Capacitor & Relay .....                                                                                                                                                                                                                                                                                                                                                                                                                                           | HC151448 ..... | 2 ..... | J2H — A2M                 |
| Drier-Filter .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC155054 ..... | 2 ..... | J2H — A2M                 |
| Compressor-Assy (1 Phase)(Bristol) .....                                                                                                                                                                                                                                                                                                                                                                                                                                           | HC119540 ..... | 2 ..... | B2M —                     |
| Capacitor-Run .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                | HC151463 ..... | 2 ..... | B2M —                     |
| Capacitor-Start .....                                                                                                                                                                                                                                                                                                                                                                                                                                                              | HC151436 ..... | 2 ..... | B2M —                     |
| Relay-Start/Run .....                                                                                                                                                                                                                                                                                                                                                                                                                                                              | HC151462 ..... | 2 ..... | B2M —                     |
| Drier-Filter .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC155054 ..... | 2 ..... | B2M —                     |
| Valve-Access .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC155419 ..... | 2 ..... | B2M —                     |
| Compressor-Assy. (3 Phase)(NLA use #HC118235) .....                                                                                                                                                                                                                                                                                                                                                                                                                                | HC117018 ..... | 2 ..... | H2Z-1884 — J2E-2953       |
| Drier-Filter .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC155054 ..... | 2 ..... | H2Z-1884 — J2E-2953       |
| Compressor-Assy. (3 Phase)(Tecumseh-AV) .....                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC118235 ..... | 2 ..... | J2E-2954 — J2H-2538       |
| Drier-Filter .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC155054 ..... | 2 ..... | J2E-2954 — J2H-2538       |
| Valve-Access .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC155419 ..... | 2 ..... | J2E-2954 — J2H-2538       |
| Compressor-Assy. (3 Phase)(Maneurop) .....                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC118686 ..... | 2 ..... | J2H-2539 — A2M            |
| Adaptor-3/8 ODF x 1 (Rotalock Valve) .....                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC151397 ..... | 2 ..... | J2H-2539 — A2M            |
| Drier-Filter .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC155054 ..... | 2 ..... | J2H-2539 — A2M            |
| Compressor-Assy. (3 Phase)(Bristol) .....                                                                                                                                                                                                                                                                                                                                                                                                                                          | HC119541 ..... | 2 ..... | B2M —                     |
| Drier-Filter .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC155054 ..... | 2 ..... | B2M —                     |
| Valve-Access .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC155419 ..... | 2 ..... | B2M —                     |
| <p>* As Required</p> <p>** Items Included In O-Ring Kit No. HC115538</p> <p>*** LH or RH — Left or right hand is determined as you face the front of freezer.</p> <p>AC = Air Cooled      ACR = Air Cooled Remote      W = Water Cooled</p> <p>NLA No Longer Available</p> <p><sup>1</sup> I2A-2278 designates the complete changeover to R-404a. Serial numbers B2A-376 to I2A-2278 could be R-502 or R-404a. Contact H.C. Duke &amp; Son, Inc. Service Department if unsure.</p> |                |         |                           |

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*Important: All parts shown are for standard models designed for 230V/1PH/60HZ or 203–230V/3PH/60HZ.*

| PART<br>DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                      | PART<br>NUMBER | QTY | SERIAL NUMBER<br>(FROM – TO) |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----|------------------------------|
| Condenser-Air (AC) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC155120       | 2   | E2Z-1194 —                   |
| Condenser-Air (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                | HC155120       | 2   | E2Z-1194 — K2M-3837          |
| Condenser-Air Rifled(ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                          | HC155101       | 2   | K2M-3838 —                   |
| Condenser-Assy. 2 Hp (Complete)(ACR)<br>(NLA use HC116781-02) .....                                                                                                                                                                                                                                                                                                                                                                                                      | HC116781       | 1   | H2Z-1884 — C2I               |
| Condenser-Assy. 2 Hp (Complete)(ACR)<br>(NLA use HC116781-02) .....                                                                                                                                                                                                                                                                                                                                                                                                      | HC116781-01    | 1   | C2I — K2M-3837               |
| Condenser-Assy. 2 Hp (Complete)(ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                               | HC116781-02    | 1   | K2M-3838 —                   |
| Condenser-Water S1 (A side) .....                                                                                                                                                                                                                                                                                                                                                                                                                                        | HC155039       | 1   | H2Z-1884 — L2G-2929          |
| Condenser-Water S1 (B side) .....                                                                                                                                                                                                                                                                                                                                                                                                                                        | HC155026       | 1   | H2Z-1884 — L2G-2929          |
| Condenser-Water .....                                                                                                                                                                                                                                                                                                                                                                                                                                                    | HC155029       | 1   | L2G-2930 —                   |
| Connector 1/2 (MTS Relay Box) .....                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC150828       | 1   | H2Z-1884 —                   |
| Contacteur (Beater Motor)<br>(NLA use Contacteur p/n HC150155) .....                                                                                                                                                                                                                                                                                                                                                                                                     | HC150106       | 2   | H2Z-1884 — C2G-583           |
| Contacteur IEC 23A 240V (Beater Motor)<br>(NLA use Contacteur p/n HC150155) .....                                                                                                                                                                                                                                                                                                                                                                                        | HC150135       | 2   | C2G-584 — D2J-990            |
| Contacteur IEC 23A 208-230V C(Beater Motor) .....                                                                                                                                                                                                                                                                                                                                                                                                                        | HC150155       | 2   | D2J-991 —                    |
| Contacteur (Cabinet)<br>(NLA use Contacteur p/n HC150155) .....                                                                                                                                                                                                                                                                                                                                                                                                          | HC150106       | 1   | H2Z-1884 — C2G-583           |
| Contacteur IEC 23A 240V(Cabinet)<br>(NLA use Contacteur p/n HC150155) .....                                                                                                                                                                                                                                                                                                                                                                                              | HC150135       | 1   | C2G-584 — D2J-990            |
| Contacteur IEC 23A 208-230V C(Cabinet) .....                                                                                                                                                                                                                                                                                                                                                                                                                             | HC150155       | 1   | D2J-991 —                    |
| Contacteur (Compressor )<br>(NLA use Contacteur p/n HC150155) .....                                                                                                                                                                                                                                                                                                                                                                                                      | HC150106       | 2   | H2Z-1884 — C2G-583           |
| Contacteur IEC 23A 240V (Compressor)<br>(NLA use Contacteur p/n HC150155) .....                                                                                                                                                                                                                                                                                                                                                                                          | HC150135       | 2   | C2G-584 — D2J-990            |
| Contacteur IEC 23A 208-230V C (Compressor) .....                                                                                                                                                                                                                                                                                                                                                                                                                         | HC150155       | 2   | D2J-991 —                    |
| <p>* As Required<br/> ** Items Included In O-Ring Kit No. HC115538<br/> *** LH or RH — Left or right hand is determined as you face the front of freezer.<br/> AC = Air Cooled      ACR = Air Cooled Remote      W = Water Cooled<br/> NLA No Longer Available<br/> <sup>1</sup> I2A-2278 designates the complete changeover to R-404a. Serial numbers B2A-376 to I2A-2278 could be R-502 or R-404a. Contact H.C. Duke &amp; Son, Inc. Service Department if unsure.</p> |                |     |                              |

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| PART<br>DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                        | PART<br>NUMBER | QTY     | SERIAL NUMBER<br>(FROM – TO)     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------|----------------------------------|
| Control-Fan Pressure (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                           | HC155466 ..... | 2 ..... | C2I —                            |
| Cord-Assy. Male Plug .....                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC150532 ..... | 1 ..... | H2Z-1884 —                       |
| Cord-Assy. Female Plug .....                                                                                                                                                                                                                                                                                                                                                                                                                                               | HC150533 ..... | 1 ..... | H2Z-1884 —                       |
| Cordset-Mix Level Probe .....                                                                                                                                                                                                                                                                                                                                                                                                                                              | HC150537 ..... | 2 ..... | H2Z-1884 —                       |
| Coupling-Assy 1 in Drive (Beater Shaft) .....                                                                                                                                                                                                                                                                                                                                                                                                                              | HC111964 ..... | 2 ..... | H2Z-1884 —                       |
| Coupling-Refr.1/2M w/Stub (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC153410 ..... | 1 ..... | H2Z-1884 — C2I                   |
| Coupling-Refr.1/2MQC 1/2 SW<br>(ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC153418 ..... | 1 ..... | C2I —                            |
| Coupling-Refr.3/8M w/Stub (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC153413 ..... | 1 ..... | H2Z-1884 — C2I                   |
| Coupling-Refr.3/8MQC 3/8SW<br>(ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                  | HC153420 ..... | 1 ..... | C2I —                            |
| Cover-Assy. Condenser (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                          | HC117207 ..... | 1 ..... | H2Z-1884 —                       |
| Cover-Assy. Mix Tank Front (6 or 7 Gal.) .....                                                                                                                                                                                                                                                                                                                                                                                                                             | HC113997 ..... | 2 ..... | H2Z-1884 —                       |
| Cover-Electric 2-3/4 x 4-1/2 x 2 (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                               | HC150737 ..... | 1 ..... | H2Z-1884 —                       |
| Cover-Rear Mix (6 or 7 Gal. Tank) .....                                                                                                                                                                                                                                                                                                                                                                                                                                    | HC138165 ..... | 2 ..... | H2Z-1884 —                       |
| Cup-Overrun Measuring .....                                                                                                                                                                                                                                                                                                                                                                                                                                                | HC158051 ..... | * ..... | H2Z-1884 —                       |
| Cut Out-High Pressure A/C (R-502) .....                                                                                                                                                                                                                                                                                                                                                                                                                                    | HC155401 ..... | 2 ..... | H2Z-1884 — I2A-2278 <sup>1</sup> |
| Cut Out-High Pressure W/C (R-502) .....                                                                                                                                                                                                                                                                                                                                                                                                                                    | HC155423 ..... | 2 ..... | H2Z-1884 — I2A-2278 <sup>1</sup> |
| Cut Out-High Pressure (R-404a) .....                                                                                                                                                                                                                                                                                                                                                                                                                                       | HC155425 ..... | 2 ..... | I2A-2278 <sup>1</sup> — E2N      |
| Cut Out-HPCO 155450 Field Kit (R-404a)<br>(AC and ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                               | HC120494 ..... | 2 ..... | E2N —                            |
| Cut Out-HPCO 155702 Field Kit (R-404a)(WC) .....                                                                                                                                                                                                                                                                                                                                                                                                                           | HC120495 ..... | 2 ..... | E2N —                            |
| Cut Out-Low Pressure (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                           | HC155465 ..... | 2 ..... | H2Z-1884 — E2N                   |
| Cut Out-LPCO 155705 Field Kit (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                  | HC120498 ..... | 2 ..... | E2N —                            |
| Cut Out-Low Pressure (ACand WC) .....                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC155403 ..... | 2 ..... | H2Z-1884 — E2N                   |
| Cut Out-LPCO 155701 Field Kit (AC and WC) .....                                                                                                                                                                                                                                                                                                                                                                                                                            | HC120496 ..... | 2 ..... | E2N —                            |
| <p>* As Required<br/> ** Items Included In O-Ring Kit No. HC115538<br/> *** LH or RH — Left or right hand is determined as you face the front of freezer.<br/> AC = Air Cooled      ACR = Air Cooled Remote      W = Water Cooled<br/> NLA No Longer Available</p> <p><sup>1</sup> I2A-2278 designates the complete changeover to R-404a. Serial numbers B2A-376 to I2A-2278 could be R-502 or R-404a. Contact H.C. Duke &amp; Son, Inc. Service Department if unsure.</p> |                |         |                                  |

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| PART<br>DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                | PART<br>NUMBER | QTY     | SERIAL NUMBER<br>(FROM – TO) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------|------------------------------|
| Cylinder-Assy. Complete LH (R-502) .....                                                                                                                                                                                                                                                                                                                                                                                                                                           | HC116114 ..... | 2 ..... | H2Z-1884 — I2F-2693          |
| Cylinder-Assy. Complete LH (R-404a) .....                                                                                                                                                                                                                                                                                                                                                                                                                                          | HC118601 ..... | 2 ..... | I2F-2694 — I2K               |
| Cylinder-Assy. Complete LH (R-404a) .....                                                                                                                                                                                                                                                                                                                                                                                                                                          | HC118821 ..... | 2 ..... | I2K —                        |
| Cylinder-Assy. Complete RH (R-502) .....                                                                                                                                                                                                                                                                                                                                                                                                                                           | HC116113 ..... | 2 ..... | H2Z-1884 — I2F-2693          |
| Cylinder-Assy. Complete RH (R-404a) .....                                                                                                                                                                                                                                                                                                                                                                                                                                          | HC118600 ..... | 2 ..... | I2F-2694 — I2K               |
| Cylinder-Assy. Complete RH (R-404a) .....                                                                                                                                                                                                                                                                                                                                                                                                                                          | HC118822 ..... | 2 ..... | I2K —                        |
| Decal-6" Air Flow .....                                                                                                                                                                                                                                                                                                                                                                                                                                                            | HC165119 ..... | 1 ..... | H2Z-1884 —                   |
| Decal-Beater Warning .....                                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC165025 ..... | 1 ..... | H2Z-1884 —                   |
| Decal-Cleaning Instructions .....                                                                                                                                                                                                                                                                                                                                                                                                                                                  | HC165249 ..... | 1 ..... | H2Z-1884 — B2I-439           |
| Decal-Cleaning Instructions .....                                                                                                                                                                                                                                                                                                                                                                                                                                                  | HC165113 ..... | 1 ..... | B2I-440 —                    |
| Decal-Clear Overlay .....                                                                                                                                                                                                                                                                                                                                                                                                                                                          | HC165093 ..... | 1 ..... | H2Z-1884 —                   |
| Decal-CMT Connection .....                                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC164027 ..... | 1 ..... | H2Z-1884 —                   |
| Decal-CMT Patent .....                                                                                                                                                                                                                                                                                                                                                                                                                                                             | HC165013 ..... | 1 ..... | H2Z-1884 —                   |
| Decal-Duke Mix Transfer .....                                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC165021 ..... | 2 ..... | H2Z-1884 —                   |
| Decal-Mix Transfer .....                                                                                                                                                                                                                                                                                                                                                                                                                                                           | HC165018 ..... | 2 ..... | H2Z-1884 —                   |
| Decal-MTS Operating Instructions .....                                                                                                                                                                                                                                                                                                                                                                                                                                             | HC164013 ..... | 1 ..... | H2Z-1884 — B2I-439           |
| Decal-MTS Trimstrip LH .....                                                                                                                                                                                                                                                                                                                                                                                                                                                       | HC164041 ..... | 1 ..... | H2Z-1884 — B2I-439           |
| Decal-MTS Trimstrip LH .....                                                                                                                                                                                                                                                                                                                                                                                                                                                       | HC165128 ..... | 1 ..... | B2I-440 —                    |
| Decal-MTS Trimstrip RH .....                                                                                                                                                                                                                                                                                                                                                                                                                                                       | HC164042 ..... | 1 ..... | H2Z-1884 — B2I-439           |
| Decal-MTS Trimstrip RH .....                                                                                                                                                                                                                                                                                                                                                                                                                                                       | HC165129 ..... | 1 ..... | B2I-440 —                    |
| Decal-Operating Instructions .....                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC164127 ..... | 1 ..... | B2I-440 —                    |
| Decal-Panel Removal .....                                                                                                                                                                                                                                                                                                                                                                                                                                                          | HC165126 ..... | 3 ..... | H2Z-1884 —                   |
| Decal-Top Air Discharge .....                                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC165124 ..... | 1 ..... | H2Z-1884 —                   |
| Decal-Trimstrip IDQ Logo 26 inch .....                                                                                                                                                                                                                                                                                                                                                                                                                                             | HC165215 ..... | 1 ..... | H2Z-1884 — L2I-2994          |
| Decal-Trimstrip IDQ 26 inch .....                                                                                                                                                                                                                                                                                                                                                                                                                                                  | HC165440-02 .. | 1 ..... | L2I-2995 —                   |
| <p>* As Required</p> <p>** Items Included In O-Ring Kit No. HC115538</p> <p>*** LH or RH — Left or right hand is determined as you face the front of freezer.</p> <p>AC = Air Cooled      ACR = Air Cooled Remote      W = Water Cooled</p> <p>NLA No Longer Available</p> <p><sup>1</sup> I2A-2278 designates the complete changeover to R-404a. Serial numbers B2A-376 to I2A-2278 could be R-502 or R-404a. Contact H.C. Duke &amp; Son, Inc. Service Department if unsure.</p> |                |         |                              |

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# Alphabetized Parts List for Model 927CMT

*Important: All parts shown are for standard models designed for 230V/1PH/60HZ or 203-230V/3PH/60HZ.*

| PART DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | PART NUMBER                           | QTY     | SERIAL NUMBER (FROM - TO) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|---------|---------------------------|
| Decal-Ventilation .....                                                                                                                                                                                                                                                                                                                                                                                                                                                            | HC169048 .....                        | 1 ..... | H2Z-1884 —                |
| Decal-Warning Pressurized .....                                                                                                                                                                                                                                                                                                                                                                                                                                                    | HC165246 .....                        | 1 ..... | H2Z-1884 —                |
| Door Assy.-Complete w/Hinges .....                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC114260-03 .....                     | 1 ..... | H2Z-1884 —                |
| Door-Pull (Handle) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                           | HC136199 .....                        | 1 ..... | H2Z-1884 —                |
| Drier-Filter .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC155054 .....                        | 2 ..... | H2Z-1884 —                |
| Duckbill-Inlet (Valve) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                       | HC199032 .....                        | 2 ..... | H2Z-1884 —                |
| Extension-Spigot Cake .....                                                                                                                                                                                                                                                                                                                                                                                                                                                        | HC136713 .....                        | * ..... | H2Z-1884 —                |
| Fan-Evaporator .....                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <i>Order by Freezer Serial Number</i> |         |                           |
| Filter-Assy. ....                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | HC116125 .....                        | 2 ..... | H2Z-1884 —                |
| Filter-Drier (R-502) w/flare (NLA use HC155054) .....                                                                                                                                                                                                                                                                                                                                                                                                                              | HC155051 .....                        | 1 ..... | H2Z-1884 — F2C-1510       |
| Filter-Drier (R-404a) w/flare (NLA use HC155054) .....                                                                                                                                                                                                                                                                                                                                                                                                                             | HC155050 .....                        | 1 ..... | H2Z-1884 — F2C-1510       |
| Filter-Drier w/sweat .....                                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC155054 .....                        | 2 ..... | F2C-1511 —                |
| Flange-Refr. Coupling Mount (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                            | HC153502 .....                        | 1 ..... | C2I —                     |
| Flange-Refr. Coupling Mount 1/2 (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                        | HC153415 .....                        | 1 ..... | H2Z-1884 — C2I            |
| Flange-Refr. Coupling Mount 3/8 (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                        | HC153414 .....                        | 1 ..... | H2Z-1884 — C2I            |
| Gasket-High Speed (HCD926 Gear Reducer) .....                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC153066 .....                        | 1 ..... | <i>See Reducer-Gear</i>   |
| Gasket-Magnetic (V-Groove-Door) .....                                                                                                                                                                                                                                                                                                                                                                                                                                              | HC160563 .....                        | 1 ..... | H2Z-1884 —                |
| Gasket-Kit (4CB Gear Reducer) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                | HC114874 .....                        | 1 ..... | <i>See Reducer-Gear</i>   |
| Gasket-Kit (Gear Reducer Model HCD926) .....                                                                                                                                                                                                                                                                                                                                                                                                                                       | HC118742 .....                        | * ..... | <i>See Reducer-Gear</i>   |
| Gasket-Slow Speed (HCD926 Gear Reducer) .....                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC153070 .....                        | 1 ..... | <i>See Reducer-Gear</i>   |
| Gauge-Assy. Pressure Test .....                                                                                                                                                                                                                                                                                                                                                                                                                                                    | HC116312 .....                        | 1 ..... | H2Z-1884 —                |
| Gearmotor-1/8 hp (MTS Motor) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC151129 .....                        | 2 ..... | H2Z-1884 —                |
| Gear-Bronze (4CB Gear Reducer) .....                                                                                                                                                                                                                                                                                                                                                                                                                                               | HC153349 .....                        | 2 ..... | <i>See Reducer-Gear</i>   |
| <p>* As Required</p> <p>** Items Included In O-Ring Kit No. HC115538</p> <p>*** LH or RH — Left or right hand is determined as you face the front of freezer.</p> <p>AC = Air Cooled      ACR = Air Cooled Remote      W = Water Cooled</p> <p>NLA No Longer Available</p> <p><sup>1</sup> I2A-2278 designates the complete changeover to R-404a. Serial numbers B2A-376 to I2A-2278 could be R-502 or R-404a. Contact H.C. Duke &amp; Son, Inc. Service Department if unsure.</p> |                                       |         |                           |

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# Alphabetized Parts List for Model 927CMT

*Important: All parts shown are for standard models designed for 230V/1PH/60HZ or 203-230V/3PH/60HZ.*

| PART<br>DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                | PART<br>NUMBER                 | QTY | SERIAL NUMBER<br>(FROM - TO) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-----|------------------------------|
| Gear-Input Shaft (4CB Gear Reducer) .....                                                                                                                                                                                                                                                                                                                                                                                                                                          | HC153348                       | 2   | See Reducer-Gear             |
| Gear-Slow Speed (HCD926 Gear Reducer) .....                                                                                                                                                                                                                                                                                                                                                                                                                                        | HC153301                       | 1   | See Reducer-Gear             |
| Glass-Sight-w/flare (NLA use HC155059) .....                                                                                                                                                                                                                                                                                                                                                                                                                                       | HC159203                       | 2   | H2Z-1884 — F2C-1510          |
| Glass-Sight-w/sweat .....                                                                                                                                                                                                                                                                                                                                                                                                                                                          | HC155059                       | 2   | F2C-1511 —                   |
| Grill & Bracket Assy. (Evaporator MJ70) .....                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC155114                       | 1   | H2Z-1884 — K2B-277           |
| Grommet-Compressor Mtg. (Tecumseh) .....                                                                                                                                                                                                                                                                                                                                                                                                                                           | HC151433                       | 8   | H2Z-1884 — I2H               |
| Guard-Fan Open .....                                                                                                                                                                                                                                                                                                                                                                                                                                                               | HC151076                       | 1   | K2B-278 —                    |
| Handle-Black Tapered (Head Assembly) .....                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC162624                       | 2   | H2Z-1884 —                   |
| Handle-Brush 36 inch Fiberglass .....                                                                                                                                                                                                                                                                                                                                                                                                                                              | HC158012                       | *   |                              |
| Handle-Spigot .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                | HC134922                       | 2   | H2Z-1884 —                   |
| Handle-Assy. Round (MTS) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                     | HC116164                       | 2   | H2Z-1884 —                   |
| Handle(Pull)-Door (Cabinet) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                  | HC136199                       | 2   | H2Z-1884 —                   |
| Head-Assy. Dispense (Complete) .....                                                                                                                                                                                                                                                                                                                                                                                                                                               | HC115130                       | 2   | H2Z-1884 —                   |
| Bleeder-Assy. ....                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC115129                       | 2   | H2Z-1884 —                   |
| Handle-Black Tapered .....                                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC162624                       | 2   | H2Z-1884 —                   |
| Handle-Spigot .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                | HC134922                       | 2   | H2Z-1884 —                   |
| Head (Only) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | HC116321                       | 2   | H2Z-1884 —                   |
| O-Ring (Bleeder) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                             | HC160562                       | 4   | H2Z-1884 —                   |
| O-Ring (Extension) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                           | HC160584                       | 2   | H2Z-1884 —                   |
| O-Ring (Head) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                | HC160583                       | 2   | H2Z-1884 —                   |
| O-Ring (Spigot) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                              | HC159295                       | 8   | H2Z-1884 —                   |
| Spigot-Long Single .....                                                                                                                                                                                                                                                                                                                                                                                                                                                           | HC134921                       | 2   | H2Z-1884 —                   |
| Hinge-Pivot 1-3/8 Bottom .....                                                                                                                                                                                                                                                                                                                                                                                                                                                     | HC162046                       | 1   | H2Z-1884 —                   |
| Hinge-Pivot 1-3/8 Top .....                                                                                                                                                                                                                                                                                                                                                                                                                                                        | HC162045                       | 1   | H2Z-1884 —                   |
| Hook-Swing (MTS) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Order by Freezer Serial Number |     |                              |
| Hose-Assy. Mix Braided (MTS) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC116094                       | 2   | H2Z-1884 —                   |
| <p>* As Required</p> <p>** Items Included In O-Ring Kit No. HC115538</p> <p>*** LH or RH — Left or right hand is determined as you face the front of freezer.</p> <p>AC = Air Cooled      ACR = Air Cooled Remote      W = Water Cooled</p> <p>NLA No Longer Available</p> <p><sup>1</sup> I2A-2278 designates the complete changeover to R-404a. Serial numbers B2A-376 to I2A-2278 could be R-502 or R-404a. Contact H.C. Duke &amp; Son, Inc. Service Department if unsure.</p> |                                |     |                              |

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# Alphabetized Parts List for Model 927CMT

*Important: All parts shown are for standard models designed for 230V/1PH/60HZ or 203-230V/3PH/60HZ.*

| PART<br>DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                        | PART<br>NUMBER | QTY     | SERIAL NUMBER<br>(FROM - TO) |       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------|------------------------------|-------|
| Hose-Spigot Drain .....                                                                                                                                                                                                                                                                                                                                                                                                                                                    | HC136567 ..... | 1 ..... | H2Z-1884                     | —     |
| Hose-Transfer Black (MTS) .....                                                                                                                                                                                                                                                                                                                                                                                                                                            | HC138184 ..... | 2 ..... | H2Z-1884                     | —     |
| Hose (Tube)-Air Meter .....                                                                                                                                                                                                                                                                                                                                                                                                                                                | HC138170 ..... | 2 ..... | H2Z-1884                     | —     |
| Indicator-Light 230v .....                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC150540 ..... | 2 ..... | H2Z-1884                     | —     |
| Indicator-Mix Level .....                                                                                                                                                                                                                                                                                                                                                                                                                                                  | HC150202 ..... | 2 ..... | H2Z-1884                     | —     |
| Insert-Assy. Drip Tray .....                                                                                                                                                                                                                                                                                                                                                                                                                                               | HC114608 ..... | 1 ..... | H2Z-1884                     | —     |
| Bumper-Rubber .....                                                                                                                                                                                                                                                                                                                                                                                                                                                        | HC199030 ..... | 4 ..... | H2Z-1884                     | —     |
| Insert-Drip Tray .....                                                                                                                                                                                                                                                                                                                                                                                                                                                     | HC136898 ..... | 1 ..... | H2Z-1884                     | —     |
| Insulator-Compressor Wrap MTZ (Maneurop) .....                                                                                                                                                                                                                                                                                                                                                                                                                             | HC165522 ..... | 2 ..... | J2H                          | — A2M |
| Insulator-Expansion Valve .....                                                                                                                                                                                                                                                                                                                                                                                                                                            | HC165531 ..... | 4 ..... | C2I                          | —     |
| Insulator-Rotalock Valve .....                                                                                                                                                                                                                                                                                                                                                                                                                                             | HC165532 ..... | 2 ..... | G2I                          | — A2M |
| Insulator-Switch (Spigot Switch) .....                                                                                                                                                                                                                                                                                                                                                                                                                                     | HC135744 ..... | 2 ..... | H2Z-1884                     | —     |
| Key-Drive 3/16 sq x 1-1/2 (Gear Reducers) .....                                                                                                                                                                                                                                                                                                                                                                                                                            | HC153322 ..... | 2 ..... | H2Z-1884                     | —     |
| Kit-Compressor Start Capacitor & Relay<br>(Maneurop Compressor) .....                                                                                                                                                                                                                                                                                                                                                                                                      | HC151448 ..... | 2 ..... | H2Z-1884                     | — A2M |
| Kit-Dispense Head Switch .....                                                                                                                                                                                                                                                                                                                                                                                                                                             | HC116410 ..... | * ..... | H2Z-1884                     | —     |
| Kit-Motor & Cap 2 hp (1 phase-Beater Motor) .....                                                                                                                                                                                                                                                                                                                                                                                                                          | HC118140 ..... | * ..... | H2Z-1884                     | —     |
| Kit-MTS Slide Switch .....                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC116411 ..... | * ..... | H2Z-1884                     | —     |
| Kit-O-ring .....                                                                                                                                                                                                                                                                                                                                                                                                                                                           | HC115538 ..... | * ..... | H2Z-1884                     | —     |
| Kit-25 Foot Line Sets 404a (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                     | HC117292 ..... | * ..... | H2Z-1884                     | — C2I |
| Kit-25 Foot Line Sets 404a (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                     | HC119124 ..... | * ..... | C2I                          | —     |
| Kit-50 Foot Line Sets 404a (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                     | HC117293 ..... | * ..... | H2Z-1884                     | — C2I |
| Kit-50 Foot Line Sets 404a (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                     | HC119125 ..... | * ..... | C2I                          | —     |
| Kit-Pressure Switch .....                                                                                                                                                                                                                                                                                                                                                                                                                                                  | HC117014 ..... | * ..... | H2Z-1884                     | —     |
| <p>* As Required<br/> ** Items Included In O-Ring Kit No. HC115538<br/> *** LH or RH — Left or right hand is determined as you face the front of freezer.<br/> AC = Air Cooled      ACR = Air Cooled Remote      W = Water Cooled<br/> NLA No Longer Available</p> <p><sup>1</sup> I2A-2278 designates the complete changeover to R-404a. Serial numbers B2A-376 to I2A-2278 could be R-502 or R-404a. Contact H.C. Duke &amp; Son, Inc. Service Department if unsure.</p> |                |         |                              |       |

