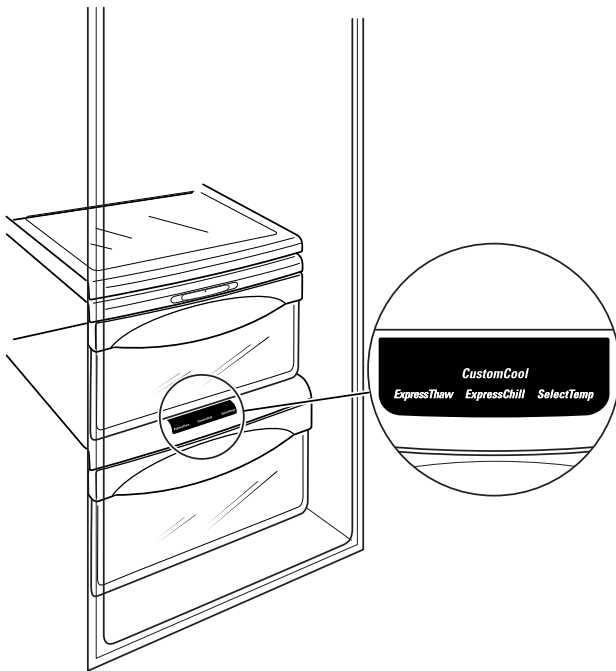




TECHNICAL SERVICE GUIDE

“CustomCool™”



MODEL SERIES:
Arctica Side by Side
PSS 23, 25, 27,
29 Cu. Ft.





IMPORTANT SAFETY NOTICE

The information in this service guide is intended for use by individuals possessing adequate backgrounds of electrical, electronic, and mechanical experience. Any attempt to repair a major appliance may result in personal injury and property damage. The manufacturer or seller cannot be responsible for the interpretation of this information, nor can it assume any liability in connection with its use.

WARNING

To avoid personal injury, disconnect power before servicing this product. If electrical power is required for diagnosis or test purposes, disconnect the power immediately after performing the necessary checks.

RECONNECT ALL GROUNDING DEVICES

If grounding wires, screws, straps, clips, nuts, or washers used to complete a path to ground are removed for service, they must be returned to their original position and properly fastened.

GE Consumer Home Services Training

Technical Service Guide

Copyright © 2001

All rights reserved. This service guide may not be reproduced in whole or in part in any form without written permission from the General Electric Company.

Table of Contents

Introduction	.....	2
Use and Care	.....	3-4
Operation	.....	5-6
Mechanical Disassembly	.....	7-8
Diagnosis Chart	.....	9-10
Temperature Resistance Chart	.....	11
Strip Circuits	.....	12
Control Board Connections	.....	13
Schematic Wiring Diagrams	.....	14-15
Illustrated Parts/Exploded Views	.....	16-20

Introduction

2001 Arctica SxS models are being introduced in response to the requirement for more energy-efficient refrigerators by mid year 2001, along with having feature and operation enhancements.

One of the innovative features is the “CustomCool™” bin. The system will provide optimum rapid cooling, (ExpressChill™), and safely thaw frozen foods (ExpressThaw™).

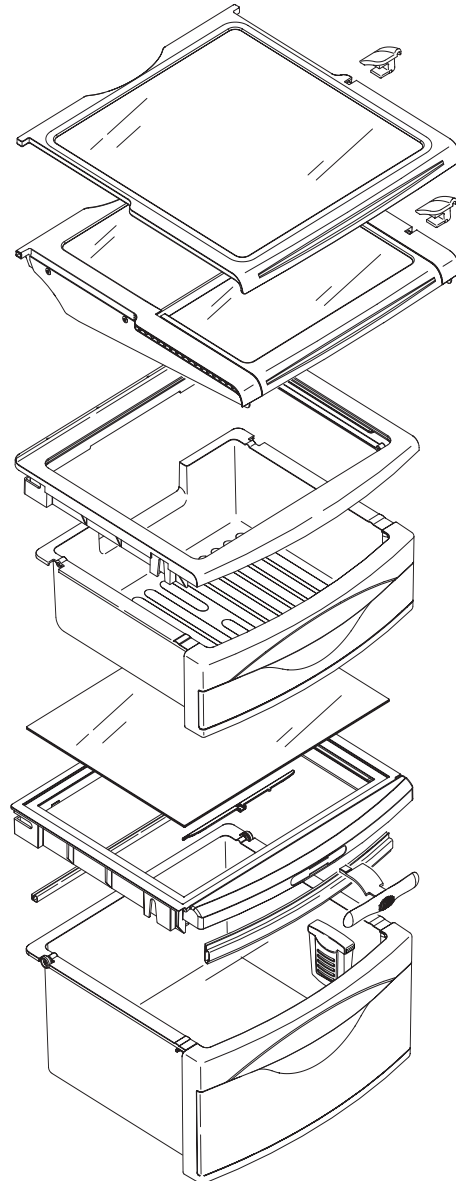
The main system components consist of two air dampers, a DC exhaust fan, reed switch, control board with buzzer, 3 color light diodes, a heater, and a thermistor. These components provide feedback to the main refrigerator processor board, and control the temperature and air flow in the “CustomCool™” pan at the bottom of the fresh food compartment. A tray, which has a metal surface on one side is provided to place the foods on for chill or thaw.

The consumer sets the temperature from the touchpad controls at the top of the fresh food compartment, and selects mode of operation, and length of cycle. Air circulates from the freezer and is heated or maintained by the thermistor and control settings.

Three selection choices are provided for the consumer:

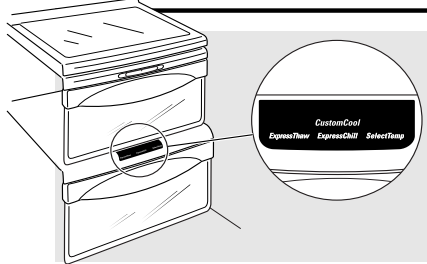
- **ExpressThaw™** Selection in lbs.
(maintains 41°)
.5 lbs.(4 hours)
1.5 lbs.(8 hours)
3.0 lbs.(12 hours)
- **ExpressChill™** Selection in 15 minute increments
15 Minutes
30 Minutes
45 Minutes
- **SelectTemp™** Selection in preset temperatures
Citrus (43°F) (Heater/Fan on to maintain 43°)
Produce (34°F)(Double damper open, no fan)
Meat (30°F) (Double damper open, no fan)

The CustomCool™ pan is tightly sealed and has a tray which when placed in the metal plate facing down position, helps provide the chill, and in the metal plate up position helps to provide thaw. It also provides a method of catching liquid when thawing and defrosting. The seals in their original position are extremely important in maintaining fresh food and feature temperatures.



Customer Use and Care

About CustomCool®

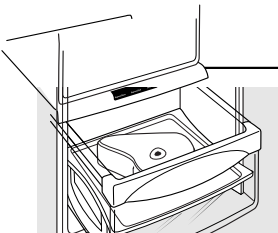


How it Works

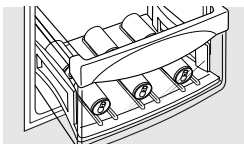
The *CustomCool™* feature is a system of dampers, a fan, a temperature thermistor, and a heater. Depending on the function selected, a combination of these will be used to quickly chill items, thaw items or hold the pan at a specific temperature.

