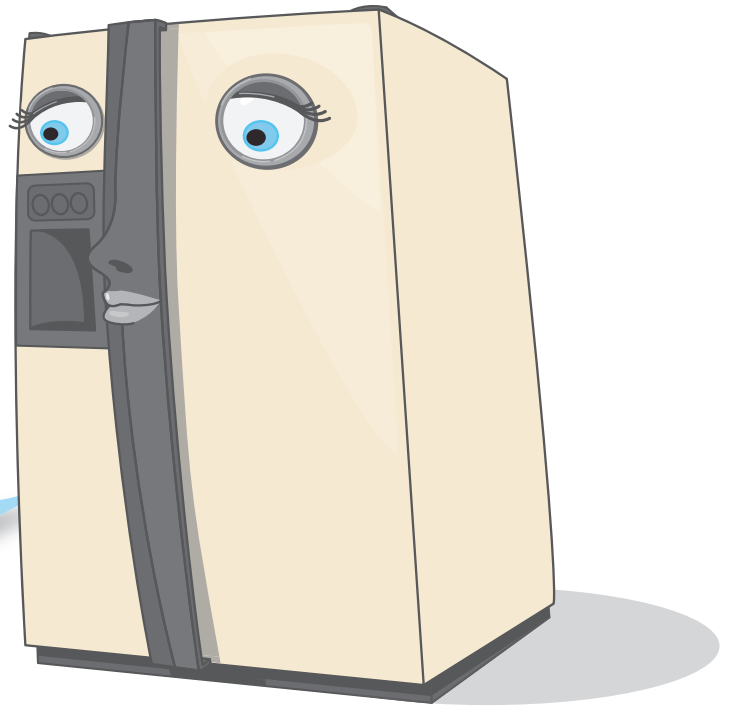


Refrigerator basic training

Hi there! My name is **Frida Fridge**, and I'm here to give you a little lesson on refrigerators!

That's right, by the time I'm done with you, you're going to know **exactly how refrigerators work** and what we're made of.



First, a little history...

"I guess I'll start at the beginning--I'm gonna have to take you back in time...way back, to the time of the cave man. In prehistoric times, not only did man discover fire, but he also figured out that his game would last during times when food wasn't available if it was stored in the coolness of a cave or packed in snow. People all over the world began developing unique types of refrigeration. Over in China, before the first millennium, ice was harvested and stored.

Hebrews, Greeks, and Romans placed large amounts of snow into storage pits dug into the ground that were insulated with wood and straw. The ancient Egyptians filled earthen jars with boiled water and put them on their roofs to expose them to the night's cool air. Around 500 B.C. the Egyptians and Indians made ice on cold nights by setting water out in earthenware pots and keeping the pots wet."

"In 18th century England, servants collected ice in the winter and put it into icehouses, where the sheets of ice were packed in salt, wrapped in strips of flannel, and stored underground to keep them frozen until summer. Natural ice was harvested, distributed and used in both commercial and home applications in the mid-1800s. (Can you imagine harvesting ice? It's a good thing you have me around now!) In fact the ice trade between Boston and the South was one of the first casualties of the Civil War. Within a few years ice factories popped up all over the world to compete with the natural ice industry but the first home units, like me, didn't arrive until 1927 when GE enclosed the parts in a small cabinet. By the 1950s stylists were designing the refrigerators, so we got a lot better looking. Then, in the late 1960s those large latching doors were dropped when magnets were placed in the seals, thus reducing costs and making me a lot more comfortable. So, you see, the idea of refrigeration has always been important to people, you just needed the right parts to make it happen."

"Alright, we are going to build on what you already know about basic refrigeration and apply it to the refrigerator. There are two sets of 'Major 8' parts you will need to know, one for "sealed system" and one for "defrost system and controls". Don't worry, I did the math, it's only 16 parts. By the way, I'm usually not one to brag, but did you know that the refrigerator is America's most used appliance, found in more than 99.5% of American homes? And the "Most Popular" award goes to...me!"

"So, what is refrigeration? Refrigeration is the process of removing heat from an enclosed space, or from a substance, to lower its temperature. A refrigerator uses the evaporation of a liquid to absorb heat. The liquid, or refrigerant, used in a refrigerator evaporates at an extremely low temperature, creating freezing temperatures inside the refrigerator, much lower than an air conditioner. Sounds pretty simple, huh? Well, it's a lot more work than you'd think--I've got a lot of parts working on keeping everything cool."

The most common parts...

“Let’s start with the sealed system. The sealed system is any part that refrigerant gas travels through, most of which you have already learned from my buddy Ace Cool, the room air conditioner.”

“Behind the back wall in the freezer compartment is the **evaporator**. The warmer air from the freezer compartment is pulled across the evaporator by the **evaporator fan motor**, which also circulates the colder air throughout the freezer compartment. The evaporator fan motor is mounted directly above the evaporator. You can find the **condenser** underneath, or in the back, of the refrigerator. There are two types of condensers: air cooled and static. The static condenser is located behind the refrigerator usually covering the whole back portion. In a static condenser system there is no fan to cool the condenser, it uses the surrounding air to dissipate the heat from the refrigerant gas. In an air cooled condenser system, the condenser is underneath the refrigerator and there is a **condenser fan motor** helping cool the refrigerant so it can be returned to the evaporator as a liquid.”

“The part that moves the refrigerant between the evaporator and condenser is called the **compressor**, and is usually located underneath the refrigerator. Guess what the compressor does? That’s right it compresses, and pumps, the refrigerant from the evaporator to the condenser. After coming from the condenser, before the refrigerant enters the evaporator, it travels thru a **filter drier**, which filters and dries the refrigerant to remove any moisture or contaminants from the refrigerant before it enters the evaporator.”

“As the refrigerant travels back to the evaporator it travels through a **heat exchanger** to get rid of the last little bit of heat that may be left in the refrigerant ensuring it is a liquid before entering the evaporator. Basically the heat exchanger is a small section of copper tubing wrapped around the cooler evaporator line as it exits the condenser.”

“Mounted to the side of the compressor is the **relay/overload**. The relay basically switches an electrical signal on or off to start or stop the compressor. The overload is similar to a safety thermostat, when the compressor reaches temperatures too high for it to function without it being damaged, it signals the compressor to stop running until the temperature has cooled.”

“Some of the newer refrigerators have two evaporators allowing the two compartments to run individually. On most refrigerators the colder air from the freezer is directed into the fresh food compartment by opening and closing a little door between the two compartments, called a damper. This works on the same principal as a thermostat, but does not cycle the compressor. On the newer refrigerators with two evaporators there are two sets of controls which work independently still with only one compressor. Personally, I don’t see all the fuss about these ‘two evaporator’ guys. I have one evaporator and I get along just fine.”

- 1 evaporator**
coil where Freon is changed from a liquid to a gas by absorbing heat
- 2 evaporator fan motor**
pulls warm air across evaporator; returns chilled air to freezer
- 3 condenser**
coil where Freon is changed from a gas back to a liquid by getting rid of heat
- 4 condenser fan motor**
blows air across condenser to help cool the Freon
- 5 compressor**
moves the Freon between evaporator & condenser
- 6 filter drier**
filters contaminants, dries moisture out of Freon
- 7 heat exchanger**
exchanges any remaining heat in Freon before entering evaporator
- 8 relay/overload**
helps start and protect compressor

“Alright, moving on to the defrost system and controls. You know, we haven’t always been able to freeze things. Even though the first refrigerator was built in 1859, it wasn’t until the 1920s that we obtained our super chilling powers--the freezer. It wasn’t until 1950-1960 that the self defrosting refrigerator came out, giving you humans a break from having to melt the ice from around the evaporator to continue the cooling process. On the older single door refrigerators the “freezer compartment” was actually the evaporator and food was placed inside the evaporator to freeze. Now with the modern day self defrosting refrigerators, the evaporator is located behind the back wall of the freezer compartment.”

“Surrounded on three sides of the evaporator, usually the bottom and up both sides, you will find the **defrost heater**. The defrost heater is usually a low wattage Calrod element (like your bake or broil element Electra told you about) or a coil encased in glass to make it waterproof, which comes on to melt any ice accumulation on the evaporator. This is done when the defrost timer sends an electrical signal to the heater. The **defrost timer** is what I like to call the “brains” of the defrost cycle. The usual time for defrost is every 8 hours; the refrigerator will defrost for 30 minutes, although there are differences according to the cubic foot of the refrigerator (the bigger the evaporator the longer the defrost time and vice versa). Out of all three parts in the defrost system this is the easiest for a home consumer to change because it is usually located by the refrigerator controls. I know what you’re thinking--what if the evaporator is free of the ice build up before the time is completed? Well, we have a **defrost thermostat** that will terminate the defrost cycle. The defrost thermostat is located at the top of the evaporator and senses the temperature of the air traveling across the coil. They vary in temperature, again according to the size of the evaporator.”

“Late model refrigerators now have an adaptive defrost control which replaces the defrost timer. These guys have ‘gone green’. They’re a great energy saver for the consumer because the refrigerator no longer goes into defrost on a time schedule, but on a ‘need to’ basis. This new style defrost system only comes on when the thermistor (works on resistance instead of temperature) senses ice on the evaporator, making the refrigerator defrost only when needed. There is still a defrost thermostat and a defrost heater. Some manufacturers have gone to what they call a “mother board” which takes control of the whole operation--all the functions of the refrigerator, including defrost.”

“The **temperature control** is usually located in the fresh food compartment, behind the knob where you choose the temperature for the freezer. This is the part that actually cycles the compressor off and on according to the temperature the home consumer has chosen. On newer models the control is digital and the consumer can choose between 1 thru 10 or the actual degree they wish the compartments to be. F.Y.I., I like my control to be set at a cool 7--not too warm...not too cold...just right. The part behind the knob for the fresh food temperature selection is the damper control. That is the part that opens and closes a little door between the two compartments to let in more or less cold air from the freezer. It does not cycle the compressor.”

“Despite the “old wives tales” and the myth, I don’t have a little man inside me who hears you coming and turns on the light when you open the door. I know that is a crushing blow, however, the part that turns on the light is called the **light switch**. The light switch for either or both compartments will always be somewhere where the door closes against the body of the refrigerator. Usually a top mount refrigerator (freezer on top) does not have a light for the freezer compartment, however, all others usually do. In the freezer compartment there is an additional switch to turn the evaporator fan motor on when the freezer door is opened called the **fan switch**. It also is always located somewhere where the door closes against the body of the refrigerator. The purpose of this switch is to maintain the temperature of the freezer as the warmer air from your kitchen enters the freezer compartment as soon as you open the door.”

“In a refrigerator there can be one or several lights that come on when you open the door, in either compartment. There can be as many as four to six in each compartment, those light bulbs are screwed into a **light socket**. They are usually located at the top of the compartment or along the back wall to illuminate the middle and bottom sections. This way when you go rummaging for a midnight snack, you can see what you’re getting into!”

“When the two doors like me came out, manufacturers noticed that a lot of moisture was building up between the two compartment doors (on body of refrigerator) causing the partition to rust. To prevent this manufacturers installed a very low wattage wire which would get warm to prevent the moisture from building up called a **mullion heater**. These were used on top mount, bottom mount (freezer on bottom) and the side by side models. There usually was a separate switch on the control section you could turn off or on called the “Energy Saver” switch or “Moisture Control” switch that would turn on the mullion heater. Now manufacturers have replaced the mullion heater with a section of copper tubing carrying the heated refrigerant, reusing the natural heat source from the refrigerant cycle, making it more economical and constant.”

