

Service Manual

2010



SP 18

ULN-95 Icemaker

ULN-98 Icemaker

ULN-SSI095 Icemaker

U-CO29F

U-CO29A

ULN-29R

U-I075BEV

U-I075WC

U-COI175

BI-2115

ADA15IM



INTRODUCTION

Three generations of pride and quality manufacturing and design improvements are built into all U-Line products. The result: U-Line leads the market with innovative technology and superior craftsmanship.

This manual contains specific instructions for servicing the U-Line Products which include these models:

MODELS

SP18

ULN-95 Icemaker

ULN-98 Icemaker

SS-1095 Icemaker

U-CO29F

U-CO29A

ULN-29R

U-1075BEV

U-1075WC

U-CO1175

BI-2115

ADA15IM

POTENTIAL PROBLEMS WITH HFC-134A

This service manual has been written to cover products manufactured with HFC-134A. HFC-134A compressors receive a synthetic based ester oil charge. The hygroscopic (water attraction) property of ester oil is many times greater than the mineral oils previously used with CFC-12. High system moisture causes the formation of acids and alcohol which can damage the compressor. Systems should not be left open for more than fifteen (15) minutes at any time as humidity from the air will enter the system. To ensure system dehydration, the system should be pulled down to 100 microns and vacuum pump oil (mineral oil) must not be allowed to enter the system.

Cleanliness of the system is extremely important. The presence of residues (chlorinated or greasy residues, mineral oil, or impurities) can lead to capillary tube restrictions, oil return problems and compressor damage. Do not use flux on brazed joints.

IMPORTANT

Check for the latest service related information at U-LineService.com. The Technical Knowledge base is continuously updated and can be accessed anytime. Each U-Line product has a unique method of installation, but it is consistent with U-Line's methods and requirement. Follow the installation guidelines for the U-Line product you are installing.

TABLE OF CONTENTS

SECTION I - GENERAL INFORMATION

Introduction	I-1
Potential Problems With HFC-134A	I-1
Safety Precautions	I-3
Safety Alert Definitions	I-3
General Precautions	I-3
U-Line Corporation Limited Warranty.....	I-4
Product Liability Policy	I-5
Serial Number Format	I-6
Warranty Claims Procedure.....	I-6
Proof of Purchase	I-6
Parts Listing.....	I-7

SECTION 2 - TROUBLESHOOTING

Customer Call Guide	2-1
Refrigeration System Diagnosis Guide	2-2
Ice Maker Diagnosis Flow Chart.....	2-3
Troubleshooting	2-4

SECTION 3 - SERVICE AND REPAIR

Refrigeration Systems.....	3-1
Normal Vapor/Compression Cycle Refrigeration.....	3-1
U-Line Frost Free Refrigeration System	3-2
Compressor/Electrical Specifications.....	3-4
Ice Maker Operating Cycles	3-6
Ice Maker Operating Cycles (Model U-CO29F)	3-8
Temperature Control Specifications	3-9
Limit Switch Specifications	3-10
Replacing Ice Maker Assembly (CO29F Only)	3-11
Replacing Ice Maker Assembly (All Models Except CO29F).....	3-11

SECTION 4 - PARTS

220 Volt Conversion List.....	4-1
Ice Maker Assembly Information	4-2
Model SPI8	4-4
Model ULN-95 - BI95B, BI95WH, BCM95	4-6
Model ULN-95 - BI95BTP, WH95TP, SS95	4-8
Model ULN-98 - BI98B, BI98WH, SS98.....	4-10
Model SS-1095	4-12
Model U-CO29F.....	4-14
Model U-CO29A.....	4-18
Model ULN-29R	4-20
Model U-1075BEV.....	4-22
Model 1075WC	4-24
Model U-CO1175	4-26
Model BI-2115	4-30
Model 402-BI2015	4-32

SECTION 5 - WIRING DIAGRAMS

ULN-95, ULN-98, SPI8 & SS-1095- 115 Volt.....	5-1
U-CO29F - 115 Volt.....	5-1
U-CO29A, CO1175, BI2115, ADA15IM - 115 Volt	5-2
U-29R - 115 Volt.....	5-2
1075BEV, 1075WC - 115 Volt.....	5-3
ULN-95, ULN-98, SPI8 & SS-1095- 220 Volt.....	5-4
U-CO29A, CO1175, BI2115, ADA15IM - 220 Volt	5-4

SAFETY PRECAUTIONS

IMPORTANT

PLEASE READ all instructions completely before attempting to service the unit.

- Proper installation procedures must be followed if this unit is being initially installed, or is moved to a new location after being in service. An **INSTALLATION GUIDE** for your unit, providing complete installation information is available from U-Line Corporation directly, and must be consulted before any installation is begun. U-Line contact information appears on the rear cover of this guide.
- This unit requires connection to a grounded (three-prong), polarized receptacle that has been placed by a qualified electrician in accordance with applicable electrical codes.

Safety Alert Definitions

Safety items throughout this guide are labeled with a Danger, Warning or Caution based on the risk type:

DANGER

Danger means that failure to follow this safety statement will result in severe personal injury or death.

WARNING

Warning means that failure to follow this safety statement could result in serious personal injury or death.

CAUTION

Caution means that failure to follow this safety statement may result in minor or moderate personal injury, property or equipment damage.

General Precautions

Use this appliance for its intended purpose only and follow these general precautions along with those listed throughout this guide:

DANGER

RISK OF CHILD ENTRAPMENT. *Before you throw away your old refrigerator or freezer, take off the doors and leave shelves in place so that children may not easily climb inside.*

WARNING

SHOCK HAZARD - Electrical Grounding Required.

- Never attempt to repair or perform maintenance on the unit until the electricity has been disconnected.
- Never remove the round grounding prong from the plug and never use a two-prong grounding adapter.

- Altering, cutting of power cord, removal of power cord, removal of power plug, or direct wiring can cause serious injury, fire and/or loss of property and/or life and will void the warranty.
- Never use an extension cord to connect power to the unit.
- Always keep your working area dry.

WARNING

Failure to use the Anti-Tip Kit when it is included with the product can cause serious personal injury. The Anti-Tip Kit must be installed before the unit is used.

CAUTION

- Use care when moving and handling the unit. Use gloves to prevent personal injury from sharp edges.
- If your model requires defrosting, **DO NOT** use any type of heater to defrost. Using a heater to speed up defrosting can cause personal injury and damage to the inner lining.

IMPORTANT

- Do not lift unit by door handle.
- Never install or operate the unit behind closed doors. Be sure front grille is free of obstruction. Obstructing free air flow can cause the unit to malfunction and may void the warranty.
- Failure to clean the condenser every three months can cause the unit to malfunction. This could void the warranty.
- Allow unit temperature to stabilize for 24 hours before use.
- If your model requires defrosting, never use an ice pick or other sharp instrument to help speed up defrosting. These instruments can puncture the inner lining or damage cooling unit.
- Use only genuine U-Line replacement parts. Imitation parts can damage the unit, affect its operation or performance and may void the warranty.

U-LINE CORPORATION LIMITED WARRANTY

U-Line Corporation warrants each U-Line product to be free from defects in materials and workmanship for a period of one year from the date of purchase; and warrants the sealed system (consisting of the compressor, the condenser, the evaporator, the hot gas bypass valve, the dryer and the connecting tubing) in each U-Line product to be free from defects in materials and workmanship for a period of five years from the date of purchase. During the initial one-year warranty period for all U-Line products U-Line shall: (1) at U-Lines option, repair any product or replace any part of a product that breaches this warranty; and (2) for all Marine, RV and Domestic U-Line products sold and serviced in the United States (including Alaska and Hawaii) and Canada, U-Line shall cover the labor costs incurred in connection with the replacement of any defective part. During years two through five of the warranty period for the sealed system, U-Line shall: (1) repair or replace any part of the sealed system that breaches this warranty; and (2) for all Marine, RV and Domestic U-Line products sold and serviced in the United States (including Alaska and Hawaii) and Canada, U-Line shall cover the labor costs incurred in connection with the replacement of any defective part of the sealed system. All other charges, including transportation charges for replacements under this warranty and labor costs not specifically covered by this warranty, shall be borne by you. This warranty is extended only to the original purchaser of the U-Line product. The Registration Card included with the product should be promptly completed by you and mailed back to U-Line or you can register on-line at www.U-LineService.com.

The following are excluded from this limited warranty: installation charges; damages caused by disasters or acts of God, such as fire, floods, wind and lightening; damages incurred or resulting from shipping, improper installation, unauthorized modification, or misuse/abuse of the product; customer education calls; food loss/spoilage; door and water level adjustments (except during the first 90 days from the date of purchase); defrosting the product; adjusting the controls; door reversal; or cleaning the condenser.

If a product defect is discovered during the applicable warranty period, you must promptly notify either the dealer from whom you purchased the product or U-Line at P.O. Box 245040, Milwaukee, Wisconsin 53224 or at 414-354-0300. In no event shall such notification be received later than 30 days after the expiration of the applicable warranty period. U-Line may require that defective parts be returned, at your expense, to U-Lines factory in Milwaukee, Wisconsin, for inspection. Any action by you for breach of warranty must be commenced within one year after the expiration of the applicable warranty period.

This limited warranty is in lieu of any other warranty, express or implied, including, but not limited to any implied warranty of merchantability or fitness for a particular purpose; provided however, that to the extent required by law, implied warranties are included but do not extend beyond the duration of the express warranty first set forth above. U-Lines sole liability and your exclusive remedy under this warranty is set forth in the initial paragraph above. U-Line shall have no liability whatsoever for any incidental, consequential or special damages arising from the sale, use or installation of the product or from any other cause whatsoever, whether based on warranty (express or implied) or otherwise based on contract, tort or any other theory of liability.

Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

PRODUCT LIABILITY POLICY

Field service technicians are authorized to make an initial assessment. If in the servicer's judgment the damage is the result of a product defect, the product would be removed and returned to U-Line in an unaltered condition. The dealer would then be authorized to permanently replace the end-user's product at no cost to the end-user. Please call U-Line immediately at 800-779-2547 to initiate the RA and product exchange process.

If in the servicer's judgment the damage is the result of installation issues (water connection/drain, etc.), the consumer would be so notified and the correction would be made by the servicer or installer without requiring removal of the product. Any claim for damages should be directed to the original installer.

Any U-Line unit involved in an alleged property damage claim must remain **unaltered and unrepaired, for evaluation. No service or repairs should be performed on any unit suspected to be involved in a property damage situation. If a unit has been altered or repaired in the field prior to U-Line's evaluation, any claim for damage may be declined.**

If the unit in question is a U-Line CLR or CLRCO **with a drain pump**, both the unit **and** the drain pump (regardless of the manufacturer) must be returned to U-Line Corporation.

To complete the damage claim process for the customer, please obtain the following and forward to U-Line at onlineservice@U-Line.com, fax to 414-354-5696 or mail to the address below.

Pictures of the unit, installation and any alleged property damage.

Inquire when the problem first appeared, any prior problems with the product and provide a brief description of the alleged damages.

To expedite the claim process, U-Line will need two damage repair estimates.

Reference the RA number and customer name when providing this information.

If a unit is returned to U-Line, this evaluation will take approximately ten business days. **No field service company is authorized to perform this evaluation.** When a Return Authorization Number is issued, and the unit has been boxed in a U-Line carton, U-Line should be contacted and then will make arrangements for shipping, or designate a truck line to have the unit shipped freight collect.

If U-Line's evaluation finds the unit, (or U-Line P60 pump) to be defective, causing the property damage, the damage claim will be reviewed by the U-Line Customer Assurance Department.

If U-Line's evaluation finds the unit not to be defective, does not repeat a failure or does not leak any water from the U-Line unit or U-Line P60 pump, all claims for damage will be declined.

When a product evaluation is needed, it is the customer's responsibility to assure that the unit is returned for evaluation. If the customer fails to do so, or has the unit repaired in the field prior to U-Line's evaluation, any claim for damage will be declined.

8900 N. 55th St. • P.O. Box 245040
Milwaukee, WI 53224-9540
414/354-0300 • Fax: 414/354-7905
Website: www.u-line.com

Leaders In Quality Undercounter Refrigeration

SERIAL NUMBER FORMAT

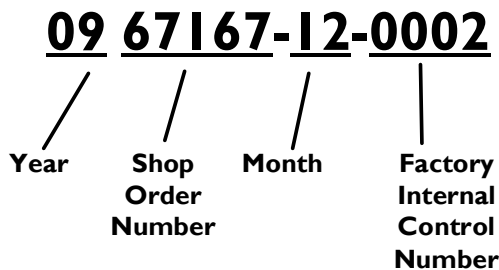
The serial number is divided into four segments. A typical serial number is 089469-01-0002.

The first two digits of the first segment, 08, represents the year the unit was made.

The next four digits of the first segment, 9469, represent the shop order number. Order number 9469 is assigned for the Model CLR2160 B-00 units.

The next two digit segment, 01, represents the month the unit was made.

The last four digit segment, XXXX, is a factory internal control number used at U-Line Corporation.



WARRANTY CLAIMS PROCEDURE

When submitting claims for warranty payment, please follow these guidelines.

You can use any form you would normally use to bill your customer (your own computer generated form, Narda, USA, etc.). Claims can also be filed on-line at www.u-lineservice.com.

The model and serial number **MUST** be on the claims. Claims will not be paid without a model and serial number.

If you used a part in your repair, you **MUST** put the part number, the invoice number and where the part came from. Claims will be returned without this information.

If you work on more than one unit per service call please submit a separate claim for each unit.

We track all defects through warranty claims, so please be specific on what the repair was. If it is a system leak, please specify where the leak was.

Please be sure the claim is legible. If the claim form cannot be read, it will be returned, unpaid.

Remember: Door and water level adjustments are 90 day warranties only.

If you are changing out a unit please supply the model and serial number of both units (the unit being replaced and the new unit) and the R.A. number.

Occasionally the customer does not return their warranty cards. In this case we use the date the unit was shipped to our distributor for a beginning warranty date. This may cause the claim to be rejected for a proof of purchase. If you want to check on a purchase date, you may contact the U-Line Corporation Customer Assurance Department at 1-800-779-2547. This will allow you to get a proof of purchase, if needed, before you submit the claim.

At U-Line, parts and labor claims are paid separately. Included in labor are freon and recovery charges, all other parts are handled by the parts department. We require that some parts be returned to us, so we may return them to our vendor. It will be noted on your packing list if we require you to return the part. If a part is to be returned please include a copy of the packing list and a copy of your claim. If the part was purchased at one of our part distributors, you must handle the part warranty with that company. For labor payment please send a readable copy of your claim to U-Line Corporation, P.O. Box 245040, Milwaukee WI, 53224-9540, or fax it to 414-354-5696. Claims can also be filed on-line at www.u-lineservice.com.

PROOF OF PURCHASE

Proof of Purchase and/or Proof of Install is an important part of the warranty claim process. Sometimes it is difficult to obtain a proper Proof of Purchase/Proof of Install for a number of different reasons:

- The customer does not have a copy (only the original).
- The customer has only their copy of the final Walk Through or sign-off of new construction.
- Other valid reasons that prevent your technician from leaving the job site with a suitable Proof of Purchase/ Proof of Install.

We understand the problem and have modified our Proof of Purchase policy to help you in these situations.

Effective immediately, if a copy of the Proof of Purchase/Proof of Install is not available at the site, the technician should record the following information on the Labor Invoice:

- The name of the selling Dealer
- The date of purchase/installation
- The Order or Invoice number (if available)
- The type of document they saw, i.e. Store Receipt, Closing Papers, Sign-Off of Building Permit, Final Walk Through, etc.

If we have this information on the Labor Invoice, and we have the other information that is needed (**correct Serial Number, type of repair, time spent on repairs, etc.**), we will be able to process the invoice for you in a timely manner.

PARTS LISTING

How to Order Replacement Parts

1. Refer to Service Parts and locate the illustration(s) for the model you are servicing.
2. Locate the desired part to be serviced and note the item number assigned to it.
3. Locate the item number within the parts list. Note the full description and the corresponding part number. If this is for a warranty unit, indicate and record the model and serial numbers.
4. When ordering parts, it will be necessary to supply Model Number, Serial Number, Part Number, Part Description and in some cases Color or Voltage.

All warranty parts will be shipped at no charge as long as warranty status has been confirmed. If we require that a part be returned to U-line, you will be informed at the time the order is placed. It will be noted on your packing list if we require you to return a part or if you may field scrap it. If U-Line requires a defective part to be returned, a prepaid shipping label will be included with your new replacement part. When returning parts enclose a copy of your packing list and a copy of your labor claim, showing the model and serial number, and tag or label the part with the nature of the defect.

Our warranty records may not match the customer's information. In this case, a proof of purchase will be required. If you do not have the proof of purchase at the time the order is placed, the part will be sent net 15 days, charged to a Visa or MasterCard or COD if you don't have an open account with U-Line Corporation. When the proof of purchase is provided, we will credit your account (a check will be sent if the part was sent COD).

5. Parts may be ordered on-line, by FAX or phone:

www.U-LineService.com

onlineparts@u-line.com

FAX Number (414) 354-7905

Phone Number (414) 354-0300 or (800) 779-2547;

REPLACEMENT PARTS: Use only genuine U-Line replacement parts. The use of non-U-Line parts can reduce ice rate, cause water to overflow from ice maker mold, damage the unit, and can void the warranty.

This page intentionally left blank.

CUSTOMER CALL GUIDE

U-Line's warranty does not cover customer education calls. It has been reported that as high as 50% of all service calls performed are customer education calls.

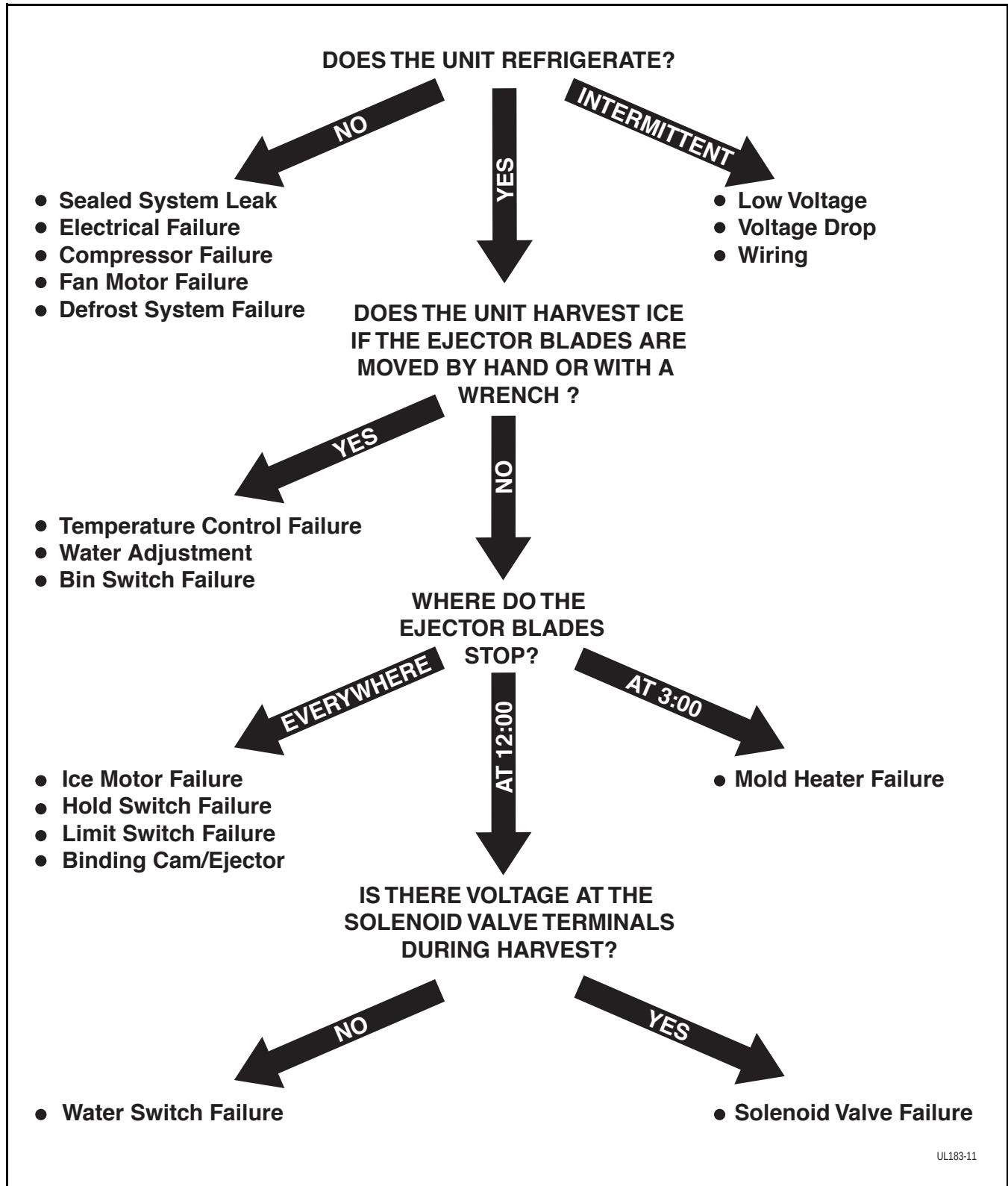
The following guide has been developed to help answer frequently asked questions. It can be used by persons scheduling service calls. Things to consider before scheduling a service call:

Concern	Response
The unit is not cold enough.	• Are you familiar with the factory temperature specifications for your unit? Many factors can cause these temperatures to vary; ambient temperature, application, amount of use (number of times and length of time the door or drawers are opened and closed), etc. • Is the door or drawers sealing properly? If the door or drawer is not sealed properly, it allows heat into the unit. U-Line's warranty is 90 days for door or drawer adjustments. • Has the door or drawers been left open? • Is the condenser clean? U-Line's warranty does not cover cleaning the condenser. • Is the unit behind closed doors or the vent restricted? The front grille must be free of obstruction. • Is the unit in an application of heavy usage? Heavy usage or high ambient temperatures will cause a unit to frost up. • Did you try adjusting the temperature to a colder level? Adjust to a colder level. Be sure to allow 24 hours between temperature control adjustments.
Temperature is too cold.	• Check actual temperature versus set-point. • Did you try adjusting the temperature to a warmer level? Adjust to a warmer level. Be sure to allow 24 hours between temperature control adjustments.
The unit is frosting up.	• Are you familiar with the defrost technology of your unit? • Is the door or drawers sealing properly? If the door or drawer is not sealing properly, it allows heat/humidity into the unit. U-Line's warranty is 90 days for door or drawer adjustments. • Has the door or drawers been left open? • Is the unit in an application of heavy usage? Heavy usage or high ambient temperatures will cause a unit to frost up.
The ice cubes are sticking together.	• Have you tried to shake the ice bucket? If the ice sits without being used, it will tend to stick together. Shaking the bucket will usually break the ice cubes apart. If the ice has been sitting for a long time, you should consider discarding it and make a fresh batch. • Is the door or drawers sealing properly? This could cause the ice cubes to stick together. • Does the unit need to be defrosted?
Water is leaking out of the unit.	Have you checked the water connection to the unit? U-Line's warranty does not cover installation adjustments.
No ice or not enough ice.	• Are you aware of the factory specifications for ice production? • Is the ice maker bin arm down? When the arm is up, the ice maker will not make ice. • Is the door or drawers sealing properly? U-Line's warranty is 90 days for door adjustments.

