

## TO SHUT OFF THE CABINET

If for any reason refrigeration is not required over a period of weeks, the gas taps and/or electric switch **must** be turned off. The cabinet and ice trays **must be** emptied, cleaned and dried. It is required to keep the door open a little when not in use for longer periods of time.

## DOOR SEAL

1. It is essential, for correct operation, that the door gasket makes a good seal all around, against the

## Electric Operation—12v DC. (3-way models only)

- Turn gas valve knob to "gas off" position.
- Turn the electric on/off switch to "on".
- The AC/DC selector switch should be on DC.
- Turn the electric thermostat knob to "coldest" setting.
- If the cabinet temperature is too cold, turn the electric thermostat control knob to a warmer setting.

## CHANGING DOOR PANEL WITH NEW STYLE

WRAP AROUND  
DOOR MOLDING

\$975

- Fig. 35 shows the door with the new style door molding in place.
- Fig. 36 through 40 shows the removal of the top door trim.
- Fig. 41 shows the door panel being inserted and/or removed from the top of the door molding.

# INSTA-MATIC™

**Service & Maintenance**

# CLASSIC SERIES REFRIGERATORS

leak, warm air enters the cabinet, causing high cabinet temperatures and excessive frost formation on the freezing compartment.

## FLUE OBSTRUCTIONS

On gas refrigerators, the flue will require occasional cleaning. To do this it will be necessary to gain access to the back of the cabinet. When cleaning the flue, proceed as follows:

**Completely remove box.** Cover the entire burner assembly with a piece of foil, then lift out the baffle on its support wire from the top of the boiler tube. From the top, clean the flue with a suitable flue brush. Clean baffle before replacing.

An obstruction in the flue will reduce or stop flue draft. Flue obstructions

For rapid ice production, set the temperature control knob at "coldest" position. When ice has been produced, turn the temperature control knob to the normal operating position, otherwise food in the cabinet may become frozen. Ice cubes take some time to form and it is advisable to keep the ice tray full and ready for immediate use. When storing frozen foods in the freezer section, the temperature control knob should be positioned at or near "coldest" setting position depending on such factors as outside temperature and frequency of door opening, and also on amount of exposure to the sun.

## 6. DEFROSTING

Frost will gradually form on the evaporator. Since excessive frost ac-

This refrigerator door is designed so the door panel may be removed and a new panel inserted should the need arise. The following procedure should be followed as shown in Fig. 42.

hand door opening. To change the opening:

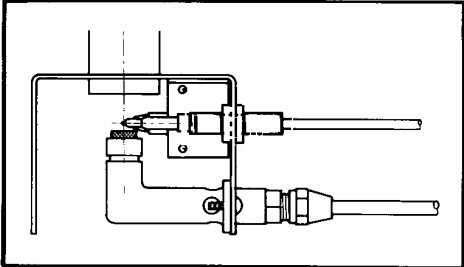
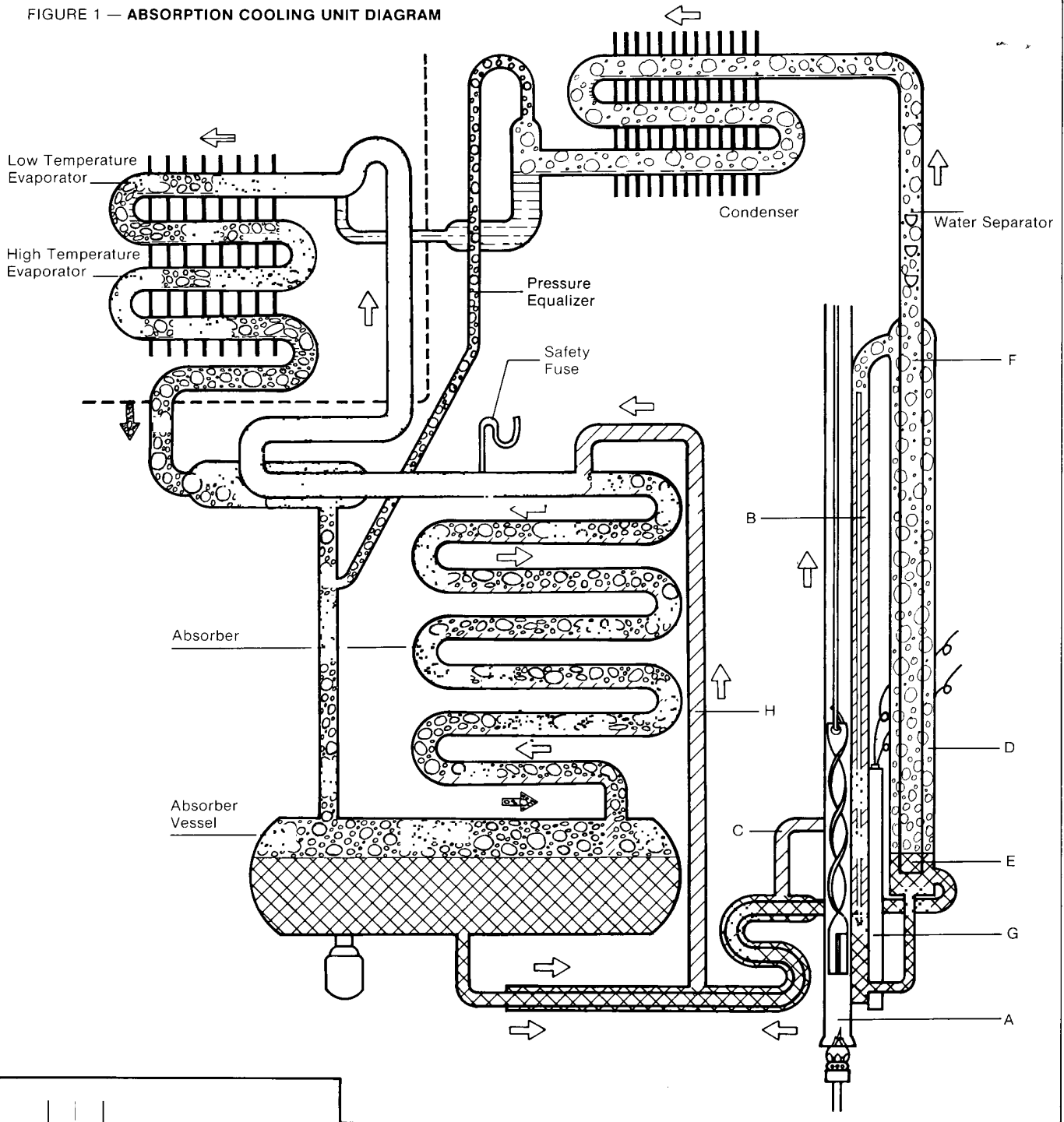
- Unscrew and remove top hinge pin (Fig. 43 and 44).
- Remove door.
- Unscrew and remove bottom hinge pin and fit it to opposite side (Fig. 45).
- Change the travel link pin to opposite side (Fig. 46) and reposition (Fig. 49).

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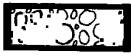



Western Branch

17051 East Green Drive	Office Size
City of Industry, CA 91744	81
Phone 213/912-2491	79
IM-270 Series	78
IM-290 Series	79

FIGURE 1 — ABSORPTION COOLING UNIT DIAGRAM



The correct flame, at "COLDEST" setting, should have a bright blue crown at the base of the flame and a slight buzzing noise.

- |   |                              |   |                         |
|---|------------------------------|---|-------------------------|
|  | Ammonia vapor                |  | Hydrogen gas            |
|  | Ammonia hydrogen mixed vapor |  | Strong ammonia solution |
|  | Weak ammonia solution        |  | Liquid ammonia          |

# The Absorption Type Cooling Unit

The continuous absorption type cooling unit is operated by the proper application of a limited amount of heat (gas or electricity). There are no moving parts.