“The new refrigerators of today do just about anything you can imagine! Back in my day, life was simpler. Things were either cold or colder. Some of my friends now have televisions, message centers, picture portfolios--my cousin Frankie Frost can even contact the factory if one of his parts is malfunctioning. He thinks he’s the coolest. (Okay, so I’m a little jealous.) You can thank us refrigerators for a good portion of the appliance parts industry. We’ve got so many working and trim parts that we keep them pretty busy. At the beginning of production on any particular model there are many color and design choices. Once the refrigerator (or any other appliance) has passed the one year of age mark, usually manufacturers only offer the replacement parts in the color or design that they sold the most models of, leaving the customer no choice in color or design.”

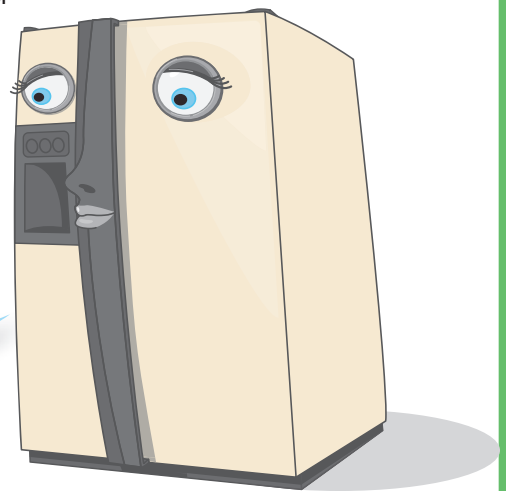
“Generally refrigerators come from the factory with an icemaker on dispenser models and the ability to add an icemaker on the non-dispenser models. Some retail stores add the icemaker before it is delivered to the customer. There are two basic ways an icemaker is available, either as a replacement of an existing icemaker or as an add on sales kit, which gives the customer everything they need to install the icemaker for the first time with the exception of the water supply line going to the refrigerator. (also available as an additional part). To determine the icemaker needed you will need the model number of the refrigerator. Parts vary from model to model.”

“There are also two types of water filters, one which is built into the refrigerator and one as an add on in the water supply line going to the refrigerator called an “in line” water filter. With all the concern about our water quality the addition of the built in water filter is becoming more popular and widespread from make to make. Those refrigerator which do not have “built in” water filters, even the older models, can still use the “in line” filter to filter the water going to the icemaker. I’d recommend a built-in water filter; it’s much more earth-friendly than all those plastic water bottles.”

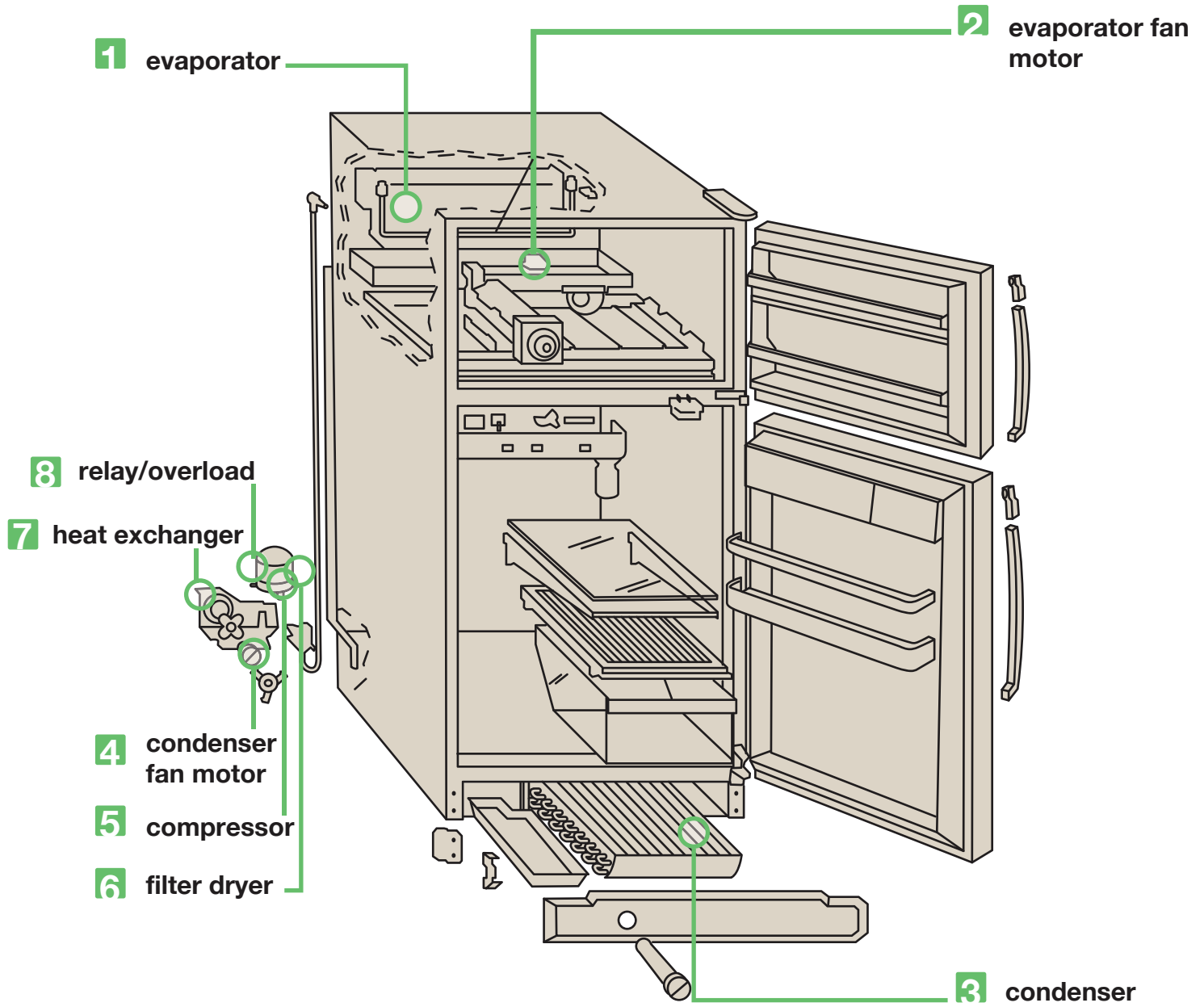
“Alright, It’s time to show you the real deal. No, you’re not getting a look in my double doors! I brought some diagrams with me to give you a better idea of what I’m talking about.”




- 1 defrost heater**
low wattage element used to melt ice on evaporator
- 2 defrost timer**
controls the defrost cycle
- 3 defrost thermostat**
senses temperature of air across evaporator to terminate defrost cycle
- 4 temperature control**
cycles the compressor off and on to maintain desired temperature
- 5 light switch**
switch activated by opening and closing door to illuminate refrigerator
- 6 fan switch**
turns on evaporator fan motor when door is open
- 7 light socket**
the receptacle for the light bulb
- 8 mullion heater**
a low wattage wire to prevent moisture build up in middle section



Typical Top Freezer



1 evaporator

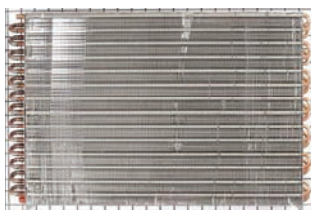


Also called:
Lo Side

2 evaporator fan motor



3 condenser

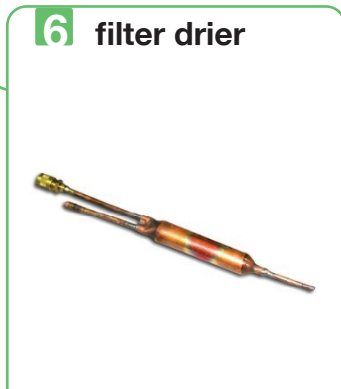
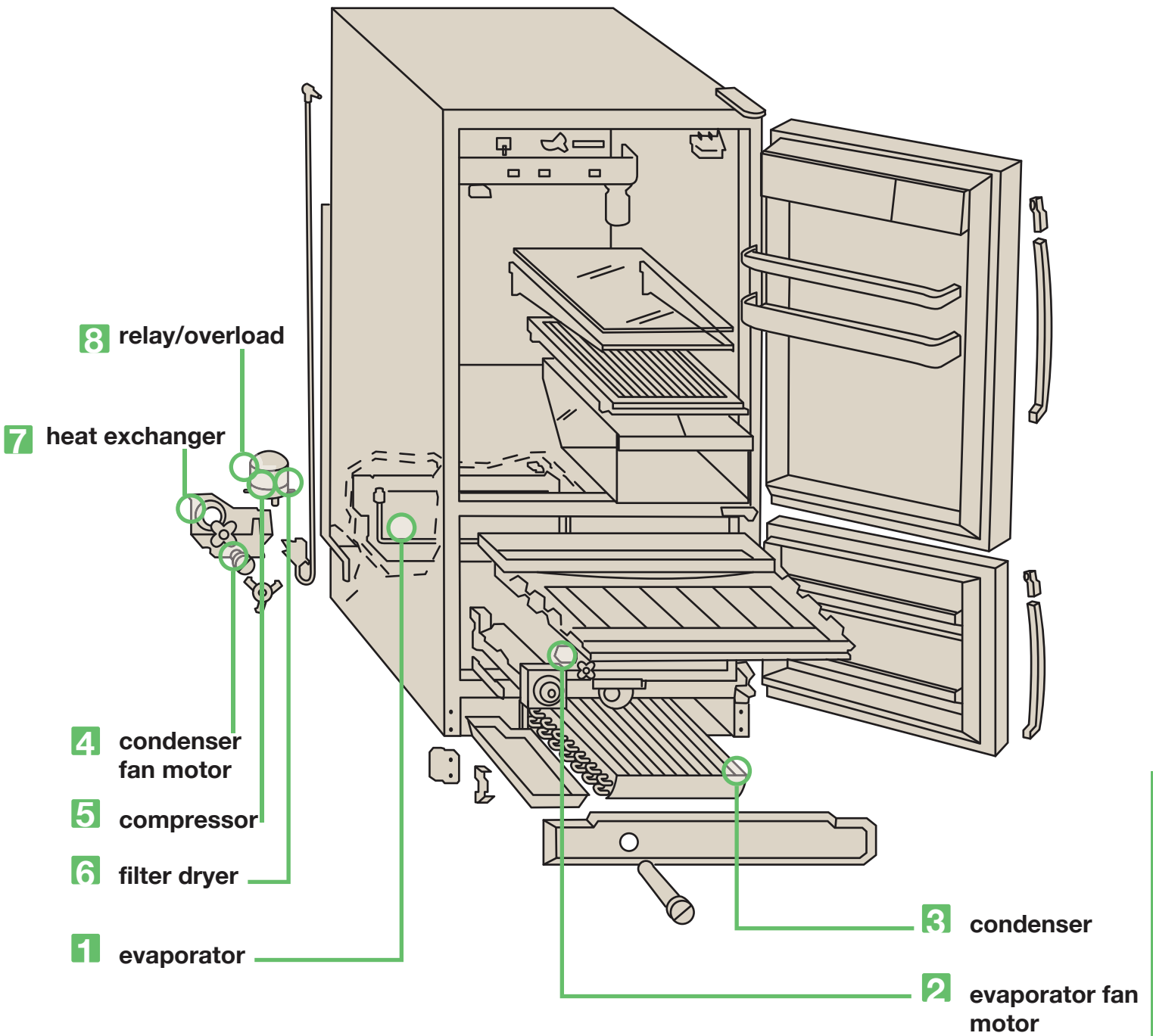