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| PART<br>DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | PART<br>NUMBER                 | QTY     | SERIAL NUMBER<br>(FROM – TO) |            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------|------------------------------|------------|
| Kit-Reducer Gasket Model HCD926 .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC118742 .....                 | * ..... | C2G-529                      | —          |
| Kit-Roller Complete (MTS) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | HC116009-01 ..                 | * ..... | H2Z-1884                     | —          |
| Kit-Solenoid Valve Repair .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | HC155434 .....                 | * ..... | H2Z-1884                     | —          |
| Kit-Water Valve Repair .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | HC155444 .....                 | * ..... | H2Z-1884                     | —          |
| Knob-Oval Taper (Handle-MTS) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC162627 .....                 | 2 ..... | H2Z-1884                     | —          |
| Knob-Timer .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | HC162604 .....                 | 2 ..... | H2Z-1884                     | —          |
| Knob-Hand (Head) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | HC162625 .....                 | 2 ..... | H2Z-1884                     | —          |
| Label-Trimstrip MTS LH (Switches) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | HC164047 .....                 | 1 ..... | H2Z-1884                     | —          |
| Label-MTS Trimstrip RH (Switches) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | HC164048 .....                 | 1 ..... | H2Z-1884                     | —          |
| Leg-Assy. Six inch .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | HC112978 .....                 | 4 ..... | H2Z-1884                     | —          |
| Lever-Overload Reset .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC115524 .....                 | 2 ..... | H2Z-1884                     | — C2G-528  |
| Button-Reset .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC159036 .....                 | 2 ..... | H2Z-1884                     | — C2G-528  |
| Lever-Assy Reset (Overload) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | HC118390 .....                 | 2 ..... | C2G-529                      | — H2N      |
| Button-Reset .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC159036 .....                 | 2 ..... | C2G-529                      | — H2N      |
| Lever-Assy. Reset T1 .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC120362 .....                 | 2 ..... | H2N                          | —          |
| Button-Reset .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC159036 .....                 | 2 ..... | H2N                          | —          |
| Light-Indicator (Mix) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | HC150540 .....                 | 2 ..... | H2Z-1884                     | —          |
| Light-Pilot Amber .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | HC150553 .....                 | 2 ..... | H2Z-1884                     | — L2I-2994 |
| Light-Pilot Amber .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | HC150562 .....                 | 2 ..... | L2I-2995                     | —          |
| Light-Pilot Red .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC150552 .....                 | 2 ..... | H2Z-1884                     | — L2I-2994 |
| Light-Pilot Red .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC150561 .....                 | 2 ..... | L2I-2995                     | —          |
| Lock(Hook)-Swing (MTS) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Order by Freezer Serial Number |         |                              |            |
| Lubricant-Lubri-Film 4 oz. Tube .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC158054A ....                 | *       |                              |            |
| Meter-Air .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | (Order by Meter Number)        |         |                              |            |
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| PART<br>DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                 | PART<br>NUMBER | QTY | SERIAL NUMBER<br>(FROM – TO) |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----|------------------------------|
| Motor-Kit-Motor & Capacitors 2 hp (1 ph.)                                                                                                                                                                                                                                                                                                                                                                                                           |                |     |                              |
| (Beater Motor) .....                                                                                                                                                                                                                                                                                                                                                                                                                                | HC118140       | 2   | H2Z-1884 —                   |
| Capacitor-Run .....                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC150873       | 2   | H2Z-1884 —                   |
| Capacitor-Start .....                                                                                                                                                                                                                                                                                                                                                                                                                               | HC150872       | 2   | H2Z-1884 —                   |
| Motor-2 hp (3 ph.)(Beater Motor) .....                                                                                                                                                                                                                                                                                                                                                                                                              | HC151052       | 2   | H2Z-1884 —                   |
| Motor-Fan 50W 230v 60Hz (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                 | HC151072       | 2   | H2Z-1884 —                   |
| Motor-Fan 50w 230v 60Hz (AC) .....                                                                                                                                                                                                                                                                                                                                                                                                                  | HC151077-01    | 4   | H2Z-1884 —                   |
| Motor-1/8 hp (MTS-Gearmotor) .....                                                                                                                                                                                                                                                                                                                                                                                                                  | HC151129       | 2   | H2Z-1884 —                   |
| MOV-Assy. ....                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC116188       | 2   | H2Z-1884 —                   |
| MTS-Mtg Screws .....                                                                                                                                                                                                                                                                                                                                                                                                                                | HC159219       | 4   | H2Z-1884 —                   |
| MTS-Assy. Housing-Complete .....                                                                                                                                                                                                                                                                                                                                                                                                                    | HC116012       | 2   | H2Z-1884 —                   |
| MTS-Assy. Housing-w/o Roller .....                                                                                                                                                                                                                                                                                                                                                                                                                  | HC117054       | 2   | H2Z-1884 —                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                |     |                              |
| Nozzle-Serrated (8 Point Star Adaptor-Yogurt) .....                                                                                                                                                                                                                                                                                                                                                                                                 | HC196185       | *   | H2Z-1884 —                   |
| Nut-Assy. Pressure Switch .....                                                                                                                                                                                                                                                                                                                                                                                                                     | HC116105       | 2   | H2Z-1884 —                   |
| Nut-EL Stop #10-32 (MTS) .....                                                                                                                                                                                                                                                                                                                                                                                                                      | HC159421       | 4   | H2Z-1884 —                   |
| Nut-HEX #8-32 ZN (Spigot Switch) .....                                                                                                                                                                                                                                                                                                                                                                                                              | HC160102       | 4   | H2Z-1884 —                   |
| Nut-HXSf 1/4-20 ZN (MTS Relay Box) .....                                                                                                                                                                                                                                                                                                                                                                                                            | HC159951       | 4   | H2Z-1884 —                   |
| Nut-Push Round (Clip to Button) .....                                                                                                                                                                                                                                                                                                                                                                                                               | HC160289       | 2   | H2Z-1884 —                   |
| Nut-Speed #6-32 BKOX (MTS Relay Box) .....                                                                                                                                                                                                                                                                                                                                                                                                          | HC160116       | 4   | H2Z-1884 —                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                |     |                              |
| O-Ring (Bleeder) .....                                                                                                                                                                                                                                                                                                                                                                                                                              | HC160562       | **  | H2Z-1884 —                   |
| O-Ring (Extension) .....                                                                                                                                                                                                                                                                                                                                                                                                                            | HC160584       | **  | H2Z-1884 —                   |
| O-Ring (Head) .....                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC160583       | **  | H2Z-1884 —                   |
| O-Ring (Spigot) .....                                                                                                                                                                                                                                                                                                                                                                                                                               | HC159295       | **  | H2Z-1884 —                   |
| O-Ring (Seal-Beater Shaft) .....                                                                                                                                                                                                                                                                                                                                                                                                                    | HC160500       | **  | H2Z-1884 —                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                |     |                              |
| * As Required<br>** Items Included In O-Ring Kit No. HC115538<br>*** LH or RH — Left or right hand is determined as you face the front of freezer.<br>AC = Air Cooled      ACR = Air Cooled Remote      W = Water Cooled<br>NLA No Longer Available<br><sup>1</sup> I2A-2278 designates the complete changeover to R-404a. Serial numbers B2A-376 to I2A-2278 could be R-502 or R-404a. Contact H.C. Duke & Son, Inc. Service Department if unsure. |                |     |                              |

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# Alphabetized Parts List for Model 927CMT

*Important: All parts shown are for standard models designed for 230V/1PH/60HZ or 203-230V/3PH/60HZ.*

| PART DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | PART NUMBER  | QTY           | SERIAL NUMBER (FROM - TO) |            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------|---------------------------|------------|
| Oil-Special Gear Lube (per quart) .....                                                                                                                                                                                                                                                                                                                                                                                                                                            | HC158055     | ..... *       | H2Z-1884                  | —          |
| Pan-Assy. Condensate Pan (Ceiling Type) .....                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC117HC133   | ..1 .....     | K2B-2768                  | —          |
| Pan-Condensate (MJ70) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                        | HC136297     | ..... 1 ..... | H2Z-1884                  | — K2B-2767 |
| Panel Assy.-Top (AC) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC116567     | ..... 1 ..... | H2Z-1884                  | —          |
| Panel Assy.-Top<br>(WC or ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                               | HC114157     | ..... 1 ..... | H2Z-1884                  | —          |
| Panel-Assy Front .....                                                                                                                                                                                                                                                                                                                                                                                                                                                             | HC115115     | ..... 1 ..... | H2Z-1884                  | —          |
| Panel-Dispense .....                                                                                                                                                                                                                                                                                                                                                                                                                                                               | HC139221     | ..... 1 ..... | H2Z-1884                  | — L2I-2994 |
| Panel-Dispense .....                                                                                                                                                                                                                                                                                                                                                                                                                                                               | HC140133     | ..... 1 ..... | L2I-2995                  | —          |
| Panel-Lower Rear (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                       | HC138983     | ..... 1 ..... | H2Z-1884                  | —          |
| Panel-Rear (Water or AC) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                     | HC136313     | ..... 1 ..... | H2Z-1884                  | —          |
| Panel-Side LH .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                | HC136289     | ..... 1 ..... | H2Z-1884                  | —          |
| Panel-Side RH .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                | HC136216     | ..... 1 ..... | H2Z-1884                  | —          |
| Panel-Switch Box E/EF Label (Trimstrip) .....                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC115292-03  | ..1 .....     | H2Z-1884                  | —          |
| Panel-Upper Rear (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                       | HC138982     | ..... 1 ..... | H2Z-1884                  | —          |
| Plate-Coupling Mtg. ....                                                                                                                                                                                                                                                                                                                                                                                                                                                           | HC140039     | ..... 2 ..... | H2Z-1884                  | —          |
| Plate-Pivot Cover .....                                                                                                                                                                                                                                                                                                                                                                                                                                                            | HC138142     | ..... 2 ..... | H2Z-1884                  | —          |
| Probe-Assy. Mix Level 10-3/4" (7 Gal.) .....                                                                                                                                                                                                                                                                                                                                                                                                                                       | HC115397     | ..... 2 ..... | H2Z-1884                  | —          |
| Probe-Assy. Mix Level 8" (6 Gal.) .....                                                                                                                                                                                                                                                                                                                                                                                                                                            | HC116439     | ..... 2 ..... | H2Z-1884                  | —          |
| Pull-Door (Handle Cabinet) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                   | HC136199     | ..... 1 ..... | H2Z-1884                  | —          |
| Pulley .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | See "Sheave" |               |                           |            |
| Receiver-3 lb. (AC and WC) (NLA use #HC155071) ...                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC155040     | ..... 2 ..... | H2Z-1884                  | — F2C-1510 |
| Receiver-3 lb 3/8 ID (Air and WC) .....                                                                                                                                                                                                                                                                                                                                                                                                                                            | HC155057     | ..... 2 ..... | F2C-1511                  | — H2M      |
| Receiver-3 lb 3/8 ID w/o Valve (Air and WC) .....                                                                                                                                                                                                                                                                                                                                                                                                                                  | HC155071     | ..... 2 ..... | H2M                       | —          |
| <p>* As Required</p> <p>** Items Included In O-Ring Kit No. HC115538</p> <p>*** LH or RH — Left or right hand is determined as you face the front of freezer.</p> <p>AC = Air Cooled      ACR = Air Cooled Remote      W = Water Cooled</p> <p>NLA No Longer Available</p> <p><sup>1</sup> I2A-2278 designates the complete changeover to R-404a. Serial numbers B2A-376 to I2A-2278 could be R-502 or R-404a. Contact H.C. Duke &amp; Son, Inc. Service Department if unsure.</p> |              |               |                           |            |

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# Alphabetized Parts List for Model 927CMT

*Important: All parts shown are for standard models designed for 230V/1PH/60HZ or 203-230V/3PH/60HZ.*

| PART<br>DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                        | PART<br>NUMBER | QTY     | SERIAL NUMBER<br>(FROM – TO) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------|------------------------------|
| Receiver-12 lb 1/2SAE (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                          | HC155043 ..... | 2 ..... | H2Z-1884 — C2I               |
| Receiver-12 lb Horz. Mount (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                     | HC155058 ..... | 2 ..... | C2I —                        |
| Receptacle-Molded Level Sensor .....                                                                                                                                                                                                                                                                                                                                                                                                                                       | HC150536 ..... | 2 ..... | H2Z-1884 —                   |
| Receptacle-Snap In .....                                                                                                                                                                                                                                                                                                                                                                                                                                                   | HC159050 ..... | 2 ..... | H2Z-1884 —                   |
| Reducer-Gear LH 10/1 4CB .....                                                                                                                                                                                                                                                                                                                                                                                                                                             | HC153342 ..... | 1 ..... | H2Z-1884 — J2H-2538          |
| Reducer-Gear LH 10/1 HCD926 .....                                                                                                                                                                                                                                                                                                                                                                                                                                          | HC153355 ..... | 1 ..... | J2H-2539 — J2H-2539          |
| Reducer-Gear LH 10/1 4CB .....                                                                                                                                                                                                                                                                                                                                                                                                                                             | HC153342 ..... | 1 ..... | J2H-2540 — C2I-629           |
| Reducer-Gear LH 10/1 HCD926 .....                                                                                                                                                                                                                                                                                                                                                                                                                                          | HC153355 ..... | 1 ..... | C2I-630 —                    |
| Reducer-Gear RH 10/1 4CB .....                                                                                                                                                                                                                                                                                                                                                                                                                                             | HC153343 ..... | 1 ..... | H2Z-1884 — J2H-2538          |
| Reducer-Gear RH 10/1 HCD926 .....                                                                                                                                                                                                                                                                                                                                                                                                                                          | HC153356 ..... | 1 ..... | J2H-2539 — J2H-2539          |
| Reducer-Gear RH 10/1 4CB .....                                                                                                                                                                                                                                                                                                                                                                                                                                             | HC153343 ..... | 1 ..... | J2H-2540 — C2I-629           |
| Reducer-Gear RH 10/1 HCD926 .....                                                                                                                                                                                                                                                                                                                                                                                                                                          | HC153356 ..... | 1 ..... | C2I-630 —                    |
| Relay-Assy. Overload 6.0-10.0A 1 Phase ONLY .....                                                                                                                                                                                                                                                                                                                                                                                                                          | HC114760 ..... | 2 ..... | H2Z-1884 — B2G-270           |
| Adapter-Reset .....                                                                                                                                                                                                                                                                                                                                                                                                                                                        | HC150101 ..... | 2 ..... | H2Z-1884 — B2G-270           |
| Kit-Line Side Terminal .....                                                                                                                                                                                                                                                                                                                                                                                                                                               | HC150102 ..... | 2 ..... | H2Z-1884 — B2G-270           |
| Relay-Overload .....                                                                                                                                                                                                                                                                                                                                                                                                                                                       | HC150115 ..... | 2 ..... | H2Z-1884 — B2G-270           |
| Relay-Assy Overload 5-15A 1 Phase ONLY .....                                                                                                                                                                                                                                                                                                                                                                                                                               | HC118359 ..... | 2 ..... | B2G-271 — H2N                |
| Adapter-Overload Din Rail .....                                                                                                                                                                                                                                                                                                                                                                                                                                            | HC150145 ..... | 2 ..... | B2G-271 — H2N                |
| Button-OL Reset Adapter .....                                                                                                                                                                                                                                                                                                                                                                                                                                              | HC150150 ..... | 2 ..... | B2G-271 — H2N                |
| Relay-SS Overload 1 Phase 5-15A .....                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC150140 ..... | 2 ..... | B2G-271 — H2N                |
| Relay-Assy Overload T1 7.2-10A 1 Phase ONLY .....                                                                                                                                                                                                                                                                                                                                                                                                                          | HC120361 ..... | 2 ..... | H2N —                        |
| Adapter-Overload Din Rail .....                                                                                                                                                                                                                                                                                                                                                                                                                                            | HC150063 ..... | 2 ..... | H2N —                        |
| Adapter-Reset Threaded T1 .....                                                                                                                                                                                                                                                                                                                                                                                                                                            | HC150064 ..... | 2 ..... | H2N —                        |
| Relay-Overload 7.2-10A .....                                                                                                                                                                                                                                                                                                                                                                                                                                               | HC150061 ..... | 2 ..... | H2N —                        |
| Relay-Assy. Overload 5.5-8.0A 3 Phase ONLY .....                                                                                                                                                                                                                                                                                                                                                                                                                           | HC114759 ..... | 2 ..... | H2Z-1884 — B2G-270           |
| Adapter-Reset .....                                                                                                                                                                                                                                                                                                                                                                                                                                                        | HC150101 ..... | 2 ..... | H2Z-1884 — B2G-270           |
| Kit-Line Side Terminal .....                                                                                                                                                                                                                                                                                                                                                                                                                                               | HC150102 ..... | 2 ..... | H2Z-1884 — B2G-270           |
| Relay-Overload .....                                                                                                                                                                                                                                                                                                                                                                                                                                                       | HC150114 ..... | 2 ..... | H2Z-1884 — B2G-270           |
| <p>* As Required<br/> ** Items Included In O-Ring Kit No. HC115538<br/> *** LH or RH — Left or right hand is determined as you face the front of freezer.<br/> AC = Air Cooled      ACR = Air Cooled Remote      W = Water Cooled<br/> NLA No Longer Available</p> <p><sup>1</sup> I2A-2278 designates the complete changeover to R-404a. Serial numbers B2A-376 to I2A-2278 could be R-502 or R-404a. Contact H.C. Duke &amp; Son, Inc. Service Department if unsure.</p> |                |         |                              |

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| PART<br>DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                | PART<br>NUMBER        | QTY     | SERIAL NUMBER<br>(FROM - TO) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------|------------------------------|
| Relay-Assy. Overload 3.7-12A 3 Phase ONLY .....                                                                                                                                                                                                                                                                                                                                                                                                                                    | HC118361 .....        | 2 ..... | B2G-271 — H2N                |
| Adapter-Overload Din Rail .....                                                                                                                                                                                                                                                                                                                                                                                                                                                    | HC150145 .....        | 2 ..... | B2G-271 — H2N                |
| Button-OL Reset Adapter .....                                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC150150 .....        | 2 ..... | B2G-271 — H2N                |
| Relay-SS Overload 3 Phase 3.7-12A .....                                                                                                                                                                                                                                                                                                                                                                                                                                            | HC150142 .....        | 2 ..... | B2G-271 — H2N                |
| Relay-Assy Overload T1 5.5-7.5A 3 Phase ONLY ....                                                                                                                                                                                                                                                                                                                                                                                                                                  | HC120360 .....        | 2 ..... | H2N —                        |
| Adapter-Overload Din Rail .....                                                                                                                                                                                                                                                                                                                                                                                                                                                    | HC150063 .....        | 2 ..... | H2N —                        |
| Adapter-Reset Threaded T1 .....                                                                                                                                                                                                                                                                                                                                                                                                                                                    | HC150064 .....        | 2 ..... | H2N —                        |
| Relay-Overload 5.5-7.5A .....                                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC150060 .....        | 2 ..... | H2N —                        |
| Relay-Flange Base w/Cover (Electric Box) .....                                                                                                                                                                                                                                                                                                                                                                                                                                     | HC150381 .....        | 2 ..... | H2Z-1884 — B2I-439           |
| Relay-Flange Base w/Cover (MTS Relay Box) .....                                                                                                                                                                                                                                                                                                                                                                                                                                    | HC150381 .....        | 1 ..... | H2Z-1884 —                   |
| Relay-Start .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <i>See Compressor</i> |         |                              |
| Resistor-Assy .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                | HC116154 .....        | 2 ..... | C2Y-611 — B2I-439            |
| Ring-Retaining 1/2 External (Spigot Switch) .....                                                                                                                                                                                                                                                                                                                                                                                                                                  | HC160303 .....        | 2 ..... | H2Z-1884 —                   |
| Rod-Spigot Switch .....                                                                                                                                                                                                                                                                                                                                                                                                                                                            | HC136126 .....        | 2 ..... | H2Z-1884 —                   |
| Roller-Kit (MTS) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                             | HC116009-01 ..        | * ..... | H2Z-1884 —                   |
| Sanitizer-Stera Sheen (per case) .....                                                                                                                                                                                                                                                                                                                                                                                                                                             | HC158014 .....        | * ..... | H2Z-1884 —                   |
| Sanitizer-Stera Sheen (per jar) .....                                                                                                                                                                                                                                                                                                                                                                                                                                              | HC158014A ....        | * ..... | H2Z-1884 —                   |
| Sanitizer-Stera Sheen (sample) .....                                                                                                                                                                                                                                                                                                                                                                                                                                               | HC158013 .....        | * ..... | H2Z-1884 —                   |
| Scale-Overrun .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                | HC158049 .....        | 1 ..... | H2Z-1884 —                   |
| Screw-HXSF 1/4-20 x 1/2ZN (MTS Relay Box) .....                                                                                                                                                                                                                                                                                                                                                                                                                                    | HC159950 .....        | 2 ..... | H2Z-1884 —                   |
| Screw-RDHM #6-32 x 1-1/4 SST<br>(Spigot Switch) .....                                                                                                                                                                                                                                                                                                                                                                                                                              | HC160296 .....        | 4 ..... | H2Z-1884 —                   |
| Screw-RDHM #6-32 x 5/16ZN(MTS Relay Box) .....                                                                                                                                                                                                                                                                                                                                                                                                                                     | HC160308 .....        | 2 ..... | H2Z-1884 —                   |
| Screw-RDHM #8-32 x 7/8 Brass<br>(Spigot Switch) .....                                                                                                                                                                                                                                                                                                                                                                                                                              | HC160267 .....        | 4 ..... | H2Z-1884 —                   |
| Screw-SK Set 5/16-18 x 3/8 (Gear Reducer) .....                                                                                                                                                                                                                                                                                                                                                                                                                                    | HC160495 .....        | 2 ..... | H2Z-1884 —                   |
| <p>* As Required</p> <p>** Items Included In O-Ring Kit No. HC115538</p> <p>*** LH or RH — Left or right hand is determined as you face the front of freezer.</p> <p>AC = Air Cooled      ACR = Air Cooled Remote      W = Water Cooled</p> <p>NLA No Longer Available</p> <p><sup>1</sup> I2A-2278 designates the complete changeover to R-404a. Serial numbers B2A-376 to I2A-2278 could be R-502 or R-404a. Contact H.C. Duke &amp; Son, Inc. Service Department if unsure.</p> |                       |         |                              |

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| PART<br>DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                | PART<br>NUMBER                 | QTY     | SERIAL NUMBER<br>(FROM – TO) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------|------------------------------|
| Screw-SKHC #10-32 x 7/16 SST (MTS) .....                                                                                                                                                                                                                                                                                                                                                                                                                                           | HC160307 .....                 | 6 ..... | H2Z-1884 —                   |
| Screw-TRPM #10-32 x 5/8 (MTS-Swing Lock) .....                                                                                                                                                                                                                                                                                                                                                                                                                                     | HC160026 .....                 | 2 ..... | H2Z-1884 —                   |
| Screw-TRPM 1/4-20x1 SST (MTS-Mounting) .....                                                                                                                                                                                                                                                                                                                                                                                                                                       | HC159219 .....                 | 4 ..... | H2Z-1884 —                   |
| Seal-Assy. Shaft .....                                                                                                                                                                                                                                                                                                                                                                                                                                                             | HC111875 .....                 | 2 ..... | H2Z-1884 —                   |
| O-Ring .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | HC160500 .....                 | 2 ..... | H2Z-1884 —                   |
| Seal-Beater Shaft .....                                                                                                                                                                                                                                                                                                                                                                                                                                                            | HC160557 .....                 | 2 ..... | H2Z-1884 —                   |
| Washer-Shaft Seal .....                                                                                                                                                                                                                                                                                                                                                                                                                                                            | HC133098 .....                 | 2 ..... | H2Z-1884 —                   |
| Seal(Boot)-Mix Tube .....                                                                                                                                                                                                                                                                                                                                                                                                                                                          | HC199033 .....                 | 2 ..... | H2Z-1884 —                   |
| Seal-Oil 4½ BT 63 x 141 (4CB Gear Reducer) .....                                                                                                                                                                                                                                                                                                                                                                                                                                   | HC153053 .....                 | 4 ..... | See Reducer-Gear             |
| Seal-Oil 63 x 291 (4CB Gear Reducer) .....                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC153051 .....                 | 4 ..... | See Reducer-Gear             |
| Seal-High Speed (HCD926 Gear Reducer) .....                                                                                                                                                                                                                                                                                                                                                                                                                                        | HC153067 .....                 | 2 ..... | See Reducer-Gear             |
| Seal-Slow Speed (HCD926 Gear Reducer) .....                                                                                                                                                                                                                                                                                                                                                                                                                                        | HC153071 .....                 | 2 ..... | See Reducer-Gear             |
| Sensor-10K Thermistor .....                                                                                                                                                                                                                                                                                                                                                                                                                                                        | HC161216 .....                 | 2 ..... | I2F-2694 —                   |
| Shaft-Assy. Beater .....                                                                                                                                                                                                                                                                                                                                                                                                                                                           | HC113438 .....                 | 2 ..... | H2Z-1884 —                   |
| Shaft-Input (4CB Gear Reducer) .....                                                                                                                                                                                                                                                                                                                                                                                                                                               | HC153347 .....                 | 1 ..... | H2Z-1884 —                   |
| Shaft-Output (4CB Gear Reducer) .....                                                                                                                                                                                                                                                                                                                                                                                                                                              | HC153339 .....                 | 2 ..... | H2Z-1884 —                   |
| Sheave-5/8 Bore 4.75 OD (Pulley-Driven) .....                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC153625 .....                 | 2 ..... | H2Z-1884 —                   |
| Sheave-7/8 Bore 3.25 OD (Pulley-Driver) .....                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC153626 .....                 | 2 ..... | H2Z-1884 —                   |
| Shield-Motor Rain .....                                                                                                                                                                                                                                                                                                                                                                                                                                                            | HC139017 .....                 | 2 ..... | H2Z-1884 —                   |
| Shroud-Assy. Evaporator (Cabinet MJ70) .....                                                                                                                                                                                                                                                                                                                                                                                                                                       | HC114580 .....                 | 1 ..... | H2Z-1884 — K2B-277           |
| Shroud-Assy. Evaporator (Cabinet-Ceiling Type) .....                                                                                                                                                                                                                                                                                                                                                                                                                               | Order by Freezer Serial Number |         |                              |
| Shroud-Fan (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                             | HC138465 .....                 | 1 ..... | H2Z-1884 —                   |
| Sleeve-Compressor Mtg. (Tecumseh) .....                                                                                                                                                                                                                                                                                                                                                                                                                                            | HC151434 .....                 | 16 ...  | H2Z-1884 — I2H               |
| Socket-Octal Terminal .....                                                                                                                                                                                                                                                                                                                                                                                                                                                        | HC150119 .....                 | 2 ..... | H2Z-1884 —                   |
| Spacer-Curved Pressure Switch .....                                                                                                                                                                                                                                                                                                                                                                                                                                                | HC138827-01 ..                 | 2 ..... | H2Z-1884 —                   |
| Spigot-Long Single .....                                                                                                                                                                                                                                                                                                                                                                                                                                                           | HC134921 .....                 | 2 ..... | H2Z-1884 —                   |
| Spring-LH (Pivot Hinge) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC162052 .....                 | 1 ..... | H2Z-1884 —                   |
| <p>* As Required</p> <p>** Items Included In O-Ring Kit No. HC115538</p> <p>*** LH or RH — Left or right hand is determined as you face the front of freezer.</p> <p>AC = Air Cooled      ACR = Air Cooled Remote      W = Water Cooled</p> <p>NLA No Longer Available</p> <p><sup>1</sup> I2A-2278 designates the complete changeover to R-404a. Serial numbers B2A-376 to I2A-2278 could be R-502 or R-404a. Contact H.C. Duke &amp; Son, Inc. Service Department if unsure.</p> |                                |         |                              |