The unit (see **Fig. 1**) consists of four main components—the boiler, the condenser, the evaporator and the absorber. All the components are connected by tubes; the whole construction being of welded steel.

The unit (**Fig. 1**) can be run on either electricity or gas. In the illustration, the unit is operating on LP gas.

The unit is charged with proper quantities of ammonia, water and hydrogen under pressure sufficient to condense ammonia at ordinary room temperature. The system is then sealed.

Some of the ammonia is in relatively strong solution with water in the boiler. When heat is applied at point (A) (an LP gas flame is illustrated) **Fig. 1**, bubbles of ammonia gas are produced which rise through pump tube (B), and carry with them quantities of weak ammonia solution. This weak solution passes into tube (C), while the ammonia vapor passes into the outer tube (D) and on to the point (E) where it is enriched by bubbling through the strong ammonia solution before rising into the vapor pipe (F) and on to the water separator. Here any water vapor is condensed and runs back into the boiler system, leaving only dry ammonia vapor to pass to the condenser.

Air circulating over the fins of the condenser removes sufficient heat from the ammonia vapor to cause it to condense, becoming liquid ammonia, in which state it flows into the low temperature evaporator, situated at the rear inside the cabinet.

The low temperature (freezer) evaporator and the higher temperature secondary evaporator are also

filled with hydrogen gas. The hydrogen passes across the surface of the liquid ammonia, reducing the internal pressure sufficiently to allow the liquid ammonia to evaporate, thus producing low temperatures. As evaporation continues, heat is extracted from the evaporator coils and ultimately from the surrounding food storage space, thereby lowering the temperature inside the refrigerator.

The mixture of ammonia and hydrogen vapor passes from the evaporator to the absorber.

Entering the upper portion of the absorber is a continuous trickle of weak ammonia solution fed by gravity from the tube (H). This weak solution, flowing down through the absorber, comes into contact with the mixed ammonia and hydrogen gases and readily absorbs the ammonia from the mixture, leaving the hydrogen free to rise through the absorber coil and to return to the evaporator. The hydrogen thus circulates continuously between the absorber and the evaporator.

The strong ammonia solution produced in the absorber flows down from the absorber to the boiler, completing the full cycle of operation.

The liquid circulation of the unit is purely gravitational. It is, therefore, essential that the unit be level for proper operation.

Heat is generated in the absorber by the process of absorption. This heat must be dissipated into the surrounding air. Heat must also be dissipated from the condenser in order to cool the ammonia vapor sufficiently for it to liquefy. Free air circulation is therefore necessary over the absorber and condenser.

Since the system is operated by heat applied to the boiler, it is of paramount importance that this heat is kept within the prescribed limits.

When the unit is operated on electricity, a heating element fitted in pocket (G) welded to the pump tube (B) causes the ammonia solution to boil.