Also called:
Hi Side

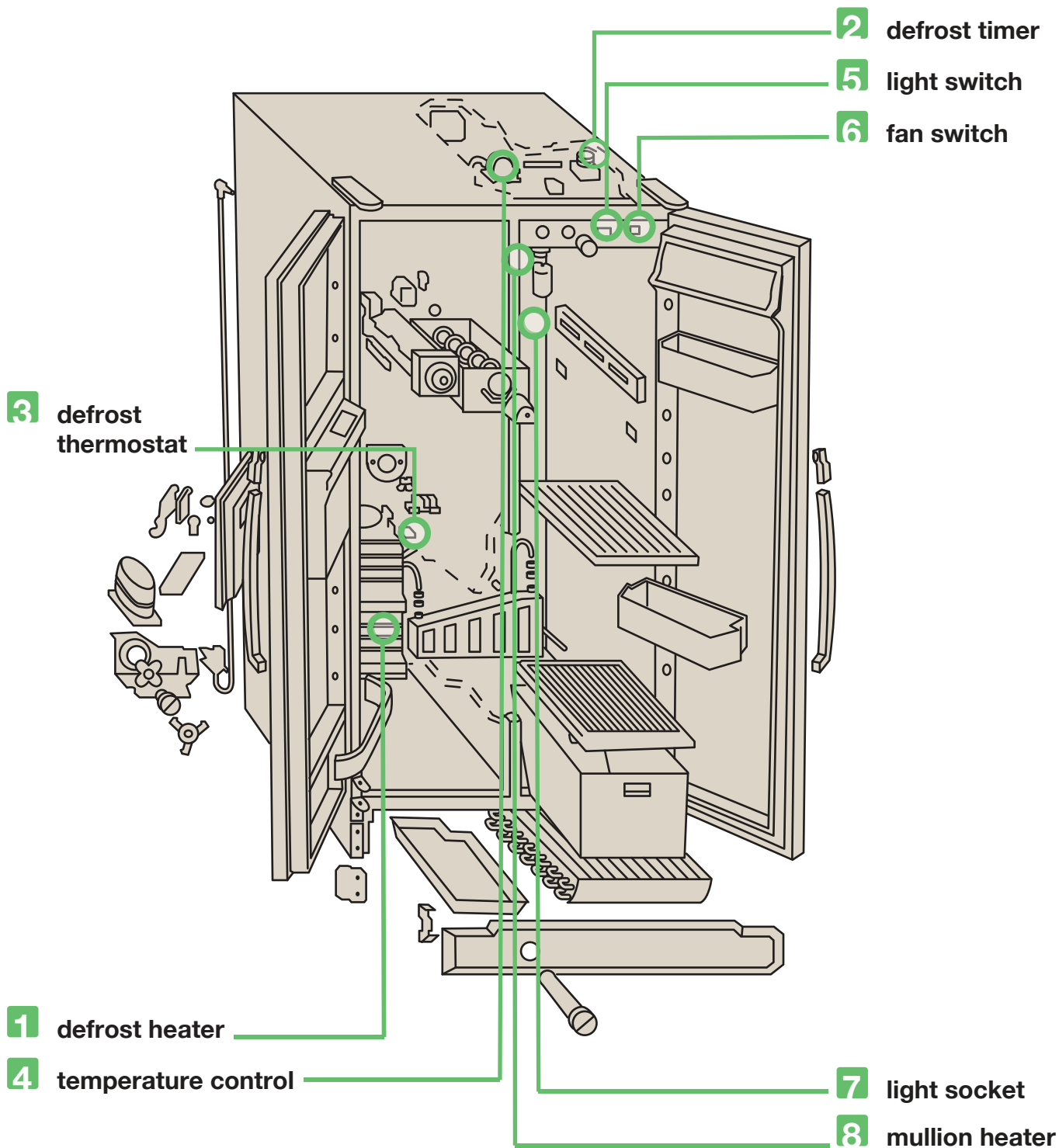
4 condenser fan motor



Typical Bottom Freezer



Typical Side-by-Side



1 defrost heater



2 defrost timer



Also called:
Defrost Control
Adaptive Defrost Control

3 defrost thermostat



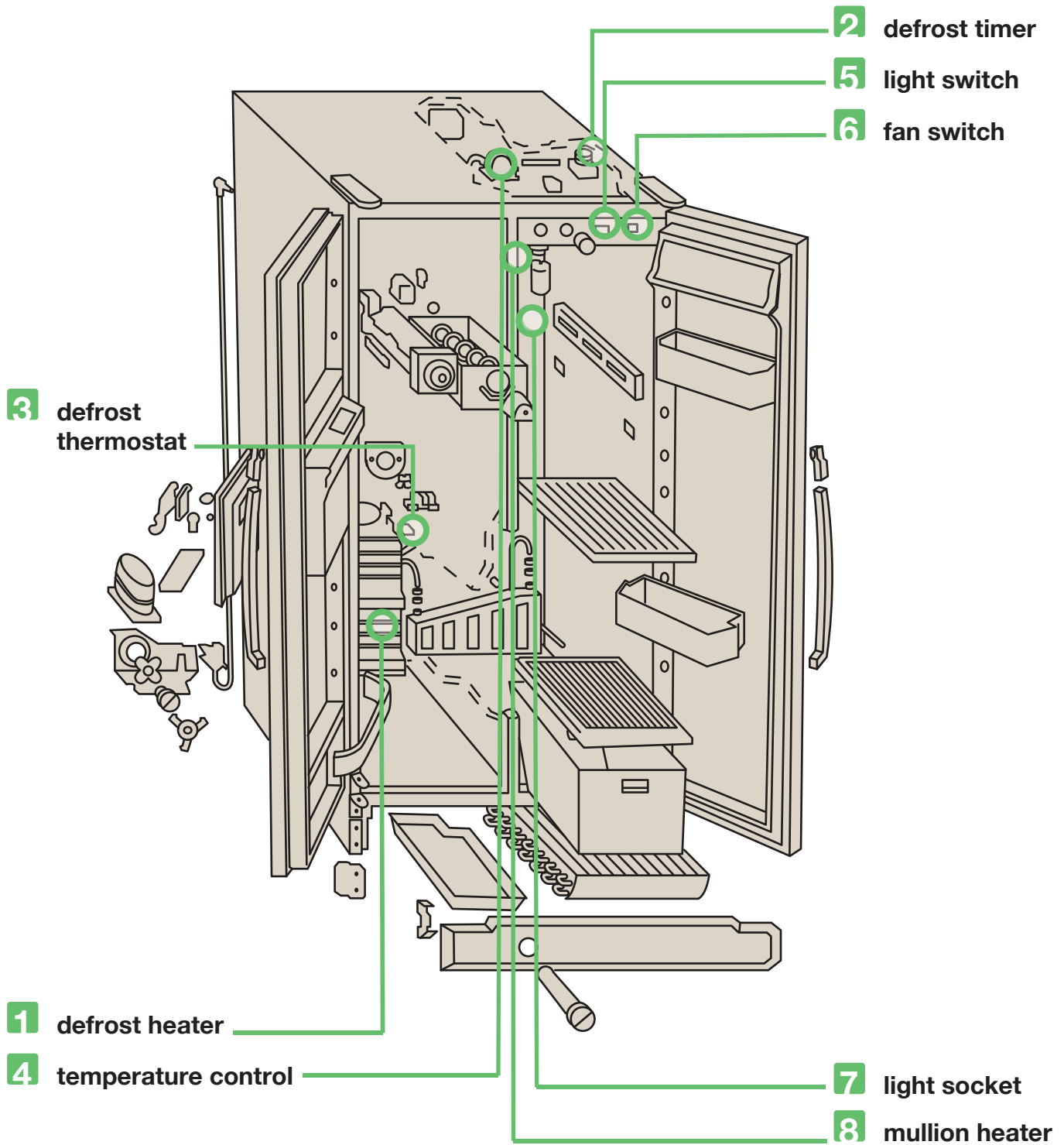
Also called:
Defrost Bi-metal
Defrost terminator

4 temperature control

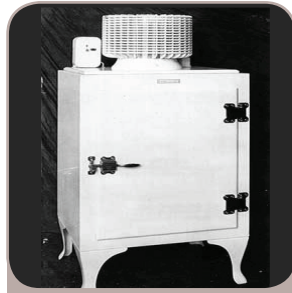


Also called:
Cold Control
Thermostat

Typical Side-by-Side



on the wings of time



1920s

1927
The GE monitor top, introduced in 1927, is one of the most recognizable vintage refrigerators



1930s

1939
Fully restored vintage refrigerator

“Did you know that the term refrigerator was coined by a Maryland engineer, Thomas Moore, in 1800? His device was actually a cedar tub insulated with rabbit fur, filled with ice, surrounding a sheet metal container for transporting butter from Maryland to Washington, DC.”

“Most households used iceboxes that were supplied almost daily with blocks of ice from a local refrigeration plant. In England at the beginning of the nineteenth century, “ice boxes” were becoming the vogue in restaurants and in homes. Wooden boxes lined with tin or zinc and insulated with various materials such as cork, sawdust and sea-weed were used to hold blocks of ice and “refrigerate” food. A drip pan collected the melted water and it had to be emptied daily. There was usually an insulated compartment for ice and another for food. The ice was replaced periodically by purchasing blocks from a very cool guy...the ‘iceman’.”

“Refrigerators from the late 1800s until 1929 used toxic gasses (methyl chloride and sulfur dioxide) as refrigerants. Several fatal accidents occurred in the 1920s when the methyl chloride leaked, causing three American corporations to fund research and develop a less dangerous method. Their efforts led to the discovery of Freon. Over the course of just a few years, compressor refrigerators using Freon became the standard for almost all home kitchens in towns and cities. Compressors were generally driven by belts attached to motors located in the basement or in an adjoining room.

In 1939, in response to consumers storing more and more frozen foods, General Electric introduced into mass production the familiar dual temperature refrigerator, which contained one section for frozen food and a second for chilled food.”

“So, the most famous refrigerator is my man the GE Monitor top. He’s a legend among us refrigerators. The GE Monitor top refrigerator was built on the principal of a French industrialist concept for a hermetically sealed refrigeration system. The first models available to the general public, for residential use, were introduced in 1927. General Electric committed \$18 million dollars to the manufacturing of these units and another million dollars to advertise them to the public. With a price tag of only \$300, these first models were considered “the first affordable refrigeration units” for the average family. Many utility companies offered the GE Monitor Top refrigerator to their customers for as little as \$10 a month, simply added to their monthly utility bill.”

“Hermetically sealed and permanently lubricated, the GE Monitor Top refrigerator remains the most recognized and most dependable refrigerator ever built. Hundreds, if not thousands, of these units remain in service today, offering their owners “quiet”, “dependable” and “service free” refrigeration.



Present

This unit includes a 15-inch HD LCD, FM radio, DVD connection on top and a 4-inch weather & info center LCD as well as a recipe bank, a calendar, child lock functions, and a digital photo album



Present

This is a dual refrigerator with three evaporators and advanced controls

(Don't tell anyone, but I had a poster of the Monitor Top hanging up in my room when I was a kid.) Although a few minor features were added along the way, such as enclosed condenser coils and slide out shelves, the basic design of the Monitor Top remained the same from 1927 until 1936. All of these models were cooled with one of two refrigerants used during this time, sulfur dioxide or methyl formate."

"The 1920s and 1930s was an exciting time for us refrigerators and for you guys too. This is when we were introduced to freezers when the first electric refrigerators with ice cube compartments came on the market. Apparently, ice in neat, little cubes is a pretty big deal. Mass production of modern refrigerators didn't get started until after World War II. In the 1930s Freon 12 was used to replace sulphur dioxide as the most commonly used refrigerant. During the 1940s frozen food storage became widely used by consumers. Refrigeration technology began hopping in the 1950s and '60s when innovations like automatic defrost and automatic ice makers first appeared. (Apparently, not having to physically make the neat, little cubes is an even bigger deal.) The environment became a top priority in the 1970s and '80s, which lead to more energy-efficient refrigerators and the elimination of chlorofluorocarbons in refrigeration sealed systems."