REFRIGERATION SYSTEM DIAGNOSIS GUIDE

System Condition	Suction Pressure	Suction Line	Compressor Discharge	Condenser	Capillary Tube	Evaporator	Wattage
Normal	Normal	Slightly below room temperature	Very hot	Very hot	Warm	Cold	Normal
Overcharge	Higher than normal	Very cold may frost heavily	Slightly warm to hot	Hot to warm	Cool	Cold	Higher than normal
Undercharge	Lower than normal	Warm-near room temperature	Hot	Warm	Warm	Extremely cold near inlet - Outlet below room temperature	Lower than normal
Partial Restriction	Somewhat lower than normal vacuum	Warm - near room temperature	Very hot	Top passes warm - Lower passes cool (near room temperature) due to liquid	Room temperature (cool) or colder	Extremely cold near inlet - Outlet below room temperature backing up	Lower than normal
Complete Restriction	In deep vacuum	Room temperature (cool)	Room temperature (cool)	Room temperature (cool)	Room temperature (cool)	No refrigeration	Lower than normal
No Gas	0 PSIG to 25"	Room temperature (cool)	Cool to hot	Room temperature (cool)	Room temperature (cool)	No refrigeration	Lower than normal

ICE MAKER DIAGNOSIS FLOW CHART



UL183-11

TROUBLESHOOTING

DANGER

Never attempt to repair or perform maintenance on the unit until the main electrical power has been disconnected from the unit

Additional specific troubleshooting information can be found in Theory of Operation - Section 3, under the applicable model.

Cause	Remedy
Will not eject ice (water frozen). 1. Control setting too cold. 2. Control inoperable (1-2 contacts open) 3. Bin switch inoperable. 4. Limit switch defective (open). 5. Ice maker assembly motor stalled. 6. Broken wire in ice maker circuit. 7. Water soaked cabinet insulation. 8. Dirty condenser.	1. Adjust control warmer (counterclockwise). 2. Replace control. 3. Replace bin switch. 4. Replace limit switch. 5. Replace motor. 6. Repair or replace wiring. 7. Replace foamed cabinet assembly. 8. Clean condenser.
Will not fill with water. 1. Water supply valve closed. 2. Water switch inoperable (open). 3. Solenoid valve inoperable. 4. Fill tube outlet frozen. 5. Broken wire in water fill circuit.	1. Open water supply valve. 2. Replace water switch. 3. Replace solenoid valve. 4. Defrost fill tube. 5. Repair or replace wiring.
Will not stop making ice. 1. Bin switch inoperable (closed). 2. Bin arm binding.	1. Replace bin switch. 2. Lubricate bin arm pivot points or loosen bin arm lever screw.
Water will not stop filling. 1. Water switch inoperable (closed). 2. Solenoid valve inoperable. 3. Stalled ice maker motor. 4. Temperature control inoperable. Ice maker is in continuous harvest cycle (contacts 1-2 closed).	1. Replace water switch. 2. Replace solenoid valve. 3. Replace motor. 4. Replace temperature control.
Ejector blades will not stop turning. 1. Control inoperable (1-2 contacts will not open). 2. Hold switch inoperable. 3. Broken wiring. 4. Short in mold heater.	1. Replace control. 2. Replace hold switch. 3. Repair or replace wiring. 4. Replace heater.

Cause	Remedy
Low ice production. 1. Control set too cold. 2. Fan motor stalled. 3. Ice cubes too large. 4. Dirty condenser. 5. Bypass valve stuck open (Frost Free units only).	1. Adjust control warmer (counterclockwise). 2. Replace fan motor. 3. Lower water fill adjustment. 4. Clean condenser. 5. Replace bypass valve (Frost Free units only).
Not freezing (compressor and fan motors operating). 1. Little or no frost pattern on evaporator. 2. Bypass valve stuck open (Frost Free units only).	1. Check for sealed system leak or restriction. 2. Replace bypass valve (Frost Free units only).
Not freezing (compressor not operating - fans operating). 1. Relay inoperable. 2. Overload inoperable (open). 3. Compressor inoperable.	1. Replace relay. 2. Replace overload. 3. Replace compressor.
Not freezing (compressor and fans not operating). 1. Power cord not plugged in. 2. On/Off switch in off position. 3. On/Off switch inoperable (open). 4. Hold switch inoperable (open). 5. Control inoperable (2-3 contacts open). 6. Broken wire in freeze circuit. 7. Ejector blades not in freeze position (12:00)	1. Plug in power cord. 2. Turn switch to on position. 3. Replace On/Off switch. 4. Replace hold switch. 5. Replace control. 6. Repair or replace wiring. 7. Manually advance ejector blades to the 12:00 position (test ice maker and limit switch).
Compressor overheating. 1. Condenser air flow restricted. 2. Condenser fan blade obstructed. 3. Condenser fan motor stalled. 4. Compressor inoperable.	1. Remove restriction (clean condenser and grille). 2. Remove blade restriction. 3. Replace fan motor. 4. Replace compressor.
Compressor will not stop operating. 1. Control set too cold. 2. Control inoperable (2-3 contacts will not open). 3. Control sensing bulb not sensing mold temperature. 4. Evaporator fan stalled (Frost Free units only).	1. Adjust control warmer (counterclockwise). 2. Replace control. 3. Fully insert bulb into ice maker tube. Rout bulb away from compressor discharge tube. 4. Remove obstruction or replace motor.

Cause	Remedy
Water leak (under unit). 1. Water supply line leaking at solenoid valve inlet. 2. Water line leaking at solenoid valve outlet. 3. Water line leaking at fill tube. 4. Defrost drain line not in drain pan. 5. Crack in water line.	1. Tighten fitting or replace fitting gasket and/or fitting. 2. Replace water line and fitting. 3. Tighten clamp or replace fill tube assembly. 4. Position drain line in drain pan. 5. Replace water line.
Water leak (inside unit). 1. Ice maker assembly fill cup obstructed. 2. Fill ice cup and fill tube out of alignment. 3. Water level too high. 4. Defrost drain plugged (Frost Free units only).	1. Remove obstruction. 2. Align fill tube and fill cup. 3. Adjust water level. 4. Ice in drain trough (Frost Free units only) (see below).
Excessive frost buildup. 1. Door gasket not sealing properly. 2. Door out of alignment. 3. Water soaked cabinet insulation. 4. Light stays on when door is closed.	1. Adjust door hinges or replace door gasket. 2. Adjust door hinges. 3. Replace foamed cabinet assembly. 4. Repair or adjust light bracket.
Noisy. 1. Copper refrigeration tube touching cabinet. 2. Fan blade touching shroud. 3. Fan blade obstruction (wiring, foam insulation, packaging material).	1. Carefully adjust tubing. 2. Adjust fan mounting or shroud. 3. Remove obstruction.
Ice buildup in drain trough or drainage problem. 1. Obstructed drain cup or tube. 2. Drain trough heater failed (Frost Free units only). 3. Kinked drain tube. 4. Drain trough spout and drain cup not aligned.	1. Clear obstruction. 2. Replace drain trough heater (Frost Free units only). 3. Reroute drain tube. 4. Align drain trough and drain cup.
Unit will not defrost (Frost Free units only). 1. Bypass coil inoperable. 2. Defrost timer inoperable. 3. Bypass valve inoperable.	1. Replace bypass valve. 2. Replace defrost timer. 3. Replace bypass valve.
Fresh food temperature too cold. 1. Temperature control set too cold. 2. Bin/Freezer door not closing. 3. Ice bucket not fully inserted.	1. Adjust control to warmer setting (counterclockwise). 2. Adjust or replace door. 3. Check for ice behind bucket and push ice bucket in place.

REFRIGERATION SYSTEMS

Normal Vapor/Compression Cycle Refrigeration

- Refrigerant is pumped from the compressor to the condenser as a high pressure, high temperature vapor.
 - As the refrigerant cools in the high pressure condenser, the vapor condenses to liquid. During this phase change, a great amount of heat is rejected with the help of the condenser fan.
 - The liquid then flows to the dryer where is strained and filtered.
 - From the dryer, the refrigerant flows through the capillary tube which meters the liquid refrigerant to the evaporator.
- The pressure of the refrigerant is reduced to the evaporating, or low side, pressure.
 - The reduction of pressure on the liquid refrigerant causes it to boil, or vaporize, until it reaches saturation temperature. As the low temperature refrigerant passes through the evaporator coil, it continues to absorb a lot of heat, causing the boiling action to continue until the refrigerant is completely vaporized. It is during this phase change that most heat is absorbed (the cooling takes place) in the refrigerator.
 - The refrigerant vapor leaving the evaporator travels through the suction line to the compressor inlet. The compressor takes the low pressure vapor and compresses it, increasing both pressure and temperature. The hot high pressure gas is pumped out the discharge line and into the condenser. The cycle then repeats.

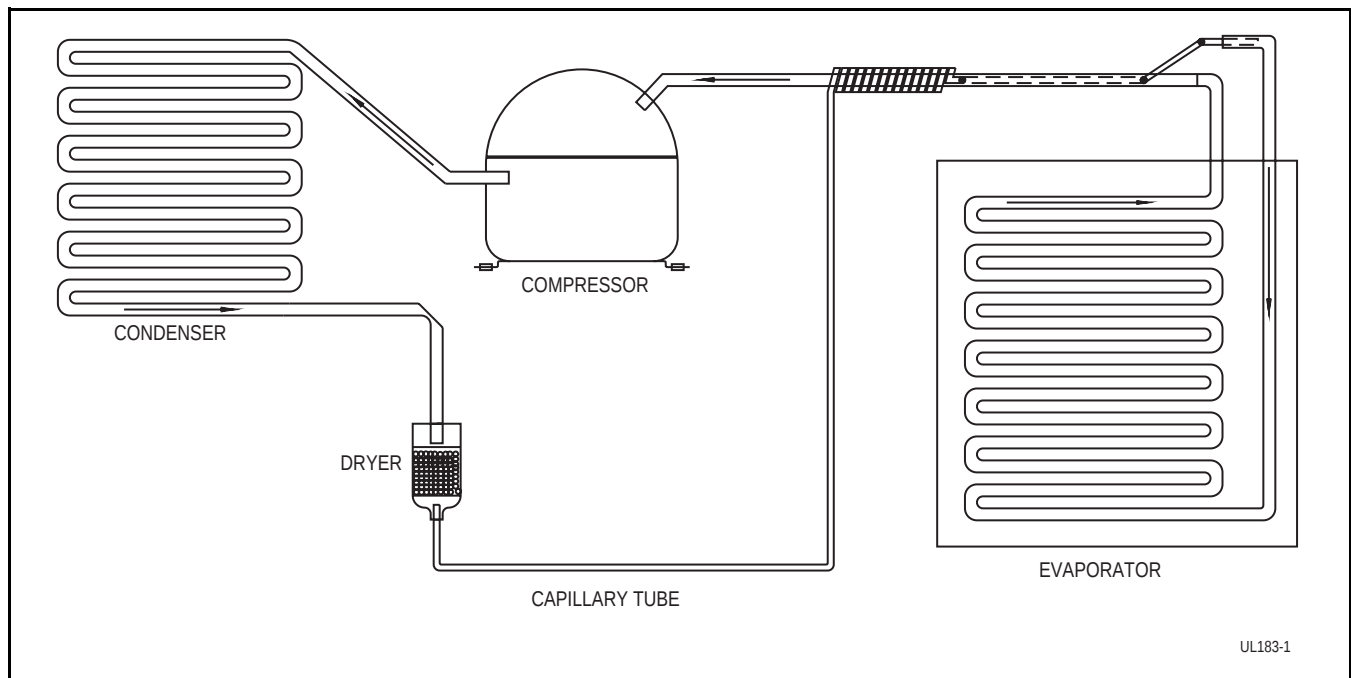


Figure 1. Normal Vapor/Compression Cycle Refrigeration System

Frost Free Refrigeration

COOLING MODE

- Bypass solenoid closed.
- Evaporator fan operating.
- Refrigerant flows through capillary tubes.
- Normal vapor/compression cycle refrigeration (see page 3-1).

DEFROST MODE

- Bypass solenoid valve open.
- Refrigerant flows through bypass system.
- Vapor flows from condenser to evaporator without a phase change.
- Drain heater on (U-CO29F only).

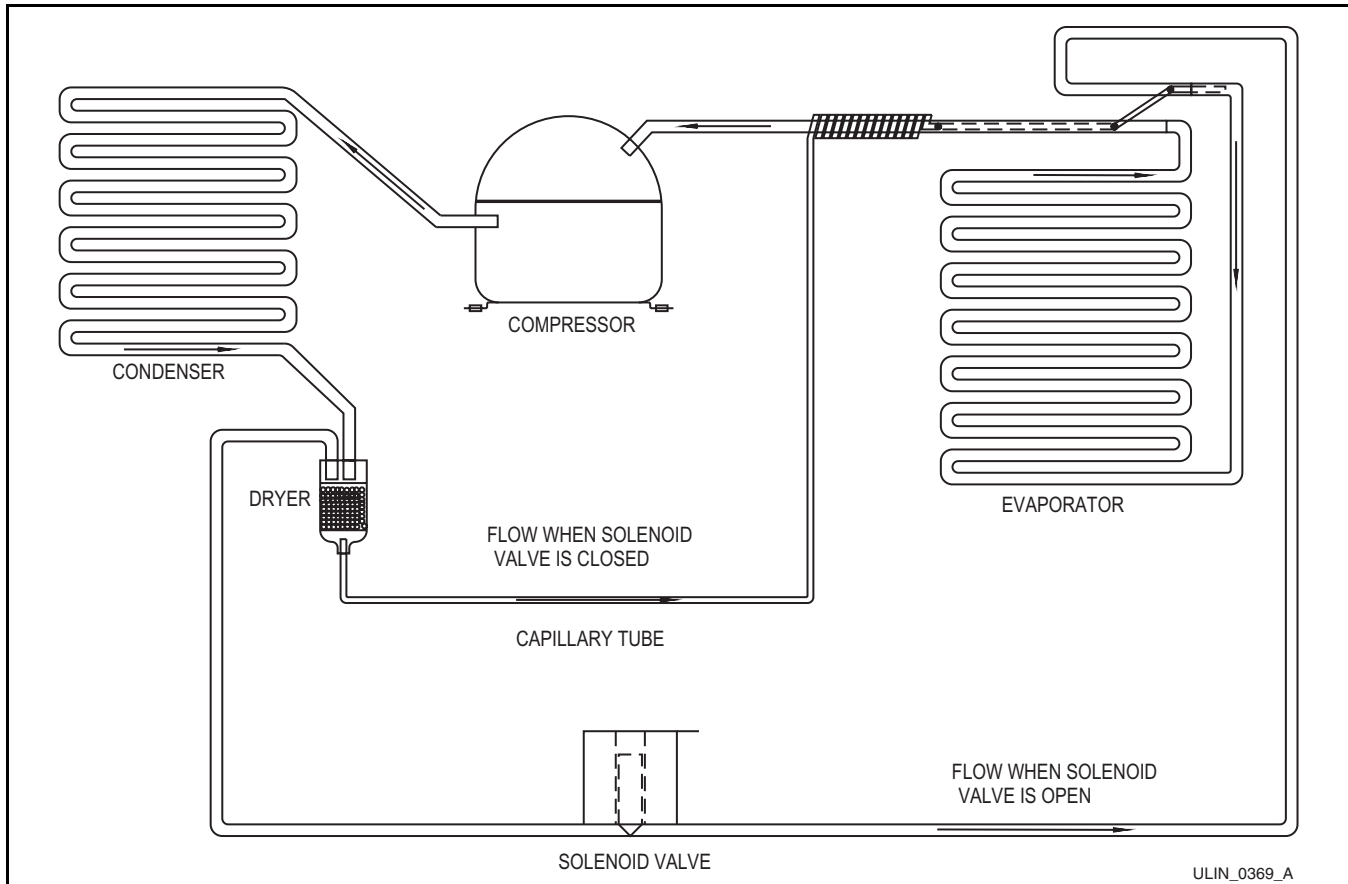


Figure 2. Frost Free Refrigeration System.

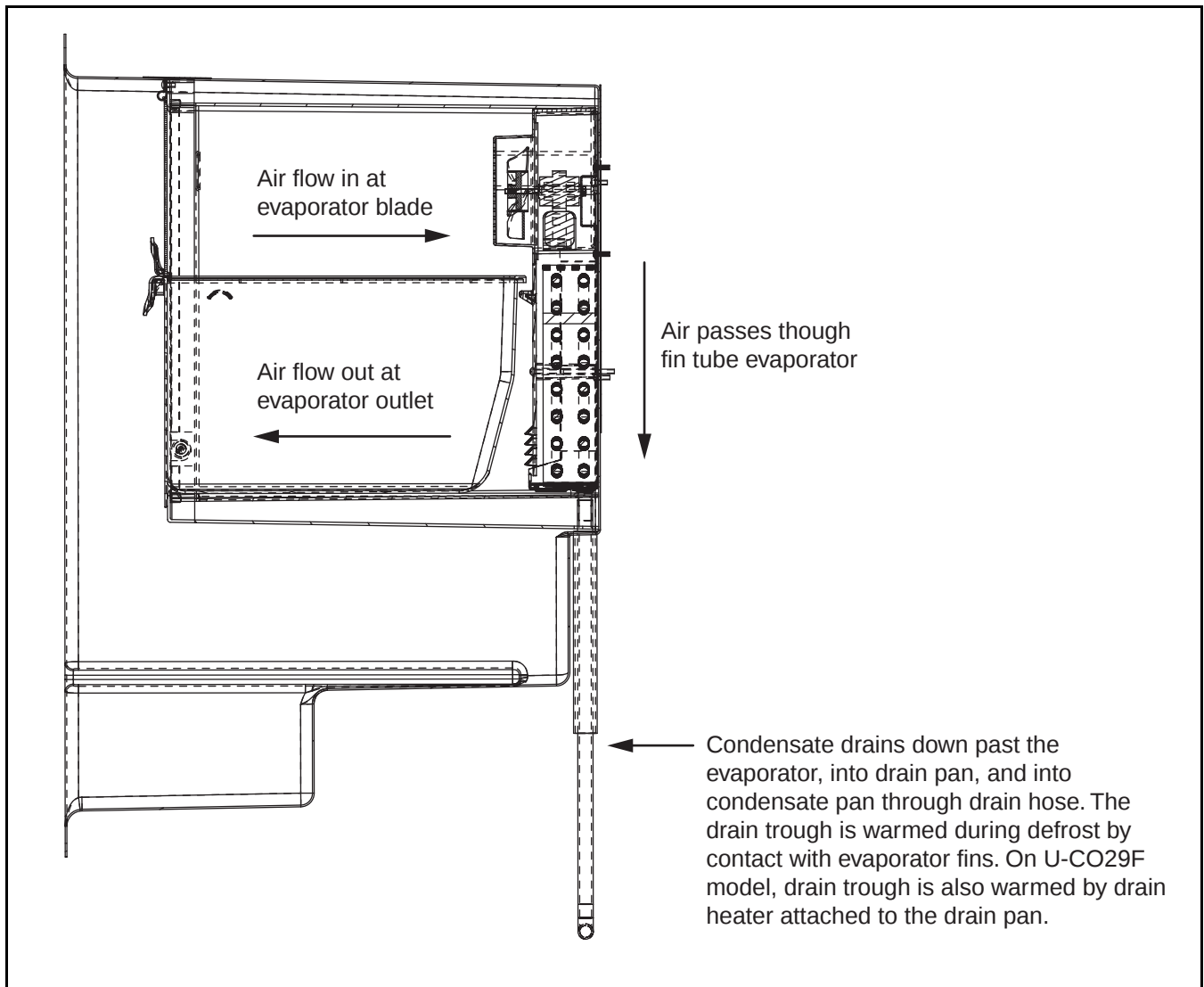


Figure 3. Frost Free Air Flow

COMPRESSOR/ELECTRICAL SPECIFICATIONS

Compressor Pins

To measure start winding resistance, measure across the C-S pins.

To measure run winding resistance, measure across the C-R pins. These pins should never measure any resistance to ground. This would indicate a shorted compressor.