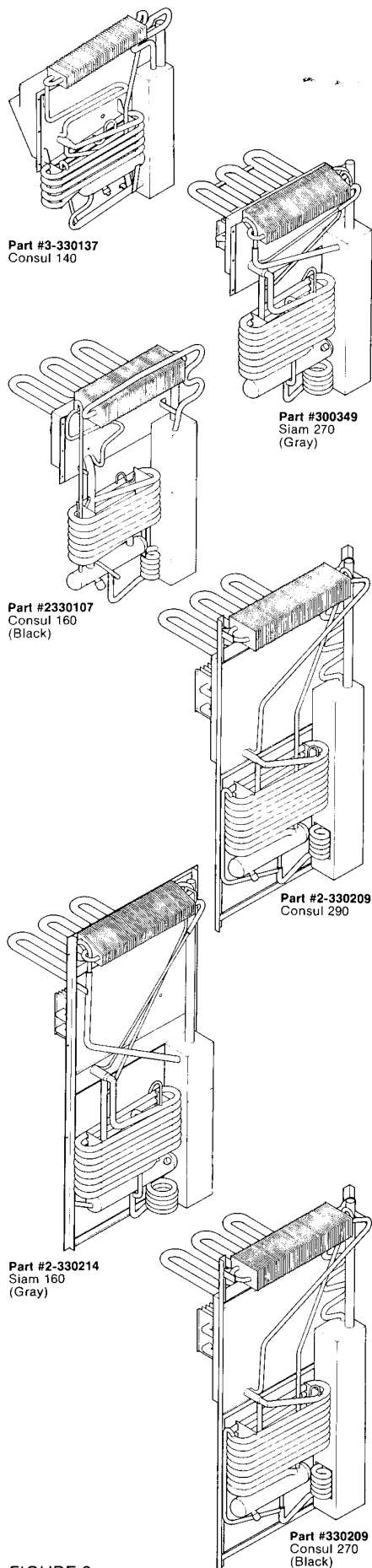


FIGURE 2

# The Classic Refrigerator

The CLASSIC REFRIGERATOR is engineered specifically to keep perishable foods in a wholesome condition long enough to meet normal household requirements. A temperature between 35°F and 50°F (2°C and 10°C) has been found to be most suitable, and the CLASSIC has been designed to do this under the most severe conditions likely to be experienced.

The cabinet is a well-insulated container providing shelf space for non-frozen perishables and storage for frozen foods as well. In addition, a place for rapid freezing and storage of convenient sized ice cubes has been provided.

In order to maintain the relatively low temperatures necessary to make ice and to store perishables, heat must be removed from the cabinet and its contents. Heat is added each time the refrigerator door is opened or warm food or water is added. Smaller amounts of heat enter through the cabinet walls, and the sum total of all of these heat additions make up the load on the cooling unit.

The cooling unit removes heat first from the frozen food compartment through the primary evaporator. As a result, this compartment will run 15 to 20 degrees Fahrenheit (8°C to 11°C) colder than the average cabinet temperature when the room temperature is about 77°F (25°C). This temperature difference increases or decreases with a rise or fall of room temperatures.

As the air around the evaporator area is cooled it becomes heavier and moves downward (Fig. 4) passing over the foodstuffs. As it removes heat from the food it becomes lighter and rises toward the evaporator again. This circulation of air tends to distribute the cooling effect, but the coldest area will always be immediately below the evaporator.

All models of the CLASSIC have a gas and an electric thermostat which automatically regulate cabinet temperatures. Warmer or colder temperatures may be maintained by simply turning the thermostat dial (Fig. 3) (see OPERATING INSTRUCTIONS, page 11).