"As time evolved so have the styles and types of units. Now a days you can choose from a number of different styles of refrigerators such as side by side (which are the best looking if you ask me), bottom freezer, top freezer, subzero and so on. (Sub-Zero fridges are dual refrigeration systems that offer clean air flow, the end result is fresher and longer lasting food, as well as a name brand of refrigerators) There are refrigerators now with two evaporators where the two compartments work individually from each other, so if one side stops working the other side will continue. There are also refrigerators designed to be installed flush with cabinetry making them almost invisible in the kitchen, with the compressor on top something like the old "monitor" tops, only not visible. Some refrigerators print out a shopping list when it's time to go to the grocery store, letting the consumer know what they are running low on or out of. There are refrigerators that have temperature and humidity controlled storage bins for fruits and vegetables, and the list goes on."

"I hope you enjoyed learning about me today, because I sure enjoyed talking about myself. Now, if you'll excuse me, I need to go talk to my owners about getting some cabinet camouflage and a television! Go on, have fun with the rest of my diagrams!"

parts on the wings of time

then:

now:



fanlight switch



evaporator fan motor



compressor



defrost timer



cold control



Most popular refrigerator part numbers to remember:

GE defrost thermostat
WR50X50



WPL defrost timer
66128-1



Whirlpool condenser fan motor
833697



WPL adaptive defrost control
61005988



WCI water filter
WF2CB



reading parts diagrams

On the next several pages you will see a typical refrigerator breakdown containing the parts that you have learned. Knowing the appearance of the part and location on the refrigerator will help you identify it on a diagram. Most manufacturers present their “parts list and exploded view” in this type of diagram.

The diagrams are presented in a “facing the appliance” view so when you are talking with a customer make sure that when they tell you where the part is located that they are facing the appliance, otherwise their left will actually be the right on your diagram. When you are speaking to the customer about parts for the inside of the door, make sure the customer is facing the inside of the door. Many mistakes are made because of this. Because the diagram is an “exploded view” parts are not exactly where they belong. Once you locate the particular section the part should be located in, use the lines or arrows to follow the part back to where it is actually mounted. This will help you determine if it is the part you are looking for.

Remember most parts do not include screws or trim, and most customers believe everything is included, so it is very important that you communicate with your customer exactly what you are seeing on the diagram. There are so many trim parts on a refrigerator that some come in individual pieces. An example would be on page 17 the refrigerator door handle, to the customer this is one piece, on our diagram it is 10 pieces, not including the screws. Refrigerator trim parts are **very** model specific and could mean the difference of color and design without the complete model number. Also on refrigerator compressor parts you may see two compressors on a diagram, one for “production” and one “service or conversion”. You may need to find out from the customer if it is the original compressor or the replacement or conversion. The relay and overload are not interchangeable between the two types. Asking secondary questions will allow you to get the customer the correct parts.

There are many differences between what the customer is seeing and what you see on the diagram. On the diagram you can not see color, size, or any small details that the customer may be using to describe the part. This is why using the location and what the part does may be your only way of locating the part needed. Although there are several websites that may give you a true to life picture of the part, you can not rely on that.

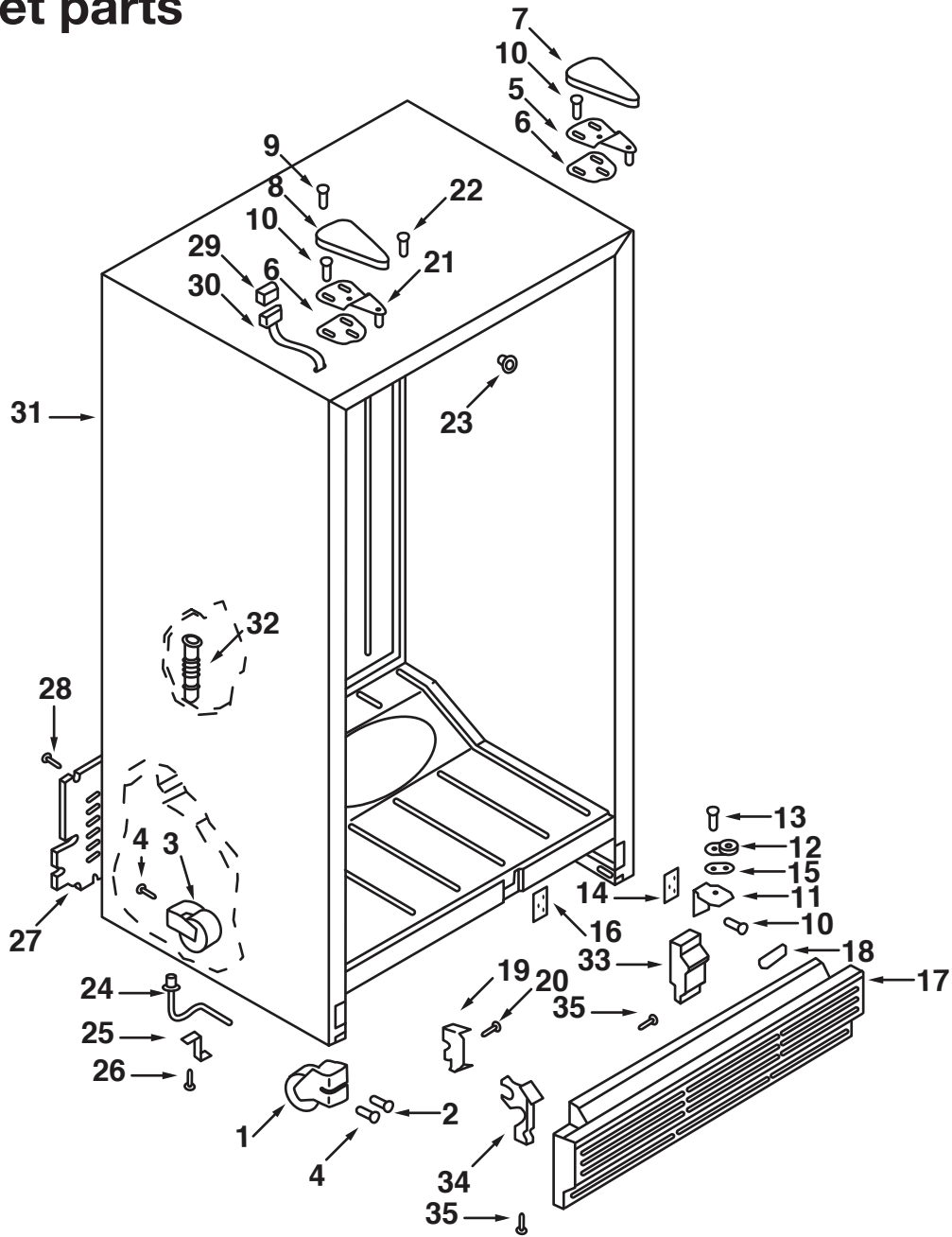
On many diagrams the manufacturer will offer parts as an assembly. They will indicate this by placing a dotted line box around several parts. If the parts have an item number they are available separately, if there is no item number they are only available as an assembly. Always give the customer the option of replacing the assembly rather than just the one part. This usually makes the repair easier and more complete.

Take a few minutes to identify some of the parts and their locations in the diagrams on the following pages. See if you can spot the major parts of the refrigerator.

parts diagrams

Typical Refrigerator Breakdown:

cabinet parts



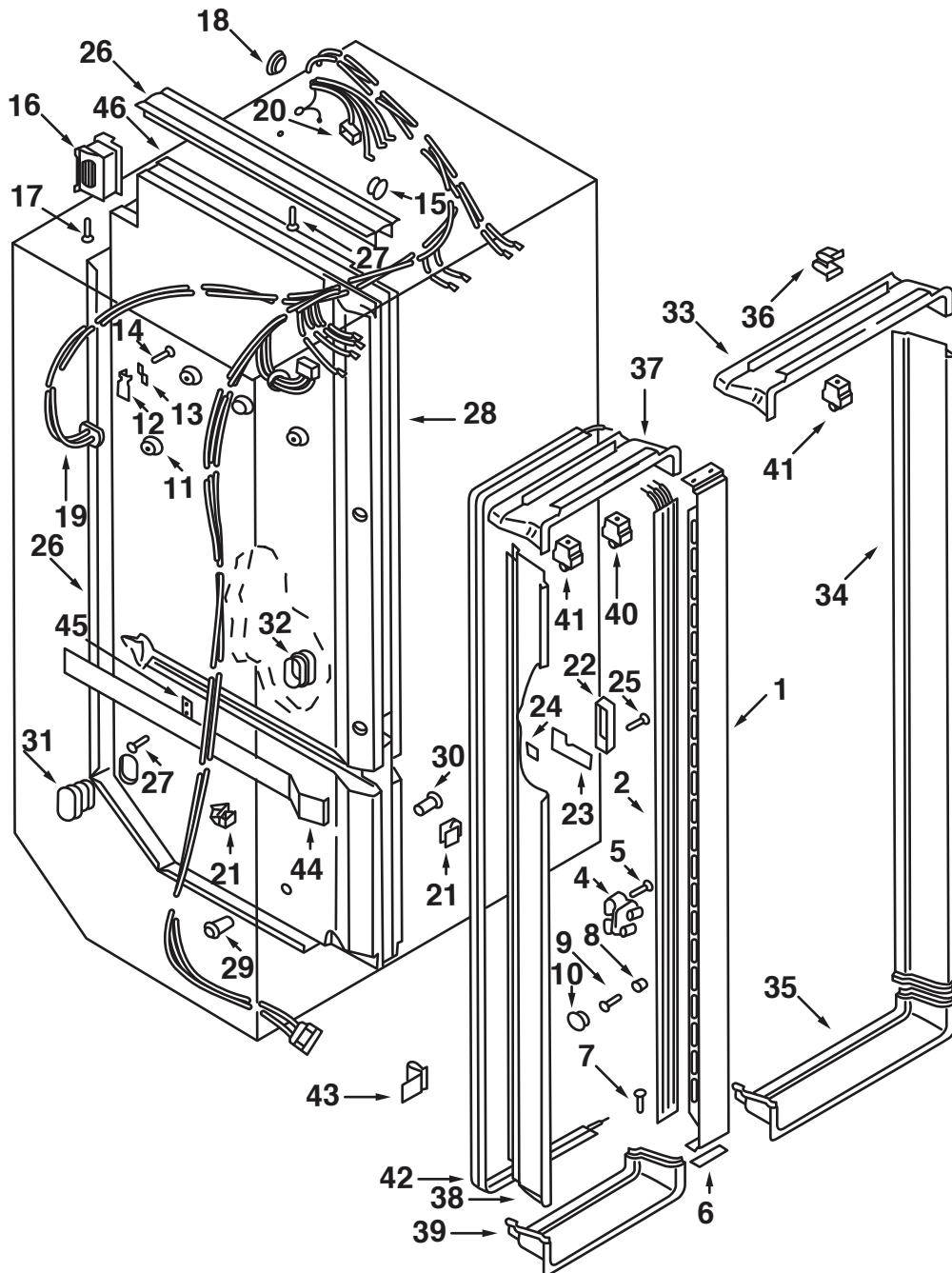
parts diagrams

1	981127	Roller, Front (2)	16	836162	Plate, Tap
2	488681	Screw, 5/16-24 x 1	17	1101379	Exterior Grille (Toast)
3	981122	Roller Assembly, Rear (2)		1101380	Exterior Grille (Platinum)
4	488454	Screw, 1/4-28 x 1/2 (4)		944239	Exterior Grille (White)
5	842039	Hinge, Top		944241	Exterior Grille (Golden Harvest)
6	836192	Shim, Top Hinge		944243	Exterior Grille (Almond)
7	842010	Hinge Cover (White)	18	546131	Bumper, Grille (2)
	1100172	Hinge Cover (Toast)	19	989068	Support, Grille (2)
	1100173	Hinge Cover (Platinum)	20	486194	Screw, 8 x 1/2 (2)
	989194	Hinge Cover (Almond)	21	983608	Hinge Assembly Top, L.S.
	989896	Hinge Cover (Golden Harvest)	22	488889	Screw, 8-32 x 5/32
8	989885	Hinge Cover (Golden Harvest)	23	839989	Grommet
	989887	Hinge Cover (Almond)	24	841646	Extension Fitting
	987191	Hinge Cover (White)	25	841648	Clip, Drain
	1100381	Hinge Cover (Toast)	26	488978	Screw, 8-15 x 3/8
	1100382	Hinge Cover (Platinum)	27	850457	Cover, Unit Compartment
9	488915	Screw, 6-32 x 1/2	28	489084	Screw, 8 x 1/2
10	488949	Screw, 12-14 x 3 (Repair)	29	851648	Receptacle, Head
	489105	Screw, 10-32 x 23/32	30	482553	Harness, Wiring (6` Leads) (Includes Illus. 29)
11	986764	Hinge, Bottom L.H.	31		Cabinet (Not A Serviceable Part)
	986763	Hinge, Bottom R.H.	32	836068	Drain Fitting
12	986759	Closer, Door (2)	33	836372	Insert, Baffle
13	488913	Screw (Repair)	34	944224	Grille Support
	487983	Screw, 8-32 x 1/4 (2)	35	489085	Screw, 8-22 x 5/16 (4)
14	836196	Shim, Bottom Hinge			
15	987179	Shim, Door Closer (0.30)			

parts diagrams

Typical Refrigerator Breakdown:

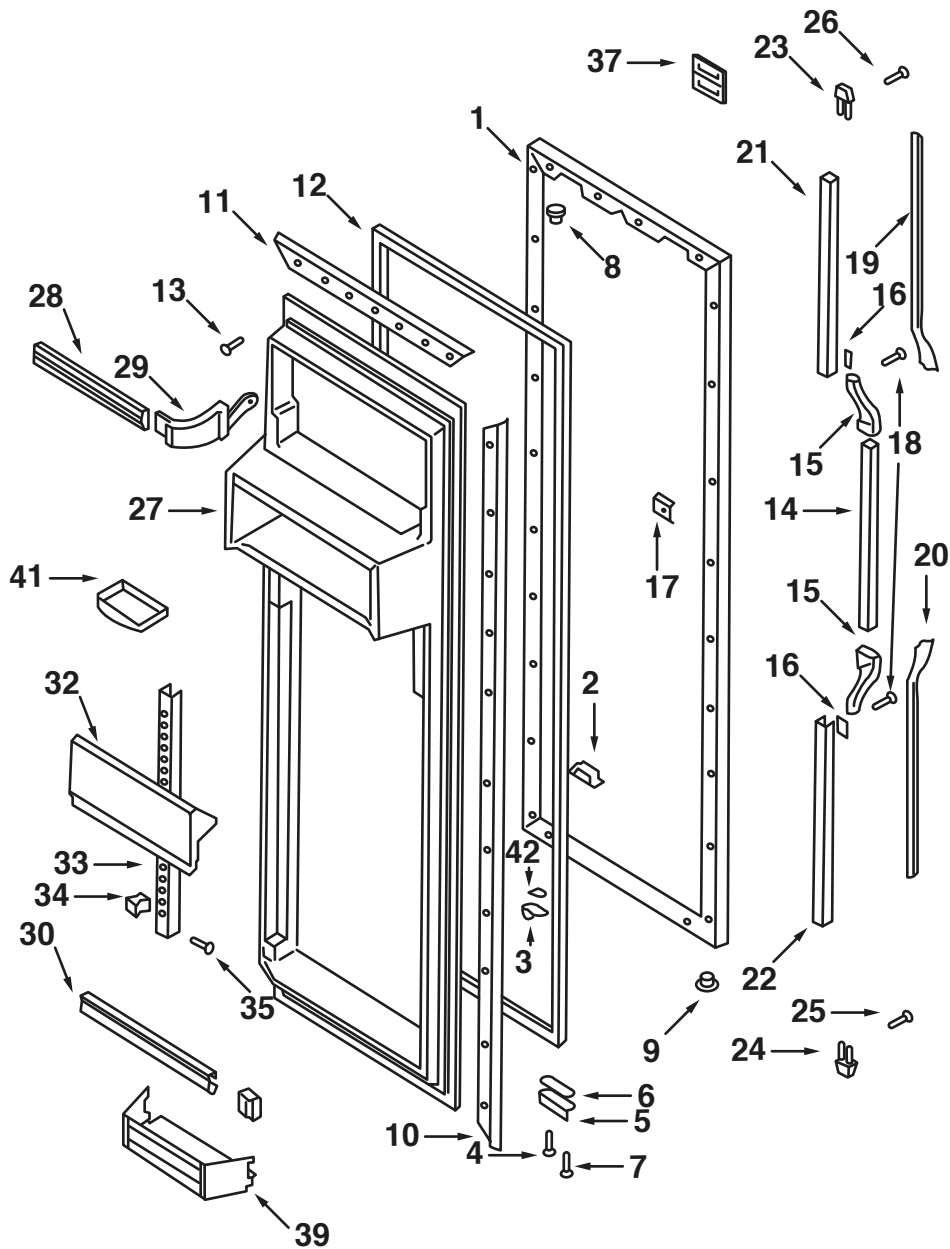
breaker and partition parts



1	1101361	Center Rail Mullion (Toast)
	1101362	Center Rail, Mullion (Platinum)
	989923	Center Rail Mullion (Almond)
	985974	Center Rail Mullion (White)
	989921	Center Rail Mullion (Golden Harvest)
2	936199	Heater, Mullion
4	849367	Stabilizer, Mullion (2)
5	487927	Screw, 8-18 x 1/2 (2)
6	983592	Spacer
7	488480	Screw, 8 x 1/2A (4)
	488258	Screw (Repair)
8	849368	Spacer, Screw (4)
9	488318	Screw, 8 x 7/8 (4)
10	848414	Hole Cover (4)
11	842339	Grommet
12	538532	Grommet, Ice Maker (2)
13	538533	Clip, Support (2)
14	488552	Screw, 10-12 x 3/8 (2)
15	519890	Hole Plug (2)
16	848433	Control Connector & Gasket Assembly
17	488208	Screw, 8 x 13/16 (4)
18	851020	Grommet, Wiring
19	481658	Harness, Cabinet Wiring (Ice Maker)
20	481782	Harness, Cabinet Wiring (Defrost Timer)
21	537095	Expansion Clip
22	984101	Escutcheon, Cold Control
23	984102	Slide, Cold Control
24	992358	Pad, Foam
25	486214	Screw, 8-15 x 1/2
26	988455	Track, Divider (Top)
26	946146	Track Divider (Back & Bottom)
27	486194	Screw, 8 x 1/2 (15)
28	940968	Divider Mullion Assembly
29	843888	Retainer, Hole
30	843887	Insert, Hole
31	982921	Insert, Hole
32	982920	Retainer, Hole
33	848475	Breaker Trim, Top
34	848476	Breaker Trim (R.S.)
35	848477	Breaker, Trim (Bottom)
36	836090	Retainer, Breaker (9)
37	937536	Breaker Trim, Top
38	848480	Breaker Trim (L.S.)
39	848481	Breaker Trim, Bottom
40	851387	Switch, Rocker Arm
41	549702	Rocker Arm Switch
42	989660	Stile Heater
43	935663	Clip, Heater (6)
44	848482	Cover, Heat Exchanger
45	983605	Heat Exchanger Clip