The pan is tightly sealed to prevent the pans temperature from causing temperature fluctuations in the rest of the refrigerator.

The controls for this pan are located at the top of the refrigerator with the temperature controls.



ExpressThaw®



ExpressChill®

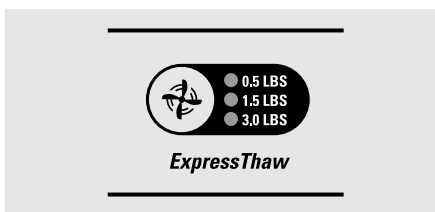
How to Use

- 1 Empty the pan. Place the Chill/Thaw tray in the pan with the metal plate facing down to chill and store items, or with the metal plate facing up to thaw items. Place the items on the tray and close the pan completely.
- 2 Select the *ExpressThaw™*, *ExpressChill™* or *SelectTemp™* pad. The display and *SET* light will come on. Tap the pad until the light appears next to the desired setting. Use the chart to determine the best setting to use.
 - To stop a feature before it is finished, tap that features pad until no options are selected and the display is off.
 - If the pan is not closed completely, a beeping sound will be heard. It will stop once the pan is closed securely or the feature is turned off.

- During *ExpressThaw™* and *ExpressChill™*, the display on the controls will count down the time in the cycle.
- After the *ExpressThaw™* cycle is complete, the pan will reset to the *MEAT* setting (30°F) to help preserve thawed items until they are used.

NOTE: For food safety reasons, it is recommended that foods be wrapped in some sort of packaging when using *ExpressThaw™*. This will help contain meat juices.

CustomCool™ Chart



0.5 Lbs. (4 hours)

- Hamburger Patties (0.5 lb)

1.5 Lbs. (8 hours)

- Chicken Breasts (1.5 lbs)
- Ground Beef (1.5 lbs)
- Steak (1.5 lbs)

3.0 Lbs. (12 hours)

- Chicken Breasts (3.0 lbs)
- Ground Beef (3.0 lbs)
- Steak (3.0 lbs)



15 Minutes

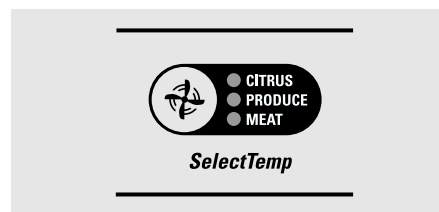
- 1 Can of Beverage (12 oz)
- 2 Small Juice Boxes (6-8 oz each)

30 Minutes

- 2-6 Cans of Beverage (12 oz each)
- 2 Plastic 20 oz Bottles of Beverage
- 4-6 Small Juice Boxes (6-8 oz each)
- 3 CapriSun™
- Wine (750 mL bottle)

45 Minutes

- 2L of Beverage
- 1/2 Gallon of Juice
- Jello 1 package



Citrus Setting (43°F)

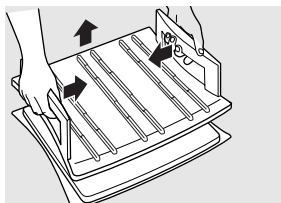
- Oranges, Lemons, Limes, Pineapple, Cantaloupe
- Beans, Cucumbers, Tomatoes, Peppers, Eggplant, Squash

Produce Setting (30°F)

- Strawberries, Raspberries, Kiwifruit, Pears, Cherries, Blackberries, Grapes, Plums, Nectarines, Apples
- Asparagus, Broccoli, Corn, Mushrooms, Spinach, Cauliflower, Kale, Green Onion, Beets, Onions

Meat Setting (30°F)

- Raw Meat, Fish and Poultry



Disassembling the
Chill/Thaw tray

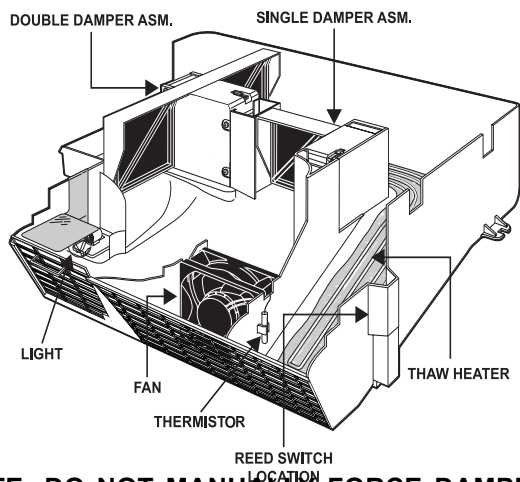
About the CustomCool™ Pan Rack and Tray

To clean the Chill/Thaw tray, disassemble the metal tray from the plastic stand by lightly pushing in on the handles of the plastic stand and removing the metal tray. Both the metal tray and the plastic stand are dishwasher safe.

To reassemble the tray, place the plastic stand upside down (handles on bottom) on a solid surface. Place the metal plate on top of the stand matching up the curved side of the plate with the curved side of the stand. Insert one side of the plate into the notches on the stand. Push in on the handle on the other side of the stand while pushing that end of the plate down and into place. You should hear the plate click into place.

Operation

Operation is initiated by the consumer when the selection is made using the touch control at the top of the fresh food section. The user will have placed the chill/thaw tray in the proper position, metal plate facing down for chill, and up for thaw, and pan closed. A reed switch is mounted on the right side of the pan to provide a completed circuit when the pan is tightly closed. Open reed switch initiates a “beep” from the processor located in the CustomCool™ pan assembly.



NOTE: DO NOT MANUALLY FORCE DAMPER DOORS OPEN, IT WILL DAMAGE THE ASSEMBLY

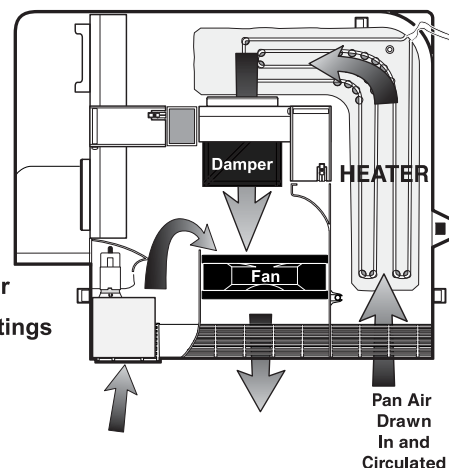
Based on users input one of the three selections is selected, with multiple inputs indexing to provide TIME, WEIGHT, or TEMPERATURE and countdown LED. One of three leds will light the selection portion of the touchpad to provide feedback and selection information to the user. The signal is then sent to the main processor and uses preset software parameters to provide DC inputs to the CustomCool™ processor board mounted in the cover assembly.

When the selection is made a thermistor located in the side of the lower cover sends temperature information (resistance) to the main processor. The processor software determines what combination of dampers or heater need to be used to achieve the desired setting. (See thermistor temp chart on page 8).

Airflow is directed from a diverter in the freezer side wall to provide cold air or drawn from fresh food compartment, and is circulated by a 12VDC fan in the front of the lower cover. When the thermistor is calling for warmer air the single damper motor is energized (12VDC) to open and the 30 watt strip heater is turned on.