Models ULN-95, ULN-98, SPI8, U-CO29A, U-CO1175, BI2115, SS-1095 - Figure 4

EMI30HER Start winding resistance 28 OHMS
EMI30HER Run winding resistance 8 OHMS

SD39 Start winding resistance 11 OHMS
SD39 Run winding resistance 5 OHMS

EMI50HER Start winding resistance 12 OHMS
EMI50HER Run winding resistance 4 OHMS

SD51 Start winding resistance 5 OHMS
SD51 Run winding resistance 5 OHMS
115 Volt Ice maker heater resistance 80 OHMS
115 Volt Water valve coil resistance 335 OHMS

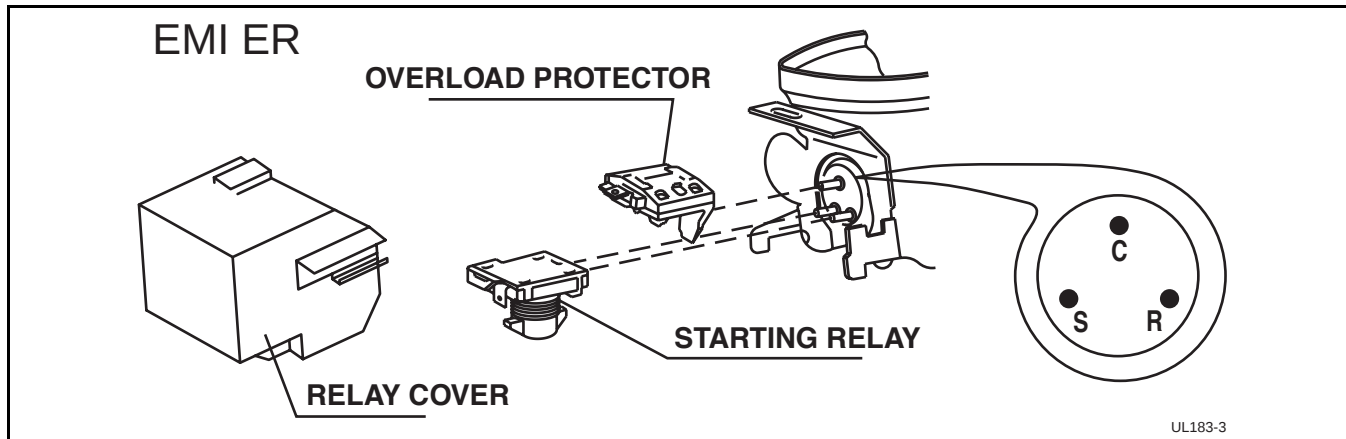


Figure 4. Electrical Relay and Overload Protector
Models SPI8, ULN-95, ULN-98, U-CO29A, U-CO1175, BI2115, ADA15IM, & SS-1095

MODEL U-CO29F - Figure 5

EMU45HSC Start winding resistance 5.60 OHMS
EMU45HSC Run winding resistance 6.70 OHMS

115 Volt Ice maker heater resistance 80 OHMS
115 Volt Water valve coil resistance 335 OHMS
115 Volt Drain pan heater 630-661 OHMS

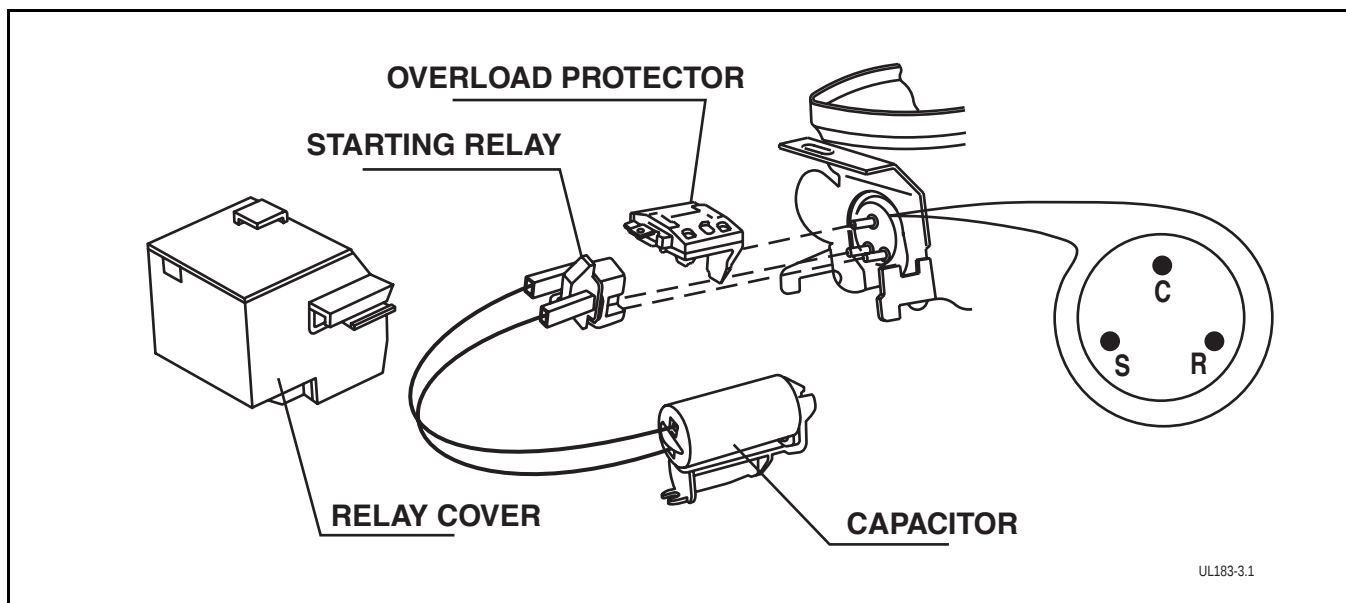
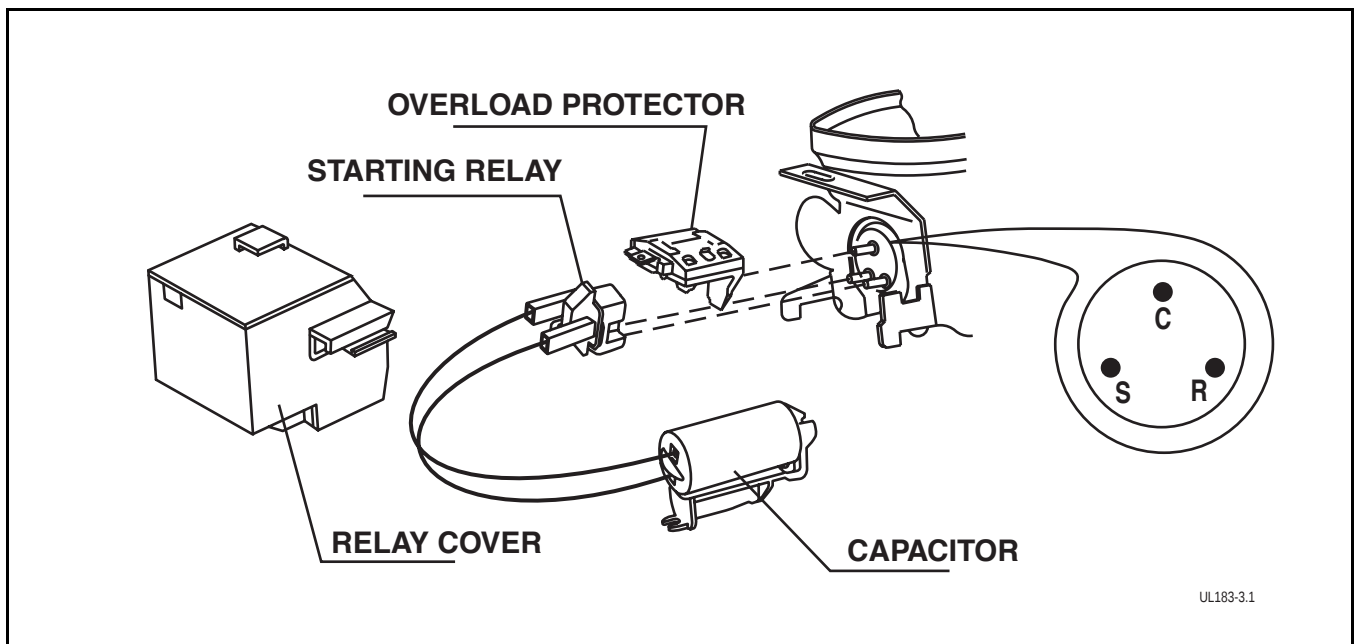


Figure 5. Electrical Relay and Overload Protector
Model U-CO29F

MODELS U-1075BEV, U-1075WC, 29R- Figure 6

EMI30HER Start winding resistance 21.2 OHMS

EMI30HER Run winding resistance 7.9 OHMS



**Figure 6. Electrical Relay and Overload Protector
Models U-1075BEV, U-1075WC, 29R**

ICE MAKER OPERATING CYCLES

Freeze Cycle (Figure 7)

- Temperature control terminals 2 and 3 are closed.

- Power to the compressor.
- Power to the condenser fan.

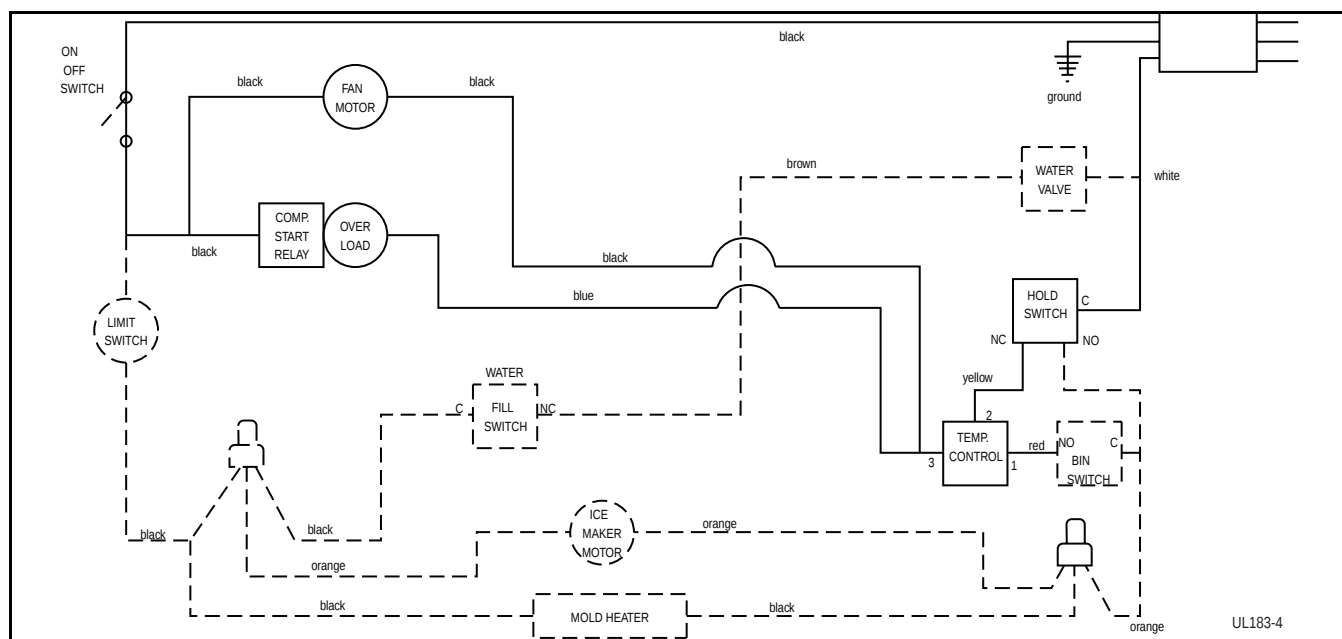


Figure 7. Freeze Cycle\

Harvest-I Cycle (Figure 8)

- Temperature control terminals 2 and 3 are open - 2 and 1 close.
- No power to the compressor or condenser fan.

- If bin arm is down, power goes through bin arm switch to the ice maker motor. If bin arm is up, the ice maker will not harvest.

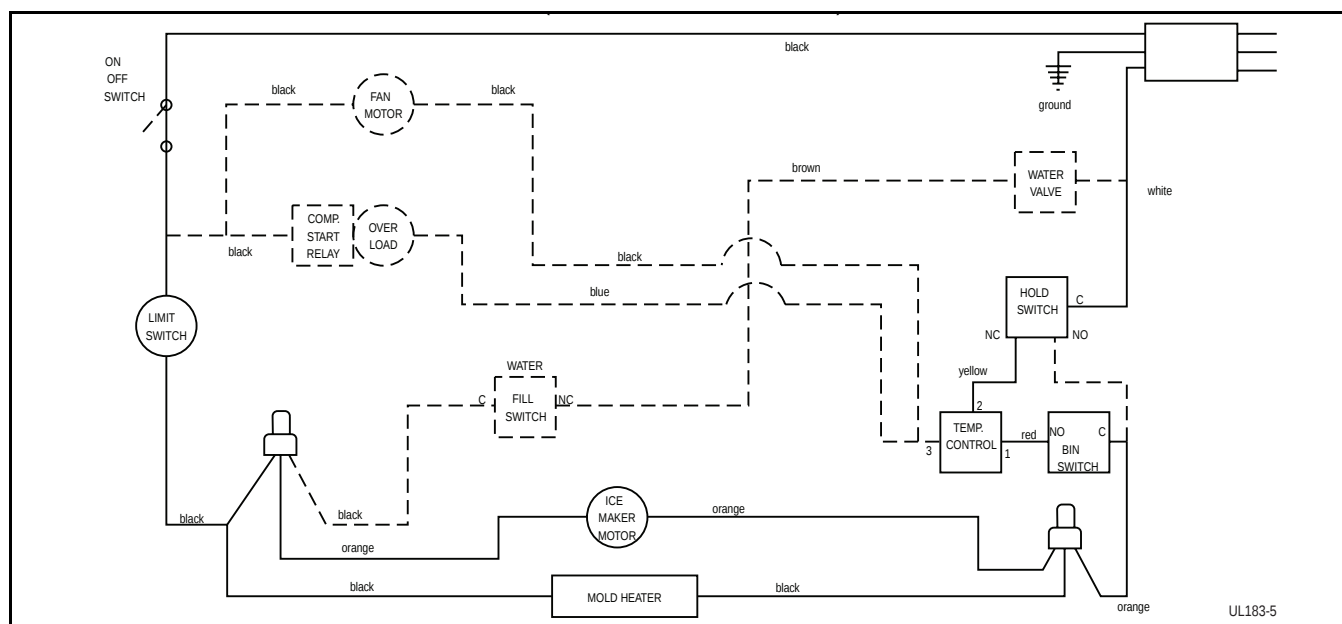


Figure 8. Harvest-I Cycle (Hold Switch in Normal Position)

- Ice maker ejector blades reach approximately 2:00 position and cam depresses the hold switch. Power goes through the hold switch to the ice maker motor and mold heater.
- Ejector blades stall on ice and ice maker motor pulsates until mold heater warms and ice releases.



- Ice maker ejector blades reach approximately 10:00 position and cam depresses the water fill switch.
- Power to the water valve. Ice maker mold fills.



- Ejector blades push ice into bucket and stop at 12:00 position.
- Next freeze cycle begins with power to the compressor and condenser fan.

ICE MAKER OPERATING CYCLES (U-CO29F MODEL)

Note: The refrigeration system operates independently of the ice maker. This is a new design for U-Line. All other U-Line ice makers use a double throw control system where the unit is either in a freeze mode or harvest mode. In the U-CO29FF, the refrigeration system will cycle on and off depending on the temperature of the freezer. In most cases, this means the refrigeration system will be operating during the ice making and harvest modes. If the freezer control is set too warm, the refrigeration system may cycle off during ice making mode, slowing the ice production rate. If this happens, adjust the freezer control colder.

Freeze Cycle

- Ice maker thermostat (located behind grille) open.
- Freezer control closed and refrigeration system is operating.

Harvest Cycle - 1

- Ice maker thermostat closed.
- Refrigeration system operating.
- If bin arm is up, the harvest will not initiate.
- Power goes through the bin switch to the ice maker motor and mold heater.

Harvest Cycle - 2

- Ice maker ejector blades reach 2:00 position and cam depresses the hold switch.
- Ejector blades stall on ice and ice maker motor pulsates until mold heater warms and ice releases.
- Refrigeration system operating.

Water Fill Cycle

- Ice maker blades reach approximately 10:00 position and cam depresses the water fill switch.
- Power to the water valve. Ice maker mold fills.
- Refrigeration system operating.

Eject Cycle

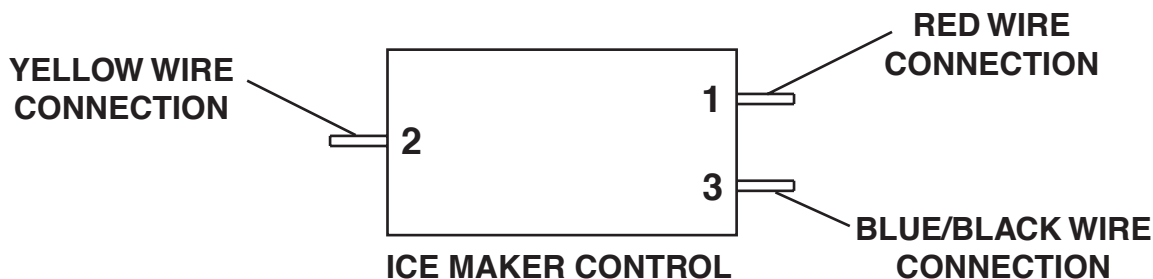
- Ejector blades push ice into bucket and stop at 12:00 position.
- Ice maker temperature control opens.
- Refrigeration system still operating.

TEMPERATURE CONTROL SPECIFICATIONS

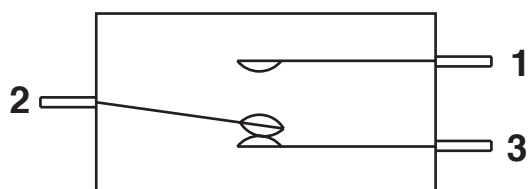
Double Throw Ice Maker Thermostat Numbers 4548, AR-19-12, 2636, 2690, 2691, 2717, 2783, 2782, 2781, 2780

These temperature controls are double throw, single pole controls. The sensing tube is inserted into the ice maker mold

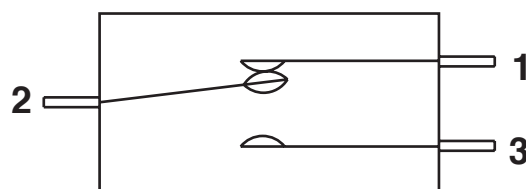
and senses mold temperature. After ice is sensed in the mold, the 2-3 contacts open (stopping the compressor) and the 2-1 contacts are closed (starting the ice maker motor). The 2-3 contacts close (2-1 contacts open) before the end of the ice harvest cycle. The hold switch prevents power going back to the compressor. This prepares the control for the next cycle



183-8



FREEZE POSITION



ICE HARVEST POSITION

CYCLE	OPEN CIRCUIT	CLOSED CIRCUIT
FREEZE	2 - 1	2 - 3
HARVEST	2 - 3	2 - 1

183-9

Figure 11. Temperature Controls - Manual Defrost Ice Makers

LIMIT SWITCH SPECIFICATIONS

- Normally closed Bi-metal switch
- Open temperature: 104°F
- Close temperature: 83°F

The function of this switch is to open in the event of an overheating condition. This bi-metal thermostat is normally closed and does not initiate the ice harvest cycle. The ice harvest cycle is initiated by a double throw, single pole temperature located remotely from the ice maker assembly.

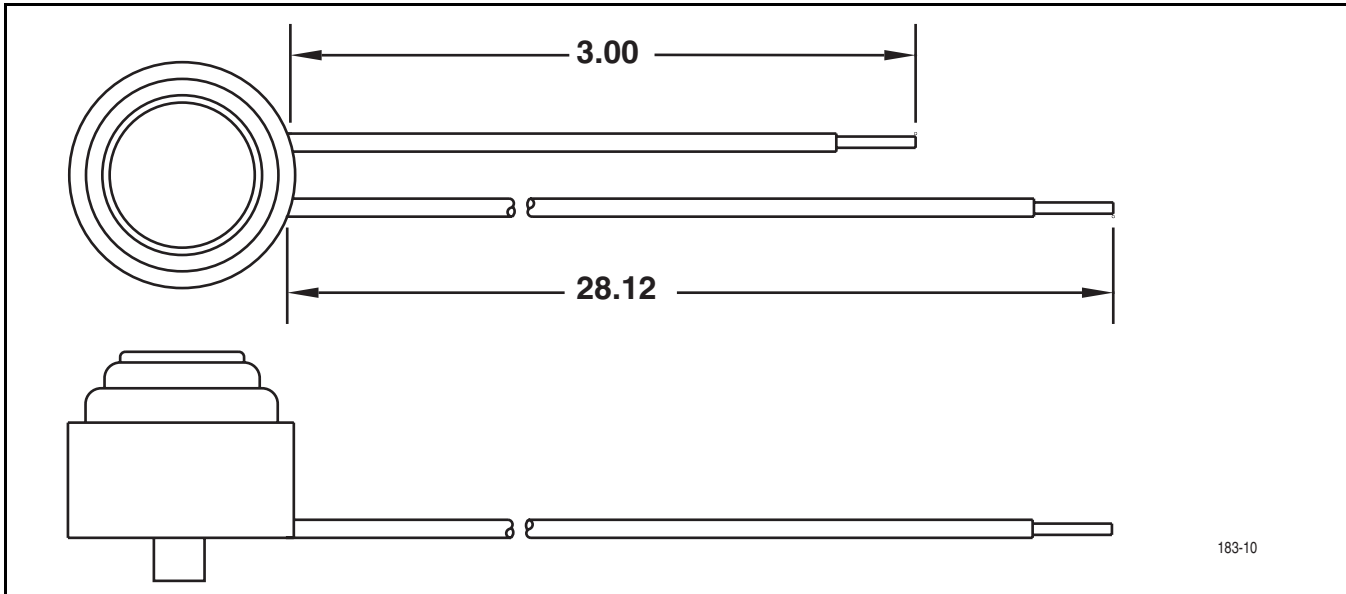


Figure 12. Limit Switch

REPLACING ICE MAKER ASSEMBLY (CO29F ONLY)

1. Unplug the unit from the main power source.
2. Disconnect ice maker wire harness at plug (1).
3. Remove control capillary tube from sensing tube on ice maker assembly (2).
4. Remove water inlet tube.
5. Remove front cover (3).
6. Advance the ejector blade to the 3 o'clock position by turning the 5/16" hex head on the small brass gear counterclockwise (4).
7. Remove three screws from wall of freezer housing (5).
8. Remove ice maker assembly.
9. Place new ice maker assembly into position and secure with three screws (5).
10. Reconnect wire harness at plug.
11. Insert control capillary tube into ice maker sensing tube.
12. Insert water inlet tube.
13. Apply Permagum® to all exit holes.
14. Install back panel.
15. Plug in unit and test.

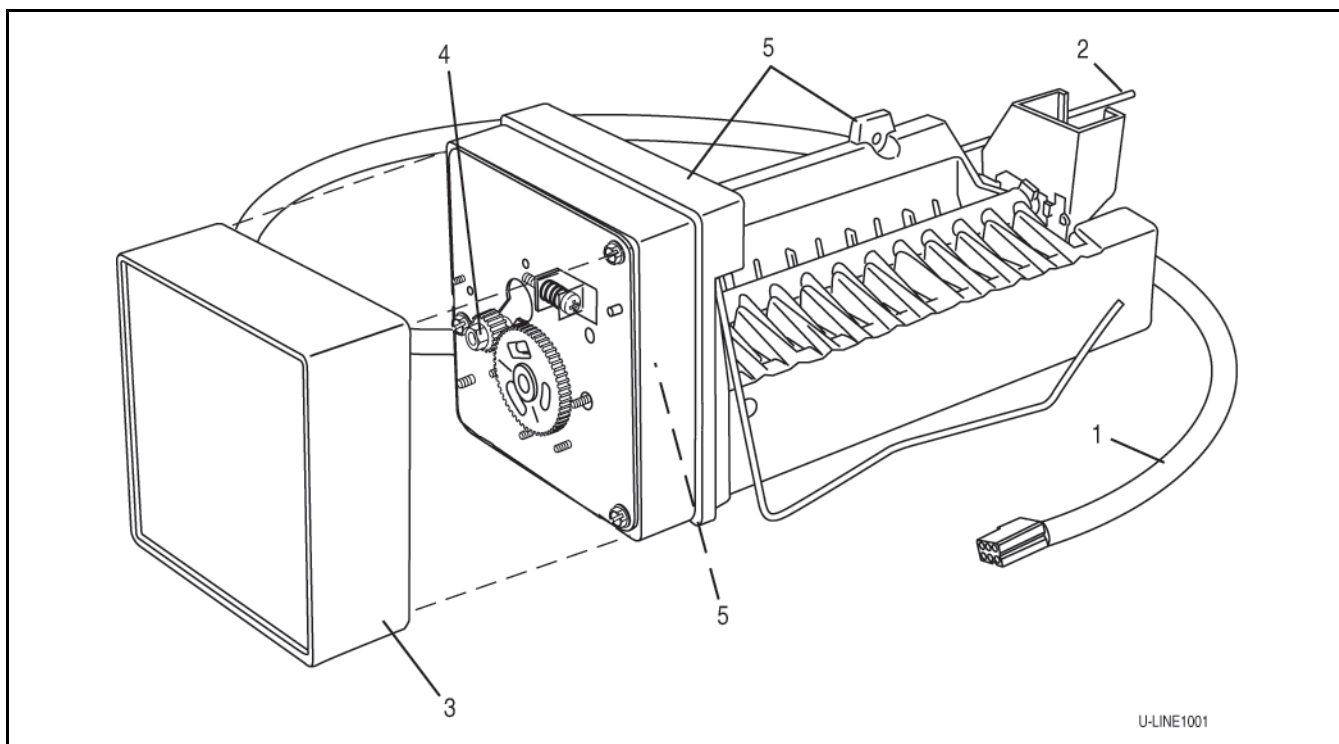


Figure 13. Ice Maker Assembly

REPLACING ICE MAKER ASSEMBLY (ALL MODELS EXCEPT CO29F)

1. Remove back panel.
2. Disconnect all wires at bell connectors (5 wires-Models 95, 98 or SPI8; or Plug-Models BI2115, ADA15IM, CO29A or CO1175). (1)
3. Remove capillary tube from sensing tube on ice maker assembly. (2)
4. Remove water inlet tube.
5. Remove front cover (3)
6. Advance ejector blades to the 3:00 position by turning the 5/16" hex head on the small brass gear counterclockwise (4).
7. Remove two screws from the side wall of evaporator(5).
8. Remove three screws from the bottom of the evaporator plate.
9. Remove ice maker assembly from evaporator shelf.
10. Clean alumilastic from evaporator shelf.
11. Apply 1/4" layer of fresh alumilastic to heater side of new ice maker.
12. Replace parts in reverse order of removal.
13. Reconnect all wires.
14. Insert capillary tube into ice maker sensing tube.
15. Insert water inlet tube.
16. Apply permagum to all exit holes. Mount back panel.
17. Mount the back panel.
18. Plug in unit and test.