parts diagrams

Typical Refrigerator Breakdown: refrigerator door parts

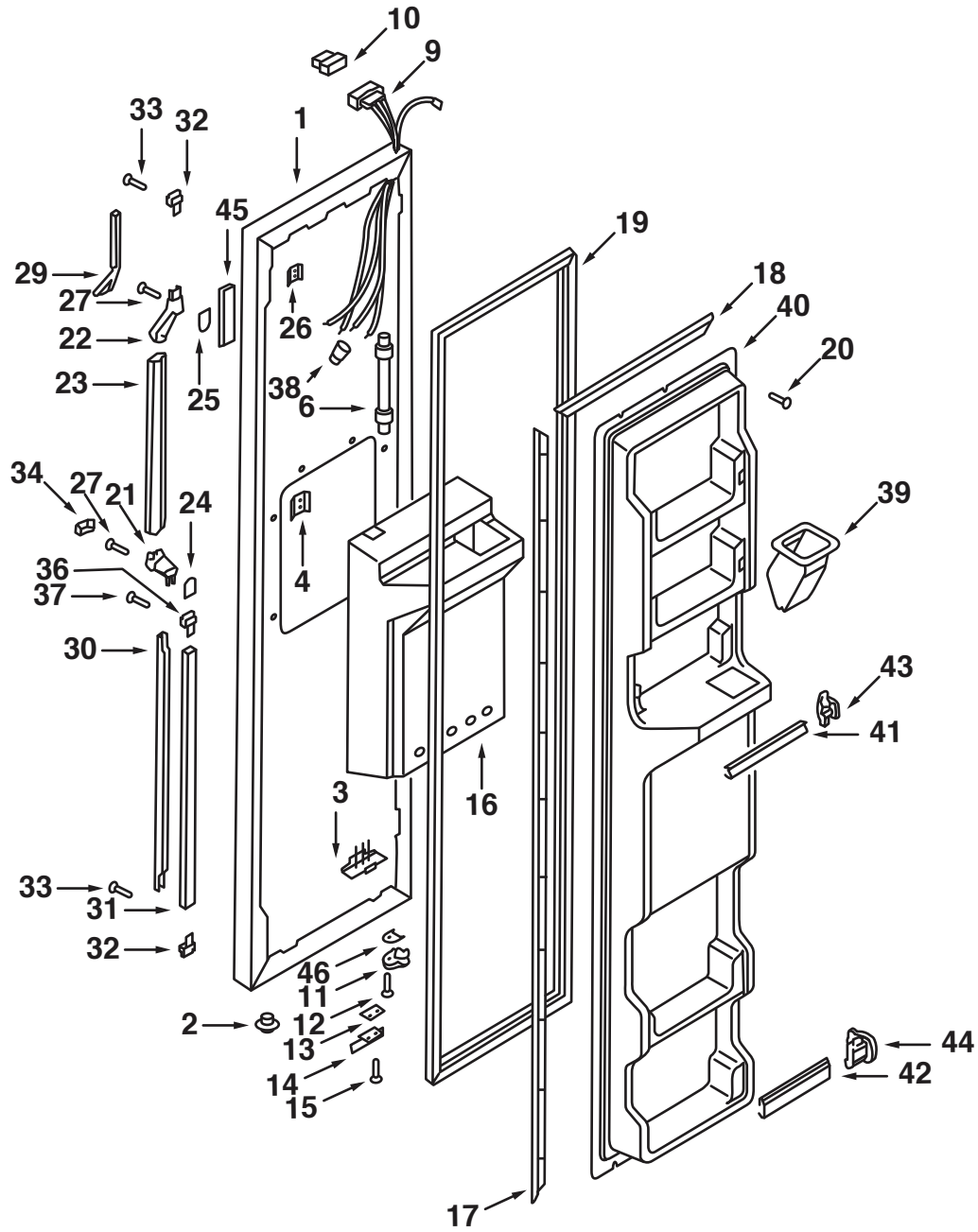


parts diagrams

1	1100383	Refrigerator, Door Panel (Toast)		1108795	Insert, Handle (Top) (Almond)
	1100384	Refrigerator, Door Panel (Platinum)		1108796	Insert, Handle (Top) (Toast)
	943197	Refrigerator, Door Panel (White)	20	1108797	Insert, Handle (Top) (Platinum)
	943199	Refrigerator, Door Panel (Golden Harvest)		1108799	Insert, Handle (Bottom) (Golden Harvest)
	943201	Refrigerator, Door Panel (Almond)		1108800	Insert, Handle (Bottom) (Almond)
2	988402	Tap Plate		1108801	Insert, Handle (Bottom) (Toast)
3	986758	Door, Cam Upper		1108798	Insert, Handle (Bottom) (White)
4	488938	Screw, 8 x 1/2		1108802	Insert, Handle (Bottom) (Platinum)
5	988420	Bracket, Door Stop	21	941954	Retainer Insert
6	988421	Shim	22	942081	Retainer, Insert
7	488549	Screw, 8 x 5/8	23	941259	End Cap
8	509929	Cap, Hinge	24	935106	End Cap Insert
9	534927	Hole, Plug	25	488915	Screw, 6-32 x 1/2
10	836120	Retainer, Side	26	489075	Screw, 10-32 x 3/8
11	836121	Retainer, Top & Bottom	27	988671	Interior Door, Panel
12	939565	Door, Gasket Magnetic	28	1108786	Trim, Door Shelf
13	488552	Screw (Repair)	29	839904	Retainer, Door Trim
	489101	Screw, No.7 x 1/2	30	1108787	Trim Door Shelf
14	1108841	Handle, Center (For Platinum Model Only)	31	988709	Retainer Door Trim
	1108792	Handle, Center	32	1108788	Compartment Door
15	935103	Center End Cap (2)	33	983804	Shelf Ladder
16	935075	Shim, Handle Center (2)	34	537095	Clip, Expansion
17	941242	Screw Anchor (2)	35	488320	Screw, 8 x 1/2
18	489084	Screw, 8 x 1/2	37	945116	Insert, Nameplate
19	1108793	Insert, Handle (Top) (White)	39	1108789	Shelf, Door Cantilever
	1108794	Insert, Handle (Top) (Golden Harvest)	41	520747	Tray, Butter
			42	1104787	Shim Cam

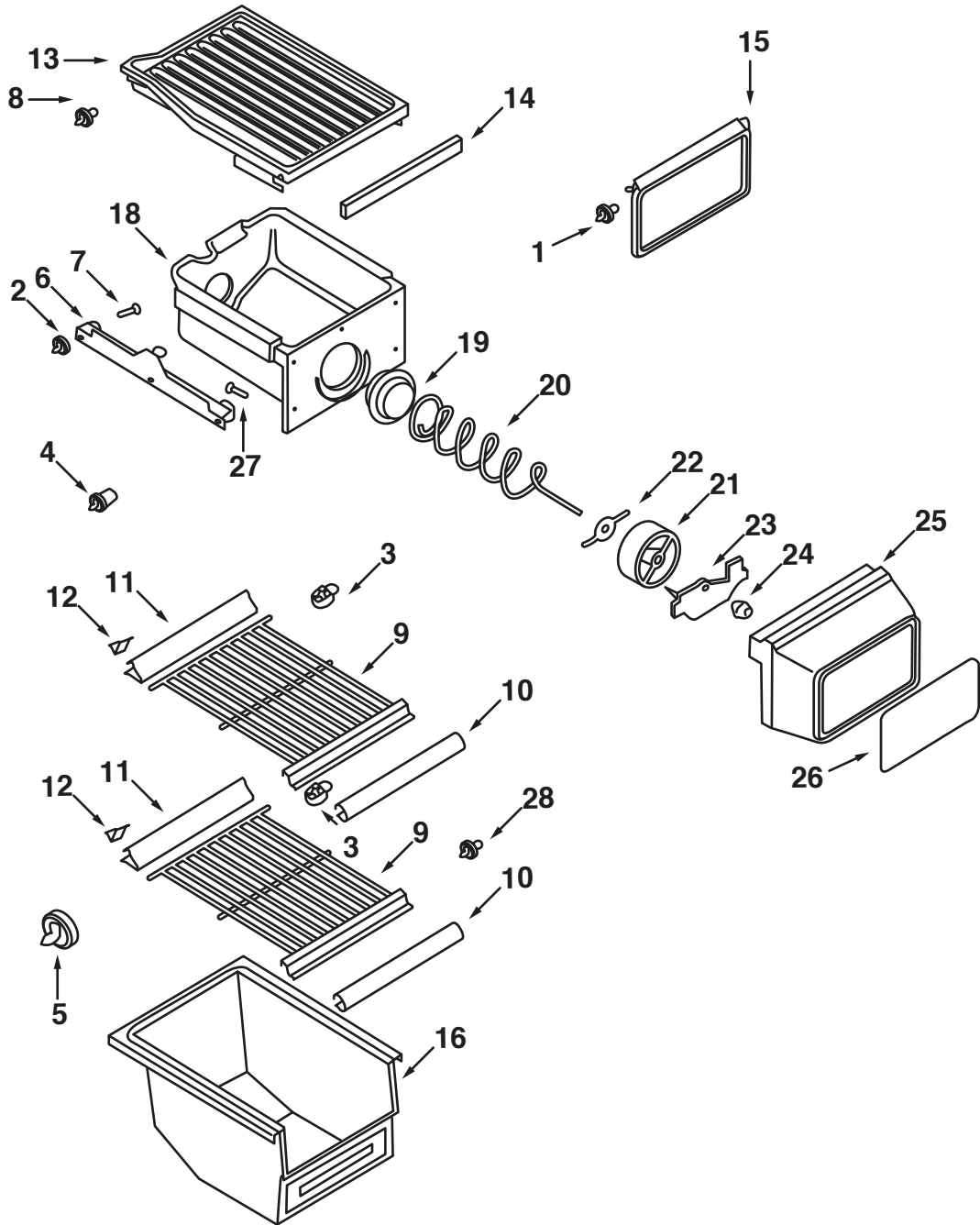
parts diagrams

Typical Refrigerator Breakdown: freezer door parts



parts diagrams

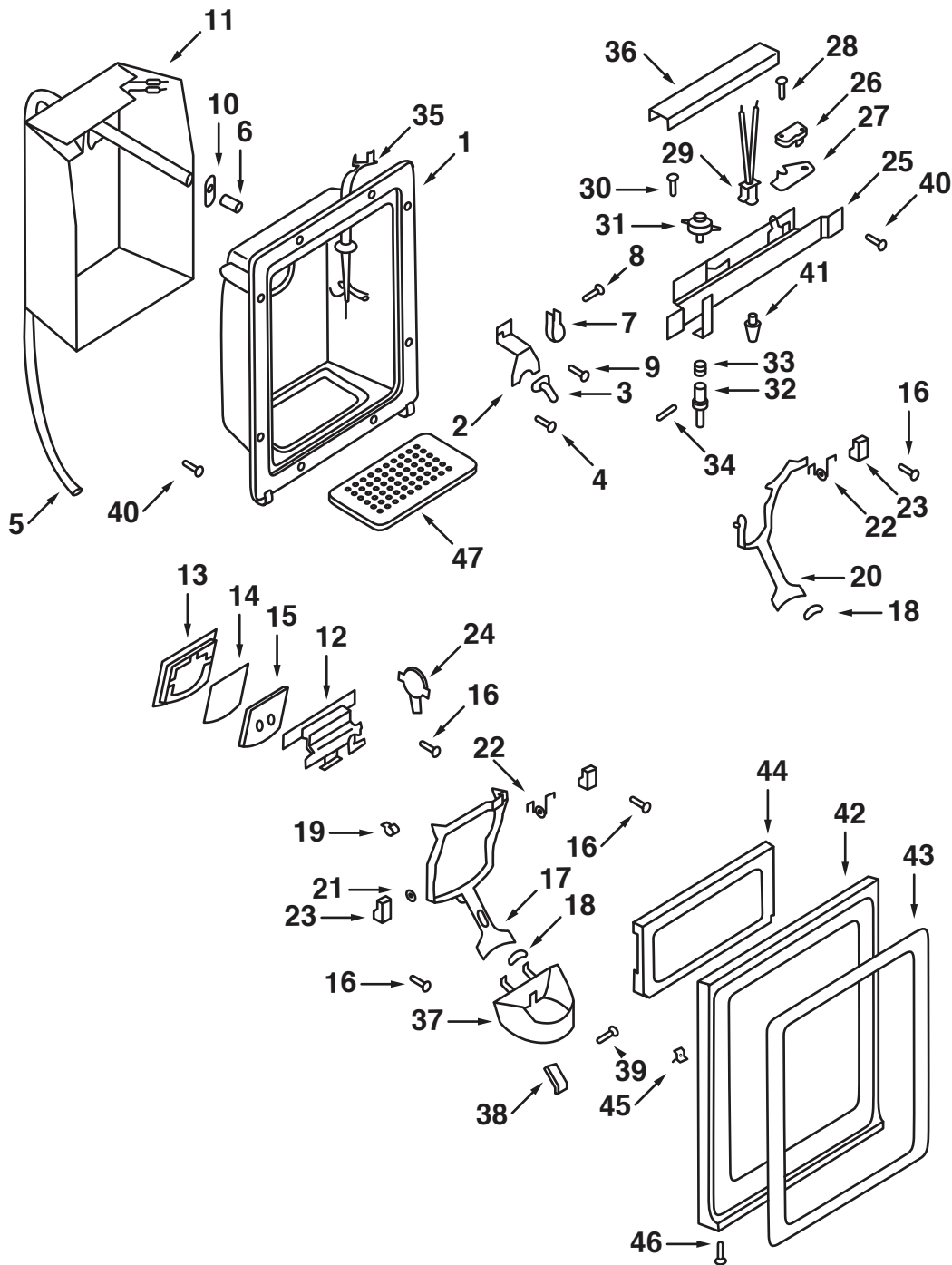
Typical Refrigerator Breakdown: freezer interior parts



1	521516	Stud, Door Stop
2	842339	Grommet
3	210518	Shelf Support
4	533881	Grommet
5	512900	Retainer Stud
6	982321	Slide, Freezer Bin (4)
7	487979	Screw, 8 x 1 (8)
8	521878	Stud Shelf
9	938514	Shelf, Freezer
10	985590	Trim, Shelf
11	935339	Shelf, Reflector
12	939348	Clip, Reflector (2)
13	938551	Solid Shelf
14	938552	Trim, Shelf
15	1108783	Front, Ice Compartment
16	1108784	Bin, Freezer
18	938568	Ice Container
19	983668	Coupling, Ice Conveyor
20	946191	Conveyor, Ice Dispenser
21	946193	Ice Dispenser, Drum
22	946192	Drive Bar, Drum
23	946194	Baffle
24	946195	Nut, Bearing
25	1101992	Front, Cover Container
26	938571	Overlay, Front Cover
27	488886	Screw, 8-18 x 1/2
28	937513	Shelf, Stud