**Use only original or authorized replacement parts with this freezer.**

# Alphabetized Parts List for Model 927CMT

*Important: All parts shown are for standard models designed for 230V/1PH/60HZ or 203-230V/3PH/60HZ.*

| PART<br>DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                | PART<br>NUMBER | QTY     | SERIAL NUMBER<br>(FROM - TO) |            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------|------------------------------|------------|
| Spring-Spigot Switch .....                                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC162321 ..... | 2 ..... | H2Z-1884                     | —          |
| Strip-Terminal .....                                                                                                                                                                                                                                                                                                                                                                                                                                                               | HC150795 ..... | 2 ..... | H2Z-1884                     | —          |
| Stud-Assy. Cylinder 1-15/16 inch .....                                                                                                                                                                                                                                                                                                                                                                                                                                             | HC114341 ..... | 2 ..... | H2Z-1884                     | —          |
| Support-Condenser (ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC137629 ..... | 2 ..... | H2Z-1884                     | —          |
| Support-MTS .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | HC139805 ..... | 2 ..... | B2I-440                      | —          |
| Switch-Assy. Spigot .....                                                                                                                                                                                                                                                                                                                                                                                                                                                          | HC113903 ..... | 2 ..... | H2Z-1884                     | —          |
| Bracket-Assy. Adjusting .....                                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC113901 ..... | 2 ..... | H2Z-1884                     | —          |
| Bracket-Assy. Spigot Switch Mtg. ....                                                                                                                                                                                                                                                                                                                                                                                                                                              | HC113902 ..... | 2 ..... | H2Z-1884                     | —          |
| Button-Spigot Switch .....                                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC136124 ..... | 2 ..... | H2Z-1884                     | —          |
| Insulator-Switch .....                                                                                                                                                                                                                                                                                                                                                                                                                                                             | HC135744 ..... | 2 ..... | H2Z-1884                     | —          |
| Nut-HEX #8-32 ZN .....                                                                                                                                                                                                                                                                                                                                                                                                                                                             | HC160102 ..... | 4 ..... | H2Z-1884                     | —          |
| Ring-Retainig 1/2 External .....                                                                                                                                                                                                                                                                                                                                                                                                                                                   | HC160303 ..... | 2 ..... | H2Z-1884                     | —          |
| Screw-RDHM #8-32 x 7/8 Brass .....                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC160267 ..... | 4 ..... | H2Z-1884                     | —          |
| Screw-RDHM #6-32 x 1-1/4 SST .....                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC160296 ..... | 4 ..... | H2Z-1884                     | —          |
| Spring-Spigot Switch .....                                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC162321 ..... | 2 ..... | H2Z-1884                     | —          |
| Switch-Snap Button .....                                                                                                                                                                                                                                                                                                                                                                                                                                                           | HC150456 ..... | 2 ..... | H2Z-1884                     | —          |
| Washer-EXT Tooth #6 ZN (Lock) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                | HC160392 ..... | 4 ..... | H2Z-1884                     | —          |
| Washer-Flat #6 Brass .....                                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC160393 ..... | 4 ..... | H2Z-1884                     | —          |
| Switch-Centrifugal (Beater Motor) .....                                                                                                                                                                                                                                                                                                                                                                                                                                            | HC150877 ..... | * ..... | H2Z-1884                     | —          |
| Switch-Dispense Head Kit .....                                                                                                                                                                                                                                                                                                                                                                                                                                                     | HC116410 ..... | 1 ..... | H2Z-1884                     | —          |
| Switch-Door Push Button (Evaporator)<br>(NLA use HC119163 Kit) .....                                                                                                                                                                                                                                                                                                                                                                                                               | HC150416 ..... | 1 ..... | H2Z-1884                     | — K2H-2747 |
| Switch-Door Push Button (Evaporator) .....                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC150509 ..... | 1 ..... | K2H-2748                     | —          |
| Switch-MTS Slide Kit .....                                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC116411 ..... | 1 ..... | H2Z-1884                     | —          |
| Switch-Pressure Switch Kit .....                                                                                                                                                                                                                                                                                                                                                                                                                                                   | HC117014 ..... | 1 ..... | H2Z-1884                     | —          |
| Switch-Snap Button (Spigot Switch) .....                                                                                                                                                                                                                                                                                                                                                                                                                                           | HC150456 ..... | 2 ..... | H2Z-1884                     | —          |
| Switch-Toggle 3PDT Ctr Off (Selector) .....                                                                                                                                                                                                                                                                                                                                                                                                                                        | HC150465 ..... | 2 ..... | H2Z-1884                     | —          |
| Switch-Toggle DPDT Ctr Off (MTS) .....                                                                                                                                                                                                                                                                                                                                                                                                                                             | HC150463 ..... | 2 ..... | H2Z-1884                     | — C2I-712  |
| Switch-Toggle SPST (MTS) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                     | HC159235 ..... | 2 ..... | C2I-713                      | —          |
| <p>* As Required</p> <p>** Items Included In O-Ring Kit No. HC115538</p> <p>*** LH or RH — Left or right hand is determined as you face the front of freezer.</p> <p>AC = Air Cooled      ACR = Air Cooled Remote      W = Water Cooled</p> <p>NLA No Longer Available</p> <p><sup>1</sup> I2A-2278 designates the complete changeover to R-404a. Serial numbers B2A-376 to I2A-2278 could be R-502 or R-404a. Contact H.C. Duke &amp; Son, Inc. Service Department if unsure.</p> |                |         |                              |            |

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# Alphabetized Parts List for Model 927CMT

*Important: All parts shown are for standard models designed for 230V/1PH/60HZ or 203-230V/3PH/60HZ.*

| PART DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                           | PART NUMBER    | QTY                                   | SERIAL NUMBER (FROM – TO) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------------------------------|---------------------------|
| Switch-Toggle SPST (Cabinet) .....                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC159235 ..... | 1 .....                               | H2Z-1884 —                |
| Tank-Mix 6 Gal. 10-1/2" (NLA) .....                                                                                                                                                                                                                                                                                                                                                                                                                                        | HC196092-01 .. | 2 .....                               | H2Z-1884 — K2B-277        |
| Tank-Mix 7 Gal. 13-1/4" .....                                                                                                                                                                                                                                                                                                                                                                                                                                              | HC196222 ..... | 2 .....                               | K2B-278 —                 |
| Tee-5/8 x 5/8 x 5/8 (Plastic Hose Connection)<br>(Mix bag adapter) .....                                                                                                                                                                                                                                                                                                                                                                                                   | HC196006 ..... | * .....                               | H2Z-1884 —                |
| Thermometer-2.5 Dial Vapor .....                                                                                                                                                                                                                                                                                                                                                                                                                                           | HC161026 ..... | 2 .....                               | H2Z-1884 — L2I-2994       |
| Thermometer-Barrel (Cabinet-MJ70) .....                                                                                                                                                                                                                                                                                                                                                                                                                                    | HC161001 ..... | 1 .....                               | H2Z-1884 —                |
| Thermometer-Barrel (Cabinet-Ceiling Type) .....                                                                                                                                                                                                                                                                                                                                                                                                                            | HC161004 ..... | <i>Order by Freezer Serial Number</i> |                           |
| Thermostat-Assy. w/Cover (Cabinet) .....                                                                                                                                                                                                                                                                                                                                                                                                                                   | HC118868 ..... | 1 .....                               | C2H-549 — I2I-2265        |
| Thermostat-Cabinet A30 .....                                                                                                                                                                                                                                                                                                                                                                                                                                               | HC155443 ..... | 1 .....                               | H2Z-1884 — C2H-548        |
| Thermostat-Kit (Cabinet) .....                                                                                                                                                                                                                                                                                                                                                                                                                                             | HC118813 ..... | 1 .....                               | I2I-2266 —                |
| Thermostat & Retainer Kit .....                                                                                                                                                                                                                                                                                                                                                                                                                                            | HC119989 ..... | 4 .....                               | H2Z-1884 —                |
| Timer-12 Sec DOB .....                                                                                                                                                                                                                                                                                                                                                                                                                                                     | HC150208 ..... | 2 .....                               | H2Z-1884 —                |
| Timer-5 Minute (NLA use p/n HC150218) .....                                                                                                                                                                                                                                                                                                                                                                                                                                | HC150215 ..... | 2 .....                               | H2Z-1884 — B2I-439        |
| Timer-5 Minute Mechanical .....                                                                                                                                                                                                                                                                                                                                                                                                                                            | HC150218 ..... | 2 .....                               | B2I-440 —                 |
| Tool-O-ring Removal .....                                                                                                                                                                                                                                                                                                                                                                                                                                                  | HC169374 ..... | 1 .....                               | H2Z-1884 —                |
| Tool-Assy. Pressure Switch Install .....                                                                                                                                                                                                                                                                                                                                                                                                                                   | HC117013 ..... | 1 .....                               | H2Z-1884 —                |
| Tray-Drip 26" White .....                                                                                                                                                                                                                                                                                                                                                                                                                                                  | HC196108-01 .. | 1 .....                               | H2Z-1884 —                |
| Trimstrip-Assy w/o Decal .....                                                                                                                                                                                                                                                                                                                                                                                                                                             | HC115108 ..... | 1 .....                               | H2Z-1884 — L2I-2994       |
| Trimstrip-Assy. 26 inch IDQ .....                                                                                                                                                                                                                                                                                                                                                                                                                                          | HC119336-02 .. | 1 .....                               | L2I-2995                  |
| Tube-Air (Hose) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                      | HC138170 ..... | 2 .....                               | H2Z-1884 —                |
| Tube-Assy. Pickup .....                                                                                                                                                                                                                                                                                                                                                                                                                                                    | HC116069 ..... | 2 .....                               | H2Z-1884 —                |
| Tube-Assy. Drain .....                                                                                                                                                                                                                                                                                                                                                                                                                                                     | HC114374 ..... | 2 .....                               | H2Z-1884 —                |
| Tube-Drain Support .....                                                                                                                                                                                                                                                                                                                                                                                                                                                   | HC138919 ..... | 1 .....                               | H2Z-1884 —                |
| Tubing-.375 ID x .500 OD PVC .....                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC196068 ..... | 6.25 .                                | H2Z-1884 —                |
| <p>* As Required<br/> ** Items Included In O-Ring Kit No. HC115538<br/> *** LH or RH — Left or right hand is determined as you face the front of freezer.<br/> AC = Air Cooled      ACR = Air Cooled Remote      W = Water Cooled<br/> NLA No Longer Available</p> <p><sup>1</sup> I2A-2278 designates the complete changeover to R-404a. Serial numbers B2A-376 to I2A-2278 could be R-502 or R-404a. Contact H.C. Duke &amp; Son, Inc. Service Department if unsure.</p> |                |                                       |                           |

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# Alphabetized Parts List for Model 927CMT

*Important: All parts shown are for standard models designed for 230V/1PH/60HZ or 203–230V/3PH/60HZ.*

| PART DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | PART NUMBER       | QTY                        | SERIAL NUMBER (FROM – TO) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------------------------|---------------------------|
| Valve-Access (Compressor-Tecumseh AV) .....                                                                                                                                                                                                                                                                                                                                                                                                                                        | HC155419 .....    | See Compressor-Tecumseh AV |                           |
| Valve-Automatic Expansion w/flare (Cabinet) .....                                                                                                                                                                                                                                                                                                                                                                                                                                  | HC155416 .....    | 1 .....                    | H2Z-1884 — F2C-1510       |
| Valve-Automatic Expansion w/sweat (Cabinet) .....                                                                                                                                                                                                                                                                                                                                                                                                                                  | HC155449 .....    | 1 .....                    | F2C-1511 —                |
| Valve-Automatic Expansion w/flare (Cylinder) .....                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC155400 .....    | 2 .....                    | H2Z-1884 — F2C-1510       |
| Valve-Automatic Expansion w/sweat (Cylinder) .....                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC155448 .....    | 2 .....                    | F2C-1511 — J2H-2538       |
| Valve-Automatic Expansion w/sweat (Cylinder) .....                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC155451 .....    | 2 .....                    | J2H-2539 — A2J-171        |
| Valve-Automatic Expansion w/sweat (Cylinder) .....                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC155490 .....    | 2 .....                    | A2J-172 —                 |
| Valve-Duckbill-Inlet .....                                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC199032 .....    | 2 .....                    | H2Z-1884 —                |
| Valve-Head Pressure Control(ACR) .....                                                                                                                                                                                                                                                                                                                                                                                                                                             | HC155454 .....    | 1 .....                    | H2Z-1884 —                |
| Valve-Assy. Rotalock RH MTZ (Maneurop)                                                                                                                                                                                                                                                                                                                                                                                                                                             |                   |                            |                           |
| includes valve and .....                                                                                                                                                                                                                                                                                                                                                                                                                                                           | HC119236 .....    | 2 .....                    | J2H — A2M                 |
| Kit-Washer Rotalock .....                                                                                                                                                                                                                                                                                                                                                                                                                                                          | HC151399 .....    | 2 .....                    | J2H — A2M                 |
| Insulator-Rotalock Valve .....                                                                                                                                                                                                                                                                                                                                                                                                                                                     | HC165532 .....    | 2 .....                    | J2H — A2M                 |
| Valve-Solenoid w/flare .....                                                                                                                                                                                                                                                                                                                                                                                                                                                       | HC155422 .....    | 3 .....                    | H2Z-1884 — F2C-1510       |
| Valve-Solenoid w/sweat .....                                                                                                                                                                                                                                                                                                                                                                                                                                                       | HC155421 .....    | 3 .....                    | F2C-1511 —                |
| Valve-Assy. Water .....                                                                                                                                                                                                                                                                                                                                                                                                                                                            | HC112080 .....    | 2 .....                    | H2Z-1884 —                |
| Valve-Water .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | HC155410 .....    | 2 .....                    | H2Z-1884 —                |
| Valve-Water Kit .....                                                                                                                                                                                                                                                                                                                                                                                                                                                              | HC155444 .....    | * .....                    | H2Z-1884 —                |
| Video-Training (Operational)(VHS) .....                                                                                                                                                                                                                                                                                                                                                                                                                                            | HC-184818 .....   | * .....                    | H2Z-1884 —                |
| Video-Training (Operational)(DVD) .....                                                                                                                                                                                                                                                                                                                                                                                                                                            | HC184818-01 ..... | * .....                    | H2Z-1884 —                |
| Washer-1/2 x .HC196 x 1/6 (MTS) .....                                                                                                                                                                                                                                                                                                                                                                                                                                              | HC160157 .....    | 1 .....                    | H2Z-1884 —                |
| Washer-EXT Tooth #6 ZN (Lock)(Spigot Switch) .....                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC160392 .....    | 4 .....                    | H2Z-1884 —                |
| Washer-Flat .190 x .365 x .075 SST (MTS) .....                                                                                                                                                                                                                                                                                                                                                                                                                                     | HC160158 .....    | 2 .....                    | H2Z-1884 —                |
| Washer-Flat #10 SST (MTS) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                    | HC159962 .....    | 6 .....                    | H2Z-1884 —                |
| Washer-Flat #6 Brass (Spigot Switch) .....                                                                                                                                                                                                                                                                                                                                                                                                                                         | HC160393 .....    | 4 .....                    | H2Z-1884 —                |
| <p>* As Required</p> <p>** Items Included In O-Ring Kit No. HC115538</p> <p>*** LH or RH — Left or right hand is determined as you face the front of freezer.</p> <p>AC = Air Cooled      ACR = Air Cooled Remote      W = Water Cooled</p> <p>NLA No Longer Available</p> <p><sup>1</sup> I2A-2278 designates the complete changeover to R-404a. Serial numbers B2A-376 to I2A-2278 could be R-502 or R-404a. Contact H.C. Duke &amp; Son, Inc. Service Department if unsure.</p> |                   |                            |                           |

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# Alphabetized Parts List for Model 927CMT

*Important: All parts shown are for standard models designed for 230V/1PH/60HZ or 203-230V/3PH/60HZ.*

| PART DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | PART NUMBER    | QTY     | SERIAL NUMBER (FROM - TO) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------|---------------------------|
| Washer-Rotalock Kit .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | HC151399 ..... | 2 ..... | J2H —                     |
| Washer-Shaft Seal (Beater Shaft) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | HC133098 ..... | 2 ..... | H2Z-1884 —                |
| Washer-Spring Curved (MTS) (NLA use HC160173) ..                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HC160145 ..... | 4 ..... | H2Z-1884 — K2I            |
| Washer-Spring Wave SST (MTS) .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | HC160173 ..... | 2 ..... | K2I —                     |
| <div><div>* As Required</div><div>** Items Included In O-Ring Kit No. HC115538</div><div>*** LH or RH — Left or right hand is determined as you face the front of freezer.</div><div>AC = Air Cooled      ACR = Air Cooled Remote      W = Water Cooled</div><div>NLA No Longer Available</div><div><sup>1</sup> I2A-2278 designates the complete changeover to R-404a. Serial numbers B2A-376 to I2A-2278 could be R-502 or R-404a. Contact H.C. Duke &amp; Son, Inc. Service Department if unsure.</div></div> |                |         |                           |

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**H. C. DUKE & SON, INC.**

2116 - 8th Avenue • East Moline, Illinois 61244

## **Installation and Service Manual**

for Refrigeration Technician only

Models 957CMT, 917N-CMT, 927CMT



# Table of Contents

|          |                                                             |           |
|----------|-------------------------------------------------------------|-----------|
| <b>1</b> | <b>Introduction .....</b>                                   | <b>1</b>  |
| <b>2</b> | <b>Safety First! .....</b>                                  | <b>1</b>  |
|          | 2.1 Recognize Safety Information .....                      | 1         |
|          | 2.2 Understand Signal Words .....                           | 1         |
|          | 2.3 Follow Safety Instructions .....                        | 2         |
|          | 2.4 Operate Safely .....                                    | 3         |
| <b>3</b> | <b>Service “First” .....</b>                                | <b>4</b>  |
|          | 3.1 Installation, Start-up, and Instruction Checklist ..... | 4         |
| <b>4</b> | <b>Uncrating and Inspecting the Freezer .....</b>           | <b>5</b>  |
|          | 4.1 Uncrating the Freezer. ....                             | 5         |
|          | 4.2 Inspecting the Freezer .....                            | 6         |
| <b>5</b> | <b>Installation Procedures .....</b>                        | <b>7</b>  |
|          | 5.1 Placement of the Freezer .....                          | 7         |
|          | 5.2 Water and Drain Connections .....                       | 8         |
|          | 5.3 Electrical Requirements .....                           | 9         |
|          | 5.4 Beater Rotation .....                                   | 10        |
|          | 5.5 Data Plate .....                                        | 11        |
|          | 5.6 Reference Information .....                             | 11        |
| <b>6</b> | <b>Remote Air Condenser .....</b>                           | <b>12</b> |
|          | 6.1 Placement of the Remote Air Condenser .....             | 12        |
|          | 6.2 Remote Air Condenser Installation .....                 | 12        |
|          | 6.2.1 Connecting Condenser Line Couplings .....             | 13        |
|          | 6.2.2 Condenser Electrical Wiring .....                     | 15        |
| <b>7</b> | <b>Tests of Installation .....</b>                          | <b>17</b> |
|          | 7.1 Head Switch Operation .....                             | 17        |
|          | 7.2 Cylinder Frost Pattern .....                            | 18        |
|          | 7.3 Spigot Switch Operation .....                           | 19        |

## Table of Contents - continued

|           |                                                                   |           |
|-----------|-------------------------------------------------------------------|-----------|
| <b>8</b>  | <b>Operating Adjustments .....</b>                                | <b>21</b> |
|           | 8.1 Thermostat .....                                              | 21        |
|           | 8.2 Refrigeration Settings .....                                  | 22        |
|           | 8.3 Operational Checks .....                                      | 23        |
| <b>9</b>  | <b>Mix Transfer System .....</b>                                  | <b>24</b> |
|           | 9.1 MTS Housing Replacement .....                                 | 24        |
|           | 9.2 MTS Motor Replacement .....                                   | 26        |
|           | 9.3 MTS Slide Switch Replacement .....                            | 28        |
|           | 9.4 MTS Roller Assembly Replacement .....                         | 30        |
|           | 9.5 MTS Actuator Replacement Instructions .....                   | 32        |
| <b>10</b> | <b>Equipment Operation .....</b>                                  | <b>33</b> |
|           | 10.1 Refrigeration System .....                                   | 33        |
|           | 10.2 Electrical Circuit .....                                     | 33        |
| <b>11</b> | <b>Maintenance and Adjustments .....</b>                          | <b>39</b> |
|           | 11.1 Gear Reducer Lubrication .....                               | 39        |
|           | 11.2 Condenser Cleaning .....                                     | 40        |
|           | 11.3 Pulley Alignment and Belt Tension .....                      | 41        |
|           | 11.4 Beater Drive Coupling Replacement and End Play Setting ..... | 41        |
|           | 11.4.1 Beater Drive Coupling Removal .....                        | 41        |
|           | 11.4.2 Installing the New Coupling .....                          | 43        |
|           | 11.4.3 End Play Adjustment for Beater Drive Coupling .....        | 44        |
|           | 11.5 Cylinder Pressure Switch .....                               | 45        |
|           | 11.5.1 Removing Cylinder Pressure Switch .....                    | 45        |
|           | 11.5.2 Installing New Cylinder Pressure Switch .....              | 45        |
| <b>12</b> | <b>Service Troubleshooting Charts .....</b>                       | <b>47</b> |

# 1 Introduction

This Installation and Service Manual is for use by qualified service technicians only. All service technicians using this manual must follow the Installation and service instructions when servicing the freezer. Failure to follow this manual when servicing the freezer is considered misuse and could violate the warranty.

Do not refer to this manual if you are not a qualified service technician. Do not attempt to service the freezer until the safety precautions are understood. If problems occur that are not covered in this manual, further technical assistance can be obtained by calling H.C. Duke & Son, Inc. as follows:

Phone: (309) 755-4553  
(800) 755-4545

Fax: (309) 755-9858

E-mail: [service@hcduke.com](mailto:service@hcduke.com)

## 2 Safety First

### 2.1 Recognize Safety Information

Look for this safety alert symbol throughout this manual.

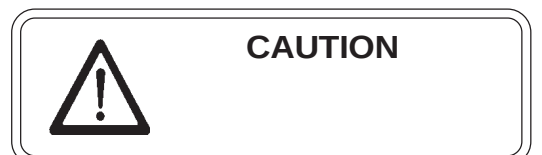


When you see this symbol on the freezer or in this manual, be alert to the potential for personal injury. Follow recommended precautions and safe operating procedures.

### 2.2 Understand Signal Words

The signal words – DANGER, WARNING, and CAUTION – are used with the safety alert symbol (DANGER decals on the freezer may or may not have the safety alert symbol, but the message is the same). Decals with the words DANGER, WARNING, or CAUTION appear on the freezer. DANGER identifies the most serious hazard. Decals with the words DANGER or WARNING are typically near specific hazards on the freezer. General precautions are listed on CAUTION safety decals.

In this manual, CAUTION messages with the safety alert symbol  call attention to safety messages.