THIS PAGE INTENTIONALLY LEFT BLANK

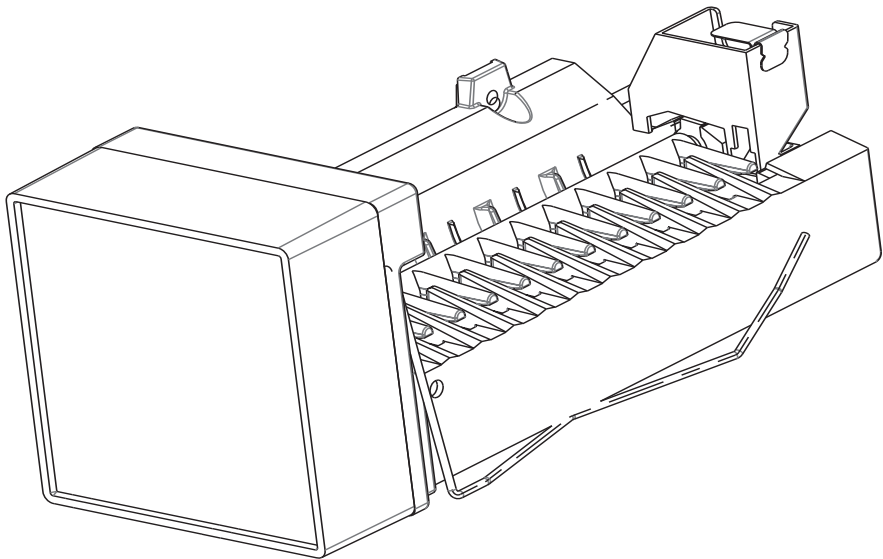
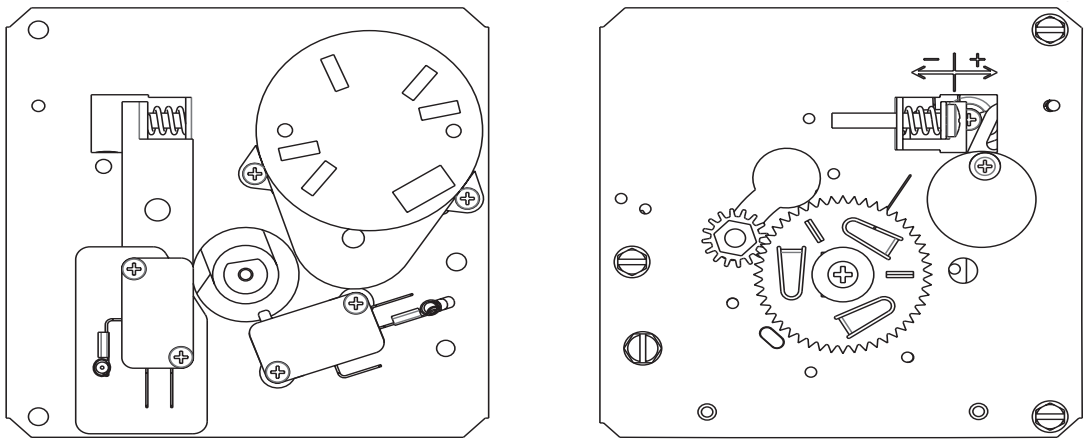
220 VOLT CONVERSION LIST

All models listed in this manual are equipped to run on 110/115 volt. This document is a conversion list for the applicable 220 volt parts for the following models:

- ULN-SP18
- ULN-95
- ULN-98
- SS-1095
- U-CO29A
- U-CO1175

110V P/N	220V P/N	Description
5263-S	5195	Fan motor
80-39015-00	628109	I.M motor (ice makers)
402	619	Ice maker assembly - Models SP18, 95, 98, and model 1095
402-29/1175	620	Ice maker assembly - Models C029A, CO1175
2552A	2555A	Water valve
5402-S	5404-S	Compressor (ice makers)
150	650	Faceplate assembly
5414	5418	Relay
5413	5417	Overload

U-LINE ICE MAKER ASSEMBLY



U-LINE ICE MAKER ASSEMBLY

U-Line no longer offers individual ice maker parts for replacement. If there is a defect in the ice maker assembly, you have the choice of replacing the face plate assembly or the complete ice maker assembly.

IMPORTANT

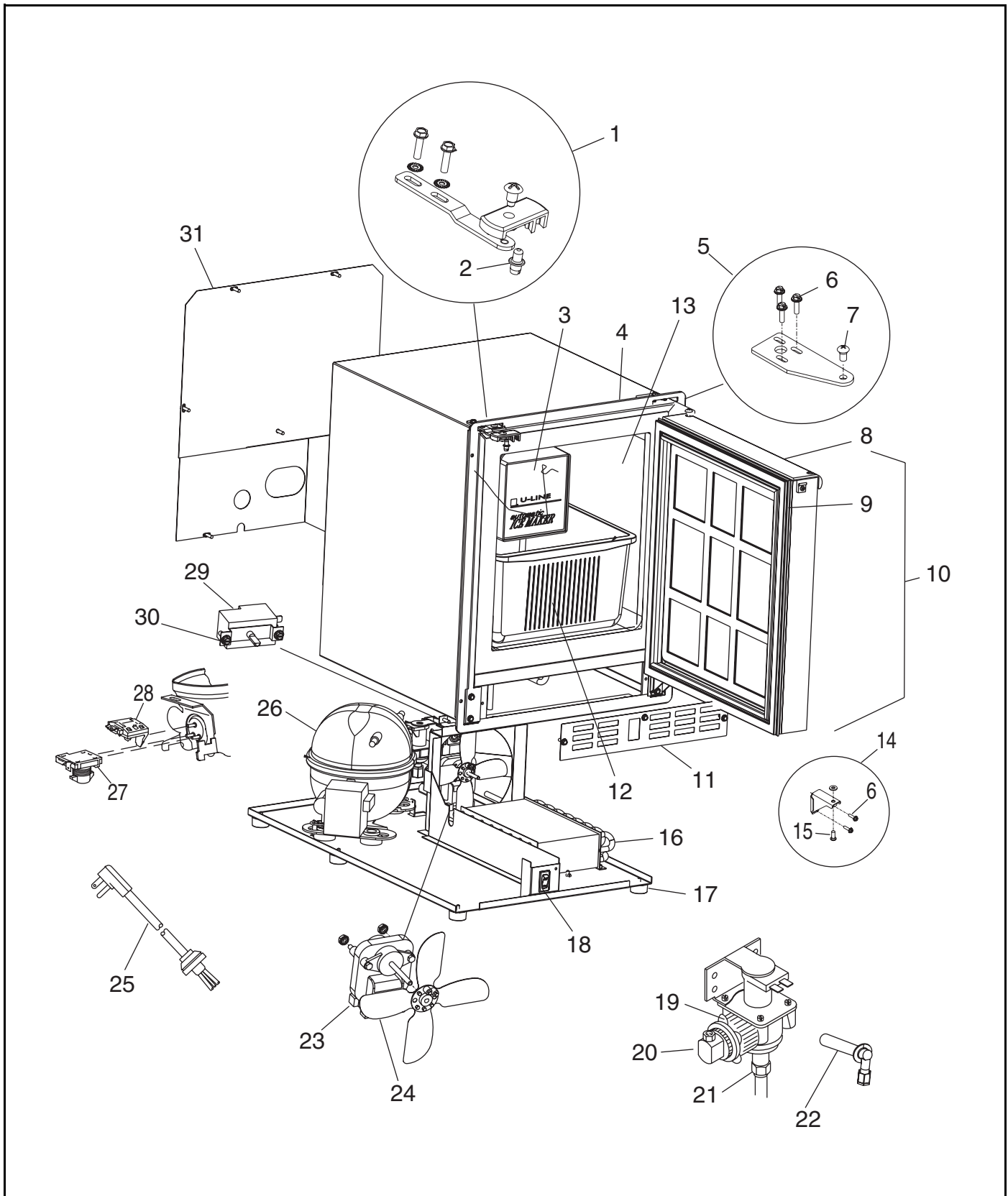
Ice Maker assemblies vary from model to model. You must use the correct ice maker for the model you are currently working on.

Please refer to this guide to get the correct Ice Maker or Face Plate assembly

Model	Ice Maker Part Number	Face Plate Assembly Part Number
SPI8 series	402*	150
95 series	402*	150
98 series	402*	150
1095 series	402*	150
CO29 manual defrost	402-29/1175*	150
CO1175 manual defrost	402-29/1175*	150
CO29F frost free	402-CO29FF	150
BI2115 series	402-BI2015*	150
ADA15IM	402-BI2015*	150

*Alumalastic is included

MODEL SP18

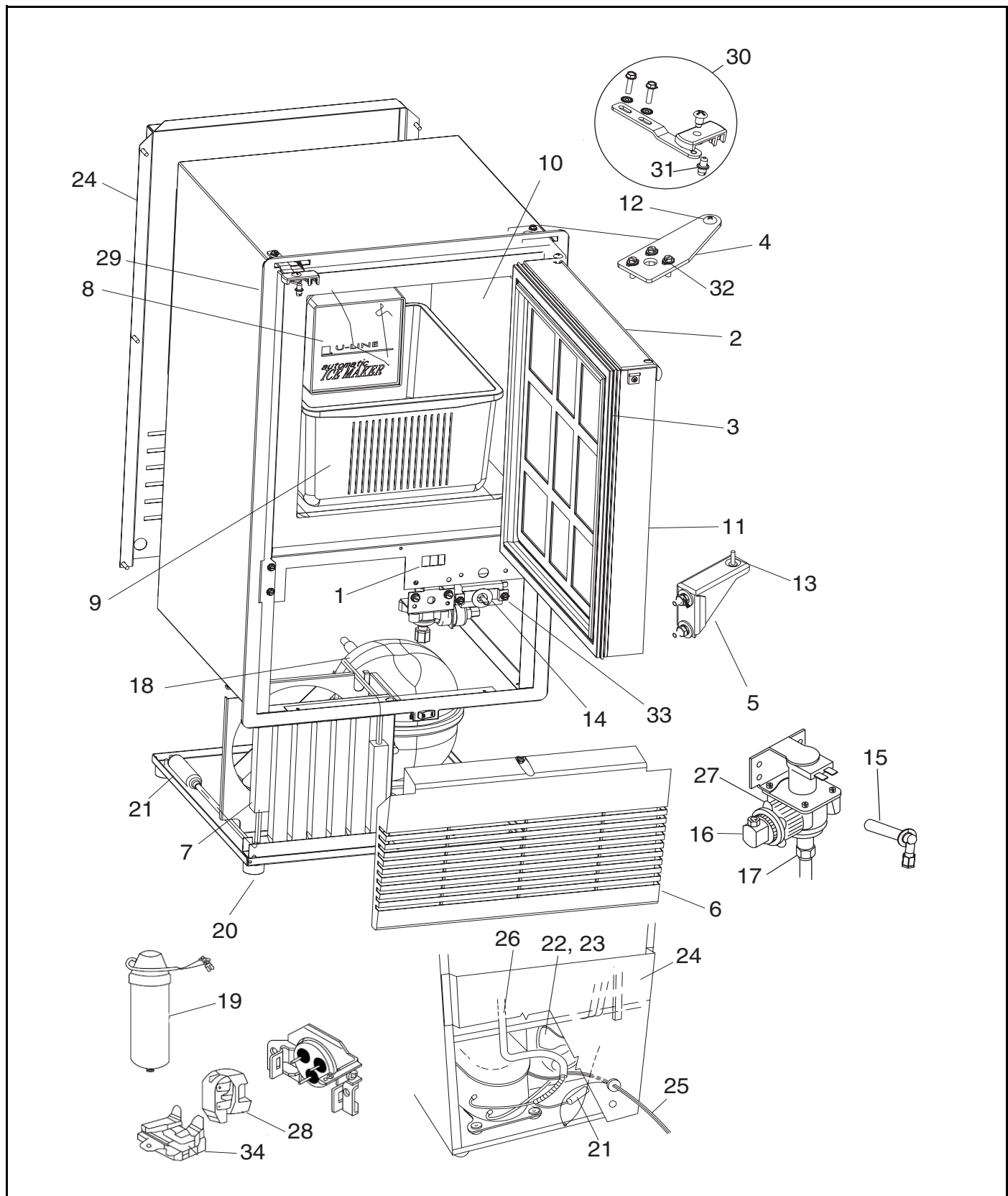


MODEL SP18

Item	Part No. Black	Part No. White	Description
1	SPI8B-TRAVELPIN	SLV-TRAVEL-PIN	Travel Pin Assembly
2	31476-BLK	31476-SS	Pin only
3	402	402	Ice Maker Assembly
	150	150	Face Plate Assembly (See page 2)
4	SPI8B-FRAME	SPI8-FRAME	Trim frame (includes rivets)
5	11698-SSB-S	11698-SS-S	Hinge Assembly, top (includes screws)
6	41915	41915	Screw
7	41747-SSB	41747-SSS	Pivot screw, top
8	31489-I-BLK	11777	Door handle
9	31493-I-GRY	31493-I-WHT	Gasket, door
10	95-DOORBLK	WH95M-DOOR	Door Assembly
11	SPI8-GRILLE	SPI8-GRILLE	Grille Assembly (includes screws)
12	31429	31429	Ice bucket
13	2182-S18-BLK	2182-S18-KIT	Evaporator Assembly (includes drier and process tube)
14	11696-SSB-S	11696-SS-S	Hinge Assembly, bottom (includes screws)
15	41785-SSB	41747-SSS	Pivot Screw, bottom
16	2258-S	2258-S	Condenser Assembly (includes drier and process tube)
17	41125	41125	Feet, cabinet
18	2053	2053	On/Off switch
19	2552A	2552A	Water valve
20	41826	41826	Brass fitting, 90°
21	41254	41254	Plastic Nut & Sleeve Assembly
22	404-SP18	404-SP18	Fill Tube Assembly
23	5263-S	5263-S	Fan motor
24	5188	5188	Fan blade
25	2264	2264	Power cord
26	5402-S	5402-S	Compressor Assembly (includes compressor grommet, relay, overload, drier and process tube)
27	5414	5414	Relay
28	5413	5413	Overload
29	2783	2783	Control
30	41893-ZP	41893-ZP	Screw, control
31	11811	11811	Back panel
Not Shown	2693	2693	Drier
Not Shown	2800	2800	Process tube
Not Shown	31021	31021	Grommet, compressor

MODEL ULN-95 (1 OF 2)

BI95B, BI95WH, BCM95

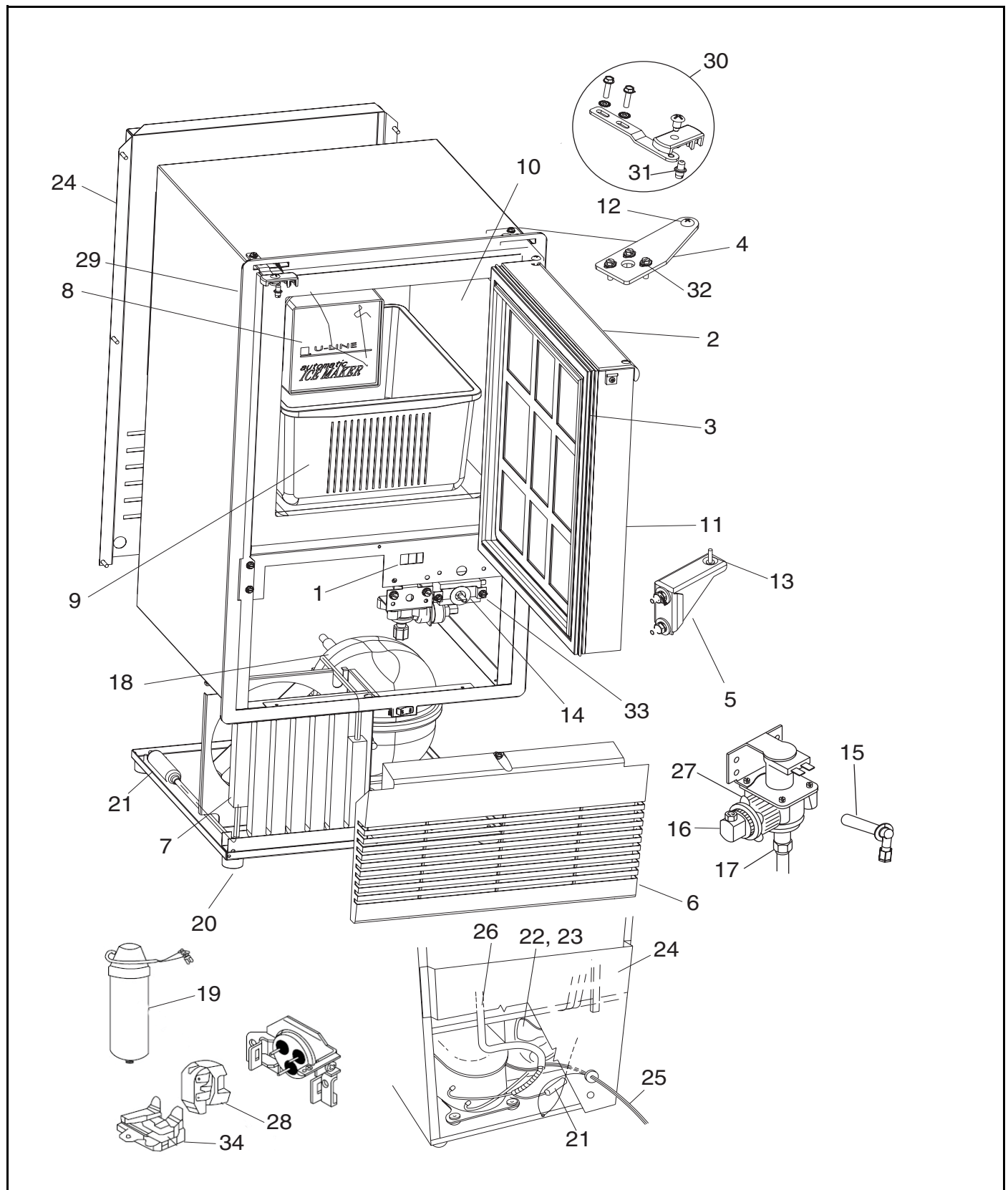


MODEL ULN-95 (1 OF 2)

BI95B, BI95WH, BCM95

Item	Part No. BI95B	Part No. BI95WH	Part No. BCM95	Description
1	2053	2053	2053	On/Off switch
2	31489-I-BLK	31489-I-KIT	31489-I-BLK	Door handle
3	31493-I-GRY	31493-I-WHT	31493-I-GRY	Gasket, door
4	11697-ST-BLK	11697-ST-KIT	11697-ST-BLK	Hinge, top
5	11695-S-BLK	11695-S-KIT	11695-S-BLK	Hinge, bottom
6	11662-BLK	11662-KIT	11662-BLK	Grille
7	2628-S	2628-S	2628-S	Condenser Assembly
8	402	402	402	Ice Maker Assembly
	150	150	150	Face Plate Assembly (See page 2)
9	31429	31429	31429	Ice bucket
10	2182-S-BLK	2182-S-KIT	2182-S-BLK	Inner Liner Assembly/ Evaporator
11	95-DOORBLK	95-DOORKIT	80-17112-01	Door Assembly
12	41785-SSB	41785-SSW	41785-SSB	Pivot screw, top
13	41747-SSB	41747-SSW	41747-SSB	Pivot screw, bottom
14	2783	2783	2783	Control
15	404-95	404-95	404-95	Fill Tube Assembly
16	405	405	405	Brass Fitting Assembly
17	41254	41254	41254	Plastic Nut & Sleeve Assembly
18	5401-S	5401-S	5401-S	Compressor
19	71005	71005	71005	Capacitor
20	41125	41125	41125	Foot, cabinet
21	2964	2964	2964	Dryer
22	5263-S	5263-S	5263-S	Fan motor
23	5188	5188	5188	Fan blade
24	11444	11444	11444	Back panel
25	1855-I	1855-I	1855-I	Power cord
26	31154	31154	31154	Insulator Tube Armaflex
27	2552A	2552A	2552A	Water valve
28	71004	71004	71004	Relay
29	N/A	N/A	11714-BLK	Trim Frame
30	N/A	N/A	BL-TRAVEL-PIN	Travel Pin Assembly
31	N/A	N/A	31476-BLK	Travel pin only
32	41893-BLK	41893-ZP	41893-BLK	Screw, hinge
33	41893-ZP	41893-ZP	41893-ZP	Screw, control
34	71603	71603	71603	Overload
Not Shown	2819	2819	2819	Process Tube
Not Shown	31021	31021	31021	Grommet, compressor