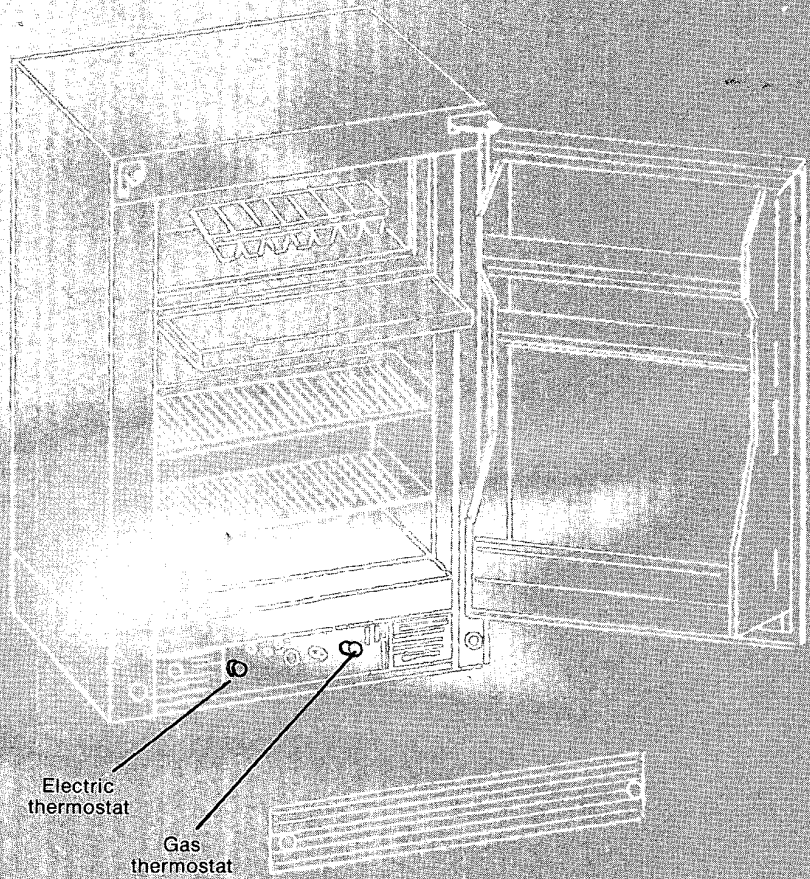


FIGURE 3

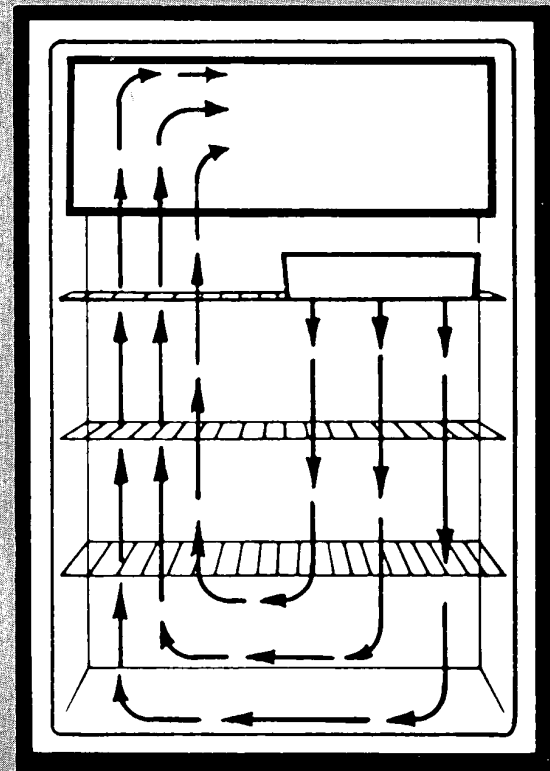


FIGURE 4 — AIR CIRCULATION

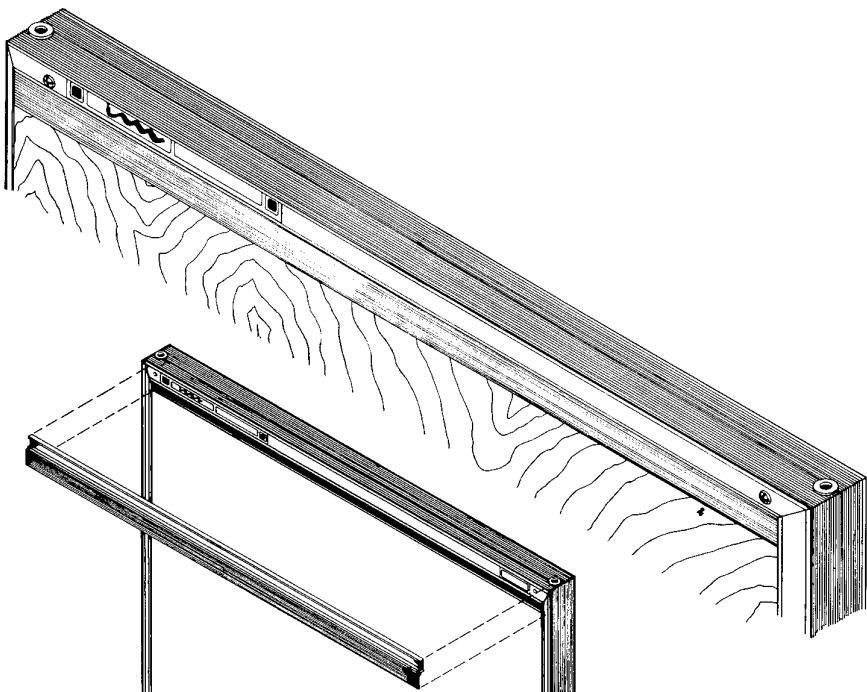


FIGURE 5

### CHANGING DOOR PANEL WITH WRAP AROUND STYLE DOOR MouldING

1. Fig. 5 shows the top of the door with the wrap around style door moulding in place.
2. Fig. 6 through 9 shows the removal of the top door trim.
3. Fig. 10 shows the door panel being inserted and/or removed from the top of the door moulding.

Below are listed the panel sizes for the Classic refrigerators incorporating the one piece wrap-around siding.

*all tolerances ±.062"*

IM-140	25-1/2 x 22-3/8
IM-160	34-1/2 x 22-3/8
IM-270	34-3/8 x 24-1/32
Freezer	9-5/8 x 24-1/32
IM-290	34-3/8 x 24-1/32
Freezer	13-1/2 x 24-1/32

NOTE: Use 5/32" plywood panel or decorative metal w/1/4" foam tape backing.