Express Thaw™

- Heater Cycles
- Single Damper Always Open
- Fan Always On
- Maintains 41° Using thermistor
- 4, 8 or 12 hr Settings

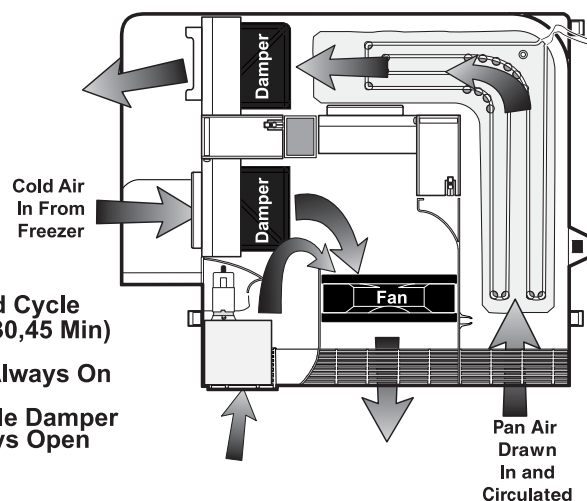


The warmed air is circulated through the pan to satisfy the temperature setting. Response to drastic temperature change is limited between two and ten minutes. The main control board located in the rear of the refrigerator will only respond to 8 degrees of temperature change per minute as determined by the resistance of the thermistor.

A double door damper 12VDC operates in the ExpressChill™ mode, and both sides open to allow cold air to be drawn in and circulated within the lower cover. The single damper door is also closed to prevent loss of cold air and it is returned through the other side of the diverter back to the freezer compartment. The double door is cycled open and shut to maintain the temperature selection selected by the user, based on thermistor resistance feedback to the main processor board.

Express Chill™

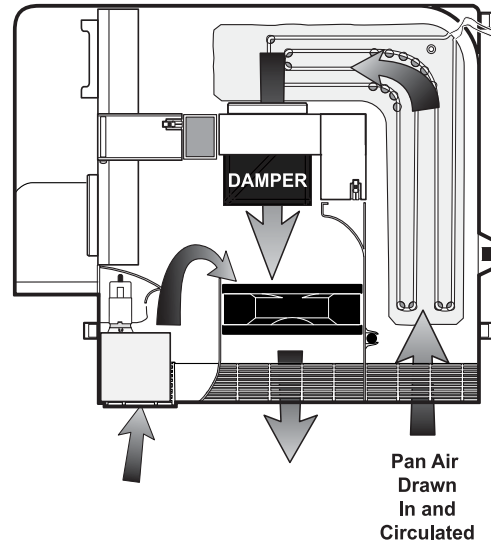
- Timed Cycle (15,30,45 Min)
- Fan Always On
- Double Damper Always Open



CustomCool™ feature has a third temperature preset selection which is SelectTemp™. It shows on the control panel as **Citrus** (43° F), **Produce** (34° F) and **Meat** (30° F). Note airflow, damper, and fan operation as described below.

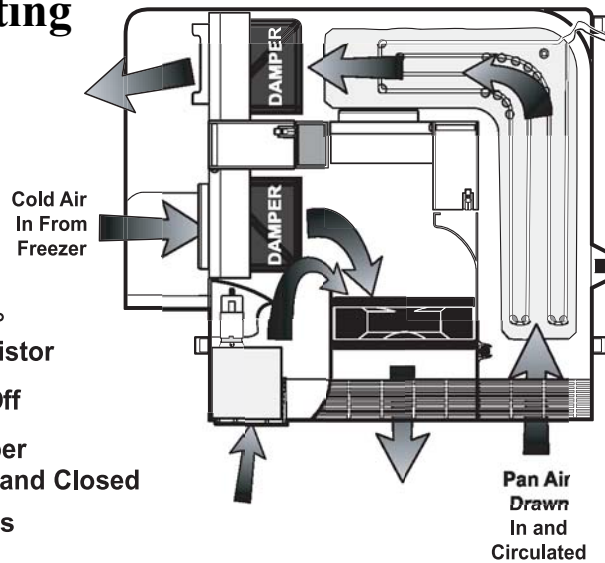
SelectTemp™-Citrus Setting

- Maintains 43° Using Thermistor
- Fan Always On
- Heater Cycles



SelectTemp™-Produce Setting

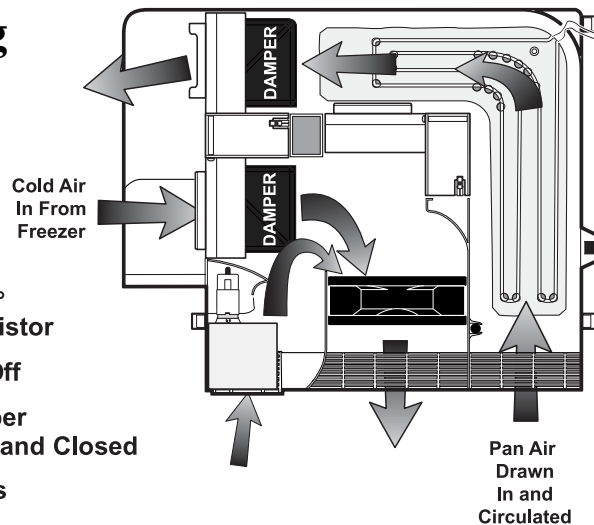
- Maintains 34° Using Thermistor
- Fan Always Off
- Double Damper Cycles Open and Closed
- Heater Cycles



SelectTemp™-Meat Setting

NOTE: After ExpressThaw™ cycle is complete, the pan will reset to the MEAT setting (30° F) to help preserve thawed items until they are used.

- Maintains 30° Using Thermistor
- Fan Always Off
- Double Damper Cycles Open and Closed
- Heater Cycles



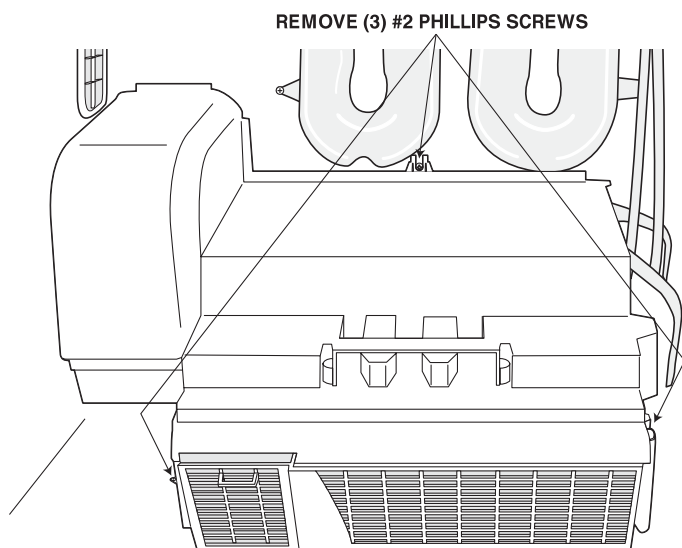
Mechanical Assembly and Disassembly

To Service complete CustomCool™ pan and Component access.