MODEL ULN-95 (2 OF 2)
BI95BTP, WH95TP, SS95

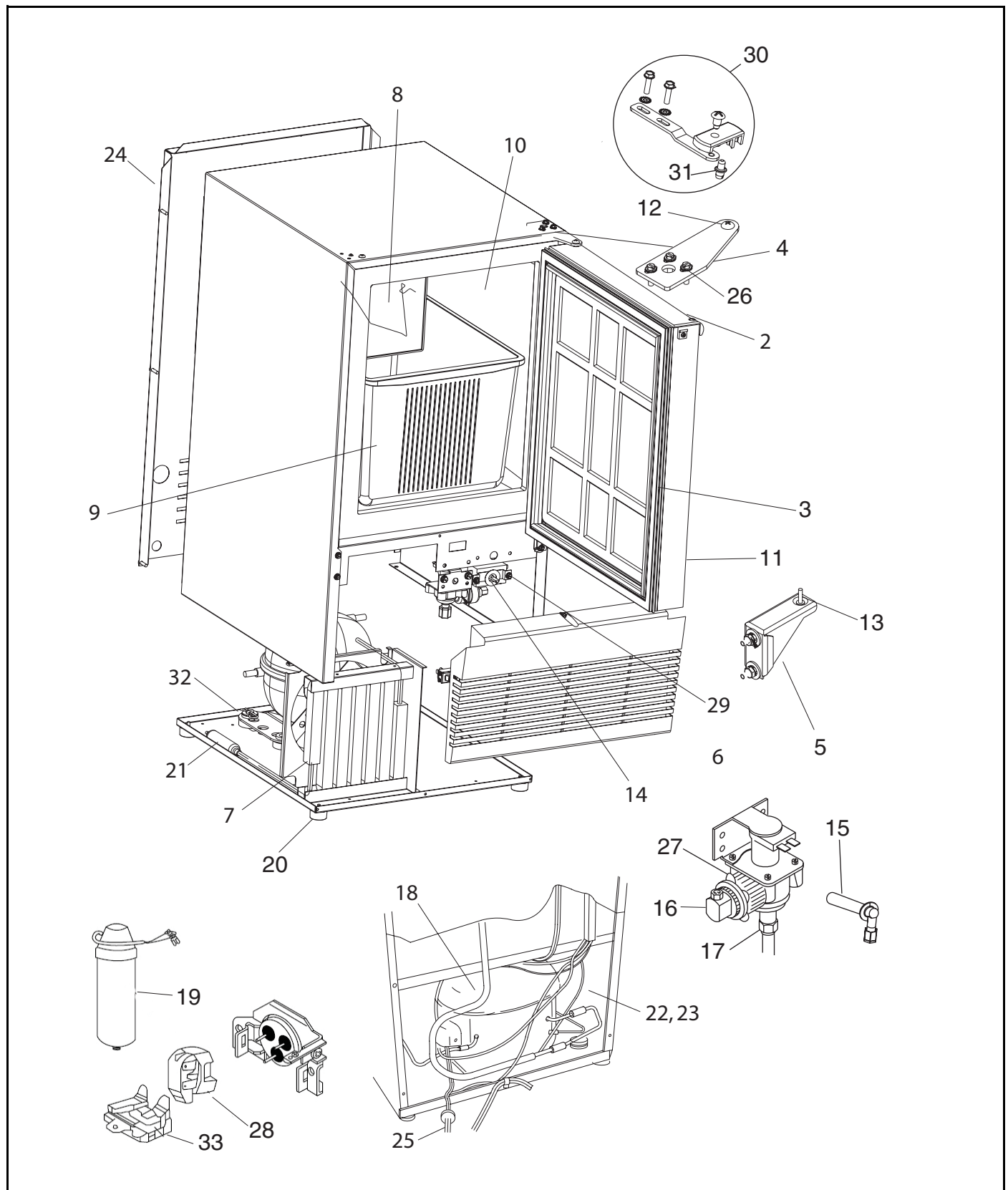


MODEL ULN-95 (2 OF 2)
BI95BTP, WH95TP, SS95

Item	Part No. BI95BTP	Part No. WH95TP	Part No. SS95	Description
1	2053	2053	2053	On/Off switch
2	31489-I-BLK	11777	31489-I-BLK	Door handle
3	31493-I-GRY	31493-I-WHT	31493-I-GRY	Gasket, door
4	11698-SSB-S	11698-SS-S	11698-SSB-S	Hinge, top
5	11696-SSB-S	11696-S-KIT	11696-SSB-S	Hinge, bottom
6	11662-BLK	11662-SPL-KIT	11662-BLK	Grille
7	2628-S	2628-S	2628-S	Condenser Assembly
8	402	402	402	Ice Maker Assembly
	150	150	150	Face Plate Assembly (See page 2)
9	31429	31429	31429	Ice bucket
10	2182-S-BLK	2182-S-KIT	2182-S-BLK	Inner Liner Assembly/ Evaporator
11	95-DOORBLK	WHT95M-DOOR	SS95-DOOR	Door Assembly
12	41785-SSB	41785-SSS	41785-SSB	Pivot screw, top
13	41747-SSB	41747-SSW	41747-SSB	Pivot screw, bottom
14	2783	2783	2783	Control
15	404-95	404-95	404-95	Fill Tube Assembly
16	405	405	405	Brass Fitting Assembly
17	41254	41254	41254	Plastic Nut & Sleeve Assembly
18	5401-S	5401-S	5401-S	Compressor
19	71005	71005	71005	Capacitor
20	41125	41125	41125	Foot, cabinet
21	2964	2964	2964	Dryer
22	5263-S	5263-S	5263-S	Fan motor
23	5188	5188	5188	Fan blade
24	11444	11444	11444	Back panel
25	1855-I	1855-I	1855-I	Power cord
26	31154	31154	31154	Insulator Tube Armaflex
27	2552A	2552A	2552A	Water valve
28	71004	71004	71004	Relay
29	11708-BLK	11708-KIT	N/A	Trim Frame
30	BL-TRAVEL-PIN	SLV-TRAVEL-PIN	BL-TRAVEL-PIN	Travel Pin Assembly
31	31476-BLK	31476-SS	31476-BLK	Travel pin only
32	41941	41941	41941	Screw, hinge
33	41893-ZP	41893-ZP	41893-ZP	Screw, control
34	71603	71603	71603	Overload
Not Shown	2819	2819	2819	Process Tube
Not Shown	31021	31021	31021	Grommet, compressor

MODEL ULN-98

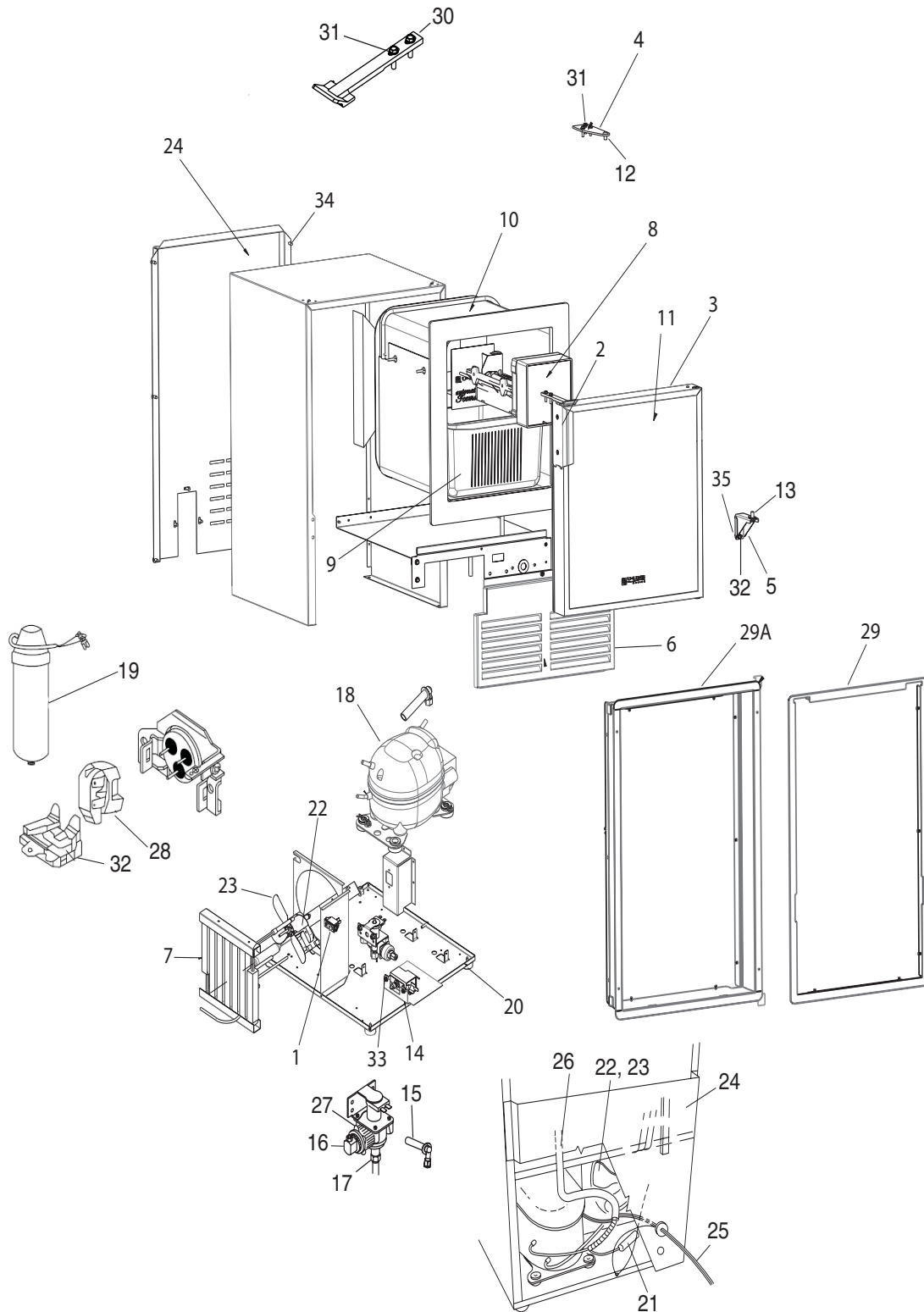
BI98B, BI98WH, SS98



MODEL ULN-98
BI98B, BI98WH, SS98

Item	Part No. BI98B	Part No. BI98WH	Part No. SS98	Description
1	2053	2053	2053	On/Off switch
2	31489-2-BLK	31489-2-KIT	31489-2-BLK	Door handle
3	31493-2-GRY	31493-2-WHT	31493-2-GRY	Gasket, door
4	11697-ST-BLK	11697-ST-KIT	11698-SSB-S	Hinge, top
5	11695-S-BLK	11695-S-KIT	11696-SSB-S	Hinge, bottom
6	11661-BLK	11661-KIT	11661-BLK	Grille
7	2628-S	2628-S	2628-S	Condenser Assembly
8	402	402	402	Ice Maker Assembly
	150	150	150	Face Plate Assembly (See page 2)
9	31430	31430	31430	Ice bucket
10	2183-S-BLK	2183-S-KIT	2183-S-SS	Inner Liner Assembly/ Evaporator
11	98-DOORBLK	98-DOORKIT	SS98-DOOR	Door Assembly
12	41785-SSB	41785-SSW	41785-SSB	Pivot screw, top
13	41747-SSB	41747-SSW	41747-SSB	Pivot screw, bottom
14	2783	2783	2783	Control
15	404-98	404-98	404-98	Fill Tube Assembly
16	405	405	405	Brass Fitting Assembly
17	41254	41254	41254	Plastic Nut & Sleeve Assembly
18	5401-S	5401-S	5401-S	Compressor
19	71005	71005	71005	Capacitor
20	41125	41125	41125	Foot, cabinet
21	2964	2964	2964	Dryer
22	5263-S	5263-S	5263-S	Fan motor
23	5188	5188	5188	Fan blade
24	11443	11443	11443	Back panel
25	1855-I	1855-I	1855-I	Power cord
26	41893-BLK	41893-ZP	41941	Screw, hinge
27	2552A	2552A	2552A	Water valve
28	71004	71004	71004	Relay
29	41893-ZP	41893-ZP	41893-ZP	Screw, control
30	N/A	N/A	BL-TRAVEL-PIN	Travel Pin Assembly
31	N/A	N/A	31476-BLK	Travel pin only
32	31021	31021	31021	Grommet
33	71603	71603	71603	Overload
Not Shown	2800	2800	2800	Process tube

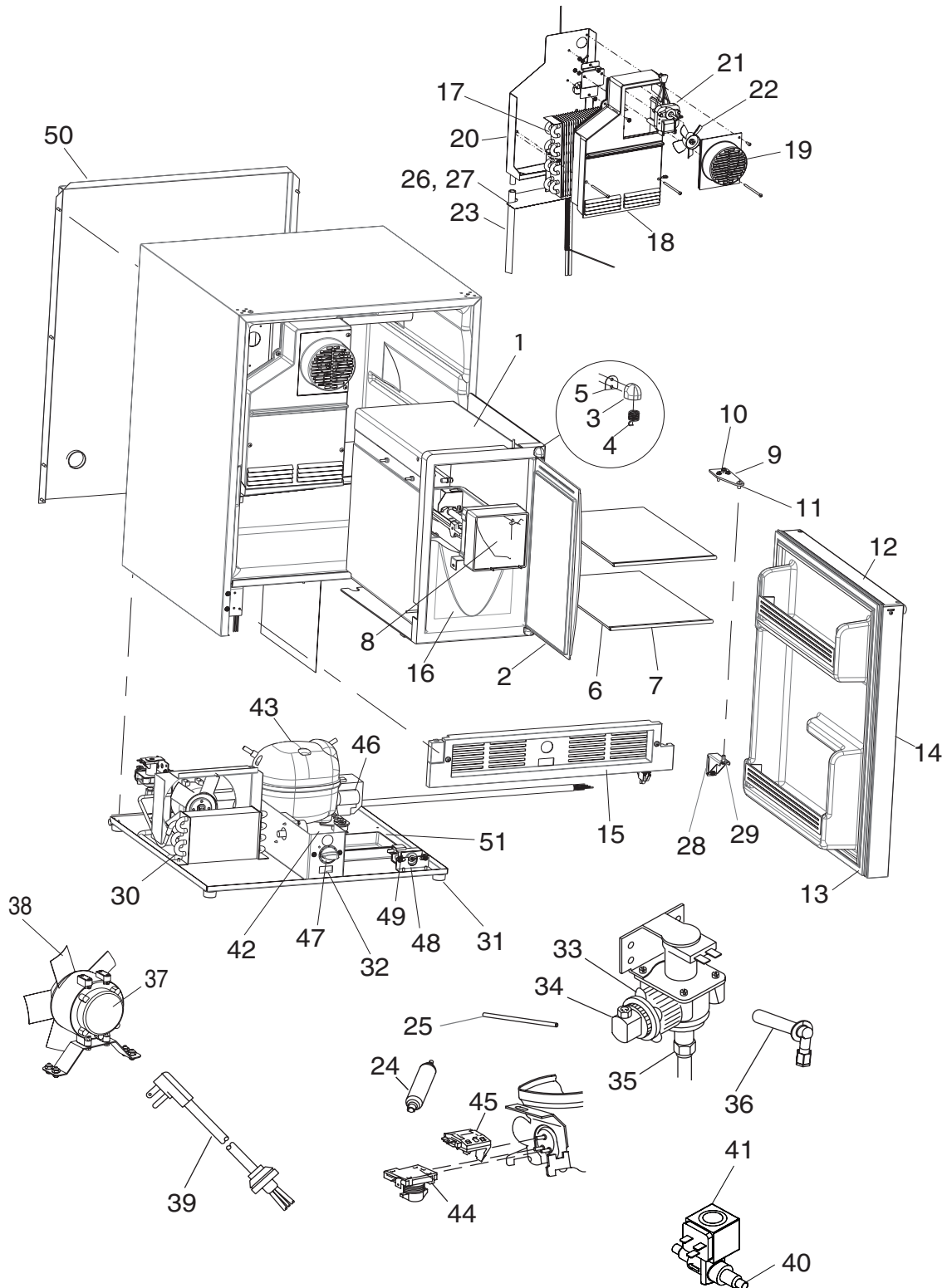
MODEL SS-1095



MODEL SS-1095

Item	Part No.	Description
1	2053	On/Off switch
2	14206-S	Door handle
3	31493-I-GRY	Gasket, door
4	11698-SS-S	Hinge, top
5	11696-SS-S	Hinge, bottom
6	80-29017-02	Grille, flush with door
	80-29017-01	Grille, flush with cabinet & no frame
7	2628-S	Condenser Assembly
8	402	Ice Maker Assembly
	150	Face Plate Assembly (See page 2)
9	31429	Ice bucket
10	2182	Inner Liner Assembly/ Evaporator
11	80-17106-03	Door Assembly
12	41785-SS	Pivot screw, top
13	41747-SS	Pivot screw, bottom
14	2783	Control
15	404-95	Fill Tube Assembly
16	405	Brass Fitting Assembly
17	41254	Plastic Nut & Sleeve Assembly
18	5401-S	Compressor
19	71005	Capacitor
20	41125	Foot, cabinet
21	2964	Dryer
22	5263-S	Fan motor
23	5188	Fan blade
24	11444	Back panel
25	1855-I	Power cord
26	31154	Insulator Tube Armaflex
27	2552A	Water valve
28	71004	Relay
29	95SS-FRAME	Frame, flush to cabinet
29A	95SS-FLUSHFRAME	Frame, flush to door assembly
30	26109-S	Travel Latch Assembly
31	41941	Screw, hinge
32	71603	Overload
33	41893-ZP	Screw, control
34	41342	Screw, back panel
35	41787	Nut, bottom hinge
Not Shown	31021	Grommet
Not Shown	2819	Process Tube

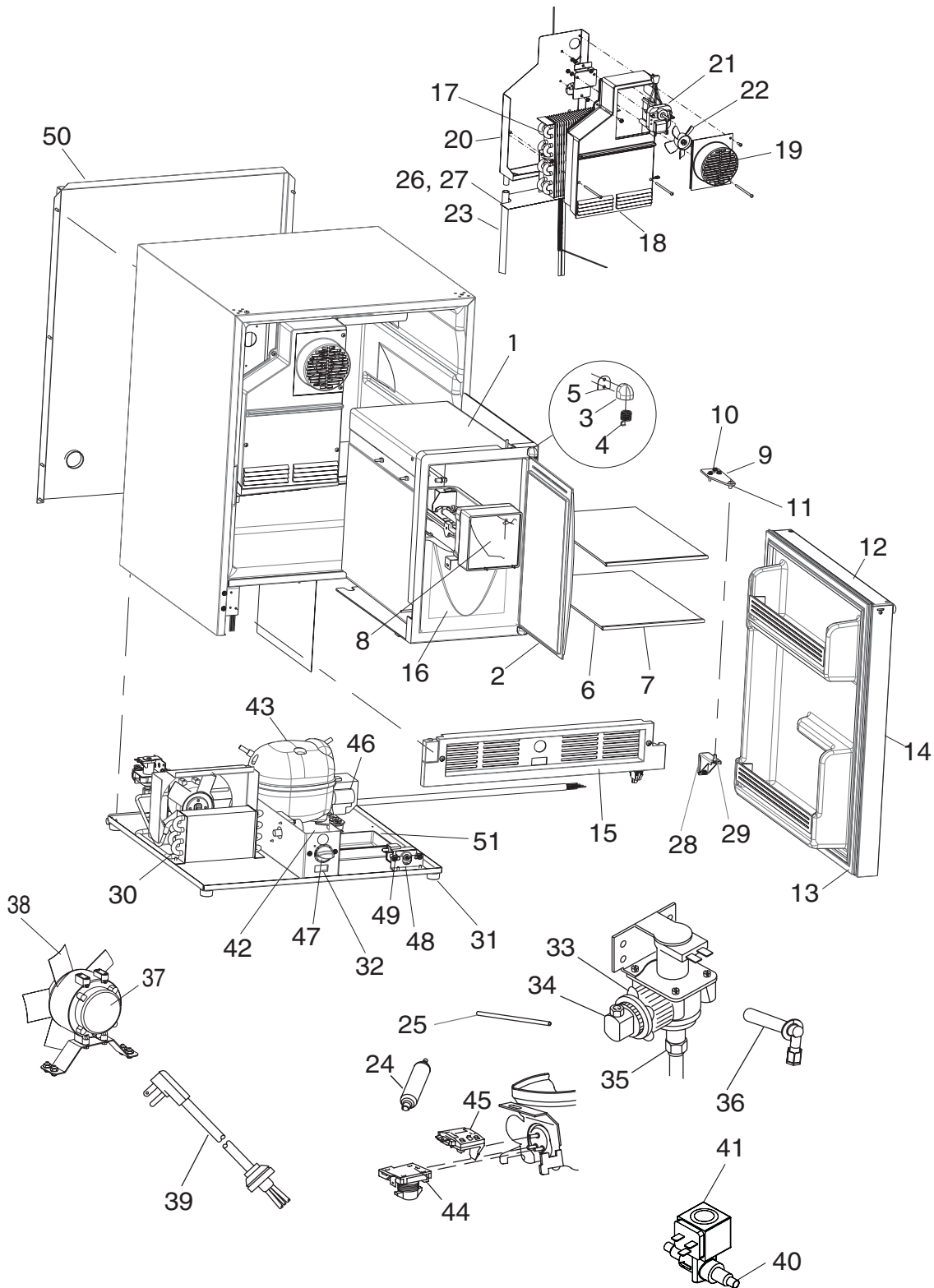
MODEL U-CO29F



MODEL U-CO29F (1 OF 2)

Item	Part No. Black	Part No. White	Description
1	80-35003-S	80-35003-S	Freezer Housing Assembly
2	26069-S	26069-S	Freezer Door Assembly
3	12013-S	12013-S	Hinges, freezer door
4	42135	42135	Spring, hinge, freezer door
5	42157	42157	Tape, hinge, freezer door
6	40010-09	40010-09	Glass shelf
7	31443-6	31443-6	Trim, shelf front
8	402-CO29FF	402-CO29FF	Ice Maker Assembly
	150	150	Face Plate Assembly (see page 2)
9	11697-ST-BLK	11697-ST-KIT	Hinge Assembly, top
10	41893-BLK	41893-ZP	Screw, hinge
11	41785-SSB	41785-SSW	Pivot screw, top
12	31489-3-BLK	31489-3-KIT	Door handle
13	31493-3-GRY	31493-3-WHT	Gasket, door
14	80-17014-01	80-17014-02	Door Assembly
15	80-29014-01	80-29014-02	Grille Assembly
16	26011	26011	Ice bucket
17	2334-FFS	2334-FFS	Evaporator Assembly
18	11955	11955	Cover, evaporator
19	11952	11952	Cover, evaporator fan
20	2349	2349	Drain Pan Assembly
21	5434	5434	Fan motor, evaporator
22	31656	31656	Fan blade, evaporator
23	41967-1	41967-1	Drain tube
24	2692	2692	Dryer
25	2800	2800	Process tube
26	66005	66005	Heater, drain pan
27	35014	35014	Tape, drain pan heater
28	11695-S-BLK	11695-S-KIT	Hinge Assembly, bottom
29	41747-SSB	41747-SSW	Pivot screw, bottom
30	1893-FFS	1893-FFS	Condenser Assembly

MODEL U-CO29F (2 OF 2)



MODEL U-CO29F (2 OF 2)

Item	Part No. Black	Part No. White	Description
31	41125	41125	Foot, cabinet
32	2053	2053	On/Off switch
33	2552A	2552A	Water valve
34	41826	41826	Fitting, brass, 90°
35	41254	41254	Plastic Nut & Sleeve Assembly
36	404FF	404FF	Fill Tube Assembly
37	5300	5300	Fan motor
38	5428	5428	Fan blade
39	2902	2902	Power cord
40	73002-FFS	73002-FFS	Bypass Valve Assembly
41	73002-2	73002-2	Coil only, Danfoss
42	68000	68000	Defrost timer
43	5408-FFS	5408-FFS	Compressor Assembly
44	71021	71021	Relay
45	71020	71020	Overload
46	71022	71022	Capacitor
47	2885-S	2885-S	Control, refrigerator
48	2792	2792	Control, ice maker
49	42003	42003	Screw, control
50	11545-I	11545-I	Back panel
51	31550-I-F	31550-I-F	Drain pan

Exploded view diagram of a refrigerator assembly, showing the main body, door, shelves, drawers, and internal components. The diagram includes numbered parts (1-38) and callouts for detailed views of specific sub-assemblies.

Key components and parts shown:

- Main Body:** 1 (Top panel), 3 (Side panel), 4, 5 (Internal shelves), 15 (Bottom panel), 37 (Back panel).
- Door:** 11 (Top panel), 12 (Side panel), 13 (Bottom panel), 10 (Door handle).
- Internal Components:** 14 (Evaporator), 17 (Compressor), 18 (Condenser), 21 (Fan), 22 (Base), 23 (Control panel), 24 (Thermostat), 25 (Temperature control knob), 26 (Temperature control knob), 27 (Temperature control knob).
- Accessories:** 2 (Drawer), 3 (Drawer), 15 (Drawer), 16 (Drawer), 17 (Drawer), 18 (Drawer), 19 (Drawer), 20 (Drawer), 21 (Drawer), 22 (Drawer), 23 (Drawer), 24 (Drawer), 25 (Drawer), 26 (Drawer), 27 (Drawer), 28 (Drawer), 29 (Drawer), 30 (Drawer), 31 (Drawer), 32 (Drawer), 33 (Drawer), 34 (Drawer), 35 (Drawer), 36 (Drawer), 37 (Drawer), 38 (Drawer).