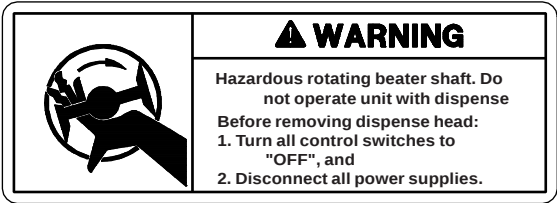
2.3 Follow Safety Instructions

Read and understand all safety messages in this manual. Read and understand the decal safety messages on the freezer. Take notice of the location of all decals on the freezer and keep the safety decals in good condition. Check them periodically and replace missing, damaged or illegible safety decals. The safety decals must remain in place and

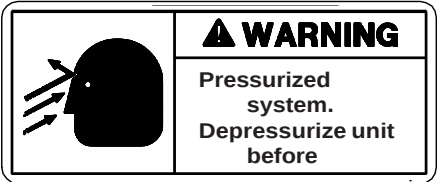
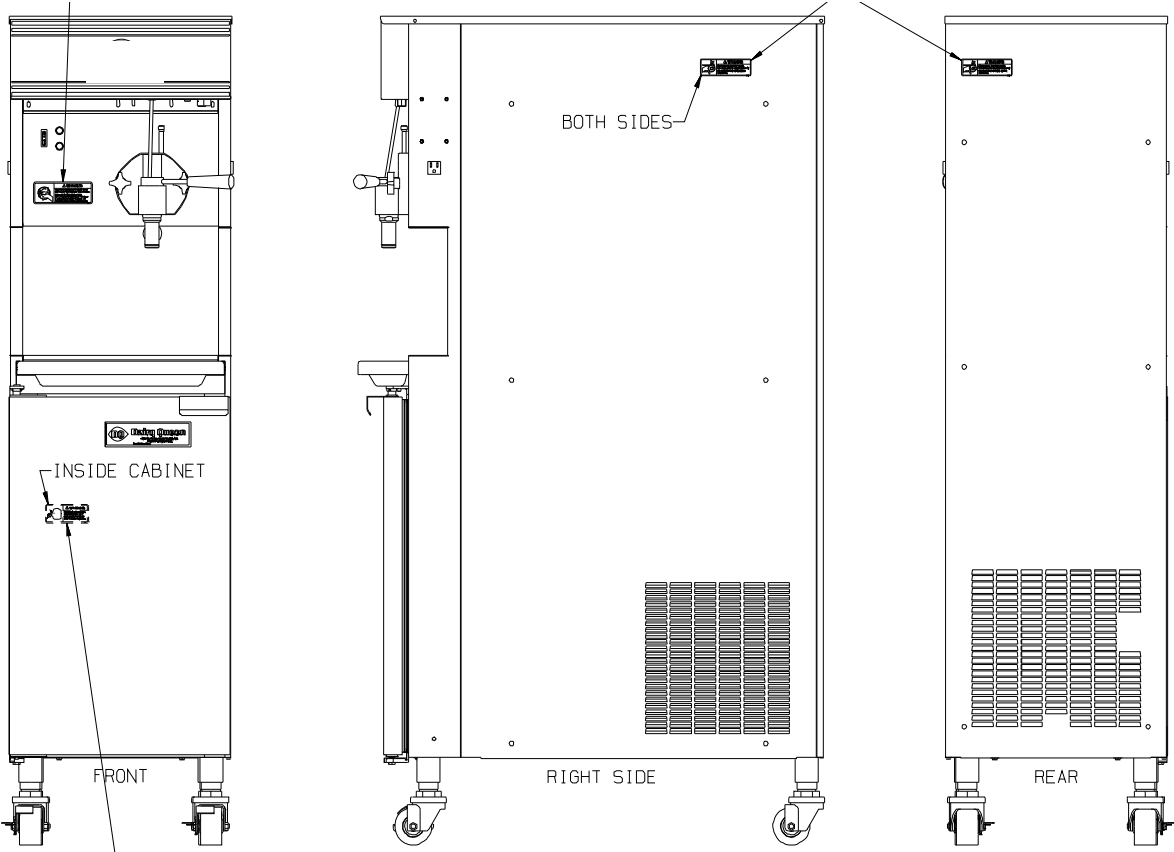
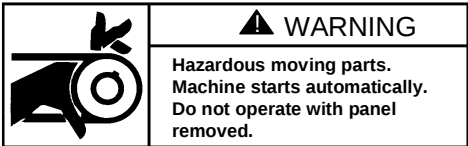
legible for the life of the freezer. Use the information and illustrations on this page to identify the decal, and call or write to H.C. Duke & Son, Inc. for new decals.

**DO NOT** attempt to operate the freezer until you read and understand all safety messages and the operating instructions in this manual.

P/N HC165025



P/N HC165126



P/N HC165246

## 2.4 Operate Safely

**DO NOT** allow untrained personnel to maintain or service this machine. Failure to follow this instruction may result in severe personal injury. **DO NOT** operate the freezer unless all service panels and access doors are secured with screws. **DO NOT** attempt to clean, maintain, or repair the freezer until the main power supply has been disconnected. Contact H.C. Duke & Son, Inc. Service Department at (309) 755-4553 or (800) 755-4545.



## 3 Service "FIRST"

When servicing Duke freezers, remember most service calls involve simple operator error or small component malfunction. Always try to approach each call in a systematic way. Use the FIRST method of diagnosing problems and servicing the freezer:

- F *Find*** the problem by listening to the operator first. Daily use of the freezer gives the operator a good "feel" for the normal operation of the freezer. Sometimes the operator will experience symptoms of more subtle problems. Listening closely will also help to establish a good working relationship with the operator.
- I *Inquire*** from the operator what they have already done to try to remedy the situation. You can avoid repetition in the work and find operational procedures that may be done incorrectly.
- R *Respond*** to the operator's concerns. Try to make the operator feel "heard." If they feel you are there to help them, they will be more patient and understanding of the work you do.
- S *Start*** by applying simple corrective measures first. For example, before removing panels, try all relevant switch combinations to trace the electrical routes and establish if a component is bad.
- T *Train*** the operator once you have determined the problem. If there is an operational problem, the operator will appreciate the information to avoid recurring problems.

### 3.1 Installation, Start-up, and Instruction Checklist

Remove, follow, and complete the checklist provided on the last pages of this manual to insure proper installation of the freezer.

## 4 Uncrating and Inspecting the Freezer

1. As soon as the freezer is received, and while the carrier is still present, inspect the shipping crate for any damage which may have occurred in transit. If the crate is broken, torn or punctured, note the damage on the carrier's freight bill and call the carrier's local agent immediately, requesting prompt inspection by their personnel.
2. The freezer should always be stored or moved in its normal upright position and moving should be accomplished by an appropriate method of large appliance handling. Do not move the freezer by "walking" it on the corners of the skid, and do not uncrate the freezer until it has been transferred as close as possible to its location site.

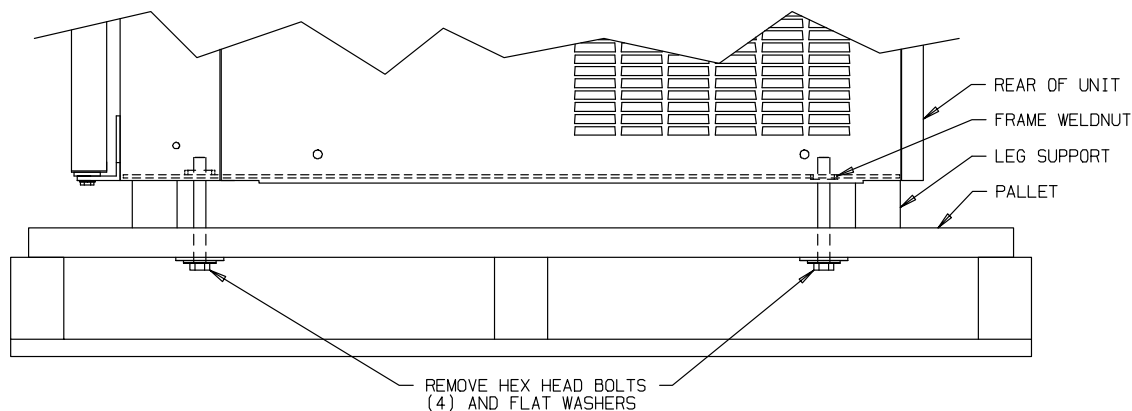
### 4.1 Uncrating and Inspection



**CAUTION**  
Be sure to properly support the machine when removing bolts and installing legs or casters.

1. Use caution in handling uncrating tools so as not to mar or dent the cabinet. Do not pierce the crate with a pry bar or similar tool. Note, in Figure 4-1, that the unit is bolted directly to the wooden pallet, or shipping base. Remove these bolts and carefully "walk" the freezer off the wooden pallet.
2. Check all separately packed components and spare parts against the packing list. If any items appear to be missing, contact H. C. Duke & Son, Inc.
3. Screw each leg or caster into place at the four corners of the base (Figure 4- 2). When the unit is in position at its intended location, the legs or casters must be adjusted until the unit is level (Section 5.1).

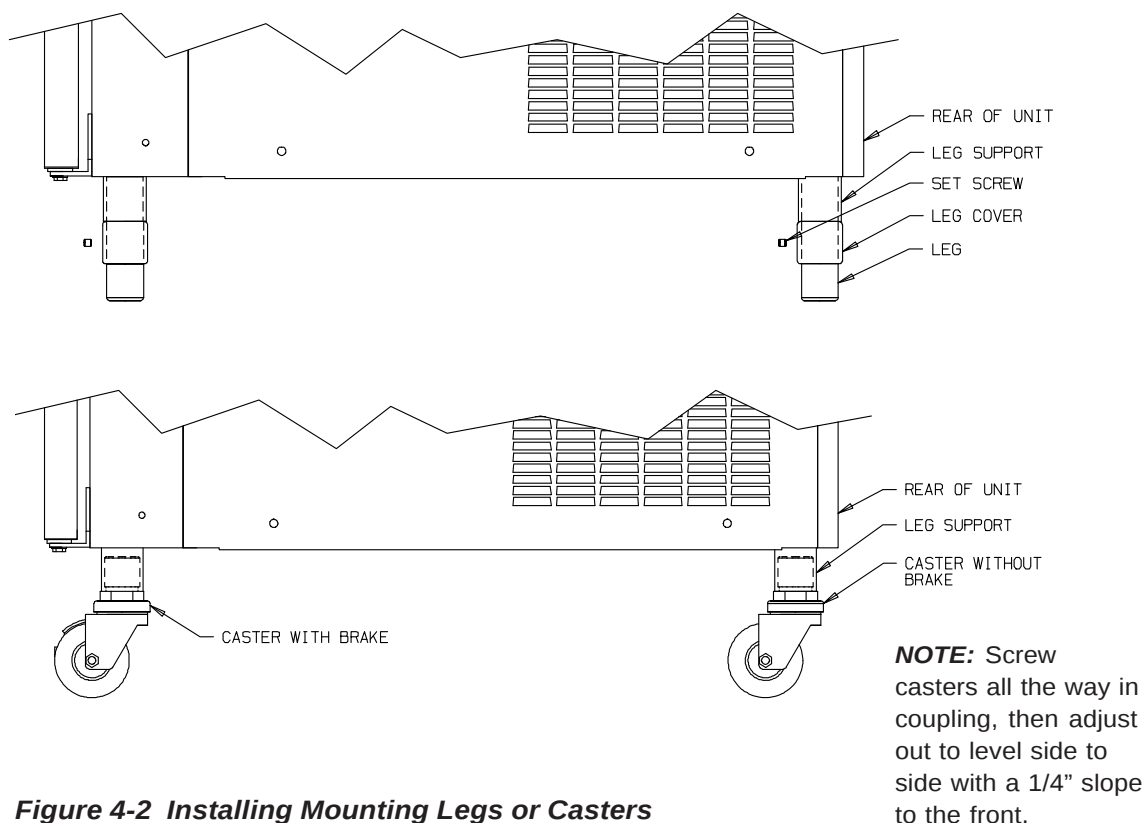
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M01010

**Figure 4-1 Machine bolted to Shipping Base**

## 4.1 Uncrating and Inspection — continued



**Figure 4-2** *Installing Mounting Legs or Casters*

## 4.2 Inspecting the Freezer

1. Inspect the freezer exterior for damage.
2. Remove the panels from the unit by unscrewing the attaching screws; then swing the bottom of the panel outward and pull down.
3. Check all tubing to make sure that metal-to-metal contact does not exist.
4. Check pulley alignment and belt tension (Section 11.3).
5. On air-cooled models, turn the condenser fan blade by hand to make sure that the blade turns freely and does not strike the shroud.

## 5 Installation Procedures

### 5.1 Placement of the Freezer

1. In positioning the freezer, be sure that it is accessible for periodic maintenance checks. Where codes permit, we recommend that the freezer be installed on casters and have flexible water and electrical connections for easy servicing and cleaning.
2. Air-cooled models require a minimum eighteen inches (18") clearance on the top panel for adequate ventilation. Anything (including cone dispensers) in this area will reduce the efficiency of these models.
3. Double-cylinder water-cooled models will require a 1/2" MPT water inlet and water waste connection. Single cylinder freezers require a 3/8" MPT water inlet and waste connection. The connections are found under the rear of the freezer and can be identified by removing the rear panel. A manual shut-off valve should be installed in the water inlet line at the time of installation. Also be sure that inlet water pressure is above 35 psig and below 140 psig. If the pressure drops below 35 psig, condenser pressure will increase and result in more prolonged periods of running and overall inefficiency.
4. The inlet water temperature should not be higher than 90°F. When inlet water temperature is higher than 90°F water usage becomes excessive and production capacity is reduced.
5. Place the freezer in its final location and level the machine by adjusting the legs or casters so that the unit is level side-to-side, and the front is approximately 1/4" lower than the rear, to allow proper drainage of the freezing cylinder. If the unit is moved to a new location, be sure to check level and readjust, if necessary.

**NOTE:** Water-cooled freezers are not equipped with vacuum breaker valves. Be aware of local codes concerning this and all plumbing requirements.

## 5.2 Water and Drain Connections

When making water and drain connections to water-cooled models, the following items must be taken into consideration:

1. Maintain water temperature and pressure limits as specified in Section 5.1.
2. A minimum  $\frac{3}{8}$ " ID water line for a single freezer or  $\frac{1}{2}$ " ID water line for a twin freezer must be provided immediately behind or adjacent to the freezer. Make sure lines are sized properly, free of corrosion, and flushed prior to connecting to the freezer. Provide a shut-off valve in the water supply line with a male flare connection. Install a water strainer at the inlet and use flexible water line hose 5 to 6 feet long with female flare fittings to allow mobility of the freezer for servicing and cleaning. Connect the freezer to cold water only.
3. Provide a drain close to the freezer. This can be a floor drain. Do not restrict or control the flow of the drain water, as this will cause operational problems. Make the connection to the freezer with a flexible water line hose.

**IMPORTANT:**

***All water cooled models must have condensers blown out if exposed to temperatures below freezing. Pressure of at least 20 psig should be put through the water lines starting inside the water valve.***

4. If the water to the inlets is to be tee-connected, make sure that the pipe feeding the tee is one size larger.

**IMPORTANT:**

***Do NOT install a solid connection from the drain to a sanitary service line. Allow an air break to prevent the possibility of the reverse flow of sewer water. Drain connections must comply with local code regulations.***

5. If glycol/water recirculating system is used, refer to manufacturer's instructions. Adjust the freezer water valve to specifications in Section 8.2 Refrigeration Settings. Also allow for a shut off valve to return freezer to city water.

## 5.3 Electrical Requirements



**CAUTION**  
To prevent accidental electrical shock, a positive earth ground is required.

1. Always verify electrical specifications on the data plate of each individual freezer. Data plate specifications will always supersede the information in this manual.
2. Supply voltage must be within  $\pm 10\%$  of voltage indicated on the nameplate. Also, on three-phase systems, voltage between phases must be balanced within 2%. (More than a 6 volt difference between any two voltage measurements at 208-230 volts indicates a possible imbalance.) Request the local power company to correct any voltage problem.
3. A main power disconnect must be supplied and should be:
  - a. easily accessible
  - b. within sight of the freezer
  - c. provided for all poles of the wiring to the freezer
  - d. installed in the line ahead of the unit connections.
4. Use flexible connections, if possible. All connections must conform to local code requirements and be in compliance with the National Electric Code.
5. Use fuses or HACR type circuit breakers not exceeding the maximum rating allowed on the nameplate on the back panel of the freezer.
6. If the 120V receptacles on the freezer are to be used, a separate 120V power supply is required to be connected to the freezer service connection box marked for 120V.

Use a disconnect box rated for the amperage noted on the nameplate of the freezer. For twin models, provide a separately-fused disconnect switch for each side of the unit.

## 5.4 Beater Rotation

The beater shaft is designed for clockwise rotation as viewed from the front of the freezer. Single phase freezers are pre-wired for proper rotation, but the direction must be checked on three-phase freezers. The high leg, if present is attached to L2. If rotation is not clockwise interchange L1 and L3.



**CAUTION**  
Hazardous moving parts.  
Freezer starts automatically.



**CAUTION**  
To avoid electrical shock or contact with moving parts, make sure all switches are in the "OFF" position and that the main power supply is disconnected. Some freezers have more than one disconnect switch.

1. Remove one side panel.
2. Install the beater shaft assembly(ies), head assembly, and spigot rods. Connect the main power supply. Turn the selector switch(es) to the "CLEAN" position.
3. View the drive coupling from the side. Couplings should be turning in a clockwise direction (as viewed from the front of the freezer). If the couplings do not rotate as specified, turn the selector switch(es) to the "OFF" position and disconnect power. Reverse position of any two of the three-phase service leads. Do not disturb any factory wiring.
4. Reconnect the main power supply and turn selector switch to the "CLEAN" position. Verify proper rotation. Turn selector switch to the "OFF" position.
5. Reinstall side panel.

## 5.5 Data Plate

The diagram shows a data plate for International Dairy Queen, Inc. with the following fields and callouts:

- 1**: Points to the Model Number field.
- 2**: Points to the Serial Number field.
- 3**: Points to the Voltage field.
- 4**: Points to the Minimum Circuit Ampacity field.
- 5**: Points to the Maximum Fuse Size or HACR Type Circuit Breaker field.

The data plate includes the following information:

INTERNATIONAL DAIRY QUEEN, INC. MINNEAPOLIS, MINN. U.S.A. H.C. DUKE & SON, INC. EAST MOLINE, ILL. U.S.A.

MODEL NO. SER. NO. VOLTS WIRE PH HZ

**SINGLE UNIT OR LEFT SIDE**

| FLA | LRA | V. |               |
|-----|-----|----|---------------|
| FLA | HP  | V. | COMPRESSOR    |
| FLA | HP  | V. | BEATER MOTOR  |
| FLA | HP  | V. | PUMP MOTOR    |
| FLA | HP  | V. | CONDENSER FAN |
| FLA | HP  | V. | SPINDLE MOTOR |
| FLA | HP  | V. | CABINET FAN   |
| FLA | HP  | V. |               |

**RIGHT SIDE**

| FLA | LRA | V. |  |
|-----|-----|----|--|
| FLA | HP  | V. |  |
| FLA | HP  | V. |  |
| FLA | HP  | V. |  |
| FLA | HP  | V. |  |
| FLA | HP  | V. |  |
| FLA | HP  | V. |  |
| FLA | HP  | V. |  |

MAX. FUSE SIZE OR HACR TYPE CIRCUIT BREAKER AMPS  
MIN. CIRCUIT AMPACITY AMPS  
MAX AMPS 115V CIRCUIT 12 AMPS

REFRIGERANT LBS. DESIGN PRESSURE HIGH 450 PSIG LOW 230 PSIG

The data plate provides important information that the operator should record and have available for parts ordering, warranty inquiries, and service requests.

## 5.6 Reference Information

Fill in the following information below as soon as you receive your freezer. The item numbers, encircled, correspond with the callout numbers above.

- |                                  |                         |
|----------------------------------|-------------------------|
| ① Model Number _____             | Installation Date _____ |
| ② Serial Number _____            | Installed by _____      |
| ③ Electrical Spec: Voltage _____ | Address _____           |
| Phase _____ Hertz _____          | _____                   |
| ④ Minimum Circuit Ampacity _____ | Phone _____             |
| ⑤ Maximum Fuse Size _____        |                         |

## 6 Remote Air Condenser

The remote air-cooled system consists of a) the freezer, b) the condensing unit, and c) pre-charged line sets. The follow-

ing procedures will insure leak-free connections are made when installing these pre-charged units.

### 6.1 Placement of the Remote Air Condenser

1. Select a location as close as possible to the freezer for placing the remote condensing unit. No more than 30ft. of condenser line can be installed outdoors.  
  
**IMPORTANT:**  
*Thirty feet is the maximum length of condenser line which may be installed outdoors. Exceeding 30 ft. may cause operational problems during cold weather.*
2. Position the condenser(s) where there is minimal restriction to air flow, giving consideration to prevailing wind direction. Allow for at least two (2) feet clearance at inlet and outlet. If there are two condenser units, position them so they will not discharge hot air from one into the other.
3. Bolt the condenser to a secure foundation, using the four slot holes on the condenser base plate.

### 6.2 Remote Air Condenser Installation

1. Two factory pre-charged and insulated condenser line sets are required for each condenser:
  - a. Discharge-1/2 in. OD line set
  - b. Liquid return-3/8 in. OD line set

**IMPORTANT:**  
*Before routing line sets for a freezer with two condensers, label each end or coupling of one line set with tape, marker, etc. The couplings at the rear of the freezer are labeled "A-SIDE" and "B-SIDE". (See Figure 6-1.) For example, label both ends of a 1/2" and 3/8" line set for the "A-SIDE". Labeling will insure that the line sets are properly connected.*

2. Route the condenser line sets between the freezer and condenser.

Position the lines in a safe location so they can be securely clamped to a wall or structural member of the building. Any excess tubing should be coiled and laid flat in an indoor location.

3. The 6 foot flexible lines connect at the rear of the freezer. Each flexible line can have only one bend. (See Figure 6-2 for reference).
4. Provide proper pitch and oil trap bends in the discharge line where required. Avoid sharp bends whenever possible. Do not remove the insulation on the lines due to condensation and refrigerant heat loss during cold weather conditions. Position the condenser lines to their final location.
5. Be sure to keep the discharge line separate from the liquid line by approximately 6 inches.

## 6.2.1 Connecting Condenser Line Couplings

The refrigerant couplings that connect at the freezer and condenser eliminate the need for initial field charging. The coupling design prevents air inclusion and refrigerant loss during connection. Follow these installation procedures to insure leakproof connections.

1. Remove protector caps and plugs and examine the couplings for dirt or foreign material. If necessary, carefully wipe coupling seats and threads with a clean, dry cloth.
2. Lubricate male half diaphragm and synthetic rubber seal with POE refrigerant oil.
3. Thread the coupling halves together by hand to insure proper mating of threads. Use proper size wrenches (on coupling body hex and on union nut) and tighten until coupling bodies "bottom" or definite resistance is felt.
4. Using a pencil or marker, mark a line lengthwise from the coupling union nut to the bulkhead panel. Then tighten an additional  $\frac{1}{4}$  turn (approximately  $90^\circ$ ); the marked line rotation on the coupling union nut will indicate the amount the coupling has been tightened. (See figure 6-3.) If a torque wrench is used, the following torque values are recommended:

3/8 in. OD liquid return line couplings:  
20 ft-lbs.

1/2 in. OD discharge line couplings:  
35 ft-lbs.

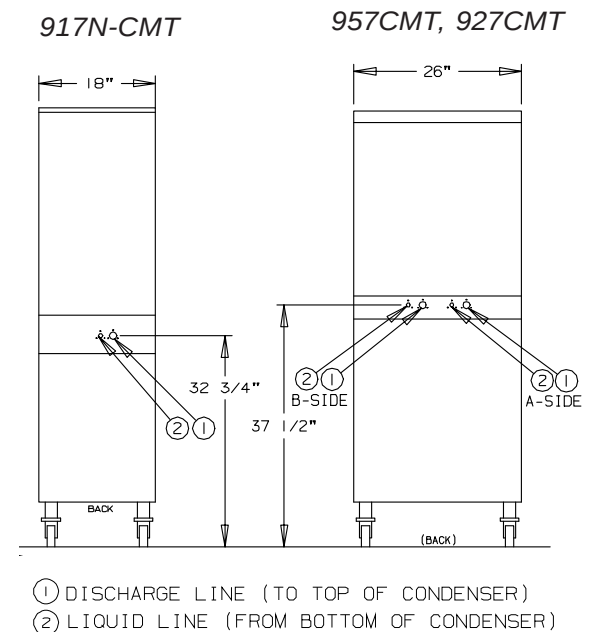
5. After connecting the condenser line couplings at both the freezer and the condenser, secure the condenser lines to their permanent location with U-type clamps.
6. Inspect all refrigerant tubing connections for leaks.

**NOTE:** The freezer is shipped with the service valves backseated in the normal operating position.

### IMPORTANT:

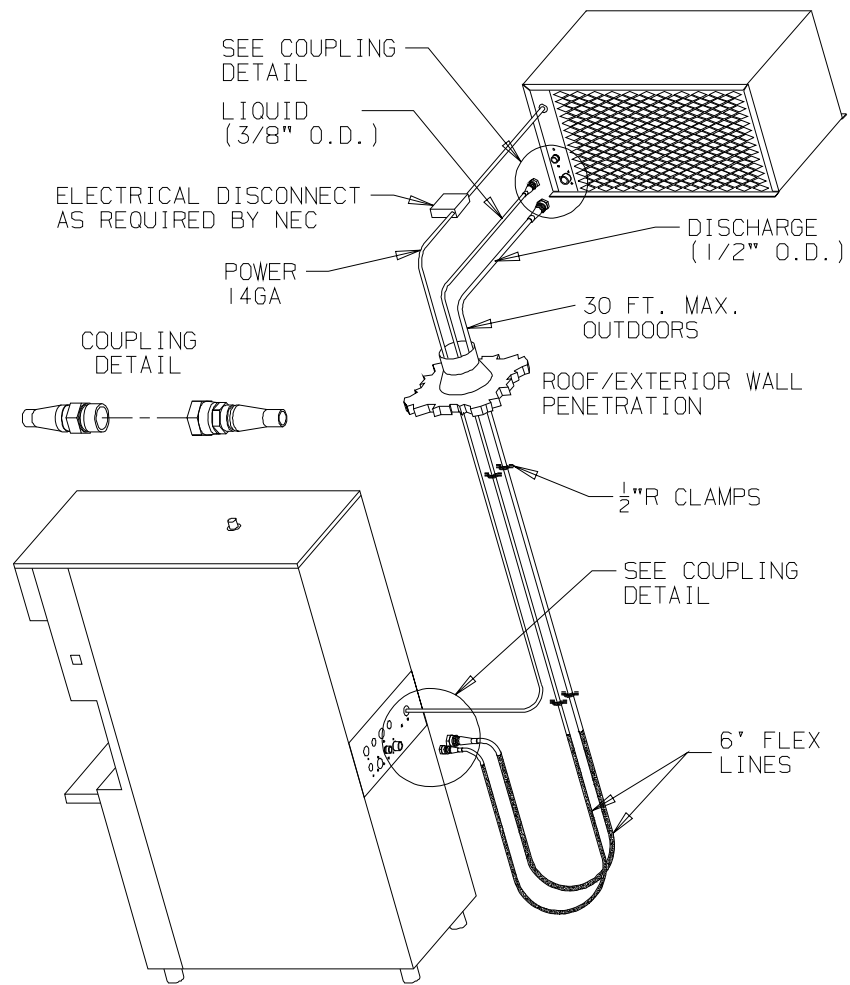
**Condensers are matched to the freezer. To insure proper freezer refrigerant charge, connect "A" side condenser to "A" side of freezer making sure the serial numbers match. If you have a double unit, make sure "B" side condenser, freezer and serial number also match. If this step is followed then refrigerant does not need to be added or removed at installation, or as the seasons change. Refrigerant does not need to be added or removed at installation, or as seasons change. The freezer, condenser, and line sets are factory charged with the proper amount of refrigerant for all ambient conditions and for either 25 ft. or 50 ft. line lengths. The total system charge is 10.5 lb. of R404a. If a leak is found, recover the refrigerant, repair the leak, evacuate the system, and recharge with 10.5 lb. of R404a.**

— continued

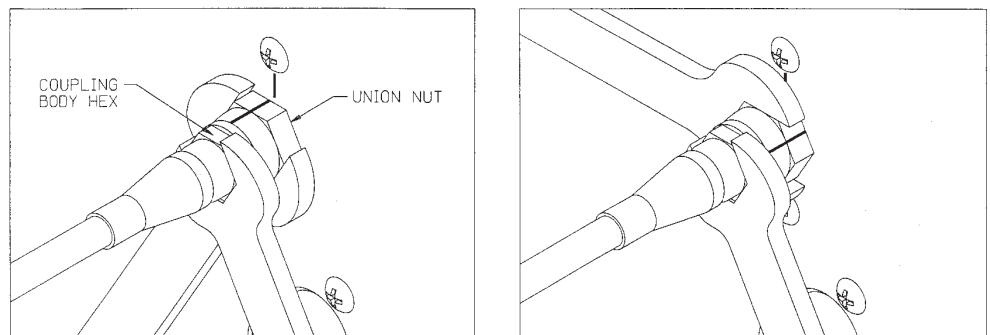


**Figure 6-1 Line Connections**

## 6.2.1 Connecting Condenser Line Couplings – continued



**Figure 6-2 Line Connections & Coupling Detail – Remote Condenser**



1/2 in. O.D. Line Set:  
Union Nut = 1-3/16 in.  
Body Hex = 1 in.