parts diagrams

Typical Refrigerator Breakdown: dispenser front parts

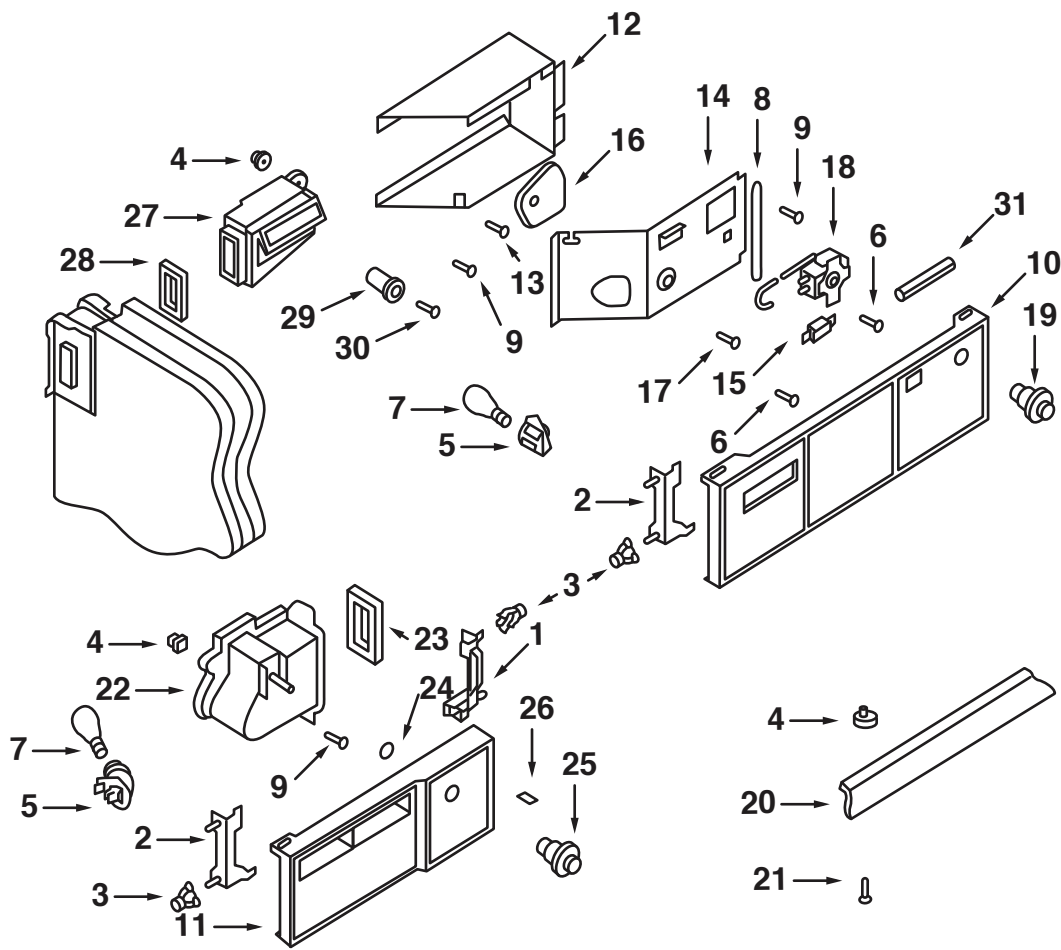


parts diagrams

1	938565	Housing, Dispenser	29	987265	Lamp Holder
2	987049	Bracket, Water Fitting	30	488500	Screw, 8-32 x 3/8
3	987050	Water Fitting, Dispenser	31	851386	Light Switch
4	487916	Screw, 8 x 3/8 (2)	32	983985	Plunger, Extension
5	940828	Tube, Water	33	983986	Spring, Plunger
6	841707	Insert, Plastic Tube	34	983987	Retainer Pin
7	488878	Tube, Clamp	35	851384	Wiring, Door
8	487415	Screw, 8 x 3/8	36	984494	Shield, Wiring
9	488316	Screw, 8-18 x 3/4	37	985866	Guide, Ice
10	987048	Grommet	38	986088	Glass Stop
11	938328	Heater, Dispenser	39	488892	Screw, 4-34 x 3/8
12	938669	Ice Door Mechanism Assy.	40	488687	Screw, 8 x 5/8
13	983691	Gasket, Ice Door	41	851389	Light Bulb
14	987121	Shield, Ice Door	42	983903	Front Cover, Housing
15	983690	Door, Ice	43	1101389	Insert, Housing Cover (Toast)
16	489000	Screw, 9-12 x 1/2 (5)	43	1101390	Insert, Housing Cover (Platinum)
17	987075	Lever, Ice Dispenser	43	1108810	Insert, Housing Cover (White)
18	983693	Pad, Lever (2)	43	1108811	Insert, Housing Cover (Golden Harvest)
19	987917	Bearing, Lever Clip (2)	43	945032	Insert, Housing Cover (Almond)
20	987074	Lever, Water Dispenser	44	945034	Cover, Housing
21	488307	Washer	45	488885	Speed Nut
22	983696	Spring Lever (2)	46	488320	Screw, 8 x 1/2
23	983697	Bearing, Lever (3)	47	983900	Grille, Overflow
24	938665	Delay Mechanism			
25	983983	Bracket, Control			
26	841336	Switch			
27	984683	Switch, Insulator			
28	488362	Screw, 4-40 x 3/4			

parts diagrams

Typical Refrigerator Breakdown: air flow and control parts

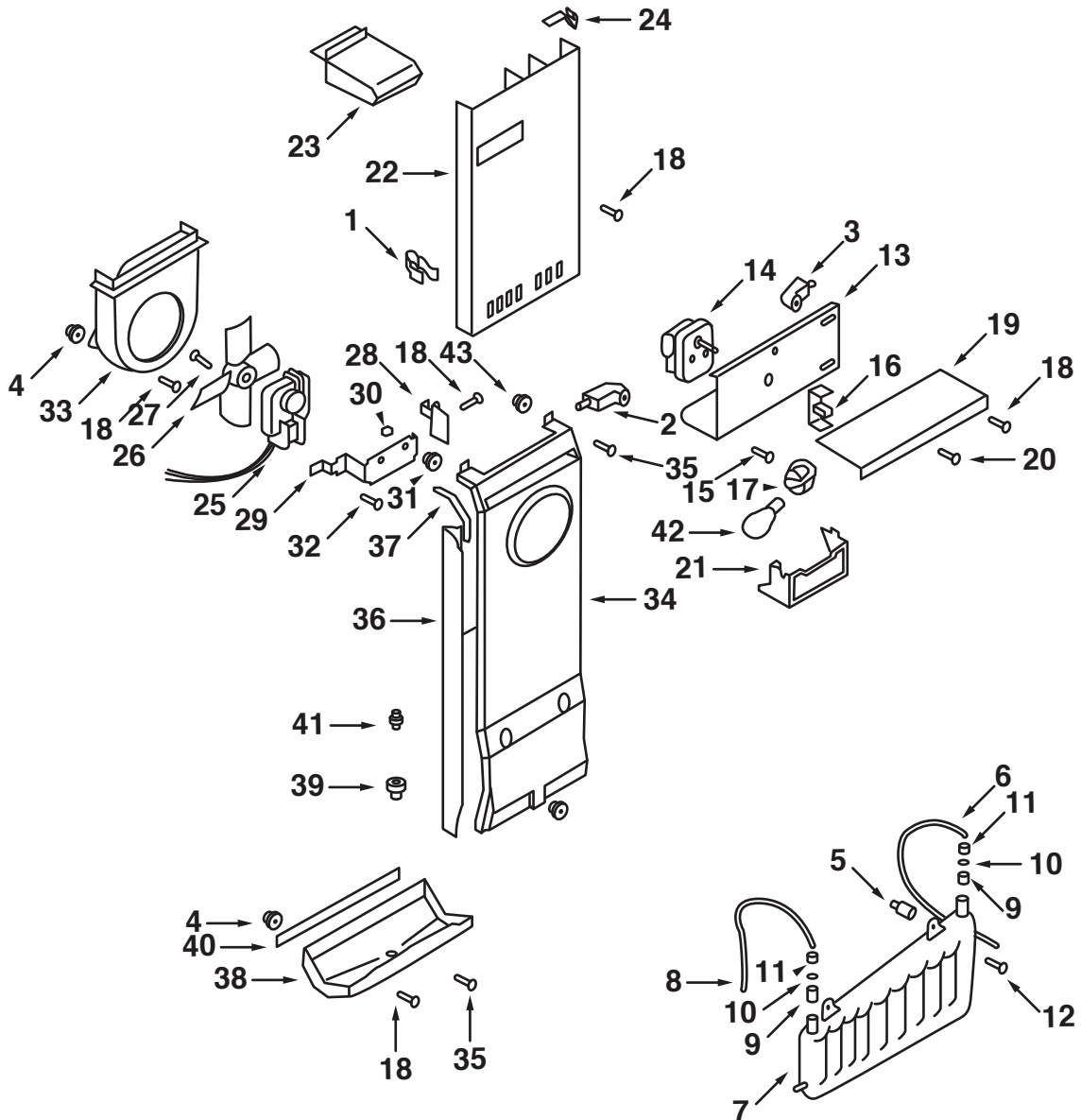


parts diagrams

1	842355	Support, Light Lens (R.S.)
2	842356	Support, Light Lens (L.S.) (2)
3	843945	Clip, Tubular (6)
4	842339	Grommet
5	851067	Socket, Light (2)
6	488500	Screw, 8-32 x 3/8 (4)
7	527949	Light Bulb (2)
8	984552	Support, Light Lens (R.S.)
9	486194	Screw, 8 x 1/2
10	943218	Light Lens
11	985456	Light Lens, Freezer
12	984550	Box, Control
13	488474	Screw, 8-32 x 3/8
14	934045	Control, Front
15	938049	Bracket, Switch
16	943435	Defrost, Timer (10 Hour)
17	488911	Screw, 6-20 x 3/8 (2)
18	946644	Thermostat & Barrier
19	836482	Knob, Temperature Control
20	836216	Baffle, Liner
21	488772	Screw, 8 x 1/2
22	841269	Air Scoop (Includes Illus. 23)
23	844871	Gasket Scoop
24	938439	Retainer, Damper
25	837445	Control Knob
26	837444	Knob, Retainer
27	946145	Air Diffuser
28	842394	Gasket Diffuser
29	836667	Spacer
30	488357	Screw, 8 x 1-1/4
31	989573	Tube, Barrier