WARNING: MAKE SURE POWER IS DISCONNECTED!

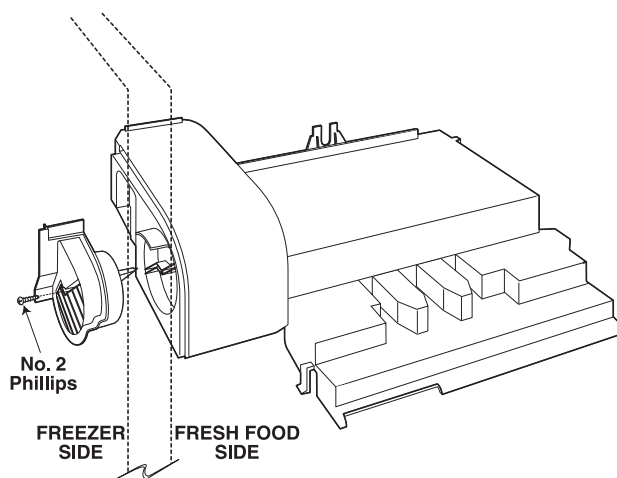
To Service Components:

1. Remove 1st and 2nd bin from bottom of fresh food section.
2. Lift up and out to remove the CustomCool™ front chill cover (WR17X10915).
3. Remove two screws in front of CustomCool™ lower cover (WR31X10006), two screws on either side of the pan, and one screw in the back of the housing.



4. Remove two screws holding chill water reservoir assembly to back of refrigerator, and plastic deflector cover.
5. In the freezer compartment lift up on freezer baskets to remove (no need to remove rails), to completely provide access to the lower air duct cover.
6. Push in on the plastic lower freezer air tower, and then push up to remove. It is attached by two tabs one located on the backside of the freezer and the other rest on the air diverter asm.

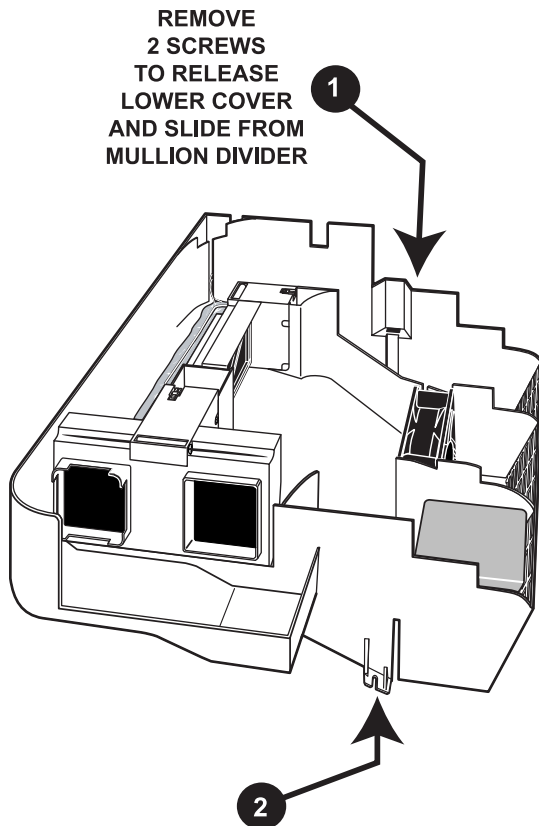
7. Remove the freezer grill mullion (must be removed prior to CustomCool™ service), (WR02X10829) from the freezer side, by inserting a #2 Phillips screwdriver into the center of the diverter and turning the screw counterclockwise. (See illustration below)



8. The CustomCool™ assembly is now free, slide assembly to the right to free from refrigerator wall. A large Styrofoam™ insert is located in the raised end of the upper cover housing, note position for replacement, it must be repositioned correctly to reassemble. The upper cover can be removed, components exposed.
9. Slots molded into the lower pan hold the fan, single damper assembly, and dual damper assembly. Pull up to release and push back into slot to reassemble.

NOTE: It is critical that all seals be replaced to maintain proper temperatures in the CustomCool™ pan and in the refrigerator.

Freezer grill mullion **MUST** be removed prior to removing mounting screws and sliding the CustomCool™ unit for access. The only way the top cover can be removed is to clear the Sytrofoam™ insulation. Two screws mount top cover to assembly and they are located in the front.



LOWER COVER TO LINER SCREWS

Several variations in the lighting components at the CustomCool™ bin have been used in limited numbers. You may encounter a version that has light tubes, colored diodes on the pan PC board, or a colored insert. Service is obvious on each system. The terms CustomCool™ has been referred to as QuickChill™ on some models.

Diagnostics and Problem Solving

PROBLEM	SOLUTION
CustomCool™ not working.	<ol style="list-style-type: none"> 1. Check customer inputs to make sure correct function and time has been set. 2. Check installation date-need 24 hours for entire unit to stabilize, will affect CustomCool™ performance. 3. With power disconnected remove top cover as described on page 6 and check, seals, and harness connections at CustomCool™ bin.
ExpressThaw™ doesn't thaw.	<ol style="list-style-type: none"> 1. Packaging-Increase time or re-package in plastic. 2. Wrong weight selected for product-select correct weight. 3. Item has high fat content-select a larger weight. 4. Not using the Thaw tray with metal side up. 5. Check seals on both sides of CustomCool™ bin and look for air leakage. 6. Check heater resistance at pin connector, harness resistance indicates okay, open replace. 7. Check 12VCD fan in CustomCool™, if it shows resistance readings replace, should show open.
ExpressChill™ doesn't chill.	<ol style="list-style-type: none"> 1. Packaging-Increase time or re-package in plastic. 2. Wrong weight selected for product-select correct weight. 3. Item has high fat content-select a larger weight. 4. Not using the Thaw tray with metal sidedown. 5. Check seals on both sides of CustomCool™ bin and look for air leakage. 6. Make sure customer is using proper spacing for airflow. 7. Check customer inputs to make sure correct function and time has been set. 8. Check installation date-need 24 hours for entire unit to stabilize, will affect CustomCool™ performance. 9. With power disconnected remove top cover as described on page7 and check, seals, and harness connections at CustomCool™ bin. 10. Check that damper assembly is showing open with minimal resistance readings (12VDC), if showing resistance replace damper.