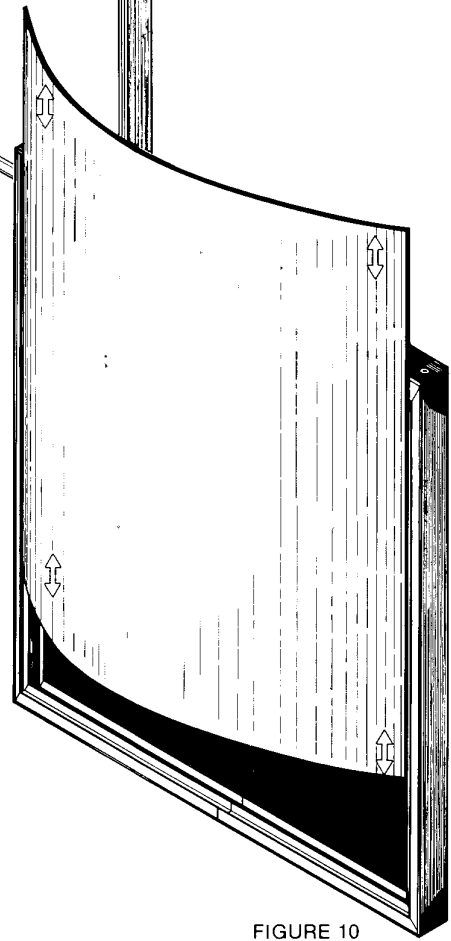


FIGURE 10

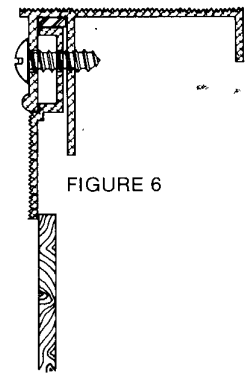


FIGURE 6

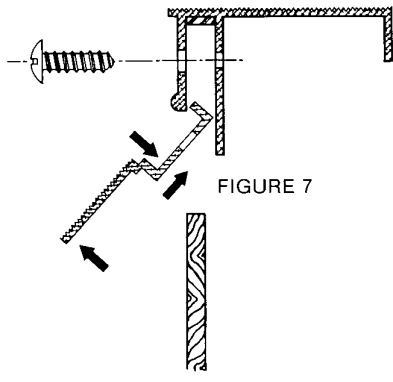


FIGURE 7

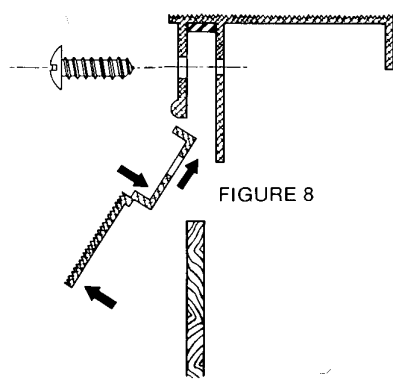


FIGURE 8

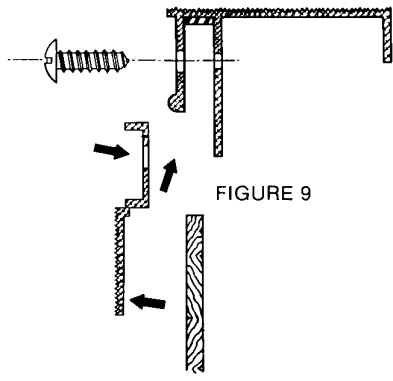


FIGURE 9

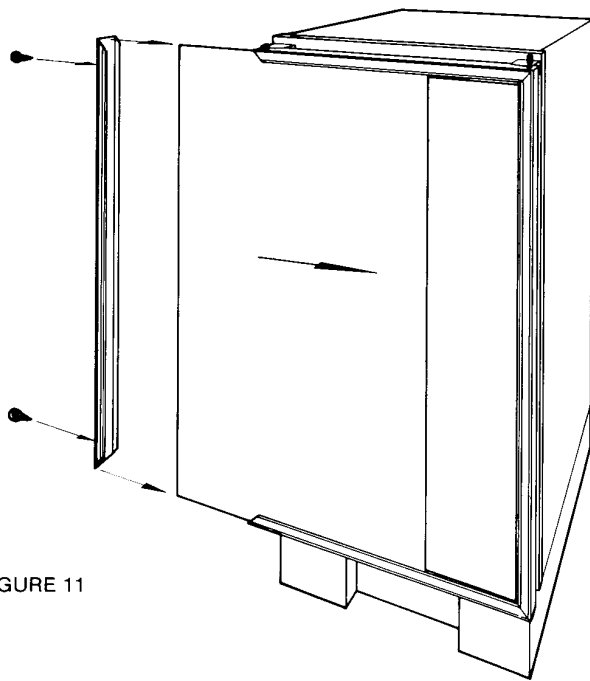


FIGURE 11

### CHANGING DOOR PANEL WITH "C" SECTION STYLE DOOR MOULDING

This refrigerator door is designed so the door panel may be removed and a new panel inserted should the need arise. The following procedure should be followed as shown in **Fig. 11**.