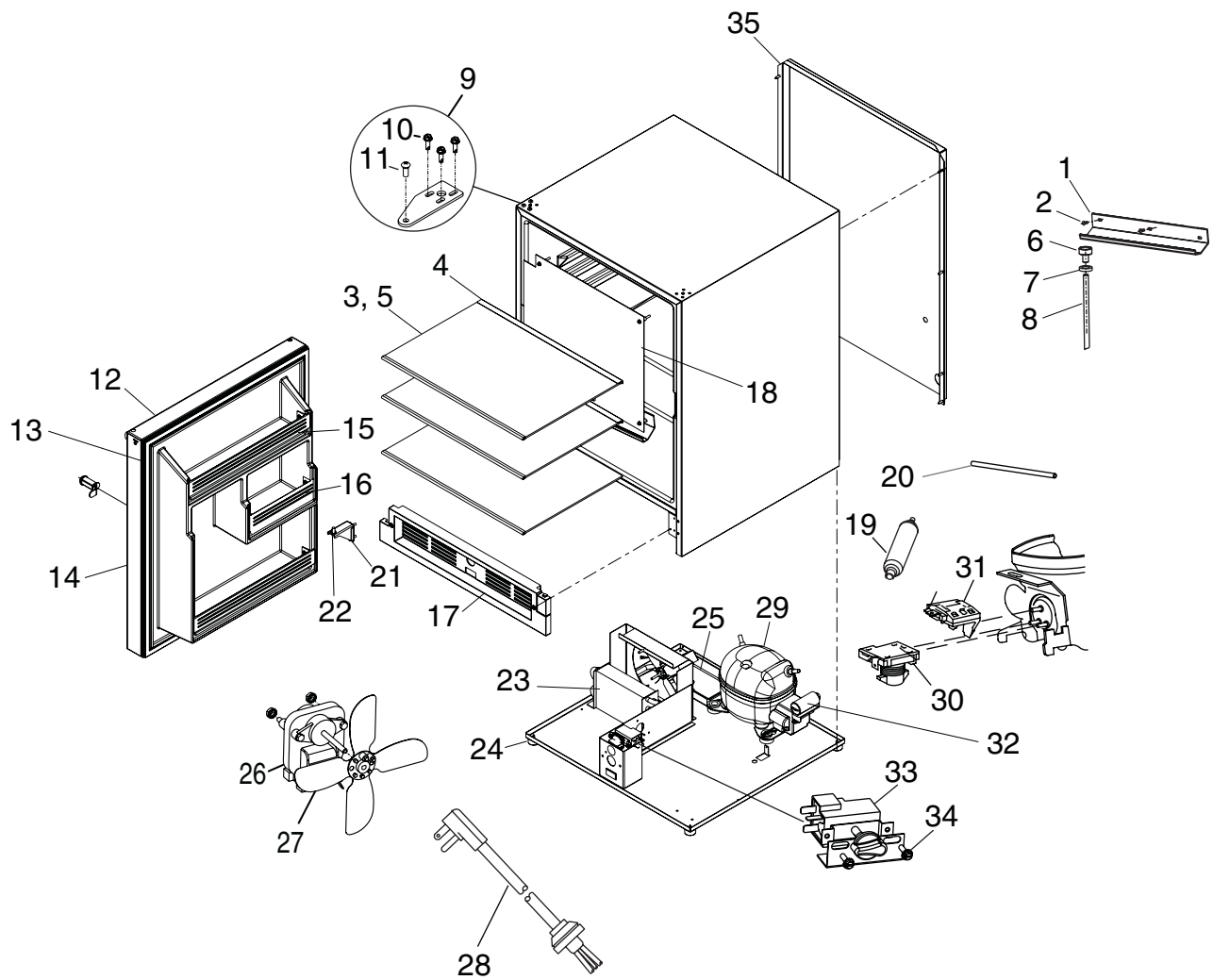
Callouts provide detailed views of specific sub-assemblies:

- Callout 1:** Shows the internal structure of the main body, including the evaporator and condenser.
- Callout 2:** Shows the internal structure of the door, including the handle and hinge.
- Callout 3:** Shows the internal structure of the drawer, including the handle and hinge.
- Callout 4:** Shows the internal structure of the fan and motor assembly.
- Callout 5:** Shows the internal structure of the thermostat and temperature control knob.
- Callout 6:** Shows the internal structure of the evaporator and condenser.
- Callout 7:** Shows the internal structure of the compressor and fan assembly.
- Callout 8:** Shows the internal structure of the control panel and temperature control knob.
- Callout 9:** Shows the internal structure of the drawer handle and hinge.
- Callout 10:** Shows the internal structure of the drawer handle and hinge.
- Callout 11:** Shows the internal structure of the drawer handle and hinge.
- Callout 12:** Shows the internal structure of the drawer handle and hinge.
- Callout 13:** Shows the internal structure of the drawer handle and hinge.
- Callout 14:** Shows the internal structure of the drawer handle and hinge.
- Callout 15:** Shows the internal structure of the drawer handle and hinge.
- Callout 16:** Shows the internal structure of the drawer handle and hinge.
- Callout 17:** Shows the internal structure of the drawer handle and hinge.
- Callout 18:** Shows the internal structure of the drawer handle and hinge.
- Callout 19:** Shows the internal structure of the drawer handle and hinge.
- Callout 20:** Shows the internal structure of the drawer handle and hinge.
- Callout 21:** Shows the internal structure of the drawer handle and hinge.
- Callout 22:** Shows the internal structure of the drawer handle and hinge.
- Callout 23:** Shows the internal structure of the drawer handle and hinge.
- Callout 24:** Shows the internal structure of the drawer handle and hinge.
- Callout 25:** Shows the internal structure of the drawer handle and hinge.
- Callout 26:** Shows the internal structure of the drawer handle and hinge.
- Callout 27:** Shows the internal structure of the drawer handle and hinge.
- Callout 28:** Shows the internal structure of the drawer handle and hinge.
- Callout 29:** Shows the internal structure of the drawer handle and hinge.
- Callout 30:** Shows the internal structure of the drawer handle and hinge.
- Callout 31:** Shows the internal structure of the drawer handle and hinge.
- Callout 32:** Shows the internal structure of the drawer handle and hinge.
- Callout 33:** Shows the internal structure of the drawer handle and hinge.
- Callout 34:** Shows the internal structure of the drawer handle and hinge.
- Callout 35:** Shows the internal structure of the drawer handle and hinge.
- Callout 36:** Shows the internal structure of the drawer handle and hinge.
- Callout 37:** Shows the internal structure of the drawer handle and hinge.
- Callout 38:** Shows the internal structure of the drawer handle and hinge.

MODEL U-CO29A

Item	U-CO29B-03	U-CO29WH-03	U-CO29B-00	U-CO29WH-00	Description
1	11957-S	11957-S	11957-S	11957-S	Flap Door Assembly
2	31463	31463	31463	31463	Clamp, flap door
3	31434-1	31434-1	31434-1	31434-1	Snap rivets
4	40010-09	40010-09	40010-09	40010-09	Glass shelves
5	31443-6	31443-6	31443-6	31443-6	Trim, shelf front
6	402-29/1175	402-29/1175	402-29/1175	402-29/1175	Ice Maker Assembly
	150	150	150	150	Face Plate Assembly (see page 2)
7	11698-SSB-S	11698-SS-S	11697-STBLK	11697-ST-KIT	Hinge Assembly, top
8	41941	41941	41893-BLK	41893-ZP	Screw, hinge
9	41747-SSB	41747-SSW	41747-SSB	41747-SSS	Pivot screw, top
10	31521-2	31521-2	31521-2	31521-2	Retainer, shelf
11	31489-3-BLK	11777-29	31489-3-BLK	31489-3-KIT	Handle, door
12	31493-3-GRY	31493-3-WHT	31493-3-GRY	31493-3-WHT	Gasket, door
13	80-17014-01	80-17031-02	80-17014-01	80-17014-02	Door Assembly
14	80-29014-01	80-29014-03	80-29014-01	80-29014-02	Grille Assembly
15	31687	31687	31687	31687	Ice Bucket
16	74000-75/29	74000-75/29	74000-75/29	74000-75/29	Evaporator Assembly
17	2693	2693	2693	2693	Dryer
18	2800	2800	2800	2800	Process tube
19	11696-SSB-S	11696-S-KIT	11695-S-BLK	11695-S-KIT	Hinge Assembly, bottom
20	41785-SSB	41785-SSW	41785-SSB	41785-SSW	Pivot screw, bottom
21	1893-S	1893-S	1893-S	1893-S	Condenser Assembly
22	41125	41125	41125	41125	Foot, cabinet
23	2053	2053	2053	2053	On/Off switch
24	2552A	2552A	2552A	2552A	Water valve
25	41826	41826	41826	41826	Fitting, brass, 90°
26	41254	41254	41254	41254	Plastic Nut & Sleeve Assembly
27	404FF	404FF	404FF	404FF	Fill Tube Assembly
28	5263-S	5263-S	5263-S	5263-S	Fan motor
29	5188	5188	5188	5188	Fan blade
30	2905	2905	2905	2905	Power cord
31	5402-S	5402-S	5402-S	5402-S	Compressor Assembly
32	5414	5414	5414	5414	Relay
33	5413	5413	5413	5413	Overload
34	2782	2782	2782	2782	Control, refrigerator
35	42067	42067	42067	42067	Knob, control
36	42003	42003	42003	42003	Screw, control
37	11545-1	11545-1	11545-1	11545-1	Back panel
38	TRVL-PIN-CO29BSLV-TRAVEL-PIN		N/A	N/A	Travel Pin Assembly

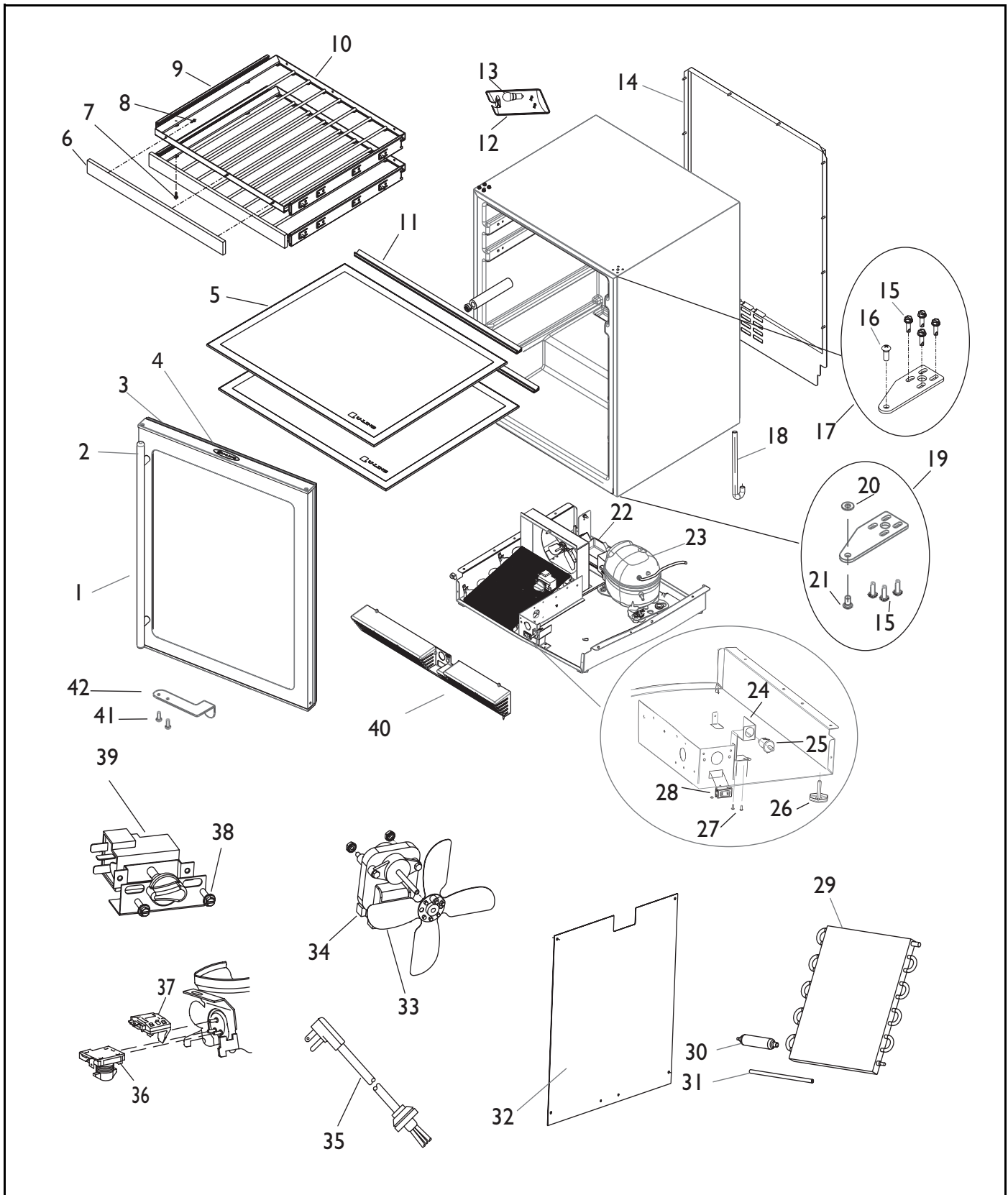
MODEL ULN-29R



MODEL 29R

Item	Part No. Black	Part No. White	Description
1	31391	31391	Drain trough
2	41885	41885	Screws
3	40010-08	40010-08	Glass shelf, no logo
4	25032-4	23052-4	Trim, rear, glass shelf
5	40010-07	40010-07	Glass shelf, with logo
6	11508	11508	Funnel drain cup
7	31578	31578	Washer, drain tube
8	31579	31579	Drain tube
9	11697-ST-BLK	11697-ST-KIT	Hinge Assembly, top
10	41893-BLK	41893-ZP	Screw, hinge
11	41747-SSB	41747-SSV	Pivot screw, top
12	31489-3-BLK	31489-3-KIT	Door handle
13	31493-3-GRY	31493-3-WHT	Gasket, door
14	29-DOORBLK	29-DOORKIT	Door Assembly
15	31521-2	31521-2	Retainer, door shelf, long
16	31521-3	31521-3	Retainer, door shelf, short
17	80-29014-01	80-29014-02	Grille Assembly
18	1960-S	1960-S	Evaporator Assembly
19	2693	2693	Dryer
20	2800	2800	Process tube
21	11695-S-BLK	11695-S-KIT	Hinge Assembly, bottom
22	41785-SSB	41785-SSV	Pivot screw, bottom
23	1893-S	1893-S	Condenser Assembly
24	41125	41125	Foot, cabinet
25	31550-I-F	31550-I-F	Drain pan
26	5263-S	5263-S	Fan motor
27	5188	5188	Fan blade
28	2305	2305	Power cord
29	70077-S	70077-S	Compressor Assembly
30	71010	71010	Relay
31	71009	71009	Overload
32	71008	71008	Capacitor
33	2766	2766	Control
34	42003	42003	Screw, control
35	11545-I	11545-I	Back panel

MODEL I075BEV

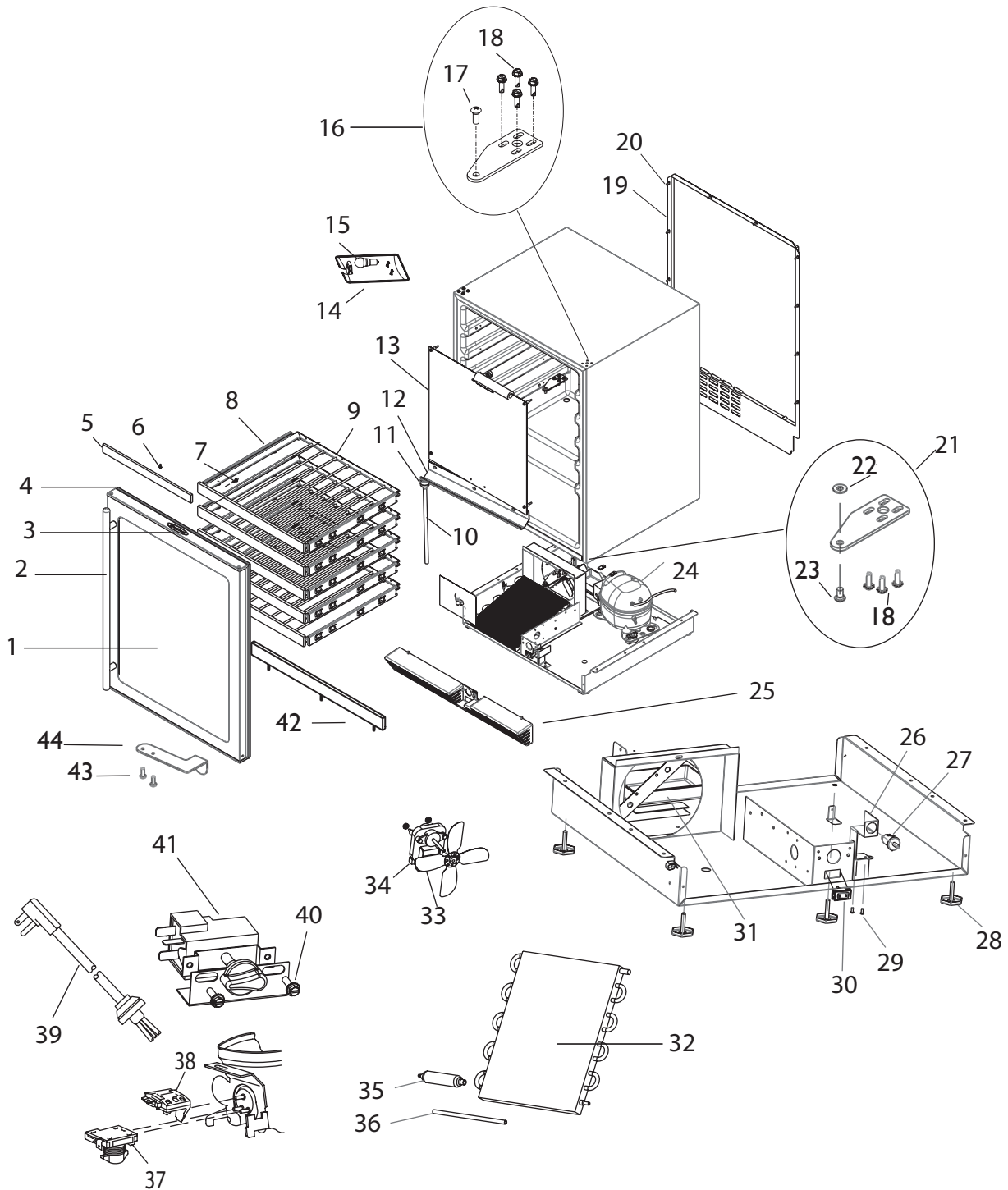


MODEL I075BEV

Item	Part No.	Description
1	80-17105-03	Door Assembly (Field Reversible)
2	23050-01	Door handle
3	31493-4-BLK	Gasket, door
4	23051-01	Nameplate
5	40010-16	Glass shelf
6	11988-03	Wood Front
7	20041	Screw
8	42106	Screw (used on wood only)
9	23026-03*	Slide
10	18066-01	Wine Rack Assembly
11	25032-02	Shelf trim, rear
12	31317	Light Bulb
13	11859	Lens, light housing
14	11769	Back panel
15	20042-BLK	Screw, hinge
16	41785-SSB	Pivot screw, top
17	14136-ST	Hinge Assembly, top
18	28004	Drain tube
19	14136-SB	Hinge Assembly, bottom
20	21017	Washer Bottom Hinge
21	41747-SSB	Pivot screw, bottom
22	31550-1	Drain pan
23	5400-S	Compressor Assembly
24	14196	Bracket, light switch
25	1916	Light switch Plunger
26	41319	Leg, leveling
27	41259	Screw, light switch bracket
28	2053	Light On/Off switch
29	1951-S	Condenser Assembly
30	2694	Dryer
31	2800	Process tube
32	2186-S	Evaporator Assembly
33	5188	Fan blade
34	5263-S	Fan motor
35	2315	Power cord
36	5411	Overload
37	5412	Relay
38	42003	Screw, control
39	2923	Control (includes knob)
40	11664	Grille Assembly
41	14324	Light Switch Bracket
42	20031	Screws Light Switch Bracket

* Includes left and right slide & screws.