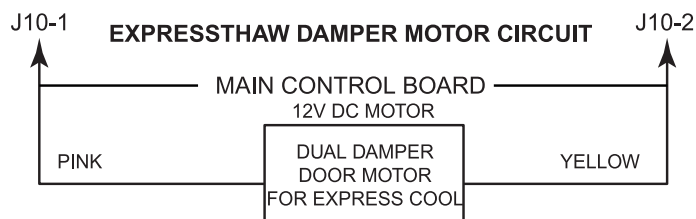
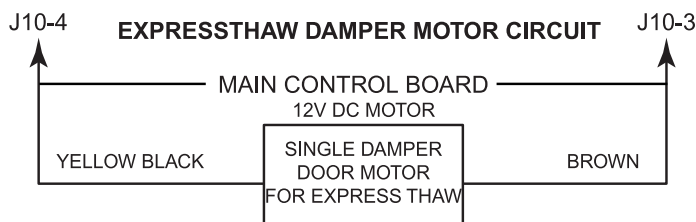
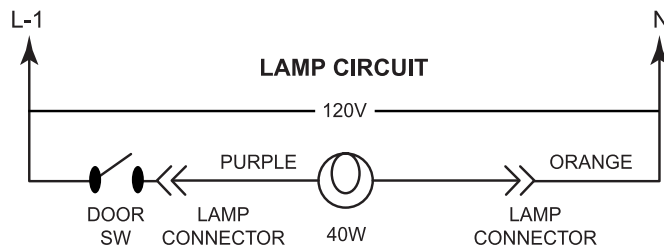
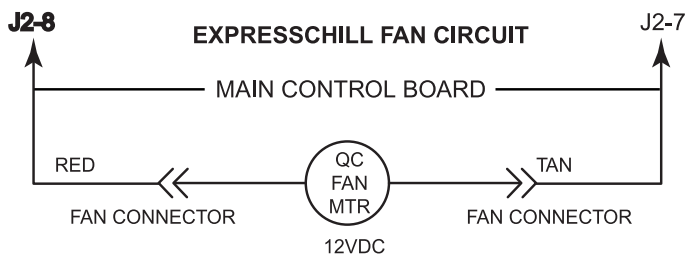
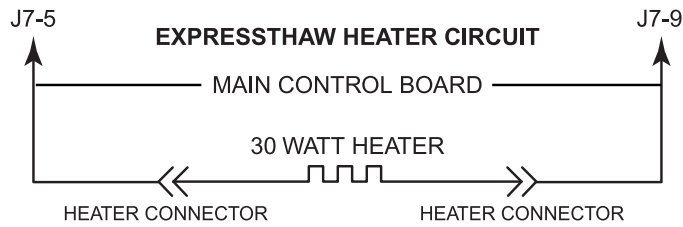
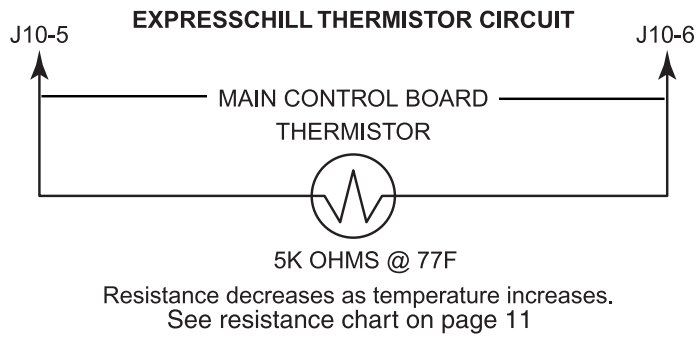
PROBLEM	SOLUTION
Beeping won't stop	1. Check that pan is fully closed, that reed switch and magnet are correctly positioned and working.
Light in pan doesn't work	1. Check the bulb, check harness connection to socket. Bulb is a screw on base, replace with WR02X10812.
Fan is noisy in CustomCool™ pan	1. Listen and determine if it is noisy when running. 2. Following instructions on page 6 remove and reseal Fan, look for loose wiring and redress if necessary.

Thermistor Temperature/Resistance Chart

Thermistor Values		
Temperature Degrees (C)	Temperature Degree (F)	Resistance in Kilo-Ohms
-40	-40	166.8 k Ω
-35	-31	120.5 k Ω
-30	-22	88 k Ω
-25	-13	65 k Ω
-20	-4	48.4 k Ω
-15	5	36.4 k Ω
-10	14	27.6 k Ω
-5	23	21 k Ω
0	32	16.3 k Ω
5	41	12.7 k Ω
10	50	10k Ω
15	59	7.8 k Ω
20	68	6.2 k Ω
25	77	5 k Ω
30	86	4k Ω
35	95	3.3 k Ω
40	104	2.6 k Ω
45	113	2.2 k Ω
50	122	1.8 k Ω
55	131	1.5 k Ω
60	140	1.2 k Ω

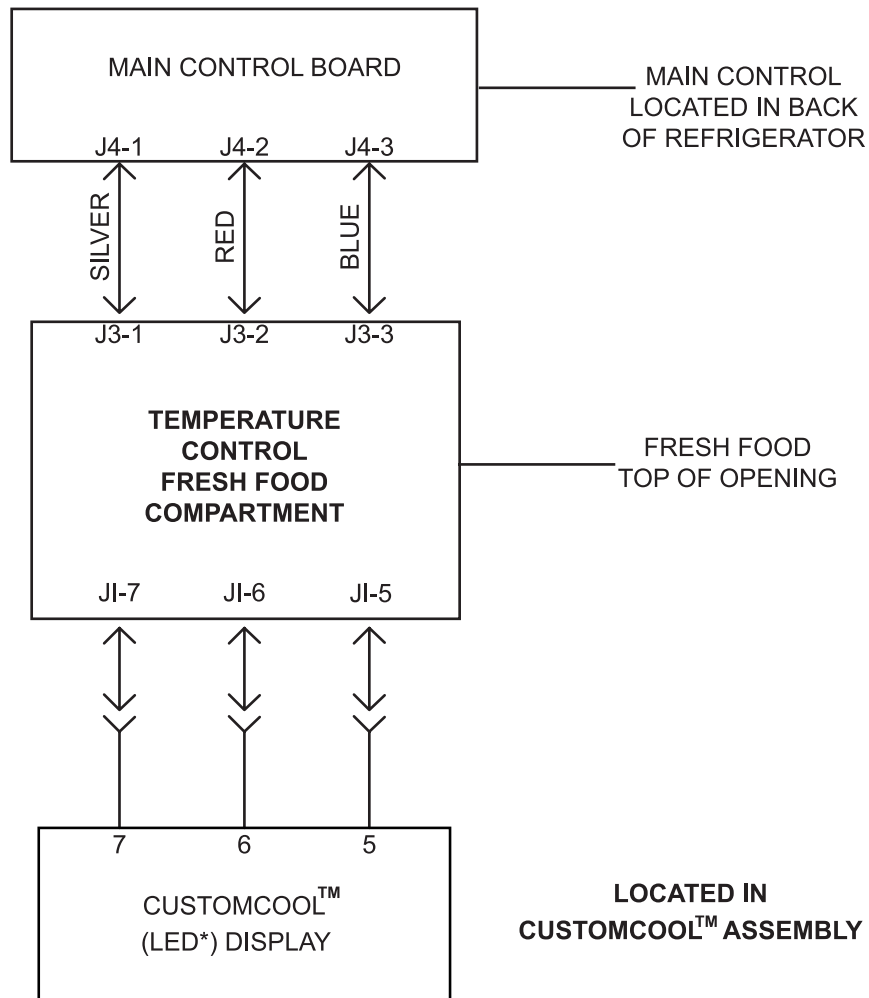
NOTE: The thermistor's resistance has a negative coefficient. As the temperature increases the thermistor's resistance decreases.