3/8 in. O.D. Line Set:  
Union Nut = 24mm  
Body Hex = 19mm

**Figure 6-3 Detail – Connections**

## 6.2.2 Condenser Electrical Wiring



**CAUTION:**

To avoid electrical shock or contact with moving parts, make sure all switches are in the "OFF" position and that the main power supply is disconnected. Some freezers have more than one disconnect switch.

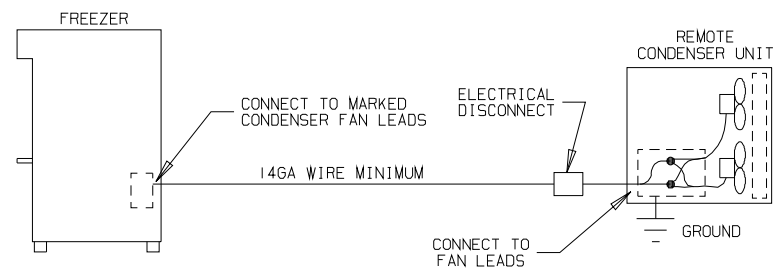
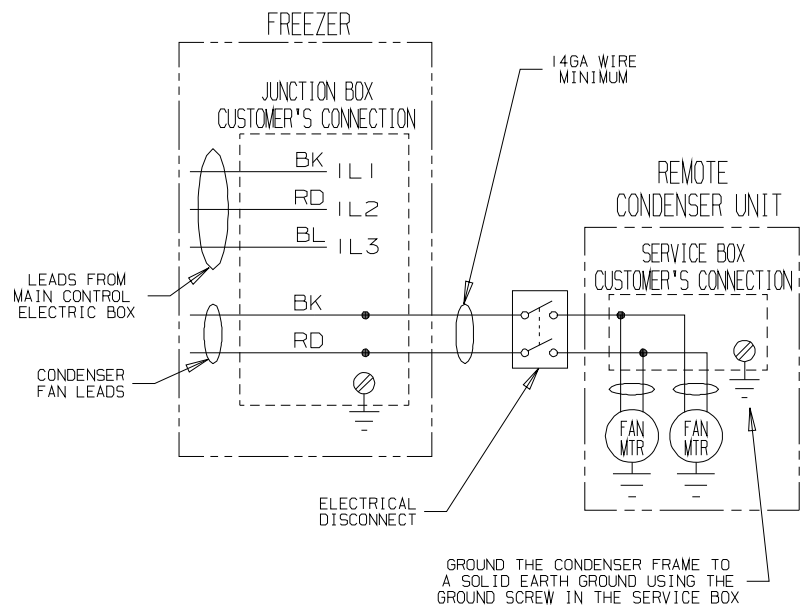
**IMPORTANT:**

Each condenser requires separate leads. The "B-SIDE" leads are labeled "Right Side Condenser Fan." Label the ends of the wires so they are connected to the correct condenser.

1. Identify the condenser fan leads at the freezer service box. (See below.)

2. Run 14ga minimum wires (copper conductors that are suitable for outdoor use) to the condenser fan motor leads at the condenser service box. Install an electrical disconnect at the condenser unit. Ground the condenser frame to a solid earth ground using the ground screw provided in the service box.

— continued



NOTE:  
SINGLE COMPRESSOR FREEZER WIRING SHOWN.  
DOUBLE COMPRESSOR FREEZERS REQUIRE (2)  
REMOTE CONDENSER UNITS. REFERENCE  
FREEZER WIRING SCHEMATIC AND DIAGRAM.

**Figure 6-4 Electrical Schematic**

6.2.2 Condenser Electrical Wiring – continued

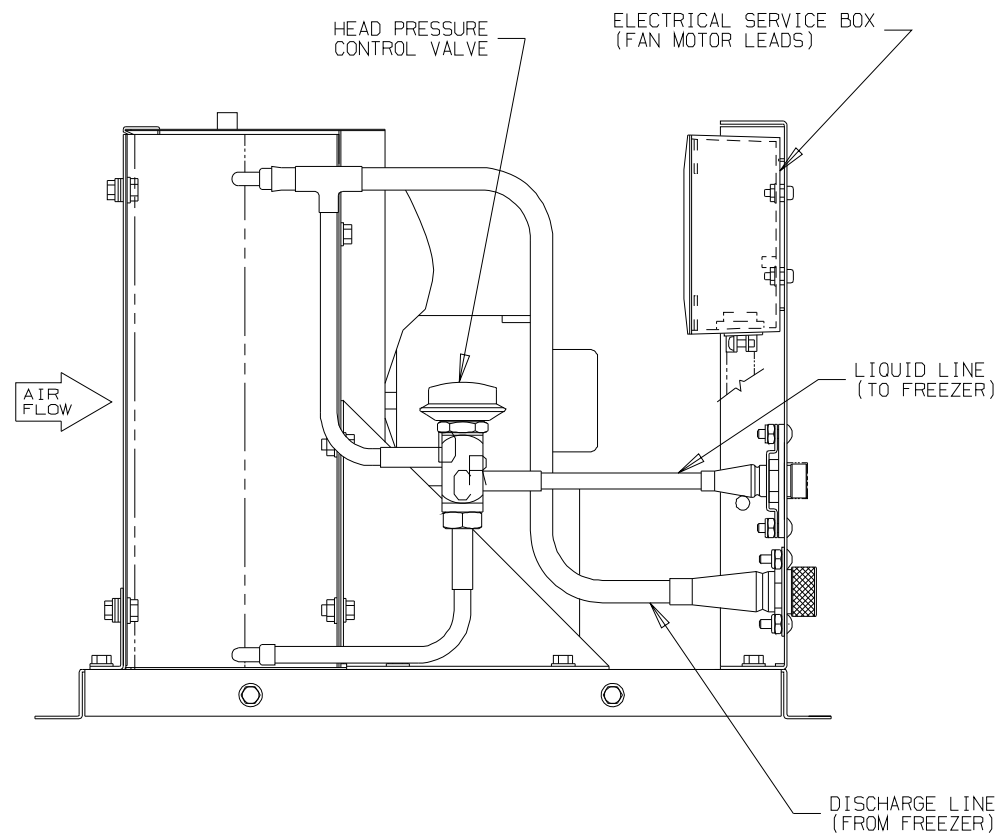


Figure 6-5 Side View

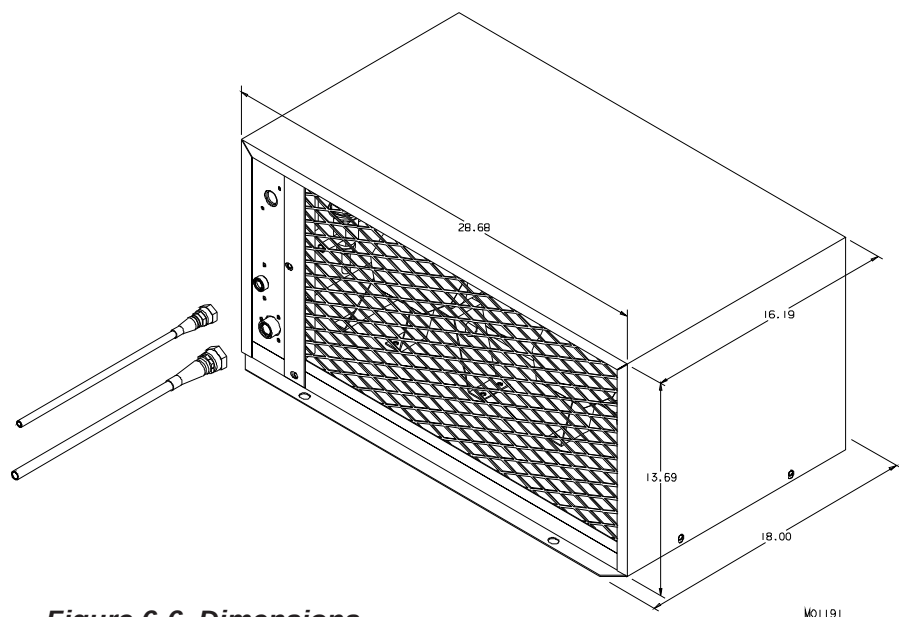


Figure 6-6 Dimensions

## 7 Tests of Installation

### 7.1 Head Switch Operation

The head switch feature is designed to prevent the beater shaft from being accidentally activated. The beater motors should not operate with the head assembly removed. It is essential that the proper operation of this switch be verified routinely. Use the following instructions to test for proper operation:

1. Make sure all switches are in the "OFF" position.



#### CAUTION

To avoid electrical shock or contact with moving parts, make sure all switches are in the "OFF" position and that the main power supply is disconnected. Some freezers have more than one disconnect switch.

2. Disconnect the main power supply.
3. Remove the dispense head and beater shaft assemblies.
4. Connect the main power supply.



#### CAUTION

Moving parts. Do not place hands in the freezing cylinder. Severe personal injury could result.

5. Turn the selector switches to "CLEAN", then the "AUTO" position. Look inside the freezing cylinder toward the rear—the drive shaft coupling should **NOT** be turning in either position. Turn the switch off and disconnect the main power supply. If a coupling is turning this condition should be corrected before the freezer is put in operation.

## 7.2 Cylinder Frost Pattern

The cylinder frost pattern test will show the proper refrigeration. To test the refrigeration system and certain controls, perform the following:

1. Disconnect the main power supply.
2. Remove the dispense head and beater shaft.
3. Connect the main power supply.
4. Turn the selector switch to "AUTO". Observe the frost pattern as the refrigeration system runs until the cylinder thermostat satisfies (approximately 2 minutes). There should be an even frost pattern starting 1" from the front going to the rear of the cylinder.

During normal operation throughout the course of the day, and when not dispensing product, the unit should run for a minimum of 30-50 seconds about every 8-10 minutes.

5. Turn the manual timer knob one quarter turn. Let the refrigeration system run until it shuts off automatically (approximately 1½ minutes) to verify proper operation.



**CAUTION**  
Hazardous moving parts.  
Freezer starts  
automatically.

6. On water-cooled models, check to make certain that water is flowing through the condenser by feeling the water inlet and outlet tubes. The inlet tube should feel cold and the outlet tube warm. Check to be sure the water flow stops when the compressor is not running. Be sure that the hand shut-off valve is fully open.
7. While the unit is operating, listen for unusual noises such as vibration (metal tubes making contact), rattles (loose mountings), or noisy belts (dry or misaligned belts).
8. All machines are carefully checked for leaks prior to shipment. Nevertheless, it is advisable to inspect all refrigerant tubing connections for leaks with an electronic leak detector. If leaks are detected, tighten the connection and check the sight glass for proper charge. If leakage persists, or if leakage is discovered at brazed joints, it will be necessary to recover the refrigerant and repair the leak.

## 7.3 Spigot Switch Operation

The spigot switch is designed to start the compressor and beater motor just before product begins to flow from the spigot. To test and adjust the switch:

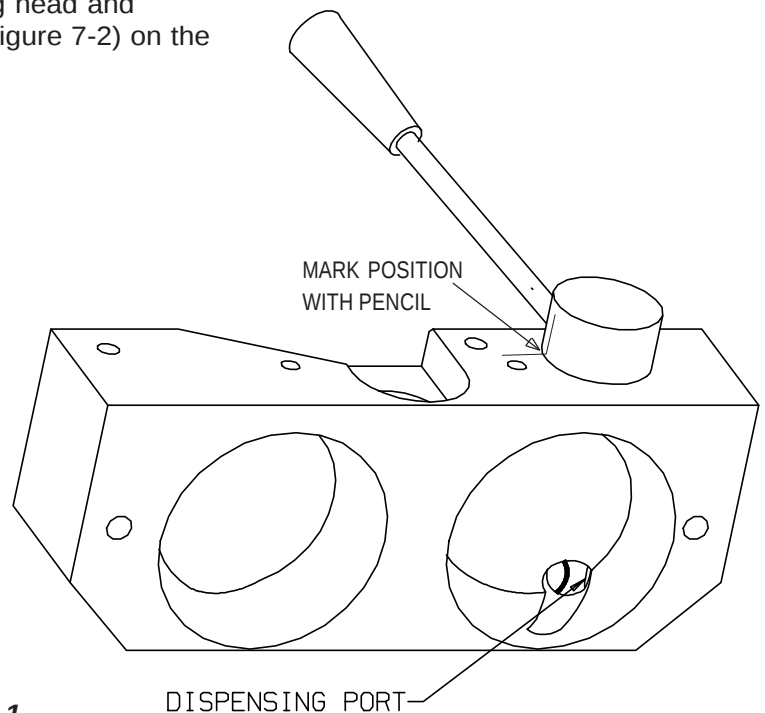


**CAUTION**  
To avoid electrical shock or contact with moving parts, make sure all switches are in the "OFF" position and that the main power supply is disconnected.

1. Remove the dispensing head and view the back of the head. With the spigot inserted in the dispense head, turn the spigot so that the edge of the spigot dispensing port is visible. This is the point at which product will begin to enter the spigot.
2. Mark this position on the dispensing head and spigot with a pencil, as shown in figure 7-1 and figure 7-2, item C.
3. Install the dispensing head and spigot rod (Item A, Figure 7-2) on the freezer.

4. Slowly open the spigot (Item B, Figure 7-2). The micro switch should click at the point the pencil marks line up on the spigot and head assembly.
5. If the switch does not click, a switch adjustment must be made. Remove the cover from the electrical box and slightly loosen the two mounting screws (#1 Figure 7-2). Loosen the locking nuts (2). Adjust screws (3) for proper actuation of the switch.
6. Tighten all screws and nuts. Recheck for proper operation.

**NOTE:** Excessive force on these screws may change the position of the switch assembly. Once they are in place, recheck for correct position.



**Figure 7-1**

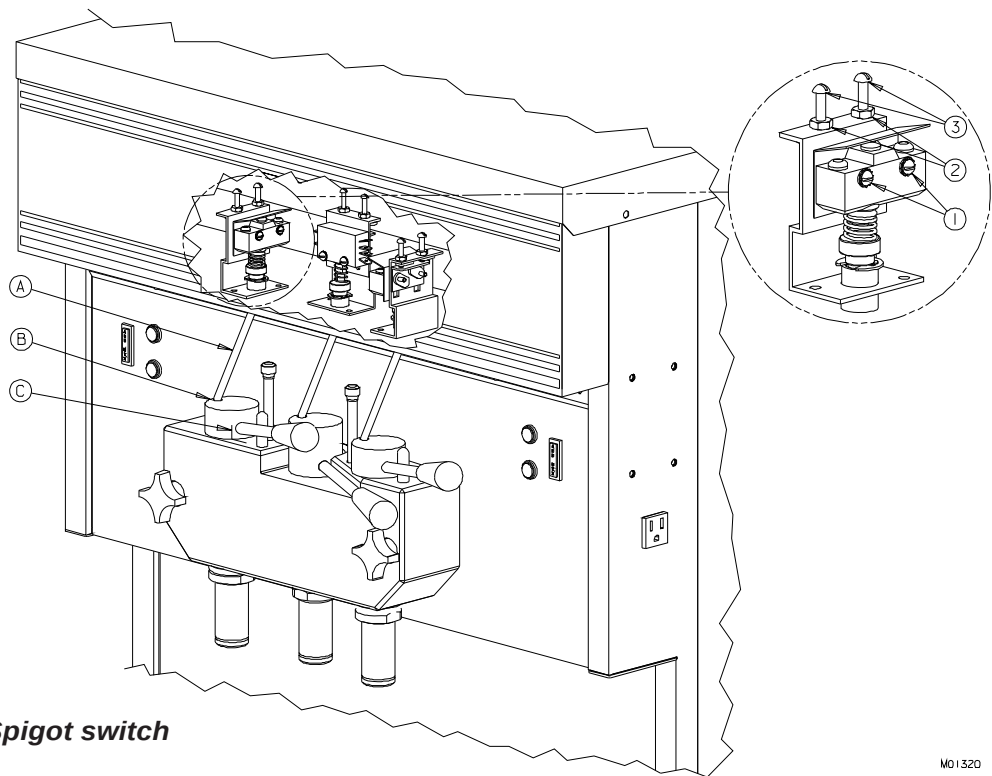


Figure 7-2 Spigot switch

M01320

## 8 Operating Adjustments

The freezer will need to be tested with mix for verification of proper control settings. Follow the disassembly, cleaning and assembly instructions in the Operator's Manual. Once the freezer has been assembled and sanitized, prime the freezer with mix in accordance with the Operator's Manual instructions.

*The following adjustments are mandatory on installation. All adjustments must be within specifications to obtain proper operation of the freezer.*

### 8.1 Thermostat

**IMPORTANT:**

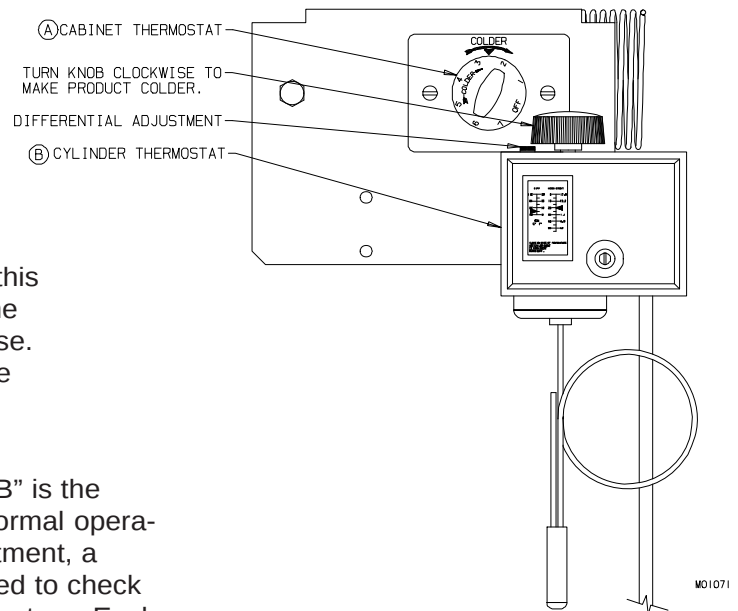
**To correctly set the cylinder expansion valve, the cabinet thermostat switch must be in the "OFF" position (Full counterclockwise) with the compressor running.**

**IMPORTANT:**

**To correctly set the cabinet expansion valve, the selector switch must be in the "OFF" position, and the cabinet switch in the "ON" position (with the compressor running).**

**NOTE:** Do NOT adjust the product temperature below 17°F. A freeze-up may result. The setting on the thermostat are ONLY to be used as a guide; actual setting must be determined by measuring the frozen product temperature with an accurate thermometer.

1. Thermostat "A" is the cabinet refrigeration thermostat. The cabinet thermostat maintains a mix temperature of 35°-41°F in the mix storage cabinet. This thermostat can be adjusted by rotating the adjustment knob. To set this thermostat colder, turn the adjustment knob clockwise. The normal setting for the cabinet thermostat is between #2 and #4.
3. The thermostat marked "B" is the cylinder thermostat for normal operation. For a correct adjustment, a thermometer must be used to check the actual product temperature. Each thermostat should be set for the product being used. In most cases, a temperature setting of between 18° and 19°F will result in a satisfactory product.



## 8.2 Refrigeration Settings

A refrigeration test gauge must be used when adjusting the suction pressure. To reduce the suction pressure, turn the adjustment screw on the expansion valve counterclockwise. Do not turn more than ¼ turn at a time. Let the unit operate a sufficient length of time — at least two minutes — to properly read the adjustment.

1. **On self-contained air or water-cooled freezers:**
  - a. Check the refrigeration pressure settings with the gauges attached to the service valves on the compressor and receiver tank. Adjust to the proper settings (See Figure 8-2.)

### SELF-CONTAINED FREEZERS

| Refrigerant                 | Model    | Cabinet Suction | Cylinder Suction | Head Pressure | Head Pressure Control Valve Setting | Fan Control Cut-in | Diff. |
|-----------------------------|----------|-----------------|------------------|---------------|-------------------------------------|--------------------|-------|
| <b>Bristol Compressors</b>  |          |                 |                  |               |                                     |                    |       |
| R-404a                      | 917N-CMT | 10-12           | 17-19            | 250-350 psig  | 250 psig                            | 245                | 20    |
| R-404a                      | 957CMT   | 10-12           | 17-19            | 250-350 psig  | 250 psig                            | 245                | 20    |
| R-404a                      | 927CMT   | 10-12           | 17-19            | 250-350 psig  | 250 psig                            | 245                | 20    |
| <b>Maneurop Compressors</b> |          |                 |                  |               |                                     |                    |       |
| R-404a                      | 917N-CMT | 10-12           | 15-17            | 250-350 psig  | 250 psig                            | 245                | 20    |
| R-404a                      | 957CMT   | 10-12           | 15-17            | 250-350 psig  | 250 psig                            | 245                | 20    |
| R-404a                      | 927CMT   | 10-12           | 15-17            | 250-350 psig  | 250 psig                            | 245                | 20    |
| <b>Tecumseh Compressors</b> |          |                 |                  |               |                                     |                    |       |
| R-404a                      | 917N-CMT | 10-12           | 16-18            | 250-350 psig  | 250 psig                            | 245                | 20    |
| R-404a                      | 957CMT   | 10-12           | 16-18            | 250-350 psig  | 250 psig                            | 245                | 20    |
| R-404a                      | 927CMT   | 10-12           | 16-18            | 250-350 psig  | 250 psig                            | 245                | 20    |

Figure 8-2 Self-contained freezer settings

2. **On air-cooled remote freezers:**
  - a. Refrigerant does not need to be added or removed at installation, or as the seasons change. The freezer, condenser, and line sets are factory charged with the proper amount of refrigerant for all ambient conditions and for either 25 ft. or 50 ft. line lengths. The total system charge is 10.5 lb. of R404a. If a leak is found, recover the refrigerant, repair the leak, evacuate the system, and recharge with 10.5 lb. of R404a.
  - b. Operate the freezer until the system stabilizes before adjusting pressures. Adjust to proper settings (See Figure 8-3.)

### AIR-COOLED REMOTE FREEZER SETTINGS

| Refrigerant                 | Model    | Cabinet Suction | Cylinder Suction | Head Pressure | Head Pressure Control Valve Setting | Fan Control Cut-in | Diff. |
|-----------------------------|----------|-----------------|------------------|---------------|-------------------------------------|--------------------|-------|
| <b>Bristol Compressors</b>  |          |                 |                  |               |                                     |                    |       |
| R-404a                      | 917N-CMT | 10-12           | 17-19            | 250-350 psig  | 250 psig                            | 245                | 20    |
| R-404a                      | 957CMT   | 10-12           | 17-19            | 250-350 psig  | 250 psig                            | 245                | 20    |
| R-404a                      | 927CMT   | 10-12           | 17-19            | 250-350 psig  | 250 psig                            | 245                | 20    |
| <b>Maneurop Compressors</b> |          |                 |                  |               |                                     |                    |       |
| R-404a                      | 917N-CMT | 10-12           | 15-17            | 250-350 psig  | 250 psig                            | 245                | 20    |
| R-404a                      | 957CMT   | 10-12           | 15-17            | 250-350 psig  | 250 psig                            | 245                | 20    |
| R-404a                      | 927CMT   | 10-12           | 15-17            | 250-350 psig  | 250 psig                            | 245                | 20    |
| <b>Tecumseh Compressors</b> |          |                 |                  |               |                                     |                    |       |
| R-404a                      | 917N-CMT | 10-12           | 16-18            | 250-350 psig  | 250 psig                            | 245                | 20    |
| R-404a                      | 957CMT   | 10-12           | 16-18            | 250-350 psig  | 250 psig                            | 245                | 20    |
| R-404a                      | 927CMT   | 10-12           | 16-18            | 250-350 psig  | 250 psig                            | 245                | 20    |

Figure 8-3 Air-cooled remote freezer settings

## 8.3 Operational Checks

It is important to observe the general performance of the freezer and make corrections as necessary.

1. If set correctly, the freezer will have a cycle time of 8-10 minutes off and 30-50 seconds run time. Keep the suction pressure setting as high as possible but not more than 18 PSIG.
2. Check for mix leaks around the dispensing head and the beater shaft seal in the rear of the freezer cylinder.
3. Check the 12-second timer by activating the dispensing switch, which should automatically start the compressor and beater motor. When the spigot is closed, the compressor and beater motor will continue to run approximately 12 seconds before shutting off.

**NOTE:** If the cylinder thermostat calls for additional refrigeration, these components may continue to run and will shut off when the thermostat has been satisfied.

4. Slowly dispense some product from the freezer. The product should flow smoothly and dispense at 18°F (-8°C). If the product comes out in spurts, slowly, or if there are popping sounds, check to see that the mix transfer system is operating properly.



### CAUTION

To avoid electrical shock or contact with moving parts, make sure all switches are in the "OFF" position and that the main power supply is disconnected. Some freezers have more than one disconnect switch.

5. There should be no squeaking, squealing or slapping of the beater drive belt. With the freezer selector switch in the "OFF" position, check the belt tension (1/2" deflection with approximately 5 pounds of pressure) and use a straight edge to check pulley alignment.

## 9 Mix Transfer System

The Mix Transfer System (MTS) is designed to provide a constant pressure in the cylinder and maintain a consistent overrun. The MTS operates by peristaltic action; the MTS hose is squeezed by the MTS rollers, forcing the mix up from the mix container, through the MTS and into the cylinder. The overrun is controlled by the size of the air meter.

The MTS will shut off when the cylinder pressure reaches 22 to 26 psig (152 to 180 kPa) and start when the pressure in the cylinder drops below 19 PSIG (131 kPa). The differential is 2 to 5 psig (14 to 34 kPa).

It is important that the mix transfer hose be replaced every thirty days. Because the hose is under constant pressure, it will lose elasticity and durability.

### 9.1 MTS Housing Replacement



#### CAUTION

To avoid electrical shock or contact with moving parts, make sure all switches are in the "OFF" position, and that the main power supply is disconnected. Some freezers have more than one disconnect switch.



#### CAUTION

Pressurized system. Depressurize before disassembling.

#### A. REMOVING THE ROLLER ASSEMBLY

1. Unlock the MTS handle and pull down to open the housing and give access to the hose cavity.
2. Remove the mix transfer hose assembly.
3. Remove the two screws located inside the hose cavity. See Figure 9-1.
4. Remove the MTS from the cabinet wall by pulling straight out with a rocking action.

#### **Important:**

***Make sure the wavy spring washer stays on the motor shaft behind the cabinet wall.***

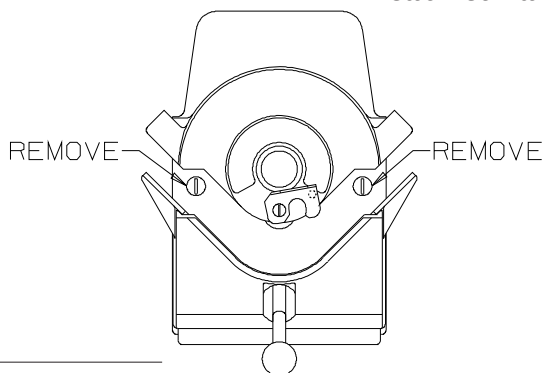
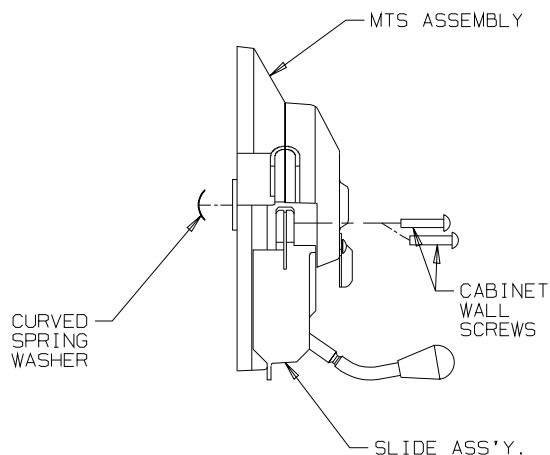


Figure 9-1

## 9.1 MTS Housing Replacement — continued

### B. INSTALLING NEW MTS HOUSING

1. Remove all RTV from the MTS slide switch on the rear wall of the cab. Reapply a thin coat (less than 1/32" thick or .8 mm) to the left side of the switch, and 1/16" (1.5 mm) thick coat to the top, bottom, and right side of the switch. (See Figure 9-3.) Do not reapply RTV to the surface of the switch that faces the cab opening. Failure to complete this procedure could result in the slide opening and closing improperly.
2. Check to ensure the spring washer is on the motor shaft.
3. Install the MTS on the cabinet wall by aligning the coupling and the motor shaft.
4. Turn the roller assembly while pushing the MTS back until completely engaged.
5. Install the two mounting screws being sure the base is flush against the back wall before tightening screws.