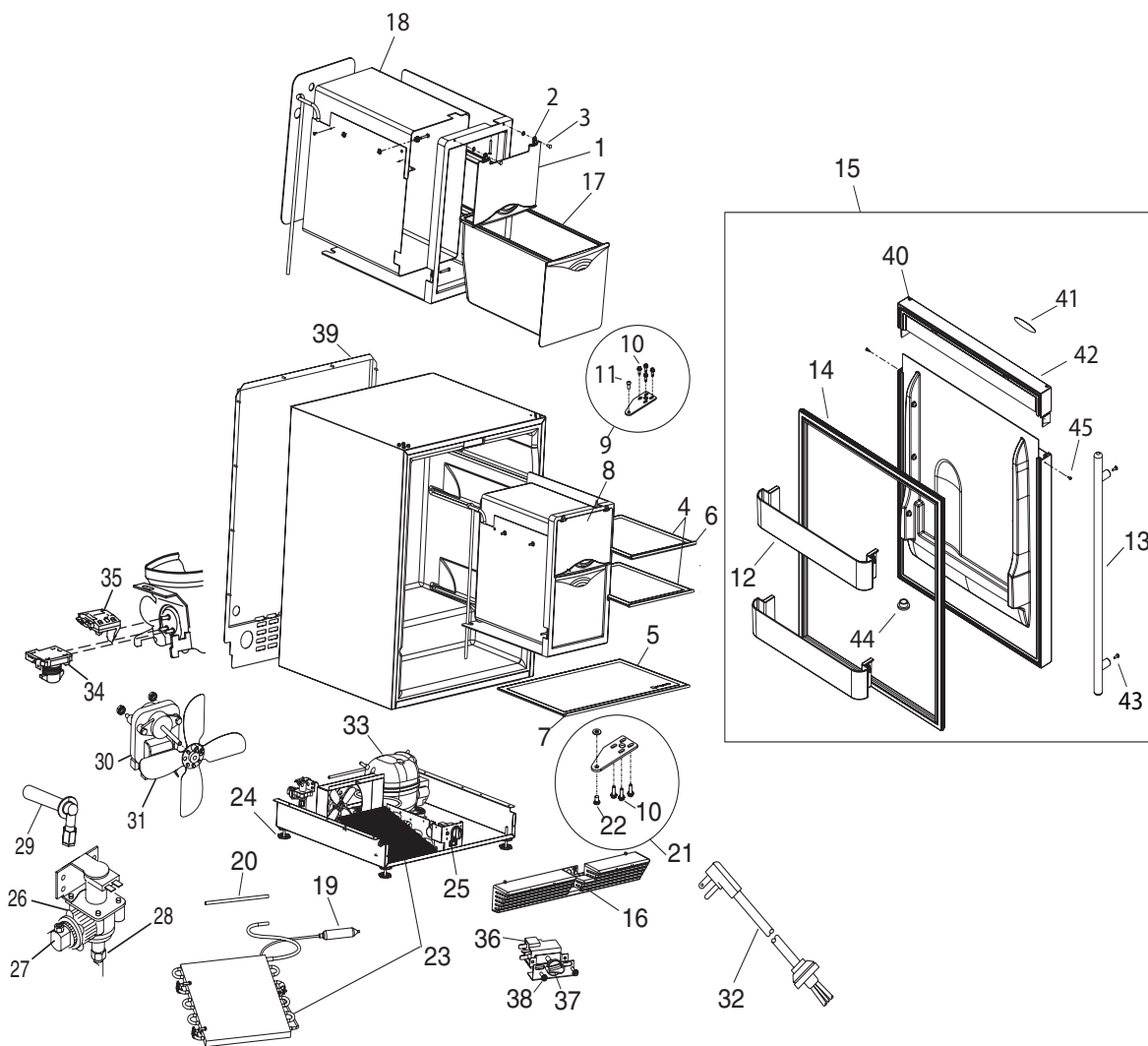
MODEL I075WC



MODEL I075WC

Item	Part No.	Description	Item	Part No.	Description
1	80-17110-03	Door Assembly Field Reversible	23	41747-SSB	Pivot screw, bottom
2	23050-01	Door handle	24	5400-S	Compressor Assembly
3	23051-01	Nameplate	25	11664	Grille Assembly
4	31493-4-BLK	Gasket, door	26	14196	Bracket, light switch
5	11988-03	Wood front	27	1916	Light switch Plunger
6	4816	Screw	28	41319	Leg, leveling
7	42106	Screw (used on wood only)	29	41259	Rivet, light switch bracket
8	23026-03-S*	Slide Assembly (set of 2)	30	2053	On/Off switch
9	18066-01	Wine Rack Assembly	31	31550-1	Drain pan
10	31579	Drain tube	32	1951-S	Condenser Assembly
11	11508	Drain cup	33	5188	Fan blade
12	31391-3	Drain trough	34	5263-S	Fan motor
13	2186-S	Evaporator Assembly	35	2694	Dryer
14	31317	Light bulb	36	2800	Process tube
15	11859	Lens, light housing	37	5411	Overload
16	14136-ST	Hinge Assembly, top	38	5412	Relay
17	41785-SSB	Pivot screw, top	39	2315	Power cord
18	20042-BLK	Screw, hinge	40	42003	Screw, control
19	41342	Screw, 8-32 x .62	41	2767	Control (includes knob)
20	11769	Back panel	42	14135-03	Angle Bracket
21	14136-SB	Hinge Assembly, bottom	43	20031	Screws Light Switch Bracket
22	21017	Washer Bottom Hinge	44	14324	Light Switch Bracket

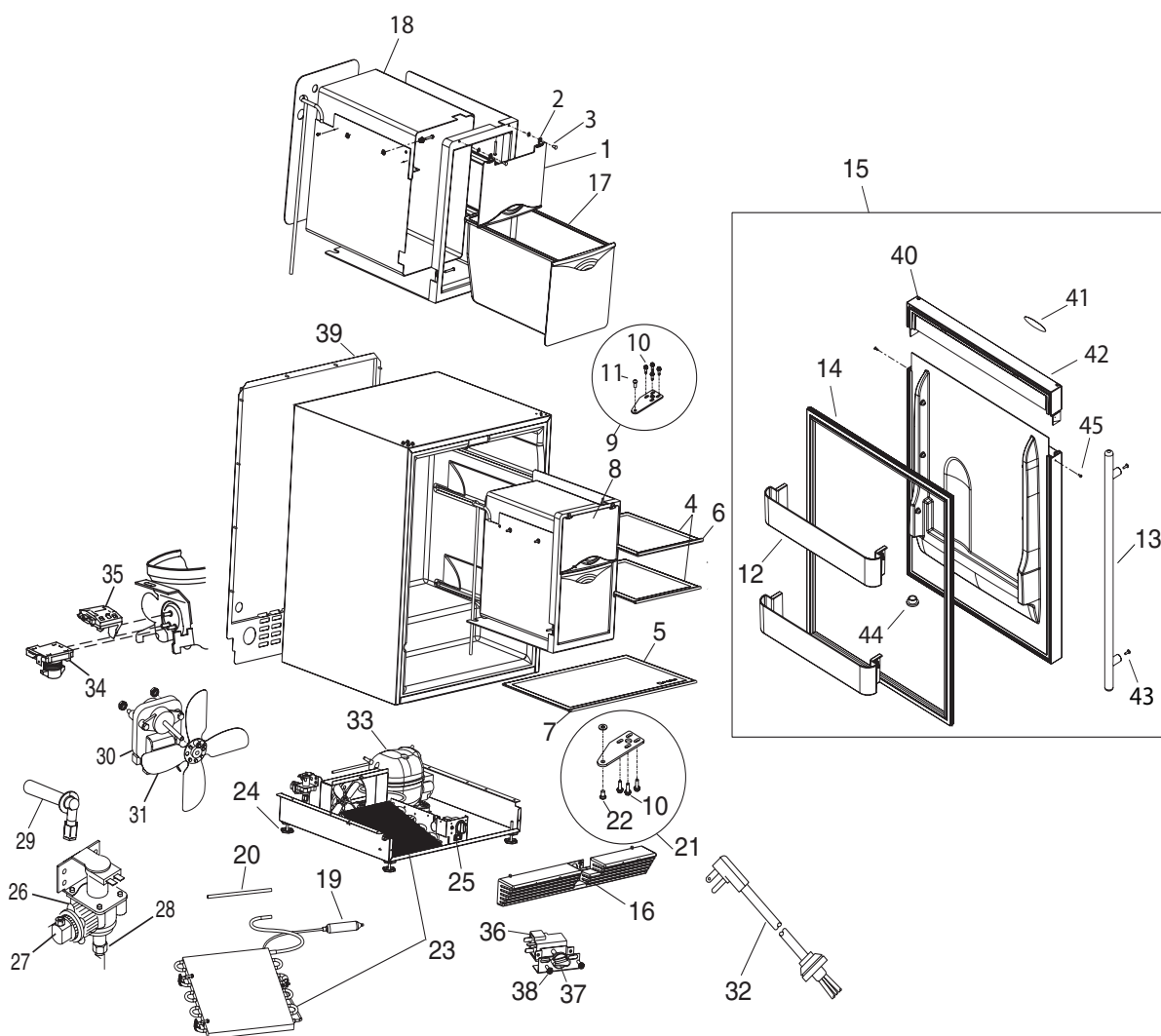
U-CO1175 (PAGE 1 OF 2)



U-CO1175 (PAGE 1 OF 2)

Item	Part No. Black	Part No. Stainless Steel	Description
1	11957-S	11957-S	Flap Door Assembly
2	31463	31463	Clamp, flap door
3	31434-1	31434-1	Snap rivet
4	40010-10	40010-10	Glass shelf
5	40010-11	40010-11	Glass shelf, wide
6	31443-8	31433-8	Trim, front, glass shelf
7	31443-9	31433-9	Trim, front, glass shelf, wide
8	402-29/1175	402-29/1175	Ice Maker Assembly
	150	150	Face Plate Assembly (see page 2-)
9	11849-ST-BLK	14136-ST	Hinge Assembly, top
10	20042-BLK	20042-BLK	Screw, hinge
11	41785-SSB	41785-SSB	Pivot screw, top
12	26031	26031	Shelf, door
13	N/A	23011-03	Towel Bar Handle Assembly
14	31493-4-BLK	31493-4-BLK	Gasket, door
15	80-17051-11	80-17067-23	Door Assembly, RH
	N/A	80-17067-33	Door Assembly, LH
16	11664	11664	Grille Assembly
17	31687	31687	Ice Bucket
18	74000-75/29	74000-75/29	Evaporator Assembly
19	2694	2694	Dryer
20	2800	2800	Process tube
21	11849-SB-BLK	14136-SB	Hinge Assembly, bottom
22	41747-SSB	41747-SSB	Pivot screw, bottom
23	1951-S	1951-S	Condenser Assembly

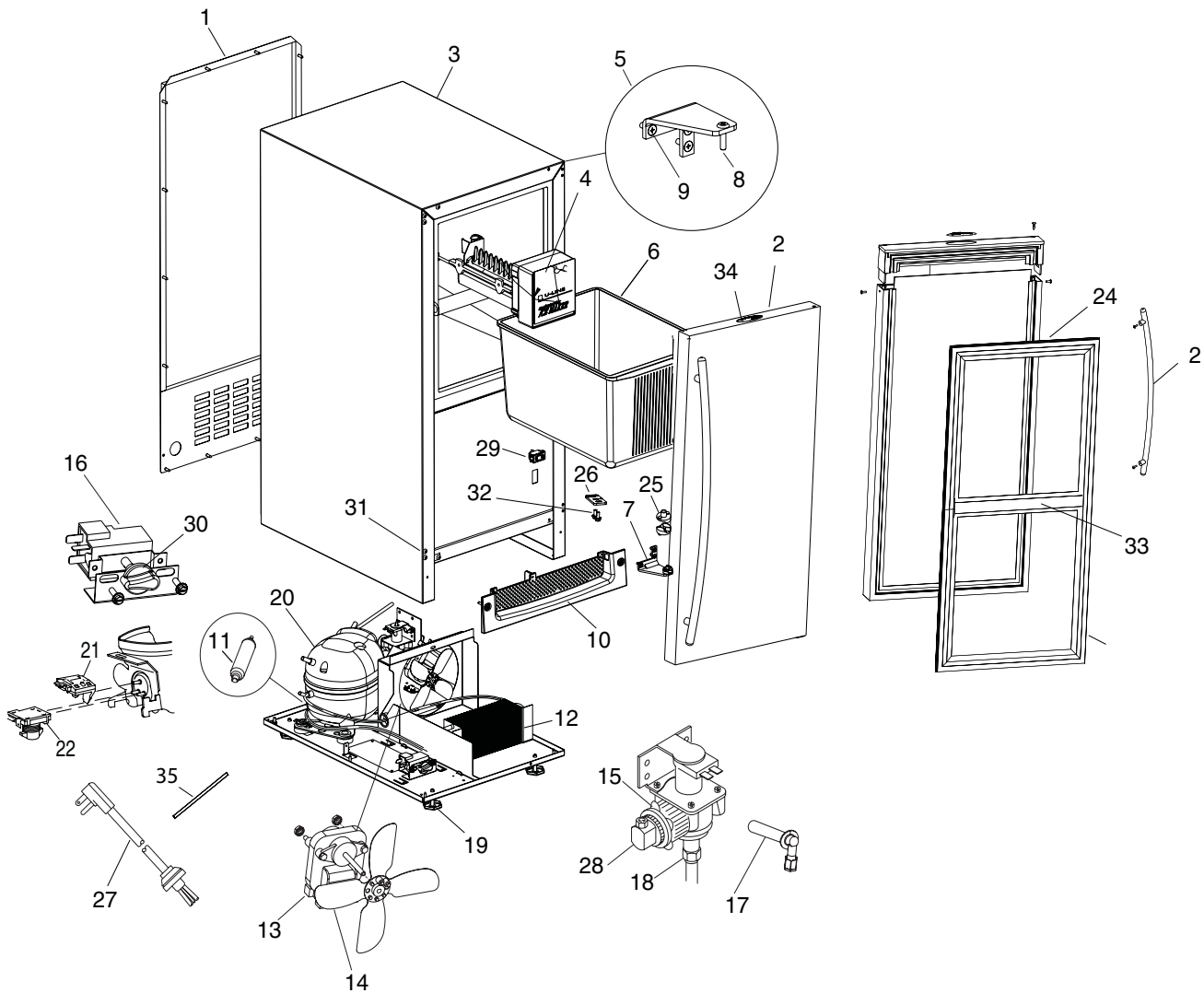
U-CO1175 (PAGE 2 OF 2)



U-CO1175 (PAGE 2 OF 2)

Item	Part No. Black	Part No. Stainless Steel	Description
24	41319	41319	Leg, leveling
25	2053	2053	On/Off switch
26	2552A	2552A	Water valve
27	41826	41826	Fitting, brass, 90°
28	41254	41254	Plastic Nut & Sleeve Assembly
29	404FF	404FF	Fill Tube Assembly
30	5263-S	5263-S	Fan motor
31	5188	5188	Fan blade
32	2905	2905	Power cord
33	5402-S	5402-S	Compressor Assembly
34	5414	5414	Relay
35	5413	5413	Overload
36	2781	2781	Control, refrigerator
37	42067	42067	Knob, control
38	41893-ZP	41893-ZP	Screw, control
39	11769	11769	Back panel
40	31447-BLK	31447-BLK	Hole Plug
41	23029	23029	Nameplate
42	26077-01	N/A	Handle Assembly
43	20031	20031 Screw,	Towel bar handle
44	31309-BLK	31309-BLK	Bushing
45	41604	N/A Screw, handle	

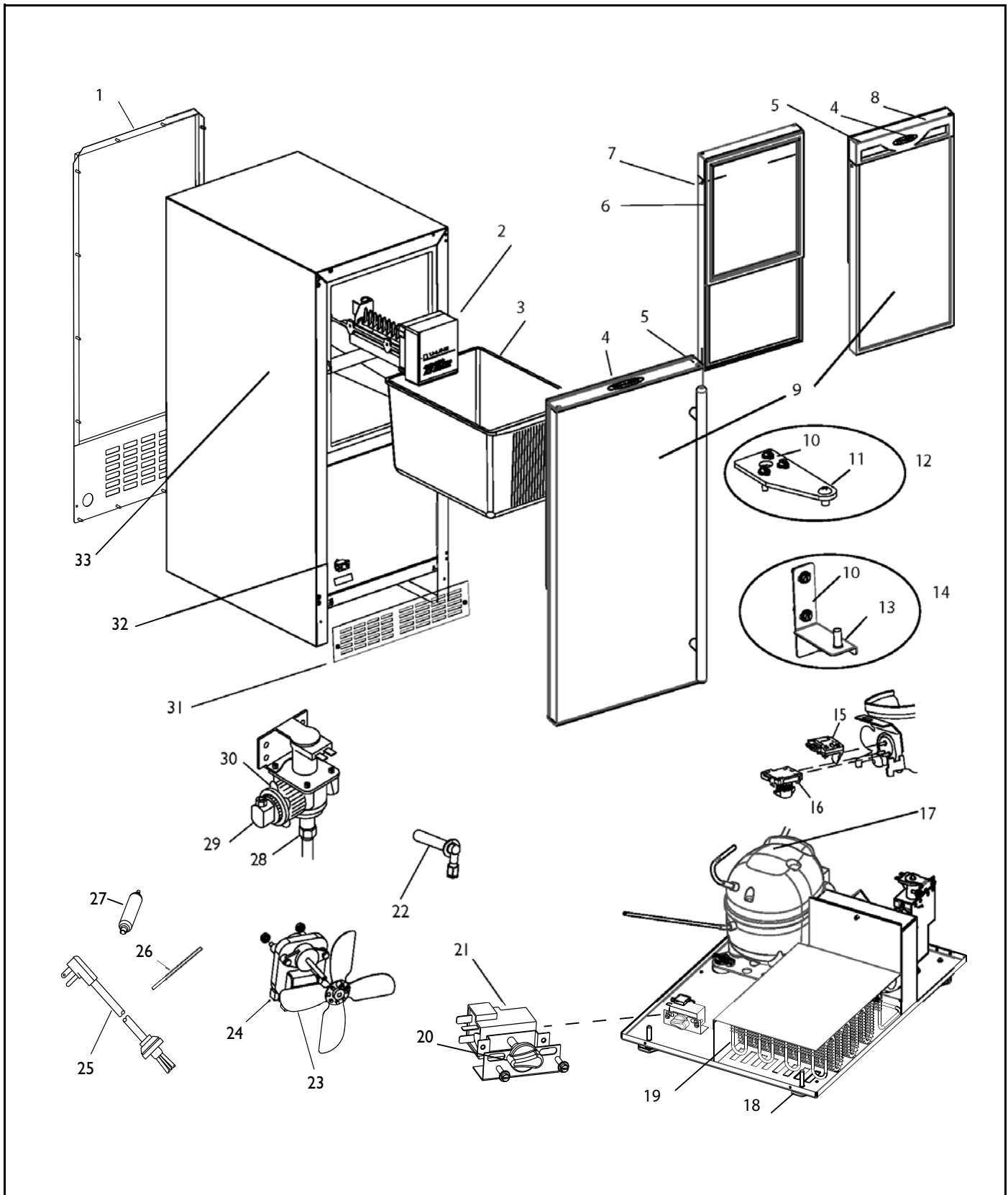
MODEL BI-2115



MODEL BI-2115

item	Part No. Black	Part No. White	Part No. Stainless Steel	Description
1	11964-01	11964-01	11964-01	Back panel
2	80-17073-01	80-17073-02	80-17073-03	Door Assembly, RH Hinge
	N/A	N/A	80-17073-13	Door Assembly, LH Hinge
3	80-10050-01-S	80-10050-02-S	80-10050-03-S	Evaporator/Cabinet Assembly
4	402-BI2015	402-BI2015	402-BI2015	Ice Maker Assembly
	150	150	150	Face Plate Assembly (see page 2-)
5	11898-S-BLK	11898-S-KIT	11995-S-SS	Hinge Assembly, top, RH
6	31430	31430	31430	Ice bucket
7	11899-S-BLK	11899-S-KIT	11996-S-SS	Hinge Assembly, lower
8	42096	42906	42906	Pivot screw
9	42101-BLK	42101-ZP	42101-SS	Screw, hinge
10	80-29012-01	80-29012-02	80-29012-01	Grille Assembly
11	2694	2694	2694	Dryer
12	2303-02-S	2303-02-S	2303-02-S	Condenser Assembly
13	5263-S	5263-S	5263-S	Fan motor
14	5188	5188	5188	Fan blade
15	2552A	2552A	2552A	Water valve
16	2780	2780	2780	Control
17	404-BI2X15	404-BI2X15	404-BI2X15	Fill Tube Assembly
18	41254	41254	41254	Plastic Nut & Sleeve Assembly
19	41319	41319	41319	Leg, leveling
20	5402-S	5402-S	5402-S	Compressor
21	5413	5413	5413	Overload
22	5414	5414	5414	Relay
23	26071-01	26071-02	14160-01	Door handle
24	12094-04-S	12094-06-S	12094-05-S	Door gasket (includes #33)
25	31673-S	31673-S	31673-S	Door Closer Assembly
26	11901-1	11901-1	11994-BLK	Pivot plate
27	2905	2905	2905-2	Power cord
28	41826	41826	41826	Brass fitting, 90°
29	2053	2053	2053	On/Off switch
30	42090-BLK	42090-BLK	42090-BLK	Knob, control
31	41156-02	41156	41156	Plug, threaded hole
32	42161-ZP	42161-ZP	42161-ZP	Screw, pivot plate
33	12095-04	12095-06	12095-05	Gasket, horizontal
34	23025	23025	23025	Nameplate
35	2800	2800	2800	Process tube
Not Shown	N/A	N/A	14159-01	Commercial Handle (SS accessory only)