parts diagrams

Typical Refrigerator Breakdown: air flow parts



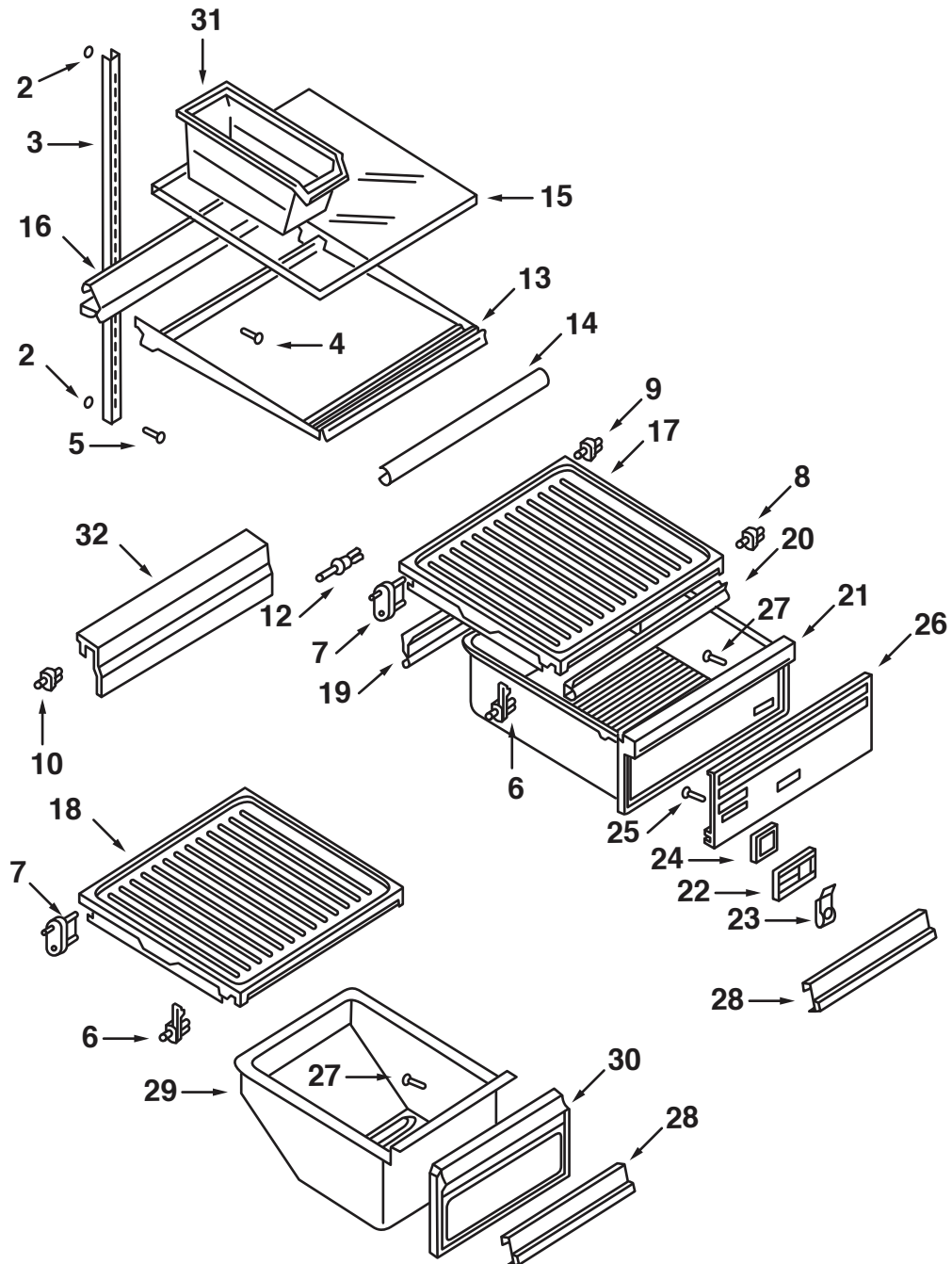
parts diagrams

1	842534	Clip, Air Duct (2)
2	983660	Stud Support (2)
3	992720	Stud Support (2)
4	842339	Grommet
5	843436	Grommet, Reservoir Mounting (3)
6	653499	Tube, Water
7	839912	Water Reservoir
8	653200	Tube, Water
9	841707	Insert, Plastic Tube
10	488819	“O” Ring Seal
11	488795	Nut, 1/4 Diameter
12	488775	Screw, 8 x 1/2 (3)
13	938535	Bracket, Dispenser Motor
14	851152	Motor, Dispenser
15	488906	Screw, 8-32 x 5/16 (4)
16	983663	Motor, Coupling
17	851067	Socket Assembly
18	486194	Screw, 8 x 1/2 (4)
19	938533	Cover, Ice Dispenser
20	487294	Screw, 8-32 x 3/8
21	983359	Light Dispenser
22	938591	Duct, Air
23	983652	Air Deflector
24	946697	Baffle, Air
25	941601	Fan, Motor (Alternate)
25	938124	Motor, Fan
26	992920	Blade, Fan
27	487887	Screw, 3-48 x 1/4 (2)
28	548263	Bracket, Double
29	938224	Bracket, Single
30	548268	Grommet (3)
31	538449	Screw, Grommet (2)
32	488772	Screw, 8 x 1/2 (2)
33	983650	Scroll Fan
34	938573	Cover, Evaporator
35	488992	Screw, 8-15 x 1/2
36	939674	Gasket, Evaporator
37	987178	Gasket, Evaporator Top
38	842404	Drain Pan
39	841770	Fitting, Drain Pan
40	845564	Gasket, Drain Pan
41	842259	Cap, Drain
42	527949	Light Bulb
43	981616	Grommet

parts diagrams

Typical Refrigerator Breakdown:

refrigerator interior parts

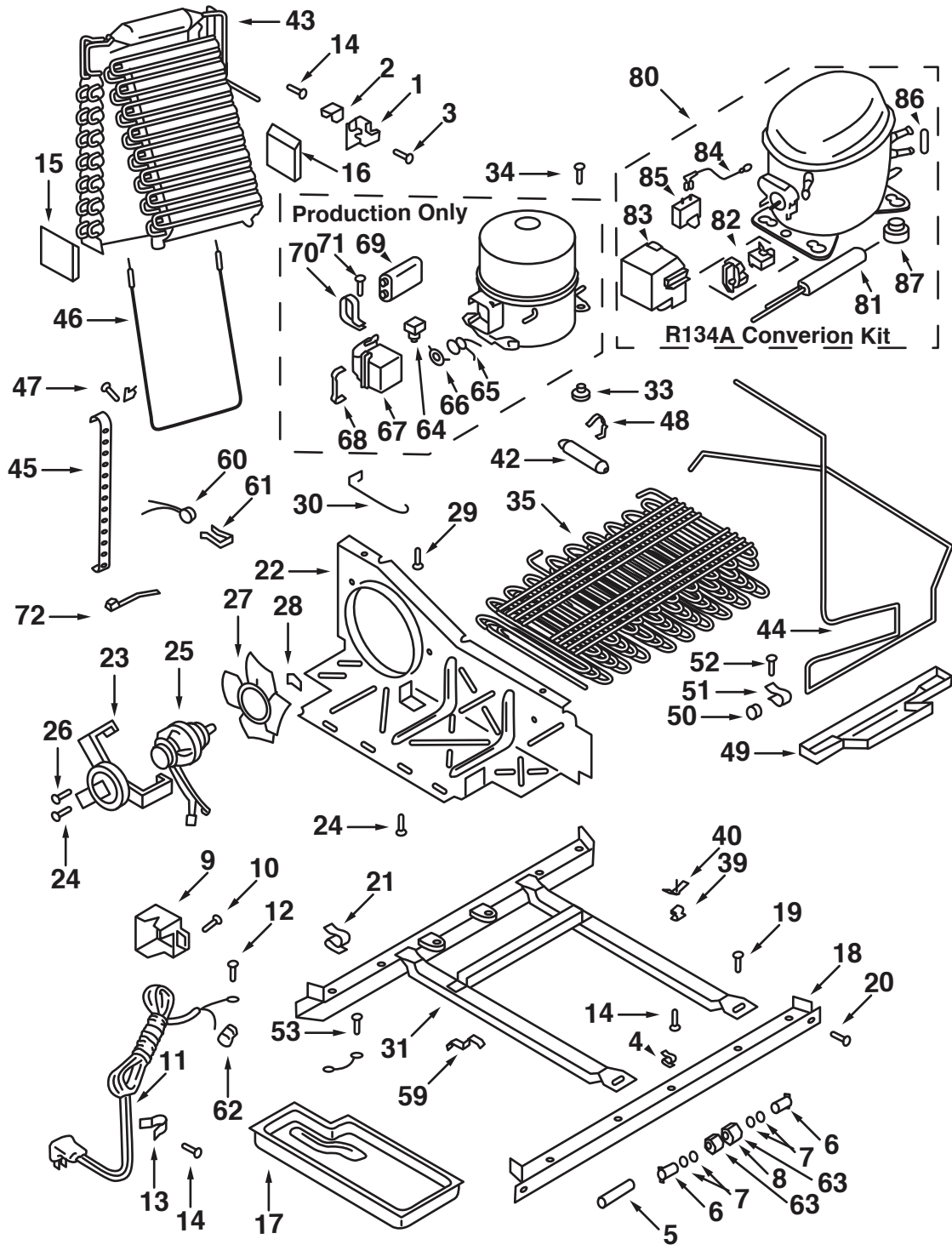


2	520965	Screw, Support Ladder
3	934264	Shelfladder (2)
4	488357	Screw, 8 x 1-1/4
5	488960	Screw, 8-32 x 1-1/4
	488980	Screw (Repair)
6	984779	Shelf, Stud
7	937521	Stud, Shelf
8	208500	Shelf, Stud
9	936591	Stud
10	937513	Stud Water Reservoir
12	521878	Stud
13	936787	Shelf, Cantilever
14	849021	Shelf Trim, Cantilever
15	1108782	Glass, Cantilever Shelf
16	849028	Reflector, Cantilever
17	1108778	Pan Slide & Cover (Crisper)
18	1101202	Pan Slide & Cover
19	982588	Crisper Gasket Rear
20	982587	Crisper Gasket Front
21	943112	Pan Crisper
22	942234	Housing, Humidity Control
23	942235	Slide, Humidity Control
24	942236	Seal, Humidity Control
25	489041	Screw, 6-19 x 7/16
26	1108780	Front Cover, Crisper
27	488132	Screw (Repair)
	488783	Screw, 8 x 1/2
28	984750	Overlay, Front Cover
29	840037	Pan (Meat)
30	1108777	Front Cover, Meats
31	1106048	Container, Utility
32	503695	Cork Sealer (1/4 Pound)
	511873	Paint, Touch-Up 1/2 Oz. (White Porcelain)
	212643	Sealer, Gum (4 Feet)

parts diagrams

Typical Refrigerator Breakdown:

unit parts



parts diagrams

1	842436	Support, Evaporator	42	945424	Dryer
2	944454	Screw, Grommet	43	1101078	Evaporator
3	489049	Screw, 10-12 x 3/8	44	1100809	Exchanger, Heat
4	934011	Clip, Water Tube (2)	45	850568	Heat Shield (2)
5	983659	Spring, Tube Forming	46	934445	Heater, Defrost
6	841707	Insert, Plastic Tube (2)	47	549419	Heater, Clamp (4)
7	488794	``O`` Ring Seal (4)	48	548508	Drier Clamp
8	489098	Union	49	945572	Pan, Drip
9	850482	Box, Junction	50	510769	Dampener (2)
10	486993	Screw, 8 x 1/2	51	510716	Tube Clamp (2)
11	850626	Cord, Service	52	488197	Screw, 8-32 x 1/2 (2)
12	488474	Screw, 8-32 x 3/8	53	488879	Screw, 8-32 x 5/16 (2)
13	549193	Clamp, Service Cord	59	548744	Clip (2)
14	486194	Screw, 8 x 1/2	60	934424	Defrost, Bimetal
15	652985	Baffle, Evaporator	61	513584	Clamp
16	849335	Air Baffle	62	227991	Wire Connector
17	849331	Tray, Evaporator	63	487857	Nut-Ball Sleeve
18	548662	Front, Rail	64	945535	Relay
19	488454	Screw, 1/4-28 x 1/2 (2)	65	1101187	Overload
20	488683	Screw, 5/16-18 x 5/8 (4)	66	943494	Overload Spring
	489035	Screw (Repair)	67	943496	Terminal Cover
21	548745	Clip, Wire (2)	68	943497	Terminal Cover Strap
22	850391	Air Baffle	69	1101183	Running Capacitor
23	548695	Bracket Motor	70	1101184	Clamp
24	488624	Screw, 8 x 3/8 (7)	71	488500	Screw, 8-32 x 3/8
25	945566	Fan, Motor	72	851095	Strap
26	489019	Screw, 8-32 x 3/8 (3)	80	4388009	Compressor (Includes Items 81, 82, 83, 84, 85, 86, & 87) Also order
27	989524	Fan, Blade			Tube Kit
28	486692	Speed Nut, 1/4-20	80	876765	Drier
29	488978	Screw, 8-15 x 3/8	81	4387019	Overload/Relay Assy.
30	850156	Guard, Fan	82	4387871	Cover, Terminal
31	945463	Frame	83	4387731	Wire, Capacitor
33	1108038	Grommet (4)	84	2172890	Capacitor
34	489116	Screw, 1/4-28 x 1 (4)	85	4387764	Sleeve
35	943480	Condenser & Precooler Assembly	86	4387559	Grommet
39	943447	Grommet Mounting	87	4387558	
40	548738	Clamp, Mounting			

Alright,
you've learned a lot,
you better move on before
you get **freezer burn!**
Please continue on to
the Basic Training
Refrigerator Quiz.