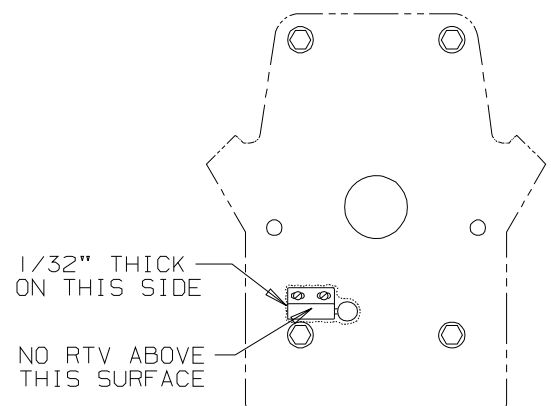


**Figure 9-2**

### C. TEST INSTALLATION

1. Reassemble the freezer according to the Operator's Manual. Reconnect power to the freezer, turn the mix switch to the "ON" position and pressurize the unit with water. Then depressurize. Repeat 5 times. With the unit depressurized, turn the mix switch to the "OFF" position.
2. Unlock the MTS handle and pull the slide down to open the hose cavity. Carefully check the position of the hose in relation to the rollers. The hose should be near the center of the roller. If the hose is too far back or forward, the hose could be cut by the edge of the roller. If this is the case, call H. C. Duke & Son, Inc. Service Department for further instructions.

**NOTE:** This mix transfer housing has been completely tested at the factory with a roller assembly installed.



**Figure 9-3**

## 9.2 MTS Motor Replacement



**CAUTION**  
To avoid electrical shock or contact with moving parts, make sure all switches are in the "OFF" position, and that the main power supply is disconnected. Some freezers have more than one disconnect switch.



**CAUTION**  
Pressurized system. Depressurize before disassembling.

1. Disassemble the Mix Transfer System by unlocking the MTS handle and pulling down to open the housing and gain access to the hose cavity.
2. Remove the mix transfer hose.
3. Remove the two mounting screws located inside the hose cavity. (See figure 9-4)
4. Remove the MTS from the cabinet wall by pulling straight out with a rocking action.

**Important**  
*Make sure wavy washer is removed from motor shaft in cabinet wall.*

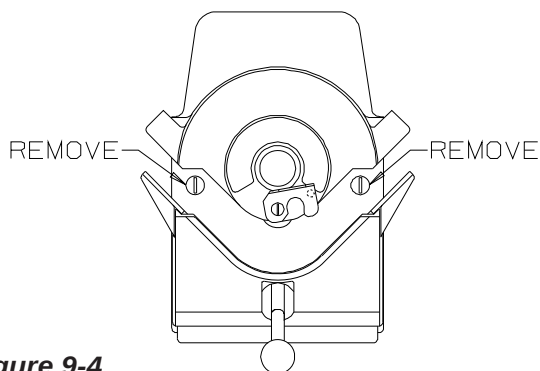


Figure 9-4

5. Remove side and rear panels. Locate the mounting plate for the MTS gearmotor and remove the 4 bolts holding the motor. Remove the bolt on the rear motor support bracket where it is connected to the 4" x 4" (10 cm x 10 cm) electrical box bracket. Remove 2 screws and cover for electrical connections on the motor. Disconnect wires to the motor
6. Remove motor.
7. Install new motor and leave bolts loose.
8. Rewire motor.
9. Insert the alignment bushing (p/n HC138369) over the motor shaft in the cabinet, with arrow pointing to the 12 o'clock position.

**NOTE:** Alignment bushing must be inserted to shoulder. See figure 9-5.

10. Move motor side to side and up and down to allow for proper alignment.
11. Tighten 4 bolts evenly in a "X" pattern. Tighten bolt on rear motor support bracket.

— continued

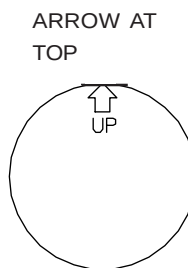
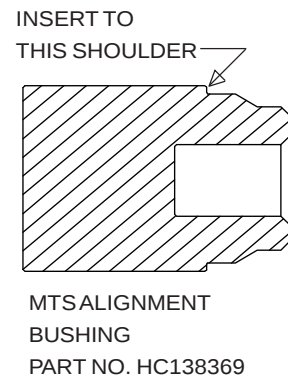


Figure 9-5



## 9.2 MTS Motor Replacement – continued

**NOTE:** If the hole in motor bracket and the hole in the electrical box bracket do not line up, loosen nuts on the 2 bolts that secure the 4" x 4" (10 cm x 10 cm) electrical box to the frame, tighten nuts on bolts when holes align. (If the holes still do not line up it may be necessary to enlarge the holes on the motor support bracket so the bolt will go through without binding.)

12. Remove the alignment bushing and install the wavy spring washer.
13. Install the MTS on the cabinet wall by aligning the coupling and the motor shaft.
14. Turn the roller assembly while pushing the MTS back until completely engaged.
15. Install the two mounting screws. Be sure the base is flush against the back wall before tightening screws.
16. Install the MTS hose assembly according the Operator's Manual.

**Important**

***Use original Duke hose only. The freezer will not operate properly with any other type of hose. Never twist the hose when assembling or installing.***

**Important**

***The MTS will not operate unless the handle is in the closed and locked position.***



**CAUTION**  
Mix Transfer System will be pressurized during operation. Make sure all components and fasteners are secure before start-up.

17. Place a container of water in the cabinet and insert pickup tube in bucket. Place an empty bucket under the dispense head.
18. Reconnect the main power supply. Place the MTS switch in the "ON" position and allow MTS to fill and pressurize the cylinder. Open the spigot and allow some water to drain.
19. Repeat so that the MTS runs for at least two minutes.
20. Place MTS switch in the "OFF" position and drain the water from the cylinder. Remove the duckbill valve and allow water to drain from the mix pickup tube.
21. Unlock the MTS handle and pull down to gain access to the hose/roller cavity. Check to make sure the MTS hose has not moved to the back side of the rollers. If hose has moved to the back side of the roller cavity, contact the factory.

## 9.3 MTS Slide Switch Replacement



**CAUTION**  
To avoid electrical shock or contact with moving parts, make sure all switches are in the "OFF" position, and that the main power supply is disconnected. Some freezers have more than one disconnect switch.



**CAUTION**  
Pressurized system. Depressurize before disassembling.

### A. REMOVING THE MTS SLIDE SWITCH

1. If the freezer is in operation with frozen mix in the cylinder, it first must be emptied and cleaned.
2. Remove the rear panel.
3. Locate and disconnect the MTS slide switch connectors that come through the back of the cabinet to the MTS motor area.
4. Inside the cabinet, unlock the MTS handle and pull down to open housing and gain access to hose cavity.
5. Remove the mix transfer hose assembly.
6. Remove the two mounting screws located inside the hose cavity.
7. Remove the MTS from the cabinet wall by pulling straight out with a slight rocking action.
8. Remove the 2 screws and washers holding the MTS slide switch and pull switch wires out through the cabinet.
9. Remove the bushing from the cabinet wall and thread the wires on the new slide switch through the bushing. Install the switch with the two mounting screws and washers. Install the bushing back into the hole in the cabinet wall making sure the wires are threaded through the bushing as far as possible.
10. Check to ensure the wavy spring washer is on the motor shaft.
11. Install the MTS on the cabinet wall by aligning the coupling and motor shaft.
12. Turn the roller assembly while pushing the MTS back until completely engaged. The MTS base should seat flush to the wall of the cabinet.
13. Install the two mounting screws.
14. Reinstall the MTS hose assembly.
15. From the rear of the freezer, reconnect wires from the slide switch to the wire's "slide switch cord." (If wire terminals have been removed from cord marked "cord switch," use electrical tape and wrap around connectors.)
16. Install rear panel.

**Important:**  
***Make sure the wavy washer stays on the motor shaft behind the cabinet wall.***

— continued

## 9.3 MTS Slide Switch Replacement – continued

### B. CHECKING THE MTS SLIDE SWITCH ASSEMBLY



**CAUTION**  
DO NOT place hands near the MTS rollers. Severe personal injury could result.

1. Reconnect power to the freezer.
2. With the MTS handle in the down position put the MTS switch in the "ON" position. If the slide switch is working properly, the MTS will not come on.
3. Place the MTS switch in the "OFF" position.
4. Close the MTS handle and lock in place with the swing hook.
5. Place the MTS switch in the "ON" position. If the slide switch is working properly, the MTS will come on.
6. With the MTS running, unlock the swing hook and slowly lower the housing using the handle. If the slide switch is working properly, the MTS will shut off within 3/8" (9.5 mm) travel.

**NOTE:** If the MTS slide switch will not turn on, readjust switch to left or right and test again. If the MTS slide switch does not operate properly, call the factory.

7. After the slide switch has been checked for proper operation, disconnect power.

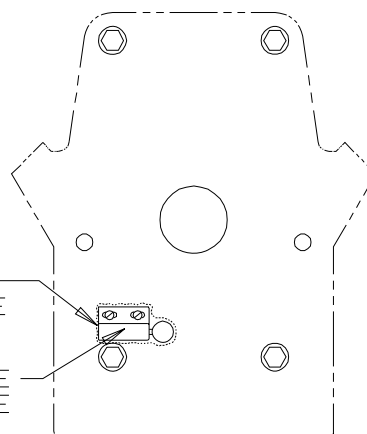


**CAUTION**  
To avoid electrical shock or contact with moving parts, make sure all switches are in the "OFF" position, and the main power supply is disconnected. Some freezers have more than one disconnect switch.

8. Open the slide, and remove screws holding the MTS in place.
9. Pull off MTS to expose switch. Apply silicone sealant around switch and lead wires. See figure 9-6
10. Reapply a thin coat (less than 1/32" thick or .8 mm) to the left side of the switch, and 1/16" (1.5 mm) thick coat to the top, bottom, and right side of the switch. (See Figure 9-3.) Do not reapply RTV to the surface of the switch that faces the cab opening. Failure to complete this procedure could result in the slide opening and closing improperly.

1/32" THICK  
ON THIS SIDE

NO RTV ABOVE  
THIS SURFACE



**Figure 9-6**

## 9.4 MTS Roller Assembly Replacement

### A. REMOVING THE ROLLER ASSEMBLY



#### CAUTION

To avoid electrical shock or contact with moving parts, make sure all switches are in the "OFF" position, and the main power supply is disconnected. Some freezers have more than one disconnect switch.



#### CAUTION

Pressurized system. Depressurize before disassembling.

1. Unlock the MTS handle and pull down to open the housing and give access to the hose cavity.
2. Remove the Mix transfer hose assembly.

3. Remove the two screws located inside the hose cavity. See figure 9-7.
4. Remove the MTS from the cabinet wall by pulling straight out with a rocking action. Take the MTS to a work bench.

#### IMPORTANT

***Make sure the curved spring washer stays on the motor shaft behind the cabinet wall.***

5. Remove three screws on the back of the base holding the bearing housing and pull the bearing housing from the base. See Figure 9-8.

#### IMPORTANT

***The plastic base, bearing housing, and slide assembly are machined parts that form a matched set. DO NOT attempt to interchange parts of this assembly with other parts.***

6. Gently rock and pull the old roller assembly out of the bearing housing. The roller assembly is press-fitted and cemented to the housing.

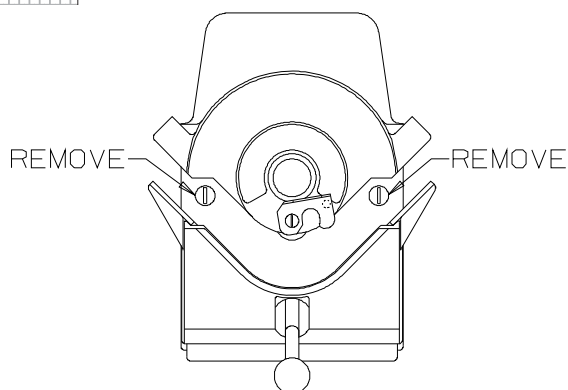


Figure 9-7

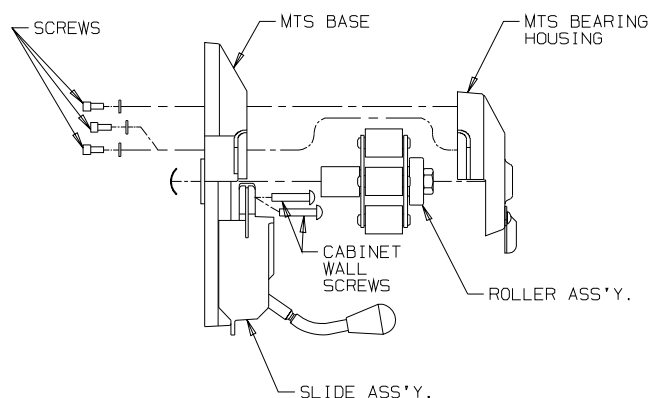


Figure 9-8

## 9.4

## MTS Roller Assembly Replacement (continued)

### B. INSTALLING THE ROLLER ASSEMBLY INTO THE NEW BEARING HOUSING

1. Take the roller assembly and check fit with the motor shaft at the freezer. The roller should fit snugly with very little rocking. A severely worn motor shaft or roller coupling must be replaced for proper operation of the MTS.
2. Inspect the roller assembly, making sure it is clean and all rollers move smoothly and freely.
3. Wipe clean with rubbing alcohol the outside bearing surface and the 8 spline's inside the bearing housing. Apply a drop of Loctite 414® adhesive (provided) to each spline in the bearing housing.
4. Take the roller assembly and align the end bearing over the plastic housing. Note that the bearing will have to be pressed into the machined step in the housing. Press firmly with two hands, using your body weight to help bottom out the bearing in the cavity. Let the adhesive cure for 5 minutes.
5. Reassemble the bearing housing to the base with the three screws. Apply a drop of Loctite #242® to each screw and use the flat washers provided in the kit to secure the screws.
6. Remove all RTV from the MTS slide switch on the rear wall of the cab. Reapply a thin coat (less than 1/32"

[0.8 mm] thick) to the left side of the switch, and 1/16" (1.6 mm) thick coat to the top, bottom, and right side of the switch. Do not reapply RTV to the surface of the switch that faces the cab opening. (See figure 9-9) Failure to complete this procedure could result in the slide opening and closing improperly.

7. Check to ensure the curved spring washer is on the MTS motor shaft.
8. Install the MTS on the cabinet wall by aligning the coupling and the motor shaft.
9. Turn the roller assembly while pushing the MTS back until completely engaged.
10. Install the two mounting screws being sure the base is flush against the back wall before tightening screws.

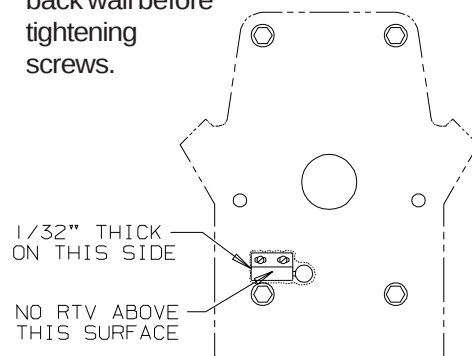


Figure 9-9

### C. TEST INSTALLATION OF MTS

1. Reassemble the freezer according to the Operator's Manual. Turn the mix switch to "PRIME" or "ON" if there is no "PRIME" position. Pressurize the unit with water, then depressurize. Repeat 5 times. With the unit depressurized, turn the mix switch to the "OFF" position.
2. Unlock the MTS handle and pull the slide down to open the hose cavity.

Carefully check the position of the hose in relation to the rollers. The hose should be near the center of the roller. If the hose is too far back or forward, the hose could be cut by the edge of the roller. If the hose shows excessive wear or cuts contact the factory for further instructions.

**NOTE:** This mix transfer housing has been completely tested at the factory with a roller assembly installed.

## 9.5 MTS Actuator Replacement Instructions



### CAUTION

To avoid electrical shock and contact with moving parts, make sure all switches are in the "OFF" position and that the main power supply is disconnected. Some freezers have more than one disconnect switch.

1. Remove MTS housing assembly as noted in section 1.1.A.
2. Remove the two nuts (figure 9-14, 1) and remove old magnet (2) located on the inside of the slide assembly.
3. Install new slide actuator assembly and tighten nuts snug but still allowing slide to move.
4. Check to ensure the curved spring washer is on the MTS motor shaft.
5. Install the MTS on the cabinet wall by aligning the coupling and the motor shaft.
6. Turn the roller assembly while pushing the MTS back until completely engaged.
7. Install the two mounting screws being sure the base is flush against the back wall before tightening screws.

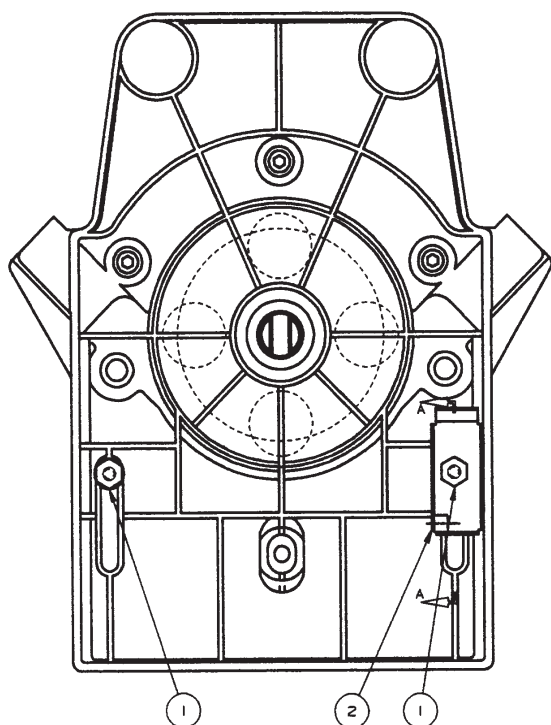


Figure 9-14

- ① NUT
- ② MAGNET

## 10 Equipment Operation

### 10.1 The Refrigeration System

(See Figures 10-1 and 10-2) The compressor discharges the refrigerant to the condenser as a high-temperature, high-pressure gas. Either by water-cooling or air-cooling, the refrigerant gas condenses to liquid. This high pressure liquid flows into the receiver which serves as the refrigerant reservoir. Upon leaving the receiver, the refrigerant flows through the filter drier, sight glass, and cylinder solenoid valve (which is controlled by the cylinder thermostat).

When the cylinder thermostat calls for cooling, the cylinder solenoid coil is energized and the valve opens to permit the flow of refrigerant to the automatic expansion valve. This expansion valve controls the flow of refrigerant in the evaporator in such a way as to keep practically the entire coil filled with evaporating refrigerant.

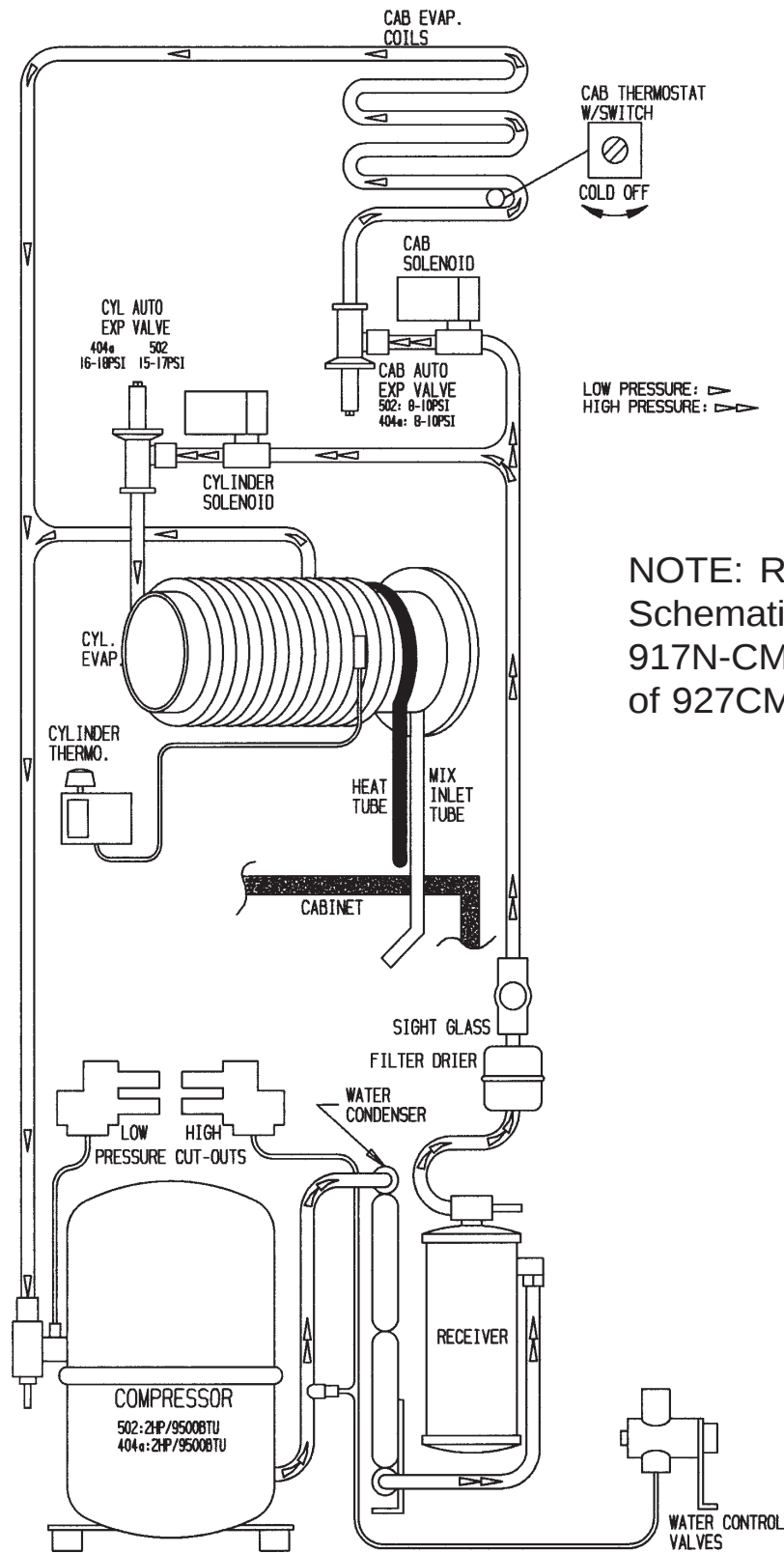
As the refrigerant in the cylinder evaporator absorbs the heat, it changes to a low pressure vapor. This vapor is re-

turned to the low pressure side of the compressor through the suction line leading from the freezing cylinder, thus completing the refrigeration cycle.

In water-cooled systems the flow of cooling water to the condenser is metered by a pressure-controlled regulating valve. Here, two forces control the size of the valve opening through which condenser water may flow. An adjustable tension spring tends to keep the valve closed while a bellows, connected by tubing to the high-pressure side of the system, tends to open the valve. When the refrigeration system begins operation, the increased pressure caused by the compressor opens the water regulating valve and permits water to flow through the condenser. When the unit cycles off, the water continues to flow through the valve until the condensing pressure has decreased below the valve setting. (See Section 8.2, for settings.)

# 10.1

## The Refrigeration System – continued



NOTE: Refrigeration Schematic for Model 917N-CMT and one side of 927CMT and 957CMT.

Figure 10-1 Refrigeration Schematic

MO0912

# 10.1

## The Refrigeration System – continued

### Refrigeration Schematic for Remote Condenser

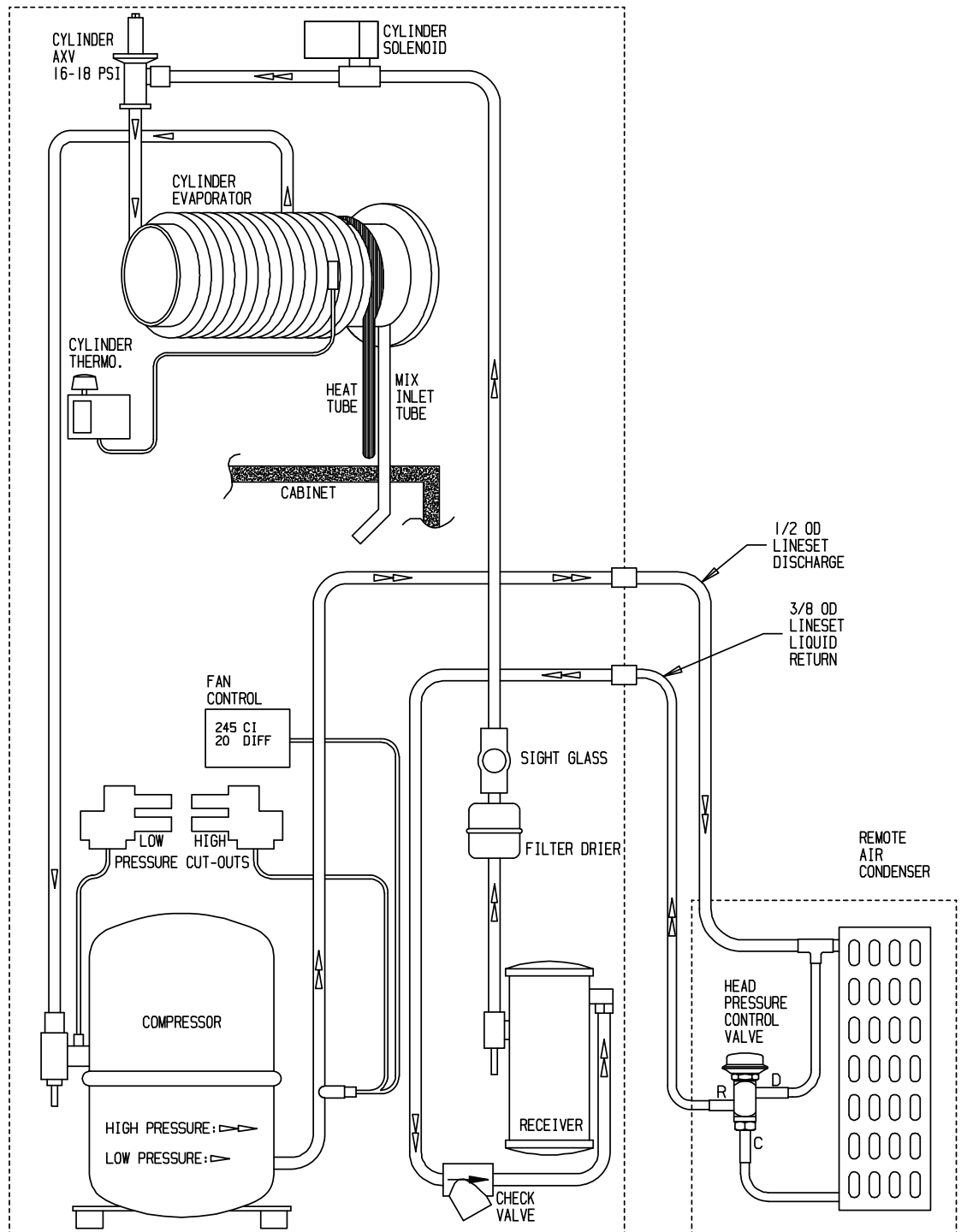


Figure 10-2 Refrigeration Schematic

## 10.2 The Electrical Circuit

The electrical operation of the system depends on the position of the MTS switch, selector switch and mode of operation. In the following discussion, five examples are considered.