MODEL ADA15IM

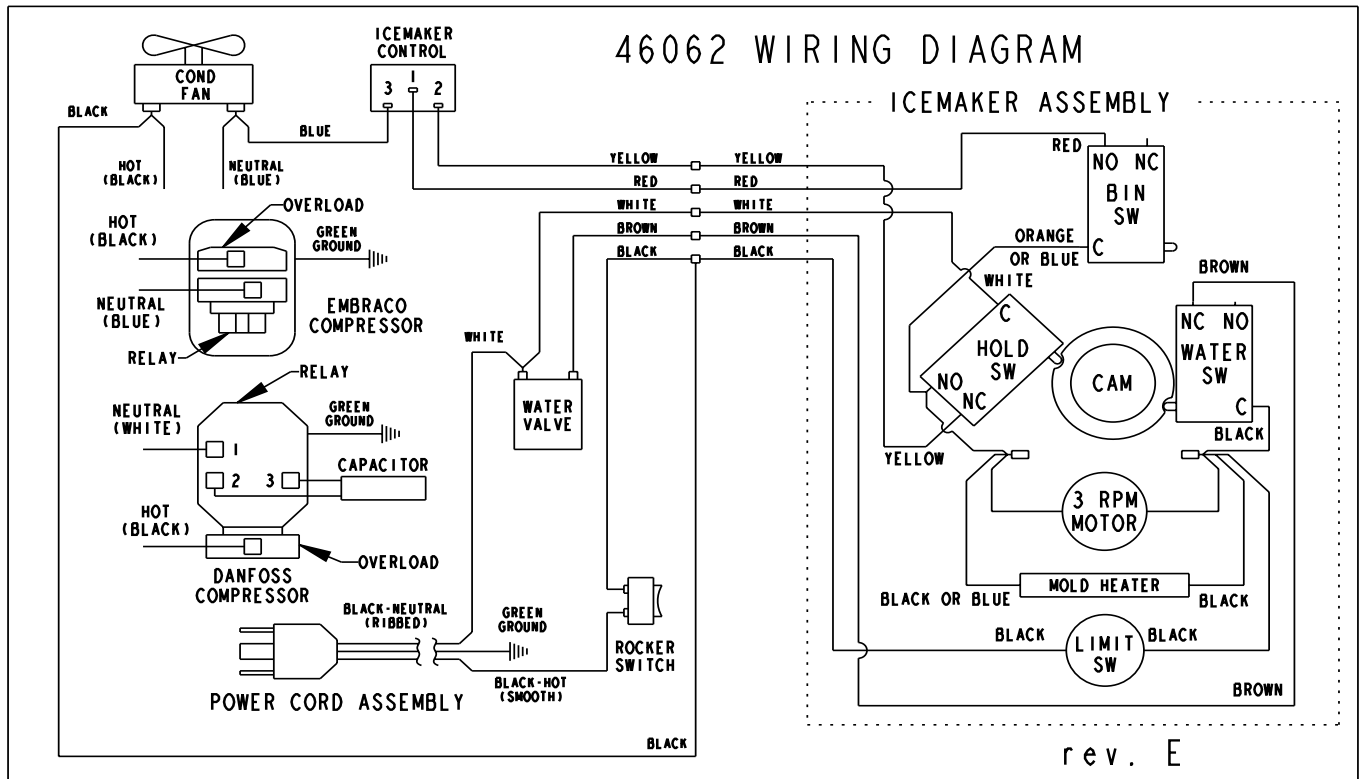


MODEL ADA15IM

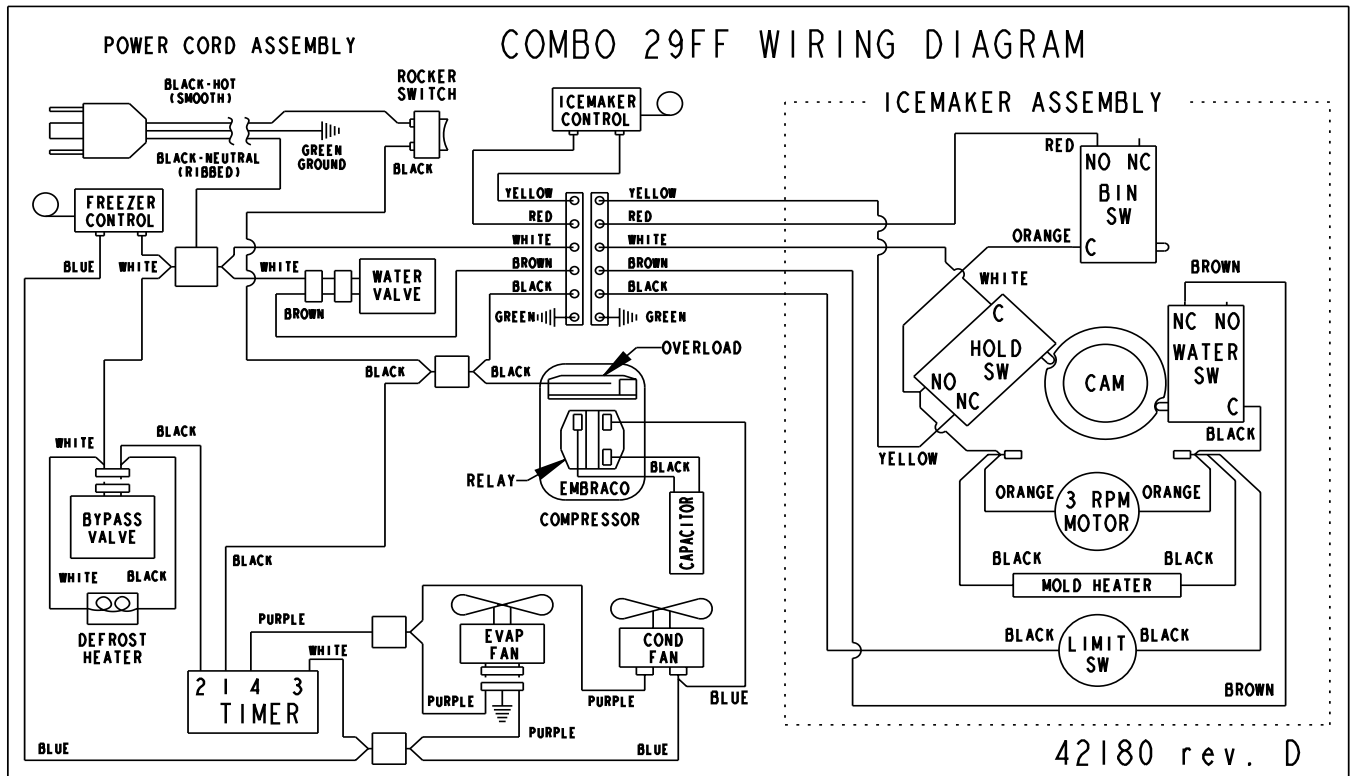
Item	Part No. Black	Part No. Stainless Steel	Description
1	11964-01	11964-01	Back Panel
2	402-BI2015	402-BI2015	Ice Maker Assembly
	150	150	Face Plate Assembly (see page 2-)
3	31430	31430	Ice Bucket
4	23029	23029	Nameplate
5	31447-BLK	31447-BLK	Hole Plug
6	31604-GRY	31604-GRY	Door Gasket
7	41604	N/A	Handle Screws
8	26077-01	N/A	Top Handle Assembly
9	80-17122-01	80-17123-03	Door Assembly Right Hand
	N/A	80-17123-13	Door Assembly Left Hand
10	41893-BLK	41893-BLK	Hinge Screws
11	41785-SSB	41785-SSB	Pivot Screw Top
12	11697-ST-BLK	14126-ST	Hinge Assembly Top
13	41747-SSB	41747-SSB	Pivot Screw Bottom
14	14312-01	14132-02	Hinge Assembly Bottom
15	5414	5414	Relay
16	5413	5413	Overload
17	5402-S	5402-S	Compressor Assembly
18	41319	41319	Leg Levelers
19	74014-S	74014S	Compressor Assembly
20	42090-BLK	42090-BLK	Control Knob, Black
21	2780	2780	Control
22	404-BI2X15	404-BI2X15	Fill Tube Assembly (includes water line)
23	5188	5188	Fan Blade
24	5263-S	5263-S	Fan Motor
25	2905	2905	Power Cord
26	2819	2819	Process Tube
27	2694	2694	Drier
28	41254	41254	Plastic Nut & Sleeve Assembly
29	41826	41826	Brass Fitting
30	2552S	2552A	Water Valve
31	80-29019-01	80-29019-01	Grille Assembly
32	2053	2053	On/Off Switch
33	80-10080-01-S	80-10080-01-S	Evaporator/Cabinet Assembly

This page intentionally left blank

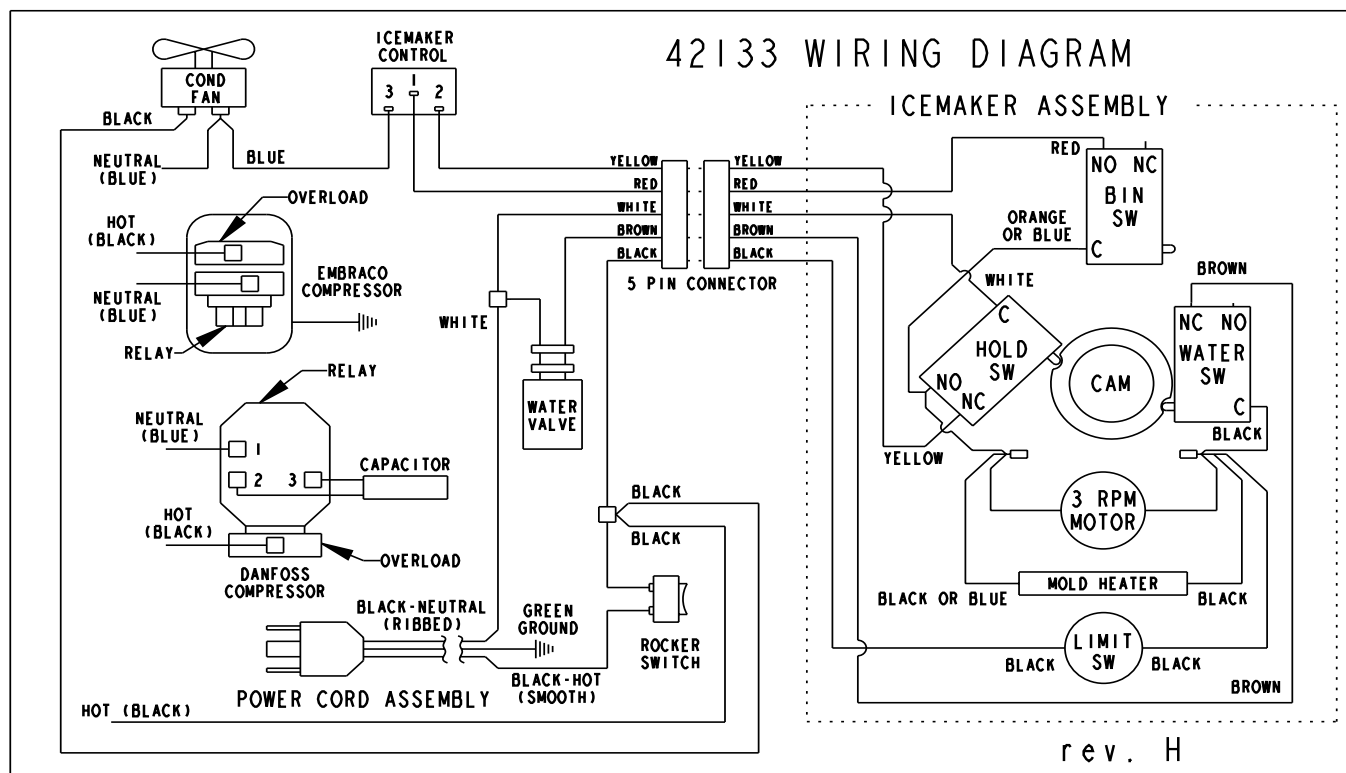
ULN-95, ULN-98, SPI8 & SS-1095 - 115 VOLT



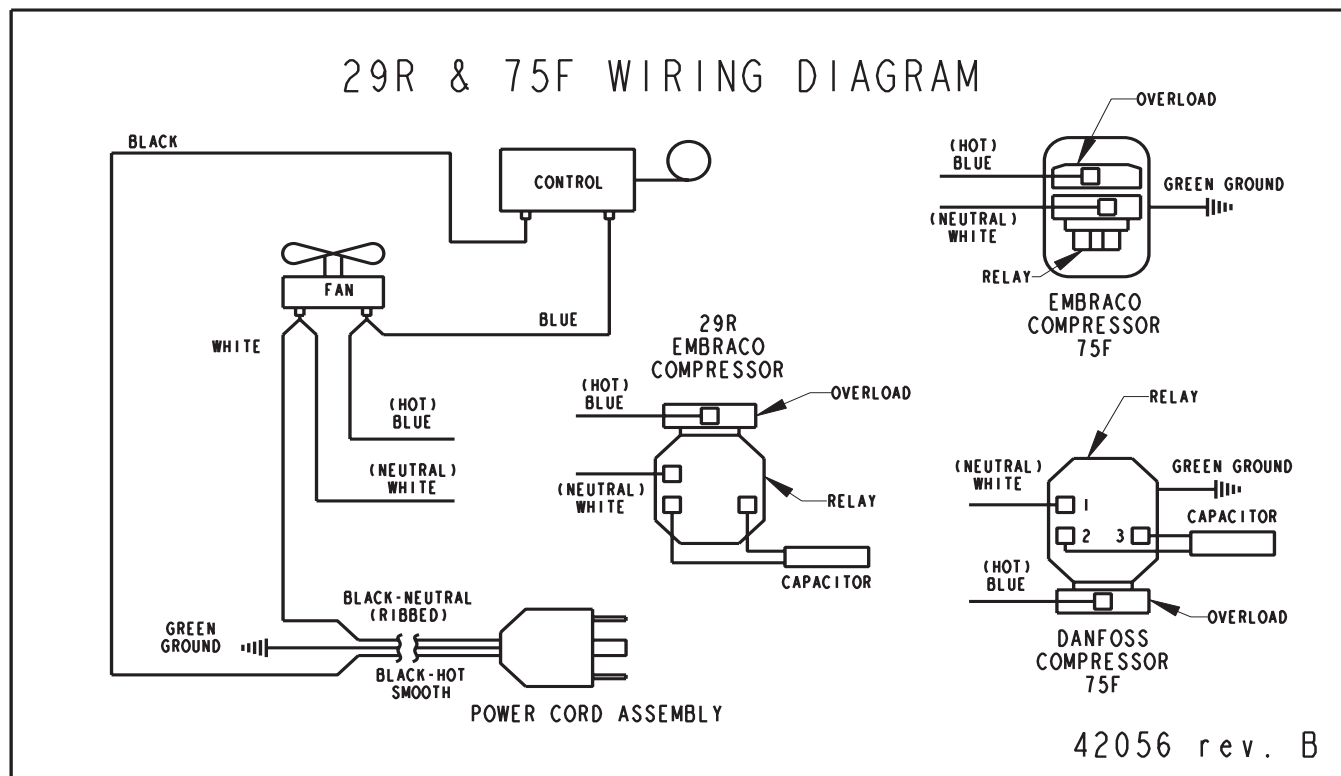
CO29F - 115 VOLT



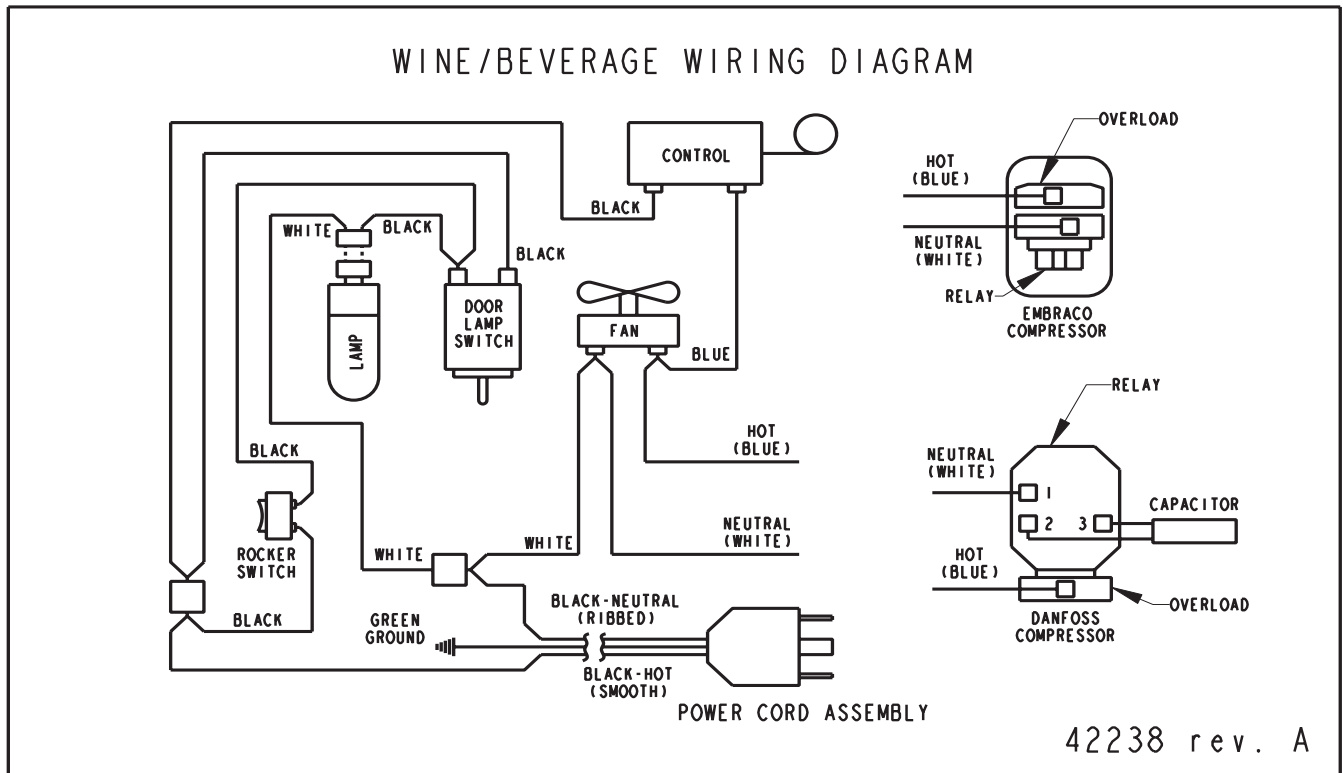
U-CO29A, COI175A, BI2115, ADA15IM - 115 VOLT



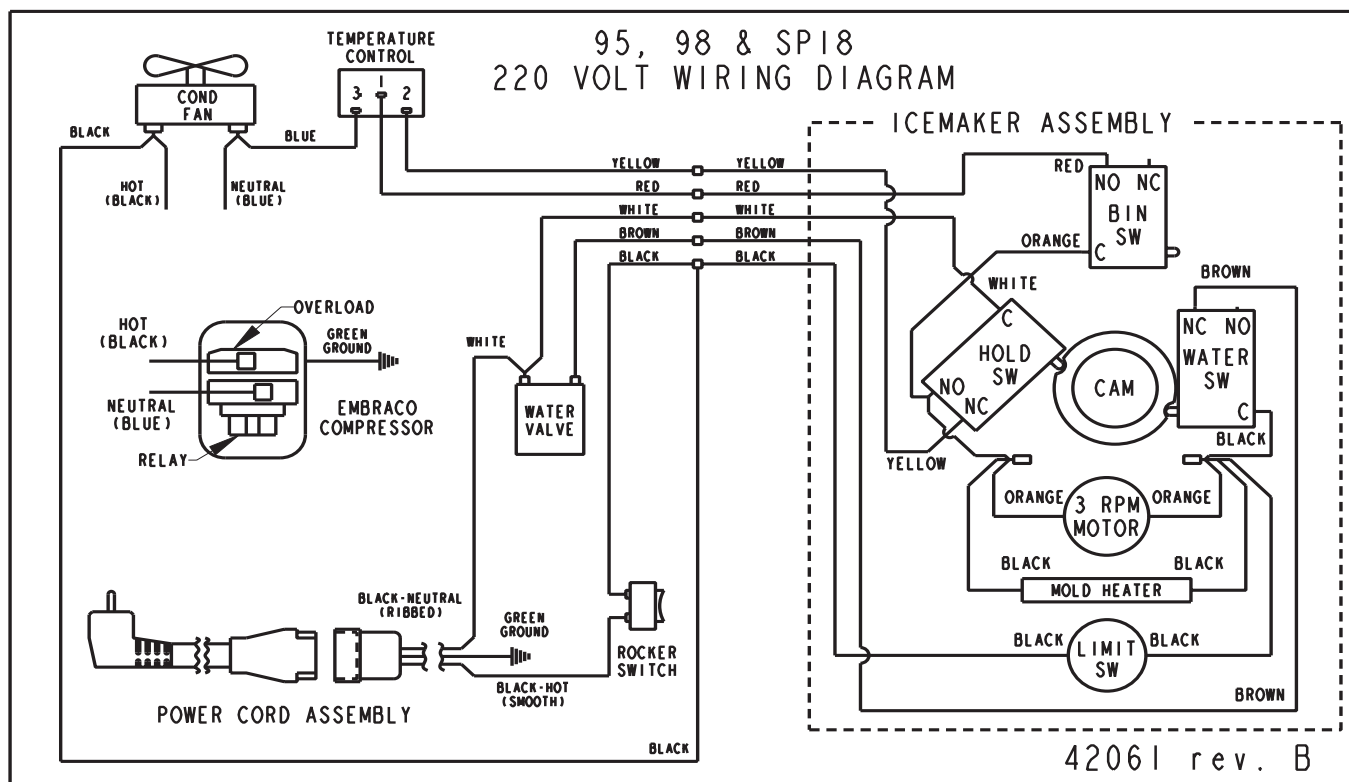
ULN-29R - 115 VOLT



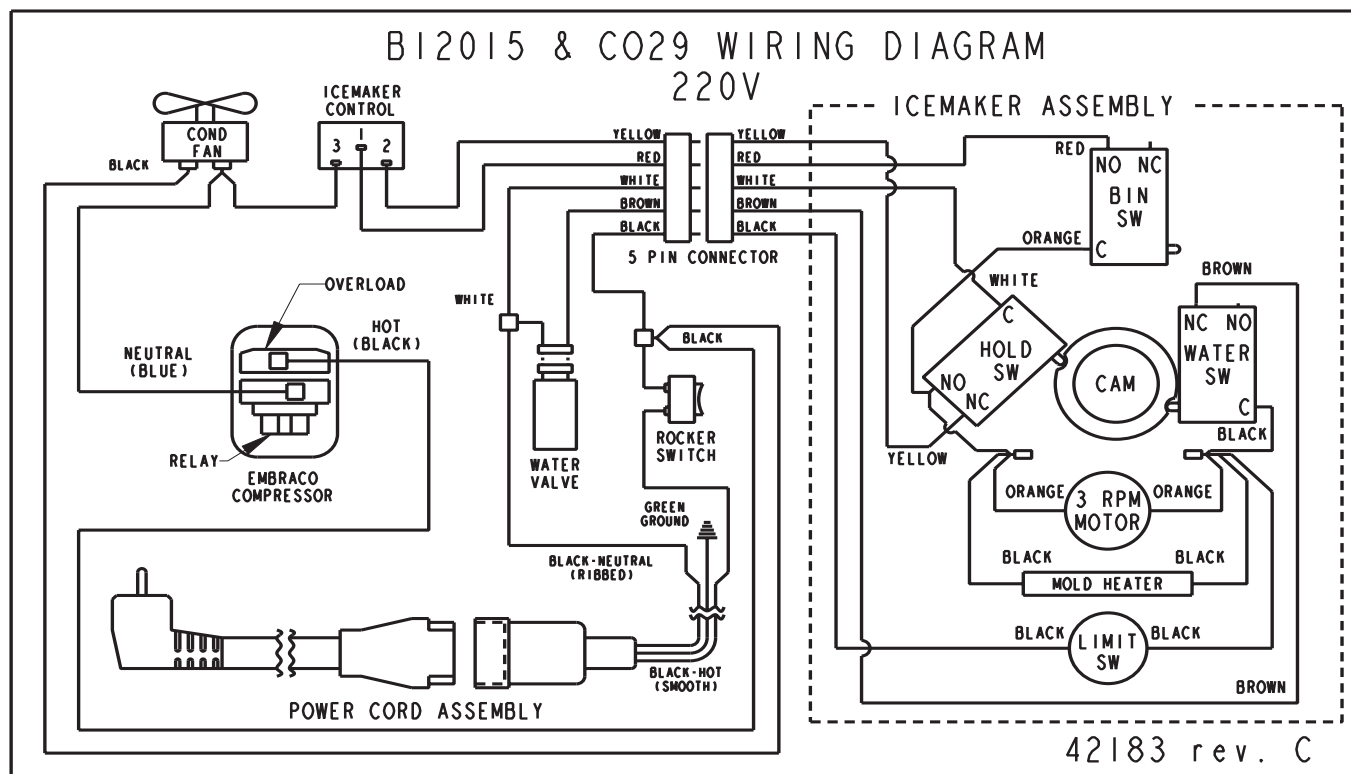
I075BEV, I075WC - 115 VOLT



ULN-95, ULN-98, SPI8 & 22-1095 - 220 VOLT



CO-29A, CO1175, BI2115, ADA15IM - 220 VOLT



PRODUCT INFORMATION

Installation Guides with complete installation information, Custom Wood Panel Size Specifications & Installation Instructions, CAD Drawings, Use and Care Guides, Specifications & Feature Benefits are available for viewing and download on-line at www.u-line.com/specs/.

GENERAL INQUIRIES:

U-Line Corporation
P.O. Box 245040
Milwaukee, Wisconsin 53224-9540 U.S.A.
Phone (414) 354-0300
FAX (414) 354-7905
Email: sales@u-line.com
www.u-line.com

SERVICE ASSISTANCE:

Phone (800) 779-2547
FAX (414) 354-5696
Email: onlineservice@u-line.com
www.u-lineservice.com

PARTS ASSISTANCE:

E-mail: onlineparts@u-line.com

ABOUT U-LINE

Building on 45 years, U-Line has captivated those with an appreciation for the finer things with exceptional design, inspired innovations and attention to even the smallest details.

U-Line is synonymous with premium built-in undercounter ice making, refrigeration and wine storage appliances, the U-Line Corporation is committed to luxury under the counter. U-Line is known and respected for unwavering dedication to product innovation, quality and selection. A bold and broad line of models is the product of visionaries in the pursuit of distinctive living environments in the kitchen and spaces beyond.

In 1962, Henry Uihlein founded U-Line Corporation as an outgrowth of Ben-Hur Freezer Company and was the first to develop and patent an automatic stand-alone undercounter residential ice maker. His foresight and determination to develop new ideas and to succeed when there were no clear guidelines or solutions are evident today. The Milwaukee, Wisconsin based family operated business provides continuity and vision from which innovations continue to be born.

Going forward, U-Line will continue offering best-in-class products that build on the company's numerous patents and world firsts to guide the undercounter industry in realizing its unlimited potential.