Strip Circuits



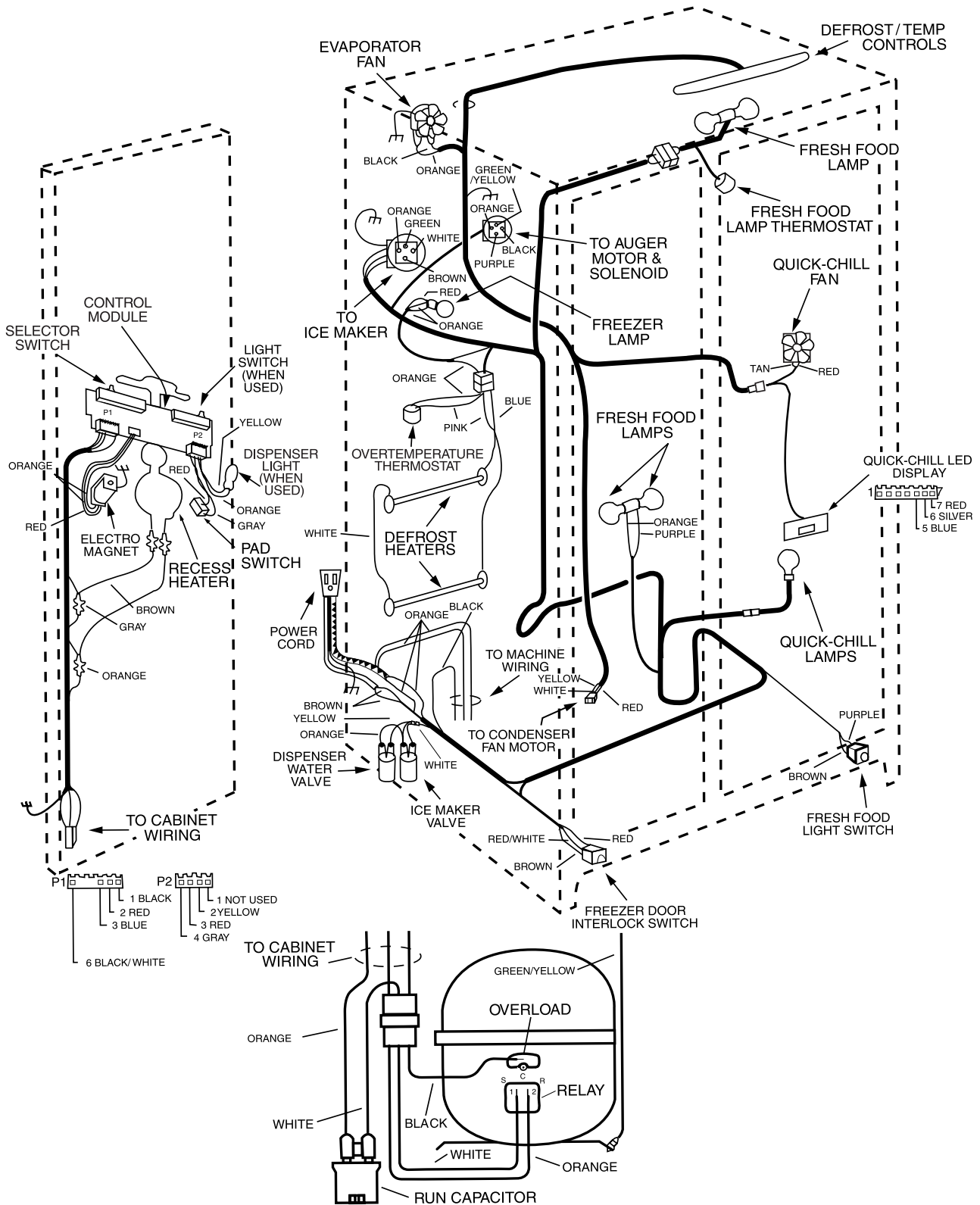
Control Board Connections/Location

CUSTOM COOL™ LED DISPLAY CIRCUIT



* Several models have been manufactured with different types of CustomCool™ displays used in the pan cover assembly. This strip circuit corresponds to the schematic included in this manual.

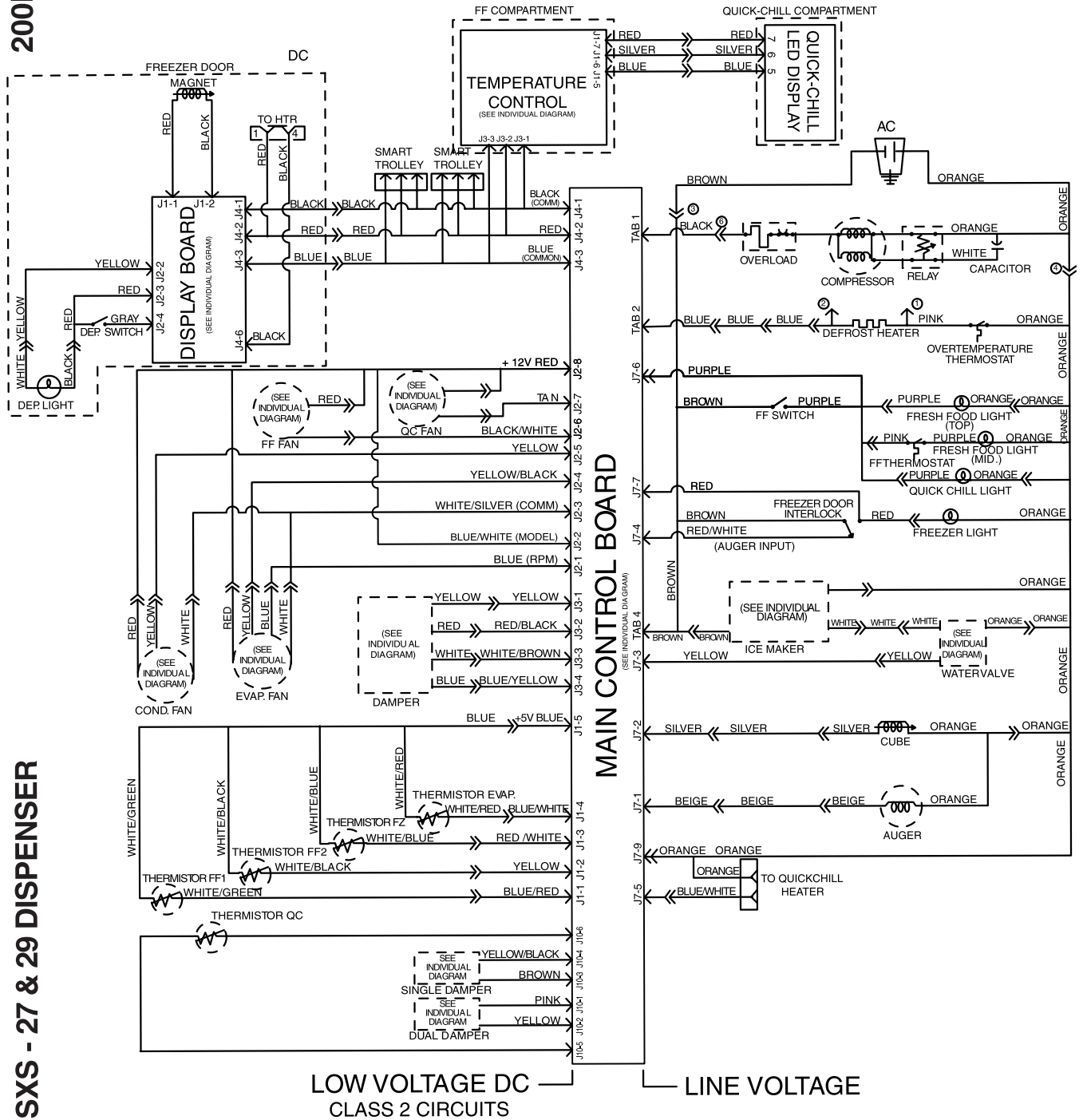
Schematic Wiring Diagram



NOTE: The feature named CustomCool™ is called QuickChill™ on some diagrams.