- 1) operation when the selector switch is in the "AUTO" position but product is not being dispensed
- 2) operation during the time that the product is being dispensed
- 3) operation immediately after dispensing the product
- 4) operation when the selector switch is in the "CLEAN" position
- 5) operation of the pump when the MTS switch (mix) is in the "ON" position.

Note the differences between the single-phase circuit and the three-phase circuit.

**NOTE:** The following schematic shown (Figure 10-3) is for a standard 917N-CMT. Always refer to the schematic and wiring diagram supplied with the freezer.

**NOTE:** If the head is removed, the magnetic head switch will be open, cutting power to the beater motor contactor coil.

When the selector switch is in the "AUTO" position but product is not being dispensed, the refrigeration circuit is controlled by the cylinder thermostat. Note that current cannot flow through the mechanical timer or the spigot switch circuit, when both are open. When the temperature in the cylinder exceeds the setting of its controlling thermostat, the thermostat contacts close, thus energizing the solenoid valve and releasing the flow of refrigerant to the cylinder coils. This action also energizes the compressor contactor and beater motor starter coils, closing the points on the contactors.

When the operator is dispensing product, the spigot switch closes the contacts 1-2 on the solid state timer. This in turn energizes the coils on the contactors for the beater motor, compressor, and cylinder solenoid.

When the operator closes the spigot to shut off the flow of product, the spigot switch opens which starts the time delay period. The time delay contacts will remain closed for a period of 12 seconds after dispensing. The purpose of this delay is to refrigerate the new mix that entered the freezing cylinder when the frozen product was dispensed. Control of the refrigeration circuit is returned to the thermostat at the end of the 12 second period.

When the selector switch is in the "CLEAN" position, the refrigeration circuit is de-energized and only the beater motor starter and beater motor are energized.

The mechanical timer bypasses the thermostat, forcing the compressor and beater motor to run up to 3 minutes. This timer is used for quick start-ups or fast recovery when dispensing large portions.

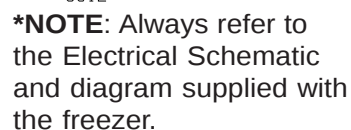
### ***Important:***

***Excessive use of the mechanical timer can causes freeze-up and damage to the freezer.***

When the mix switch is in the "ON" position the mix motor relay coil is energized through the mix pressure switch and magnetic slide switch. The mix motor is then energized through the mix motor relay points. When the mix pressure switch opens the mix motor relay coil is de-energized and the mix motor stops.

## The Electrical Circuit – continued

917N-CMT



S165306D

**Figure 10-3 Electrical Schematic\***

# 10.2 The Electrical Circuit – continued

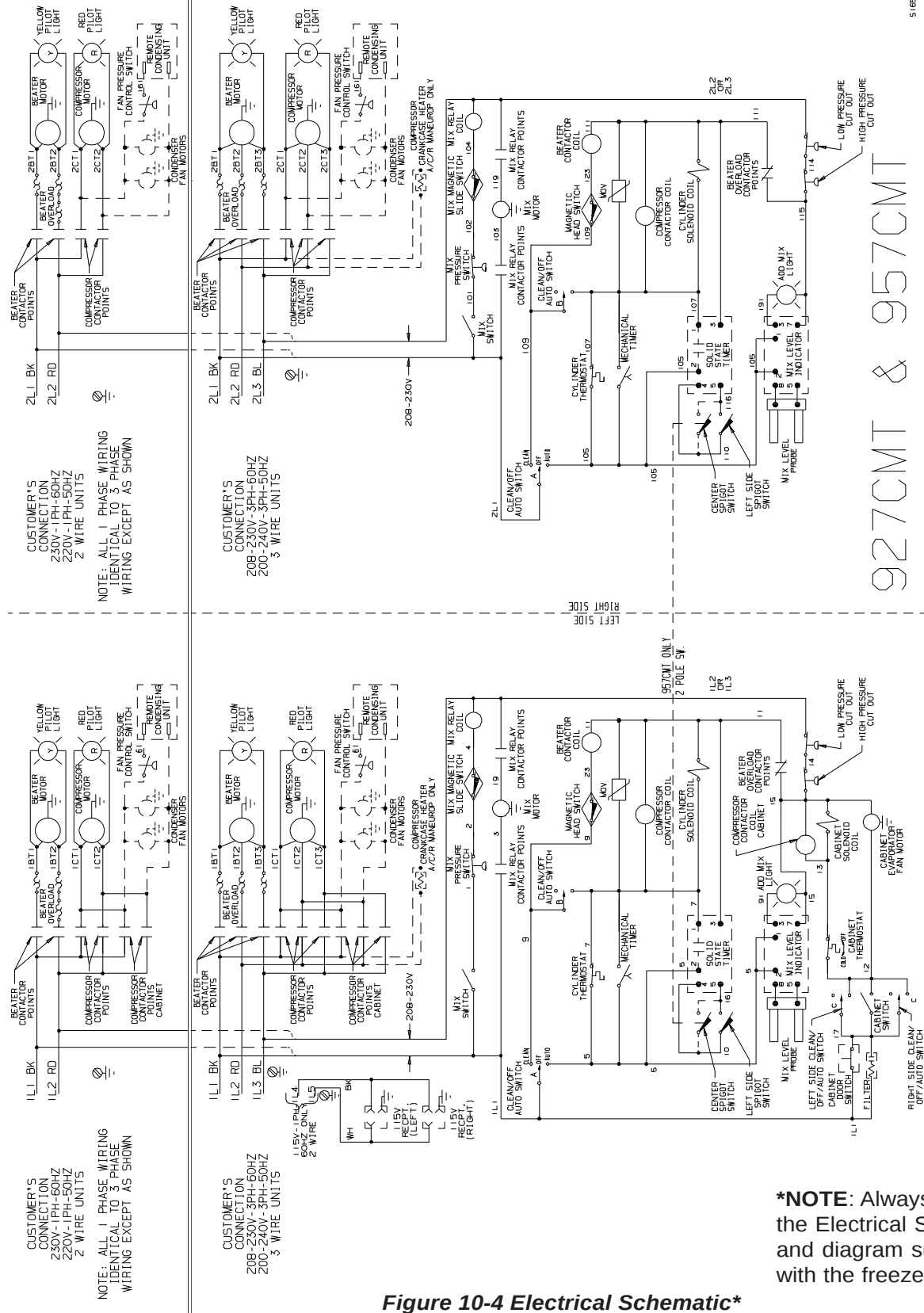


Figure 10-4 Electrical Schematic\*

# 11

## Maintenance and Adjustments



### CAUTION

All maintenance and adjustments must be done by an authorized service technician.



### CAUTION

To avoid electrical shock and contact with moving parts, make sure all switches are in the "OFF" position and that the main power supply is disconnected. Some freezers have more than one disconnect switch.

### 11.1 Gear Reducer Lubrication Instructions

The gear reducers are heavy duty, worm-gear units manufactured to H. C. Duke & Son, Inc. specifications. The following lubrication procedures should be followed.



### CAUTION

To avoid electrical shock and contact with moving parts, make sure all switches are in the "OFF" position and that the main power supply is disconnected. Some freezers have more than one disconnect switch.

### IMPORTANT:

**DO NOT overfill. Overfilling can damage the gear reducer.**

1. OIL – This is a special oil and will not mix with petroleum base oil. When adding or changing oil verify type of oil from the tag located on the gear reducer. Improper oil usage will cause the gear reducer to fail.

2. INITIAL OIL CHANGE – The oil in a new gear reducer should be drained at the end of 1500 hours of operation or 6 months, whichever occurs first.
3. OIL CHANGING – Under normal conditions, after the initial change, the oil should be changed after every 5000 hours of operation, or every year, whichever occurs first.
4. OVERFILLING OR UNDERFILLING – If a gear reducer is overfilled with oil, the energy used in churning the excessive oil can result in overheating. If the gear reducer is underfilled, the resultant friction can cause overheating. If underfilling occurs, fill the gear reducer to the oil level plug hole. See Figure 11-1.

**NOTE:** Normal operation can generate temperatures up to 200°F (93°C). If overheating occurs due to overfilling, shut down the drive, remove the oil level plug and allow excess oil to drain. Reinstall the oil level plug, and restart the drive.

– continued

## 11.1 Gear Reducer Lubrication Instructions – continued

5. **DRAINING OIL** – Open oil drain plug(s). Drain oil with speed reducer at normal operating temperature.
6. **PROPER OIL LEVEL** – Fill until oil is at the bottom of the threads in the oil level plug hole.
7. **INSPECTION** – When changing oil, always inspect all areas around the reducer for traces of oil. If oil is found in the immediate area, repair the leak (usually an oil seal) and check for proper oil level.

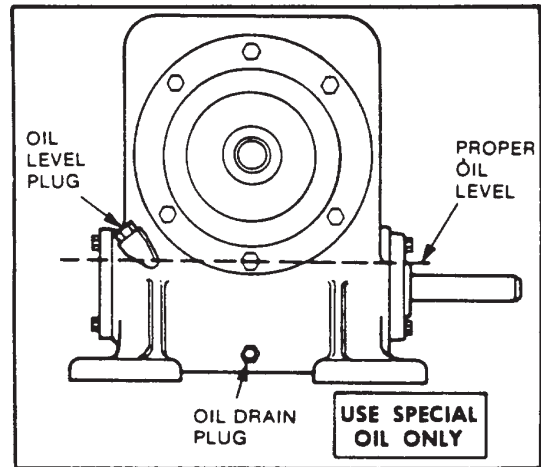


Figure 11-1 Gear Reducer

## 11.2 Condenser Cleaning



**CAUTION**  
To avoid electrical shock or contact with moving parts, make sure all switches are in the "OFF" position and the main power supply is disconnected. Some freezers have more than one disconnect switch.

### A. Air Cooled Condensers

At least once a month, the face area of the condensers should be inspected for accumulation of dirt and dust. Surface dirt and dust can usually be removed with a stiff brush and/or vacuum cleaner or compressed air. After brushing, hold a light between the fan blades and look through the condenser from the opposite side. This procedure will locate those areas where accumulated dirt has lodged between the condenser fins.

When using compressed air:

1. Place a damp towel or cloth over the face area of the condensers.
2. Blow dirt through the clogged areas of the condenser into the damp towel.

### B. Water Cooled Condensers

Depending on water conditions, the condenser may require cleaning. Usually a restricted flow of water resulting in a high head pressure indicates a dirty condenser. Flush the condenser with a commercially available condenser cleaner suitable for use on copper and rubber components.

### C. Beater and Condenser Fan Motor Inspection



**CAUTION**  
To avoid electrical shock and contact with moving parts, make sure all selector switches are in the "OFF" position and that the main power supply is disconnected. Some freezers have more than one disconnect switch.

The beater and fan motors do not require lubrication but should be inspected and cleaned annually.

## 11.3 Pulley Alignment and Belt Tension



**CAUTION**  
To avoid electrical shock or contact with moving parts, make sure all switches are in the "OFF" position and that the main power supply is disconnected. Some freezers have more than one disconnect switch.

1. Remove the side panels to expose the pulleys and the belts.
2. Check the alignment of the beater motor pulley and the gear reducer pulley by placing a straight edge across the faces of the two pulleys. If the pulleys are not aligned, adjust as necessary until proper alignment is obtained.
3. Depress the belt at a point midway between the two pulleys. When properly adjusted, the belt should depress ½ inch from its normal position with approximately five pounds of pressure.
4. If the belt is too tight or too loose, adjust as necessary until proper belt deflection is obtained by loosening the four (4) bolts which hold the motor mounting plate to the frame. With these loose, adjust the tension bolt in or out as required to obtain proper belt tension. Retighten bolts.
5. Periodically inspect the belts. If they are worn, replace both belts, as they are manufactured in matched sets.

**NOTE:** Most pulleys are mounted with Loctite®. It may be necessary to heat for removal.

## 11.4 Beater Drive Coupling Replacement and End Play Setting

### 11.4.1 Beater Drive Coupling Removal

**IMPORTANT:**  
*Improper drive coupling spacing will damage the beater shaft, dispensing head, and drive coupling. When checking end play settings or replacing a coupling, proceed as follows.*



**CAUTION**  
Make sure freezer is depressurized before proceeding.



**CAUTION**  
To avoid electrical shock or contact with moving parts, make sure all switches are in the "OFF" position and that the main power supply is disconnected. Some freezers have more than one disconnect switch.

1. Remove product from the cylinder.
2. Remove dispensing head and beater shaft. (See figure 11-2 Ref.#2.)
3. Remove both drive belts (not shown).

11.4.1 Beater Drive Coupling Removal – continued

4. Remove gear reducer bolts (Ref. #8). Six (6) bolts are located around the face of the reducer.

**NOTE:** Remove the top bolt last while holding the bottom of the reducer.

5. Remove the gear reducer (Ref. #1).

6. Replace two (2) bolts (Ref. #8), one (1) at the top and one (1) at the bottom, so that the reducer cover will not come off while the coupling is changed.
7. Loosen the four (4) set screws (Ref. #7), and remove the drive coupling (Ref. #4). If the coupling is stuck tight to the output shaft, lightly tap the coupling from the back with a brass or plastic hammer and bar, as a hard hammer can damage the bearings. Sometimes, due to age, this coupling will stick so tight it will have to be removed with a pulley-removing tool or a "wheel puller."

8. Remove the key (Ref. #10).

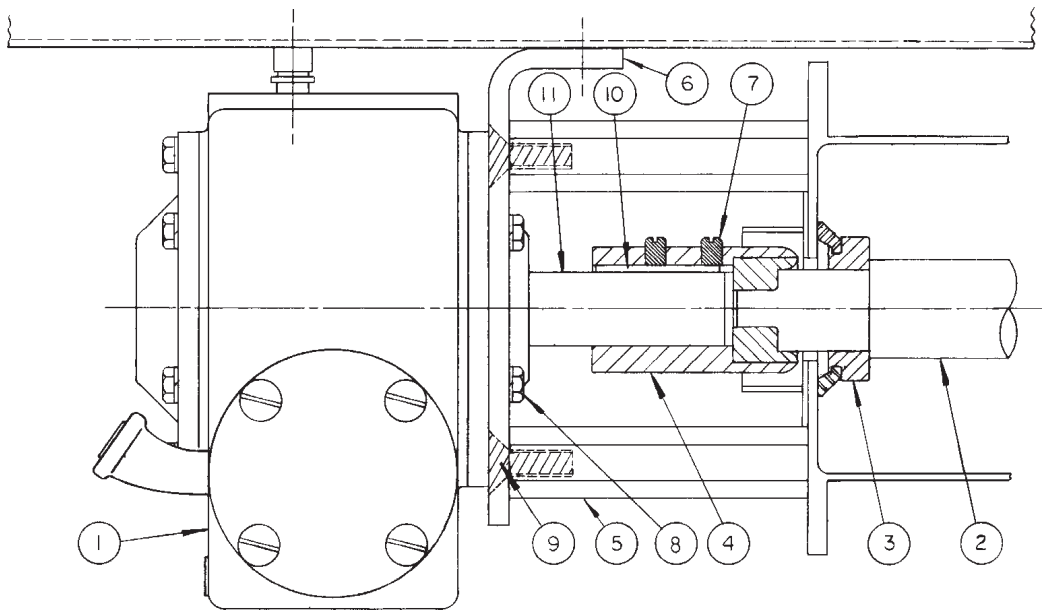


Figure 11-2

| No. DESCRIPTION |                        | No. DESCRIPTION |                             |
|-----------------|------------------------|-----------------|-----------------------------|
| 1.              | Gear Reducer           | 7.              | Set Screws                  |
| 2.              | Beater Shaft           | 8.              | Bolt-Gear Reducer           |
| 3.              | Shaft Seal             | 9.              | Bolt-Reducer Mounting Plate |
| 4.              | Drive Coupling         | 10.             | Key                         |
| 5.              | Spacer                 | 11.             | Output Shaft                |
| 6.              | Reducer-Mounting Plate |                 |                             |

## 11.4.2 Installing the New Coupling

1. Clean gear reducer output shaft (Ref.#11) with fine emery cloth, and slide the new drive coupling on the reducer shaft. The coupling should slide on the shaft all the way without the key. If the coupling doesn't slide completely on, check both the coupling and reducer shaft for burrs.
2. When a smooth sliding fit is achieved, remove coupling and proceed with final assembly.  
  
Place key (Ref. #10) in key slot on the reducer output shaft. Keep the key flush with the front end of the output shaft (Ref. #11).
4. Remove the two (2) bolts added in preceding Step #6 of Beater Drive Coupling Removal (previous page).
5. Place one (1) gear reducer bolt (Ref.#8) in the top hole of the cylinder mounting plate.
6. Insert gear reducer onto cylinder mounting plate and start top bolt (Ref. #8). Do not tighten completely. Now insert the other bolts one at a time. When all bolts are in, tighten each bolt.

**IMPORTANT:**

***Make sure the drain pan lip is on the front of the reducer mounting plate, not in between it and the reducer.***

**NOTE:** Coat output shaft with Loctite Anti-Seize to make future removal easier.

3. Slide the coupling (Ref. #4) until it bottoms out on the shaft. Leave the four (4) set screws loose as the coupling will have to be adjusted.

**NOTE:** Due to very close tolerance between the gear reducer and cylinder mounting plate, no alignment is required when installing the reducer. When the reducer bolts are tightened, the reducer will self-align with the cylinder.

11.4.3 End Play Adjustment for Beater Drive Coupling

- 1. Insert the beater shaft (Ref.#2) with the shaft seal and blades into the cylinder and engage beater shaft in the drive coupling.

**NOTE:** The four (4) set screws on the coupling must be loose, as the coupling will have to be adjusted.

- 2. Place the head bushing on the beater shaft.
- 3. Place the dispensing head into the cylinder and tighten with the hand knobs.

- IMPORTANT:**  
*Make sure hand knobs are tight and head is against the end of the cylinder tube.*
- 4. Slide the drive coupling (Ref.#4) forward until it is tight against the beater shaft. Move the coupling back 1/16 of one inch (about the thickness of a dime)
  - 5. Tighten all four set screws.
  - 6. Replace the drive belts.
  - 7. Reconnect electrical power.

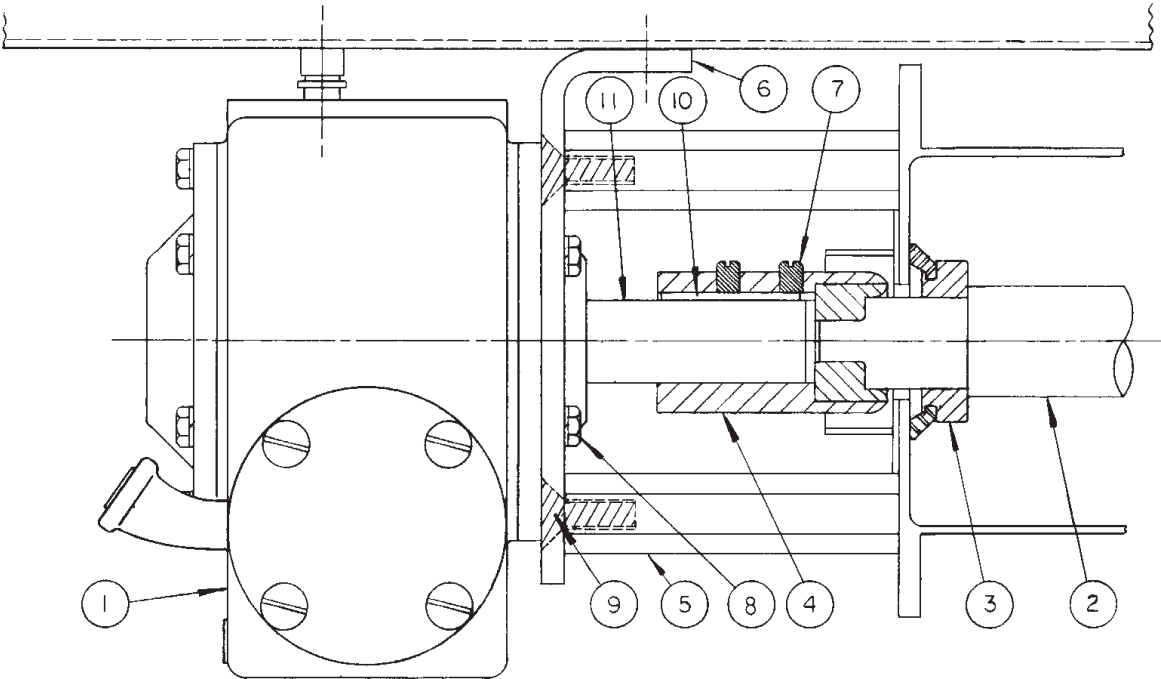


Figure 11-2

No. DESCRIPTION

- 1. Gear Reducer
- 2. Beater Shaft
- 3. Shaft Seal
- 4. Drive Coupling
- 5. Spacer
- 6. Reducer-Mounting Plate

No. DESCRIPTION

- 7. Set Screws
- 8. Bolt-Gear Reducer
- 9. Bolt-Reducer Mounting Plate
- 10. Key
- 11. Output Shaft

## 11.5 Cylinder Pressure Switch

### 11.5.1 Removing Cylinder Pressure Switch



**CAUTION**

To avoid electrical shock or contact with moving parts, make sure all switches are in the "OFF" position and that the main power supply is disconnected. Some freezers have more than one disconnect switch.

1. Remove Permagum Sealant putty around pressure switch and scrape off silicone sealant (if any).
2. Disconnect red and white wire 12 inches from switch.
3. Using 1/16" hex key, loosen the three set screws on the hex nut holding the pressure switch. Unscrew the nut from the switch and remove. Remove the spacer. Lightly tap the switch to break the silicone seal and push it through into the cylinder.
4. Carefully clean both surfaces of the cylinder wall with rubbing alcohol and remove all old silicone. The cylinder may be lightly sanded to remove old silicone. Clean the outer cylinder surface (nut & spacer side) of silicone and Permagum Sealant. SURFACES MUST BE PERFECTLY CLEAN FOR THE NEW SWITCH TO WORK PROPERLY. Use rubbing alcohol to remove any surface films.

### 11.5.2 Installing New Cylinder Pressure Switch

**IMPORTANT:**

*Do not press diaphragm of new pressure switch, drop, or distort this surface in any way. This is very delicate and if abused will void all warranties. Retain protective cover on switch assembly until installation of switch.*

1. Trial-fit new switch in cylinder, using the new spacer and nut. Hint: Tape the wires together at the ends. This will help when threading the wires through the pressure switch mounting hole.

**IMPORTANT:**

*Do not drag threads on pressure switch through the hole in the cylinder. Lift and gently push the switch through.*

2. Check to be sure the curvature of the cylinder matches the lip of the switch. Slide the switch holding tool into the cylinder and on to the head of the pressure switch, taking care not to depress the switch diaphragm.

Wiggle the switch and the curved spacer to get the exact match to the curvature of the cylinder.

**IMPORTANT:**

*Any misalignment of pressure switch and wall of cylinder will change pressure set point and damage the switch!*

3. Scribe a locator line on label of new switch with a pen to mark the horizontal position of the switch. Scribe a horizontal line on the curved spacer to match the line on the switch.
4. Remove the pressure switch from the cylinder. With rubbing alcohol, thoroughly clean the area to be sealed. Clean cylinder wall, inside and out, and clean mating surface of pressure switch. Allow to dry. It is important that surfaces receiving the sealant are clean to ensure a good bond.

— continued

## 11.5.2

### Installing New Cylinder Pressure Switch – continued

5. Apply a thin film of grey RTV silastic sealant around O-ring on switch and a 1/8 in. bead around the head of pressure switch. (See figure 11-3.)
6. Install the switch into the cylinder hole, taking care not to smear the bead of RTV. Align the horizontal line into position noted in the trial installation. Place the holding tool in cylinder straight over the switch to hold the switch in place.
7. With the O-ring in the spacer, apply a thin film of gray RTV sealant on the o-ring, slide it over the switch body and thread it on the nut. Align the locating lines and tighten the nut finger-tight. Tighten 3 set screws uniformly to finger-tight. (2 in-lb torque)
8. Remove the holding tool from the cylinder.
9. Wipe off excess RTV inside the cylinder with a tissue or a soft paper towel. Allow RTV sealant to cure for 30 minutes.
10. Reconnect switch leads to wires and secure in place with tie-wraps.
11. While waiting, seal the wires where they exit the switch. Squeeze out a liberal amount of the clear silicone sealant and allow it to flow over the rear of the switch (See Fig 11-3.) The sealant should cover the entire black cap, 3/4 in. of the exposed wires and 1/4 in of the metal housing. Place a paper towel under the switch to catch the excess sealer which runs off. After a skin forms on the sealant—about 15 minutes—apply a full second coat.
12. The installation can be checked for leaks using water. Also check the cut-out and cut-in pressure setting of the switch. (Use part number 116312 pressure gauge assembly.)

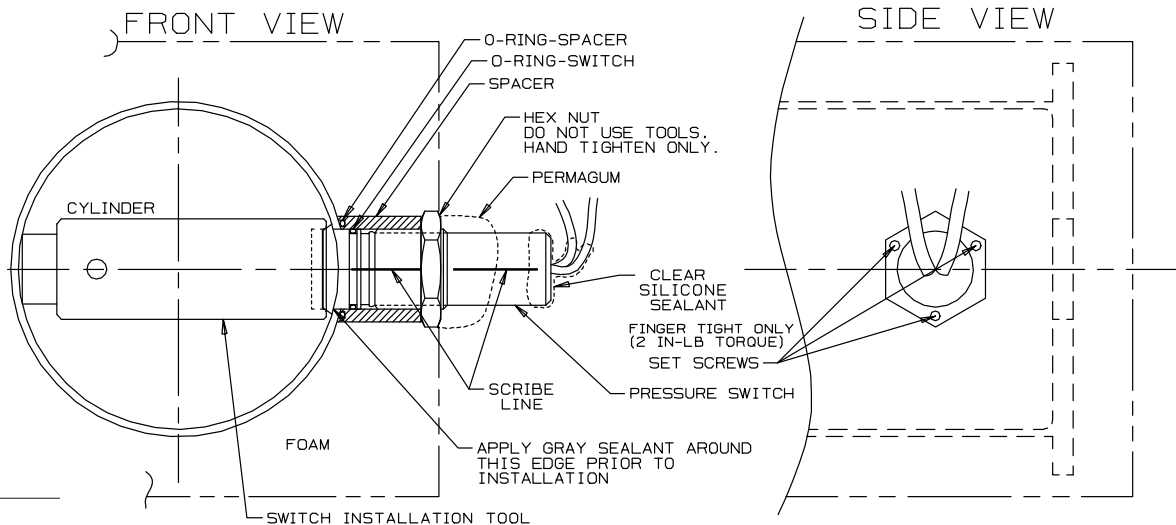
**NOTE:** Cut out pressure must not exceed 26 psig and the cut in pressure should be within 2-5 psi of the cutout pressure.