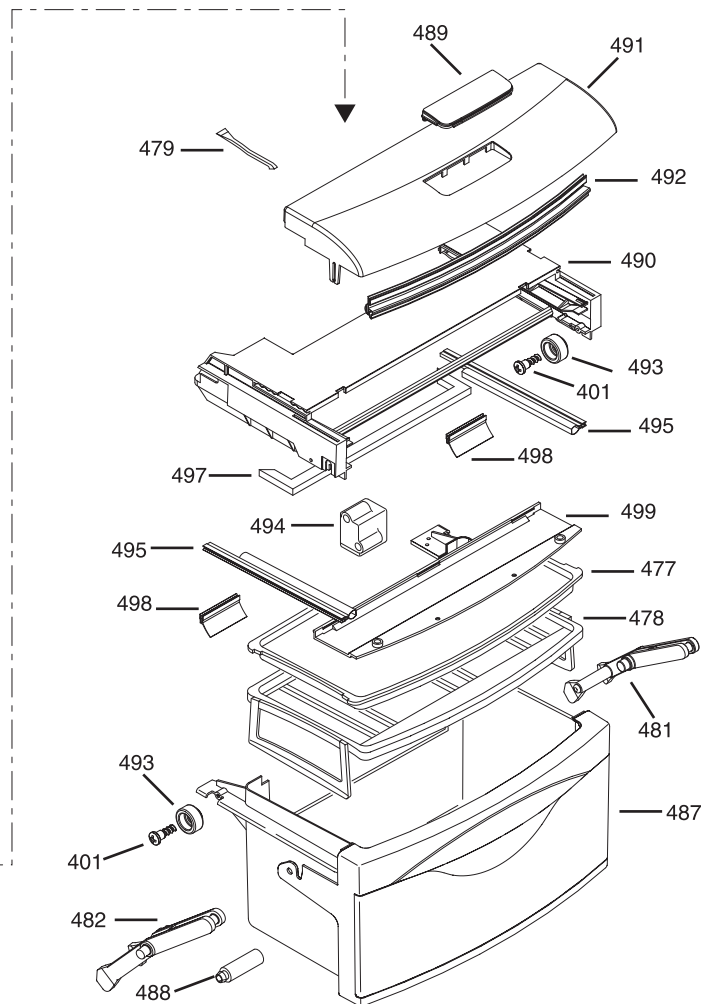
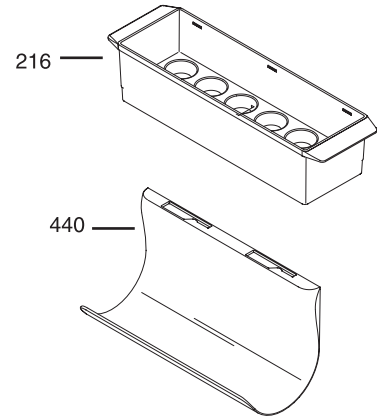
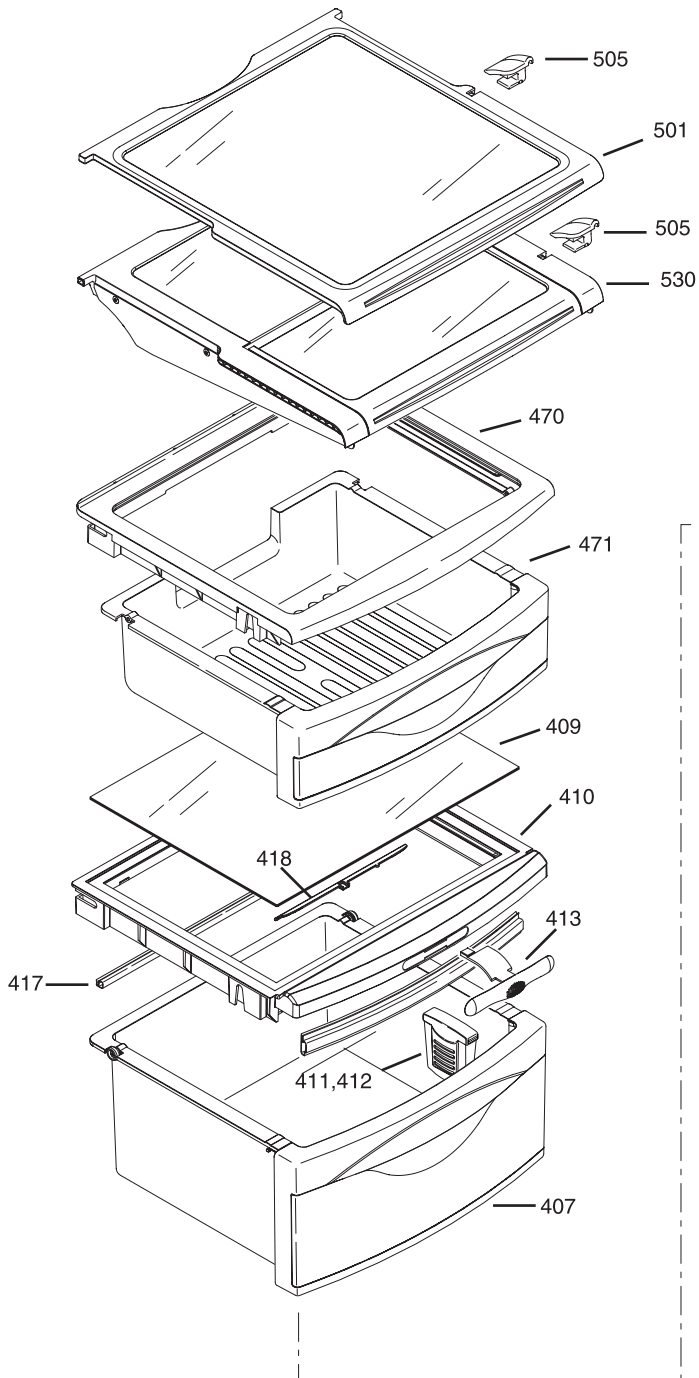
200D2638P024

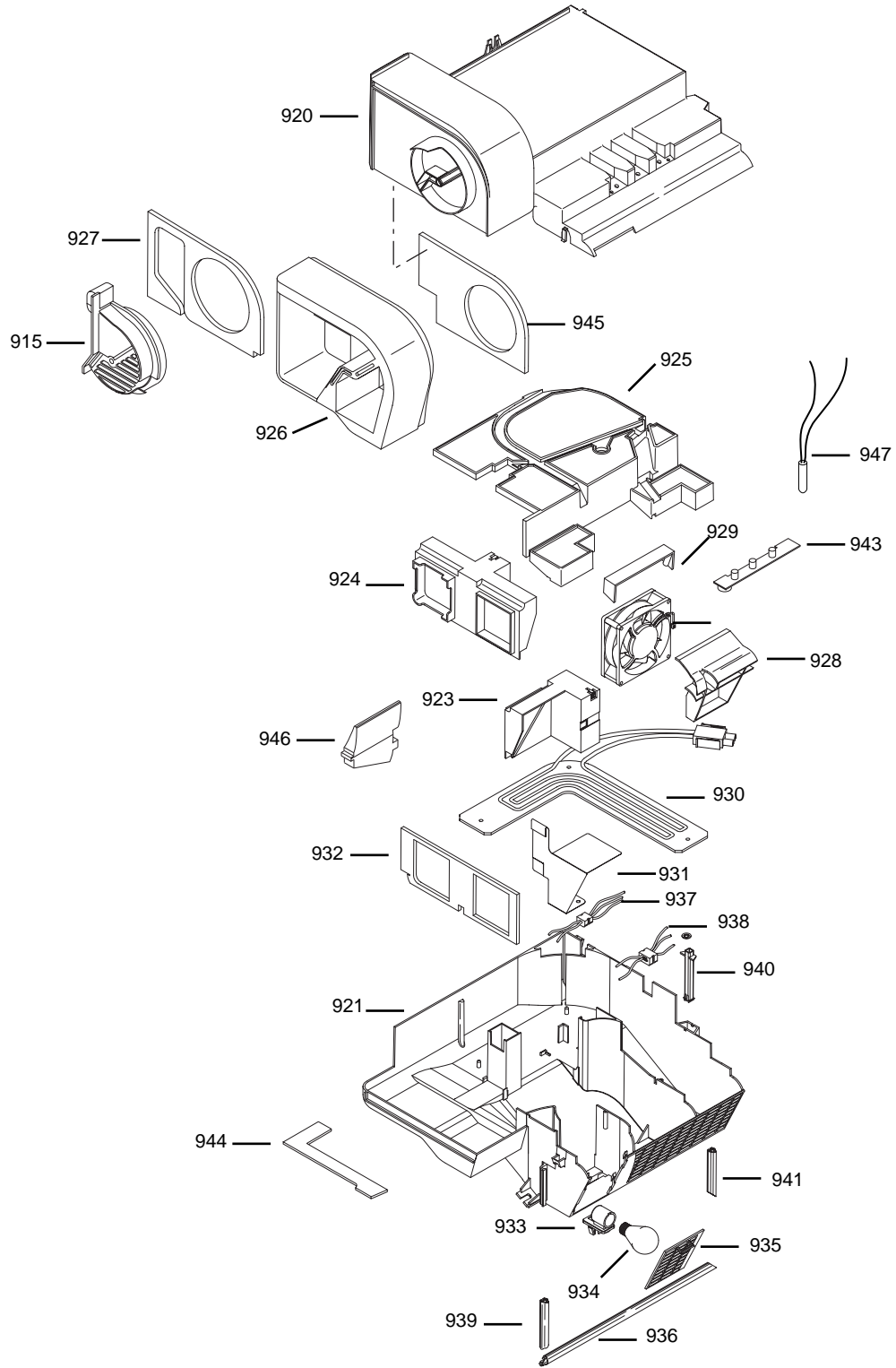
SXS - 27 & 29 DISPENSER



NOTE: The feature named CustomCool™ is called QuickChill™ on some schematics.

Illustrated Parts Catalog





View #	Cat#	Description	Usage
216	WR32X10150	BUCKET EGG	1
400	WR01X10209	WHEEL PAN COVER	6
401	WRO1X10214	SCR 10-16 PL PNP 5/8 SZN	6
407	WR32X10190	PAN MIDDLE CHILL ASM	1
409	WR32X10156	GLASS PAN COVR	1
410	WR32X10151	COVER MIDDLE PAN	1
411	GFSFR02	FRESHSAVER FILTER 2PK	1
412	WR02X10684	HOLDER FRESHSAVER	1
413	WR02X10650	HUMIDITY CONTROL	1
414	WR14X10059	GASKET PAN CRV FRONT	1
417	WR021X10633	SLIDE MIDDLE PAN COVER	1
440	WWR17X10793	WINE RACK	1
470	WR32X10149	COVER TOP PAN ASM	1
471	WR32X10147	PAN ASM TOP	1
477	WR17X10921	TRAY DRIP CHILL	1
478	WR17X10922	RACK CHILL	1
487	WR32X10189	PAN ASM CHILL	1
488	WR02X10815	BOSS SPACER	1
489	WR04X10084	NAME PLATE CHILL	1
490	WR17X10914	FRAME CHILL	1
491	WR17X10915	COVER FRONT CHILL	1
492	WR14X10101	SEAL FRONT CHILL	1
493	WR02X10807	WHEEL AND RING ASM	4

View #	Cat#	Description	Usage
494	WR02X10813	MAGNETCHILL	1
495	WR14X10098	SEAL SIDES CHILL	2
496	WR14X10097	SEAL AHU CHILL	1
497	WR14X10100	SEAL FRAME & AHU	1
498	WR14X10099	SEAL REAR CHILL	2
499	WR17X10918	PLATE SEAL CHILL	1
501	WR71X10249	SHELF SLIDEOUT ASM	1
503	WR02X10818	LINKAGE PAN CHILL L.H.	1
504	WR02X10819	LINKAGE PAN CHILL R.H.	1
505	WR02X10662	STOP SHELF	3
530	WR71X10247	SHELF TUCKAWAY ASM	1
915	WR02X10829	GRILL MULLION	1
920	WR31X10008	COVER UPPER	1
921	WR31X10006	COVER LOWER	1
922	WR60X10064	FAN CHILL	
1			
923	WR60X10063	DAMPER ASM DESUPPLY	1
924	WR60X10062	DAMPER ASM SUPPLY	1
925	WR31X10007	PLENUM TOP	1
926	WR31X10009	DUCT CAVITY CHILL	1
927	WR14X10095	GASKET MULLION DUCT	1
928	WR31X10011	GRILL VANES CHILL	1
929	WR02X10820	COVER LED CHILL	1
930	WR51X10049	HEATER THAW	1
931	WR02X10809	RELECTOR	1
932	WR14X10096	GASKET DAMPER CHILL	1
933	WR31X10012	LIGHT SOCKET CHILL	1

VIEW #	Cat#	Description	Usage
934	WR02X10812	LAMP 40W CHILL	1
935	WR31X10010	GRILL BULB CHILL	1
936	WR14X10092	SEAL AHU CHILL	1
937	WR23X10203	HARNESS CHILL AC	1
938	WR23X10202	HARNESS CHILL AC	1
939	WR14X10090	SEAL AHU CHILL	1
940	WR23X10204	SWITCH REED CHILL	1
941	WR14X10091	SEAL AHU CHILL	1
942	WR01X10239	WASHER RETAINER CHILL	4
943	WR55X10066	BOARD ASM PAN LED	2
944	WR14X10093	GASKET LC	1
945	WR14X10094	GASKET UC	1
946	WR31X10013	NOISE WALL CHILL	1
947	WR55X10030	SENSOR TEMPERATURE	1