**NOTE:** Minimum cut out PSIG is 19 PSIG.

#### **Important**

**Pressures over 26 psig will cause the hose to stretch which will shorten the life of the hose.**

13. Once the 2nd coat of clear sealant is dry, repack permagum insulation around pressure switch. Then the freezer can be cleaned, assembled, sanitized and placed in service.



**Figure 11-3**

## 12 Service Troubleshooting Charts

### SAFETY



This safety alert symbol identifies important personal safety messages in this manual. When you see this symbol, be alert to the possibility of personal injury. **DO NOT** attempt to continue until the safety precautions are thoroughly understood.



#### CAUTION

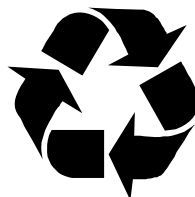
ALL MAINTENANCE AND ADJUSTMENTS MUST BE MADE BY A QUALIFIED REFRIGERATION TECHNICIAN.



#### CAUTION

WHEN EVACUATING EITHER SIDE OF THE FREEZER, DO NOT OPERATE THE OPPOSITE SIDE. ALL CONTROL SWITCHES MUST BE IN THE "OFF" POSITION AND THE MAIN POWER SUPPLY DISCONNECTED. IF POWER IS APPLIED TO A COMPRESSOR IN A VACUUM, A SHORT MAY OCCUR.

**NOTE:** Some refrigerants are hazardous to the Earth's atmosphere. To protect our environment, use a refrigerant recovery/recycling unit whenever removing refrigerant from the system.



# 12

## Service Troubleshooting Charts – continued

| PROBLEM | PROBABLE CAUSE | REMEDY |
|---------|----------------|--------|
|---------|----------------|--------|

|                                                       |                                                       |                                                                 |
|-------------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------------------|
| Leakage of mix or water from drain tube to drip tray. | 1. Damaged beater shaft seal or installed improperly. | 1. Replace cup seal or o-ring inside bushing. Install properly. |
|                                                       | 2. Beater shaft end play not set properly.            | 2. Set per instructions in Maintenance and Adjustment section.  |
|                                                       | 3. Damaged beater shaft.                              | 3. Replace beater shaft.                                        |

|                                 |                                 |                                                      |
|---------------------------------|---------------------------------|------------------------------------------------------|
| Mix leaking at dispensing head. | 1. Faulty head o-ring.          | 1. Replace o-ring.                                   |
|                                 | 2. Head not properly installed. | 2. Install head properly. Replace o-ring if pinched. |

# 12

## Service Troubleshooting Charts – continued

|                                                             |                                                                           |                                                                                                                                |
|-------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Dispensed product too soft (Product temperature above 21°F) | 1. Automatic expansion valve incorrectly set or erratic in operation.     | 1. Adjust or replace expansion valve. (See Section 8.2 or 8.3)                                                                 |
|                                                             | 2. Leak in refrigeration system resulting in little or not refrigeration. | 2. Find refrigerant leak. Remove charge into a refrigerant recovery/recycling unit. Repair leak, evacuate and recharge system. |
|                                                             | 3. Thermostat set too high or faulty.                                     | 3. Adjust thermostat or replace. (See Sec. 8.1)                                                                                |

|                                                  |                                |                                                                       |
|--------------------------------------------------|--------------------------------|-----------------------------------------------------------------------|
| Product dispenses slowly out of dispensing head. | 1. Product too cold.           | 1. See "Dispensed Product Too Hard" this section.                     |
|                                                  | 2. Reverse rotation on beater. | 2. Correct rotation to clockwise as viewed from the front of freezer. |
|                                                  | 3. MTS pressure too low.       | 3. Check dispensing pressure.                                         |

|                             |                                                                                       |                                                                       |
|-----------------------------|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| Dispensed product too hard. | 1. Cylinder thermostat erratic or set too cold.                                       | 1. Adjust thermostat or replace.                                      |
|                             | 2. Faulty time delay. (Unit runs all the time.)                                       | 2. Replace time delay. (See Sec. 8.1)                                 |
|                             | 3. Low suction pressure.                                                              | 3. See Maintenance and Adjustments for setting. (See Sec. 8.2 or 8.3) |
|                             | 4. Spigot switch electrically or mechanically stuck closed. (Unit runs all the time.) | 4. Adjust or replace spigot switch                                    |

PROI

PROBABLE CAUSE

REMEDY

|                                                               |                                                                   |                                                                       |
|---------------------------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------|
| Machine runs continually and product continues to get colder. | 1. Spigot switch rod engaged.                                     | 1. Close spigot completely.                                           |
|                                                               | 2. Spigot switch (side or center) out of adjustment or defective. | 2. Adjust or replace spigot switch. (Sec.7.3)                         |
|                                                               | 3. Faulty thermostat or bulb not deep enough in well.             | 3. Check movister, time delay and thermostat, replace as needed.      |
|                                                               | 4. Starter contact points stuck.                                  | 4. Replace starter, and test head switch operation.                   |
|                                                               | 5. Faulty time delay.                                             | 5. Replace time delay.                                                |
|                                                               | 6. Suction pressure too low, refrigeration system.                | 6. See Maintenance and Adjustments for setting. (See Sec. 8.2 or 8.3) |

12

Service Troubleshooting Charts – continued

| PROBLEM | PROBABLE CAUSE | REMEDY |
|---------|----------------|--------|
|---------|----------------|--------|

Remove restriction, clean or replace condenser.

|                                                     |                                                                        |                                                                             |
|-----------------------------------------------------|------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| Compressor does not operate or operates improperly. | 1. Trouble in compressor condensing circuit.                           | 1. Refer to Trouble Shooting Compressor/Condensing Circuit.                 |
|                                                     | 2. Faulty start capacitor, run capacitor or relay. (single phase only) | 2. Replace start capacitor. Replace run capacitor. Replace compressor relay |
|                                                     | 3. Faulty contactor.                                                   | 3. Replace contactor.                                                       |
|                                                     | 4. Disconnected or broken wire in switch or capacitor relay box.       | 4. Check wiring and connections; repair or replace wire leads as necessary. |

|                                |                                         |                                   |
|--------------------------------|-----------------------------------------|-----------------------------------|
| Beater motor does not operate. | 1. Head assembly is not installed.      | 1. Install head assembly.         |
|                                | 2. Magnetic head switch defective.      | 2. Replace magnetic head switch.  |
|                                | 3. Loose connection in control circuit. | 3. Locate and tighten connection. |
|                                | 4. Open starter coil.                   | 4. Replace coil.                  |
|                                | 5. Worn out relay contact.              | 5. Replace relay.                 |
|                                | 6. Faulty capacitor assembly, (1 phase) | 6. Replace capacitor assembly.    |
|                                | 7. Faulty beater motor.                 | 7. Replace beater motor.          |
|                                | 8. Beater overload open.                | 8. Reset or replace overload.     |

Compressor and beater motor operate only when dispensing.

# 12

## Service Troubleshooting Charts – continued

### Troubleshooting Charts Compressor/Condensing Circuits

|                                                                        |                                              |                                                                                                                                                                                    |
|------------------------------------------------------------------------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Compressor will not start - hums intermittently (cycling on overload). | 1. Improperly wired.                         | 1. Check wiring against diagram.                                                                                                                                                   |
|                                                                        | 2. Low line voltage.                         | 2. Ask power company to increase voltage to not less than 10% below dataplate rating or install transformer. Check for inadequate wire size and length of wire to circuit breaker. |
|                                                                        | 3. Open start capacitor. (single phase only) | 3. Replace start capacitor.                                                                                                                                                        |
|                                                                        | 4. High discharge pressure.                  | 4. See "Discharge Pressure Too High" this section.                                                                                                                                 |
|                                                                        | 5. Defective compressor.                     | 5. Replace compressor.                                                                                                                                                             |
|                                                                        | 6. Potential relay defective.                | 6. Replace potential relay.                                                                                                                                                        |

|                                                   |                                               |                                                                                                                                                                                    |
|---------------------------------------------------|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Compressor starts, but remains in start windings. | 1. Low line voltage.                          | 1. Ask power company to increase voltage to not less than 10% below dataplate rating or install transformer. Check for inadequate wire size and length of wire to circuit breaker. |
|                                                   | <b>PROBABLE CAUSE</b>                         | <b>REMEDY</b>                                                                                                                                                                      |
|                                                   | 2. Improperly wired.                          | 2. Check wiring against diagram. Check wire size.                                                                                                                                  |
|                                                   | 3. Run capacitor shorted. (single phase only) | 3. Check by disconnecting run capacitor.                                                                                                                                           |
|                                                   | 4. Start capacitor weak. (single phase only)  | 4. Check capacitor, replace.                                                                                                                                                       |
|                                                   | 5. Defective relay. (single phase only)       | 5. Replace relay.                                                                                                                                                                  |

|                                              |                            |                                                                                                                                                                                                                         |
|----------------------------------------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Contactor failure, points burned and pitted. | 1. Low line voltage.       | 1. Make sure your freezer is connected to a SEPARATE circuit independent from any other electrical equipment. Ask power company to increase voltage to not less than 10% below dataplate rating or install transformer. |
|                                              | 2. Excessive line voltage. | 2. Ask power company to reduce voltage to maximum of 10% over dataplate rating.                                                                                                                                         |
|                                              | 3. Contactor chattering.   | 3. Check movister, time delay and thermostat. Replace as needed.                                                                                                                                                        |

# 12

## Service Troubleshooting Charts – continued

### Troubleshooting Charts Compressor/Condensing Circuits

|                                     |                             |                                                                                            |
|-------------------------------------|-----------------------------|--------------------------------------------------------------------------------------------|
| Unit operates long or continuously. | 1. Dirty condenser.         | 1. Clean condenser.                                                                        |
|                                     | 2. Shortage of refrigerant. | 2. Remove charge into a refrigerant recovery/recycling unit, repair leak and recharge.     |
|                                     | 3. Moisture in system.      | 3. Remove charge into a refrigerant recovery/recycling unit, evacuate and recharge system. |



CAUTION: When evacuating either side of a double freezer DO NOT OPERATE THE OPPOSITE SIDE. All control switches must be in the "OFF" position and the main power CORD(S) disconnected. If power is applied to a compressor in a vacuum a short may occur CAUSING PERSONAL INJURY.

|  |                        |                                                                  |
|--|------------------------|------------------------------------------------------------------|
|  | 4. Compressor failing. | 4. Check compressor for proper pressures. Replace if inadequate. |
|--|------------------------|------------------------------------------------------------------|

|                               |                                                          |                                                                                               |
|-------------------------------|----------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Discharge pressure too high.. | 1. Water turned off or defective water regulating valve. | 1. Turn on water, replace regulating valve, or install water valve kit.                       |
|                               | 2. Restricted water cooled condenser.                    | 2. Check water lines to see if they are kinked. Clean or replace condenser.                   |
|                               | 3. Dirty condenser.                                      | 3. Clean condenser.                                                                           |
|                               | 4. Unit location too warm (air cooled).                  | 4. Relocate unit away from restriction. Place nothing against the back or on top of the unit. |



CAUTION: When evacuating either side of a double freezer DO NOT OPERATE THE OPPOSITE SIDE. All control switches must be in the "OFF" position and the main power CORD(S) disconnected. If power is applied to a compressor in a vacuum a short may occur CAUSING PERSONAL INJURY.

|  |                            |                                                                                                                                                            |
|--|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 5. Refrigerate overcharge. | 5. Bleed refrigerant charge into a refrigerant recovery/recycling unit, until sight glass bubbles (flashes) then add refrigerant until sight glass clears. |
|  | 6. Air in system.          | 6. Purge system into a refrigerant recovery/recycling unit, evacuate and recharge.                                                                         |

## 12

## Service Troubleshooting Charts – continued

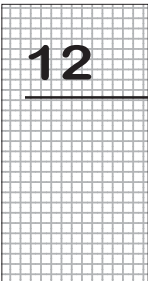
## Troubleshooting Charts

### Compressor/Condensing Circuits

| PROBLEM             | PROBABLE CAUSE                             | REMEDY                                                                                                       |
|---------------------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| Capacitor failures. | 1. Low line voltage.                       | 1. Ask power company to increase voltage to not less than 10% below dataplate rating or install transformer. |
|                     | 2. Improper capacitor. (single phase only) | 2. Replace capacitor with properly rated capacitor as listed in manual.                                      |

|                             |                  |                                          |                                                                                                         |  |
|-----------------------------|------------------|------------------------------------------|---------------------------------------------------------------------------------------------------------|--|
| Discharge pressure too low. | Noisy compressor | 1. Water regulating valve open too wide. | 1. Adjust for proper water temperature and discharge pressure or replace or repair water valve.         |  |
|                             |                  | 1. Tubing rattle.                        | 1. Bend tubes away from contact.                                                                        |  |
|                             |                  | 2. Spring broke internally.              | 2. Replace compressor.                                                                                  |  |
|                             |                  | 2. Shortage of refrigerant               | 2. Remove charge into a refrigerant recovery/recycling unit, repair leak, evacuate and recharge system. |  |

**NOTE: Contact H.C. Duke & Son, Inc. for instructions prior to warranty compressor replacement.**



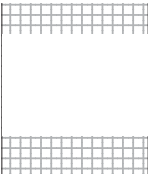
12

Service Troubleshooting Charts – continued

Troubleshooting Charts  
Mix Transfer System (MTS)



|                      |                              |                                 |
|----------------------|------------------------------|---------------------------------|
| No Air<br>(Overrun). | 1. Air meter plugged.        | 1. Clean or replace air meter.  |
|                      | 2. Air tube pinched.         | 2. Replace tube.                |
|                      | 3. Incorrect air meter size. | 3. Use higher number air meter. |



## 12

## Service Troubleshooting Charts – continued

## Troubleshooting Charts Mix Transfer System (MTS)

|                                           |                                     |                                                                                  |
|-------------------------------------------|-------------------------------------|----------------------------------------------------------------------------------|
| MTS cycles on and off without dispensing. | 1. Leak on pressure side of system. | 1. Find leak and correct, check head, drain tube, pressure relief and all hoses. |
|                                           | 2. Worn transfer hose.              | 2. Replace hose.                                                                 |

|                       |                                  |                                                                                          |
|-----------------------|----------------------------------|------------------------------------------------------------------------------------------|
| Mix leaks out of MTS. | 1. Hose clamp too loose.         | 1. Tighten hose clamp.                                                                   |
|                       | 2. Transfer hose worn and split. | 2. Remove, clean inside MTS around rollers with spray bottle provided, install new hose. |

## PROBLEM

## PROBABLE CAUSE

## REMEDY

**Keep your freezer in excellent condition. Always contact H.C. Duke & Son, Inc. for replacement parts and maintenance information.**

**QUALITY PARTS**

**PROTECT**

**YOUR**

**EQUIPMENT**



## INSTALLATION, START-UP AND INSTRUCTION CHECKLIST

### \*For Freezers with Mix Transfer Systems

Freezer Location: Account Name \_\_\_\_\_ Model No.: \_\_\_\_\_  
Street Address: \_\_\_\_\_ Phone: \_\_\_\_\_ Serial No.: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ Voltage: \_\_\_\_\_  
Distributor Name \_\_\_\_\_  
Dealer or Service Agency Name: \_\_\_\_\_ Phase: \_\_\_\_\_  
Street Address: \_\_\_\_\_ Phone: \_\_\_\_\_ Cooling: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ Installation Date: \_\_\_\_\_

**IMPORTANT:** This freezer must be installed by a qualified service technician in accordance with the installation instructions. Contact the factory Service Department for more information at 800-755-4545.

| <u>Installation</u>                                                                                                                                   | A<br>Left<br>Side        | B<br>Right<br>Side       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|
| <b>A. Position the Unit</b>                                                                                                                           |                          |                          |
| 1. Inspect freezer for any transit damage. ....                                                                                                       | <input type="checkbox"/> |                          |
| 2. Check pulley alignment, belt tension,<br>set screws and bolt tightness. ....                                                                       | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Install casters or legs. ....                                                                                                                      | <input type="checkbox"/> |                          |
| 4. Place freezer in proper location ....                                                                                                              | <input type="checkbox"/> |                          |
| 5. Level freezer by adjusting legs or casters.<br>Unit should have ¼" slope to the front. ....                                                        | <input type="checkbox"/> |                          |
| 6. Allow 6" clearance for air flow. ....                                                                                                              | <input type="checkbox"/> |                          |
| <b>B. Electrical Wiring</b>                                                                                                                           |                          |                          |
| <b>Note:</b> All connections must conform to local code requirements<br>and/or be in compliance with the National Electrical Code.                    |                          |                          |
| 1. Check and record supply voltage at<br>disconnect. _____ V _____ V                                                                                  |                          |                          |
| 2. Check wire condition and record wire size. _____ GA _____ GA<br>Record length of run from supply box. _____ ft. _____ ft.                          |                          |                          |
| 3. Wire all 2 compressor freezers with<br><u>two (2) separate lines and disconnects</u> . ....                                                        | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Connect green ground wire to ground screw<br>lug in service entrance junction box. ....                                                            | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Fuse freezers between maximum fuse size<br>and minimum circuit ampacity listed on freezer<br>data plate. Record fuse size or breaker rating. _____ |                          |                          |
| 6. Check beater rotation (Clockwise from front)                                                                                                       | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. After installation, check and record voltage<br>at freezer under load. ....                                                                        |                          |                          |
| 8. After installation, check and record actual<br>operation amperage. ....                                                                            |                          |                          |
| <b>C. Water Connections (If applicable)</b>                                                                                                           |                          |                          |
| 1. Connect water inlet line (cold water only) .....<br>(¾" ID for single head, ½" ID for double head).                                                | <input type="checkbox"/> |                          |
| 2. Connect drain line. ....                                                                                                                           | <input type="checkbox"/> |                          |
| 3. Turn water on and check for leaks. ....                                                                                                            | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>D. Final Assembly for Freezers with Mix Transfer Systems</b>                                                                                       |                          |                          |
| 1. Unpack all spare parts for inspection. ....                                                                                                        | <input type="checkbox"/> |                          |
| 2. Install and check any accessory item<br>purchased. ....                                                                                            | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Install refrigeration test gauges. ....                                                                                                            | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Perform the Test of Installation outlined in<br>the Service Manual. ....                                                                           | <input type="checkbox"/> | <input type="checkbox"/> |

| <u>Operator/Owner Training</u><br><u>Assembly &amp; Cleaning</u>                                                                                                                                                                                                                                                                            |                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| <div><b>CAUTION</b><br/>To avoid electrical shock or contact with<br/>moving parts, make sure all switches are in<br/>the "OFF" position and that the main power<br/>supply is disconnected. Some freezers have<br/>more than one disconnect switch.</div> |                          |
| 1. Review and explain Operator's Manual and caution<br>labels to operator/owner. ....                                                                                                                                                                                                                                                       | <input type="checkbox"/> |
| 2. Identify model and serial number tag.<br>Record in manual. ....                                                                                                                                                                                                                                                                          | <input type="checkbox"/> |
| 3. Explain and identify all control switches. ....                                                                                                                                                                                                                                                                                          | <input type="checkbox"/> |
| 4. Instruct the owner/operator in assembly, lubrication and<br>disassembly procedures and explain the following: ..                                                                                                                                                                                                                         | <input type="checkbox"/> |
| a. Spigot/dispensing rod. ....                                                                                                                                                                                                                                                                                                              | <input type="checkbox"/> |
| b. Dispensing head, spigot and serrated nozzle or<br>spigot extension. ....                                                                                                                                                                                                                                                                 | <input type="checkbox"/> |
| c. Beater shaft, blades, shaft seal and bushing. ....                                                                                                                                                                                                                                                                                       | <input type="checkbox"/> |
| d. MTS hose assembly ....                                                                                                                                                                                                                                                                                                                   | <input type="checkbox"/> |
| e. Transfer hose, locating line and life<br>(30 days maximum) ....                                                                                                                                                                                                                                                                          | <input type="checkbox"/> |
| f. Duckbill check valve and air hose ....                                                                                                                                                                                                                                                                                                   | <input type="checkbox"/> |
| g. Air meter number identification and care ....                                                                                                                                                                                                                                                                                            | <input type="checkbox"/> |
| h. MTS housing and hose installation ....                                                                                                                                                                                                                                                                                                   | <input type="checkbox"/> |
| 5. Wash all cylinder and dispense head parts per manual<br>instructions. Let air dry. ....                                                                                                                                                                                                                                                  | <input type="checkbox"/> |
| 6. Wash cylinder with brush. ....                                                                                                                                                                                                                                                                                                           | <input type="checkbox"/> |
| 7. Wash mix inlet tube with brush. ....                                                                                                                                                                                                                                                                                                     | <input type="checkbox"/> |
| 8. Explain lubrication points, reassemble and<br>install cylinder and head parts ....                                                                                                                                                                                                                                                       | <input type="checkbox"/> |
| 9. Reassemble and install mix transfer hose assembly. ....                                                                                                                                                                                                                                                                                  | <input type="checkbox"/> |
| 10. Before proceeding with demonstration, have<br>operator/owner disassemble, lubricate and<br>reassemble all parts. ....                                                                                                                                                                                                                   | <input type="checkbox"/> |
| 11. Explain and identify function and cleaning of<br>drain tube. ....                                                                                                                                                                                                                                                                       | <input type="checkbox"/> |
| 12. Explain and identify spare parts kit. ....                                                                                                                                                                                                                                                                                              | <input type="checkbox"/> |

Freezer Model No. \_\_\_\_\_

Serial No. \_\_\_\_\_

| <b>Owner/Operator Training</b>                                                                                                                                                                                                                                                         |                          |                          |                                                                                                                                                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b><u>Machine Start-up</u></b>                                                                                                                                                                                                                                                         |                          |                          |                                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                                        | A<br>Left<br>Side        | B<br>Right<br>Side       |                                                                                                                                                                                   |
| 1. Instruct the owner/operator on proper cleaning and sanitizing as outlined in the Operator's Manual. ....                                                                                                                                                                            | <input type="checkbox"/> | <input type="checkbox"/> | 5. Allow MTS to run until it shuts off on pressure. .... <input type="checkbox"/> <input type="checkbox"/>                                                                        |
| 2. Drain sanitizer from the freezer. ....                                                                                                                                                                                                                                              | <input type="checkbox"/> | <input type="checkbox"/> | 6. Turn selector switch to "AUTO" ..... <input type="checkbox"/> <input type="checkbox"/>                                                                                         |
| 3. Pour at least 2-1/2 gallons of mix into each mix container. ....                                                                                                                                                                                                                    | <input type="checkbox"/> | <input type="checkbox"/> | 7. Allow refrigeration to cycle, record cycle times once down to dispensing temperature (approxiamtely 15-20 minutes).<br>Length of on time and off time ..... ON _____ OFF _____ |
| 4. Open dispensing spigot and air relief/bleed plug. Turn MTS switch to "ON". Leave spigot open until pure mix comes out of dispensing head then close spigot. Close air relief/bleed plug when mix is coming out of the air relief/bleed plug opening in the bottom of the head. .... | <input type="checkbox"/> | <input type="checkbox"/> | 8. Completely review all portions of freezer start-up. .... <input type="checkbox"/>                                                                                              |
|                                                                                                                                                                                                                                                                                        |                          |                          | 9. Explain overrun, how to check, calculate and change. .... <input type="checkbox"/>                                                                                             |
|                                                                                                                                                                                                                                                                                        |                          |                          | 10. Explain and have operator/owner sign warranty card. .... <input type="checkbox"/>                                                                                             |

| <b><u>Installation Adjustments</u></b>                                                                                                                                                             |                          |                          |                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|---------------------------------------|
|                                                                                                                                                                                                    | A<br>Left Side           | B<br>Right Side          |                                       |
| 1. Check refrigerant charge - sight glass. ....                                                                                                                                                    | <input type="checkbox"/> | <input type="checkbox"/> | First check                           |
|                                                                                                                                                                                                    | <input type="checkbox"/> | <input type="checkbox"/> | Second check                          |
| 2. Check, set and record head pressure. ....                                                                                                                                                       | _____ psig               | _____ psig               | First check                           |
|                                                                                                                                                                                                    | _____ psig               | _____ psig               | Second check                          |
| 3. Check, set and record cylinder expansion valve pressure. ....                                                                                                                                   | _____ psig               | _____ psig               | First check                           |
| Note: Cabinet refrigeration must be turned off while checking. (Some models)                                                                                                                       | _____ psig               | _____ psig               | Second check                          |
| 4. Check and record cabinet suction pressure. ....                                                                                                                                                 | _____ psig               | _____ psig               | First check                           |
| NOTE: cylinder refrigeration must be turned off while checking. (Some models)                                                                                                                      | _____ psig               | _____ psig               | Second check                          |
| 5. On freezers equipped with adjustable timers. Check and record settings. ....                                                                                                                    | _____                    | _____                    | Beater Delay                          |
|                                                                                                                                                                                                    | _____                    | _____                    | Compressor Delay                      |
|                                                                                                                                                                                                    | _____                    | _____                    | Beater Recycle (High Capacity Models) |
|                                                                                                                                                                                                    | _____                    | _____                    | Dispense (High Capacity Models)       |
| 6. What product is being used. ....                                                                                                                                                                | _____ A Side             | _____ B Side             |                                       |
| 7. Set cylinder thermostat to maintain desired temperature.<br>Record settings. ....                                                                                                               | _____ First check        | _____ First check        |                                       |
|                                                                                                                                                                                                    | _____ Second check       | _____ Second check       |                                       |
| 8. Check and record actual product dispensing temperature. ....                                                                                                                                    | _____ °F First check     | _____ °F First check     |                                       |
|                                                                                                                                                                                                    | _____ °F Second check    | _____ °F Second check    |                                       |
|                                                                                                                                                                                                    | _____ Beater Delay       | _____ Beater Delay       |                                       |
|                                                                                                                                                                                                    | _____ Compressor Delay   | _____ Compressor Delay   |                                       |
| 9. Check and record air meter size. ....                                                                                                                                                           | _____ Check              | _____ Check              |                                       |
| 10. Make sure freezer cycles off with <u>all</u> microswitch spigot rods removed. ....                                                                                                             | <input type="checkbox"/> | <input type="checkbox"/> |                                       |
| 11. Make sure spigot rod starts the appropriate side and the freezer cycles off after activation in the amount of time set on the dispense timer. ....                                             | <input type="checkbox"/> | <input type="checkbox"/> |                                       |
| 12. Reinstall all panels and panel screws. ....                                                                                                                                                    | <input type="checkbox"/> | <input type="checkbox"/> |                                       |
| <b>NOTE:</b> Wait approximately two (2) hours and recheck and record all installation adjustments again. Verify freezer is properly set. This check should be recorded in the second check column. |                          |                          |                                       |

Remarks: \_\_\_\_\_

Installation Checked and Inspected By: \_\_\_\_\_

Print Name: \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Check one: ☐ Distributor ☐ Service Agency

Operator/Owner Training Completed By: \_\_\_\_\_

Print Name: \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Check one: ☐ Distributor ☐ Service Agency

I hereby certify this equipment has been inspected and is in satisfactory operating condition. It has been demonstrated for proper start-up and operating procedures. The potential dangers which could occur if the freezer is not operated properly have been explained to me and I have read and understand the warranty attached to the Warranty Registration Card.

**Signature required.**

Print Name: \_\_\_\_\_ Purchaser: \_\_\_\_\_ Date: \_\_\_\_\_

Print Name: \_\_\_\_\_ Operator: \_\_\_\_\_ Date: \_\_\_\_\_

**IMPORTANT: Installer and owner retain copy for reference.**

**IMPORTANT: MAIL WARRANTY REGISTRATION CARD TO VALIDATE AND START WARRANTY PERIOD.**