1. Unscrew and remove side trim.
2. Slide out existing door panel.
3. Insert new door panel and install side door trim.

Panel sizes for Classic refrigerators having sectional style door trim:

IM-140	25-5/8 x 22-3/8
IM-160	34-5/8 x 22-3/8
IM-270	34-1/2 x 24-1/32
Freezer	9-3/4 x 24-1/32
IM-290	34-1/2 x 24-1/32
Freezer	13-5/8 x 24-1/32

NOTE: Use 5/32" plywood panel or decorative metal with 1/4" foam tape backing.

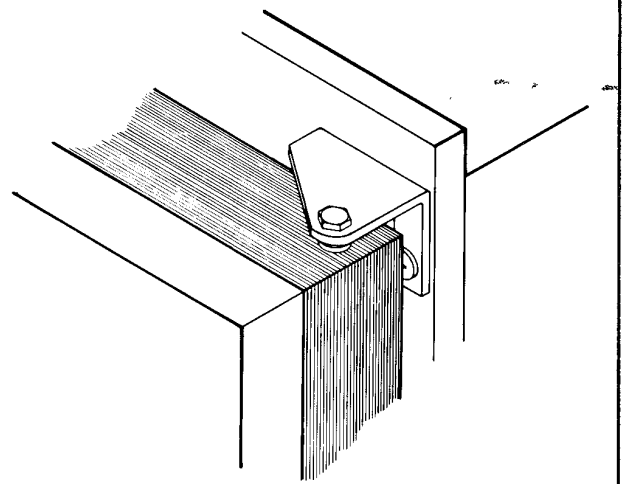


FIGURE 12

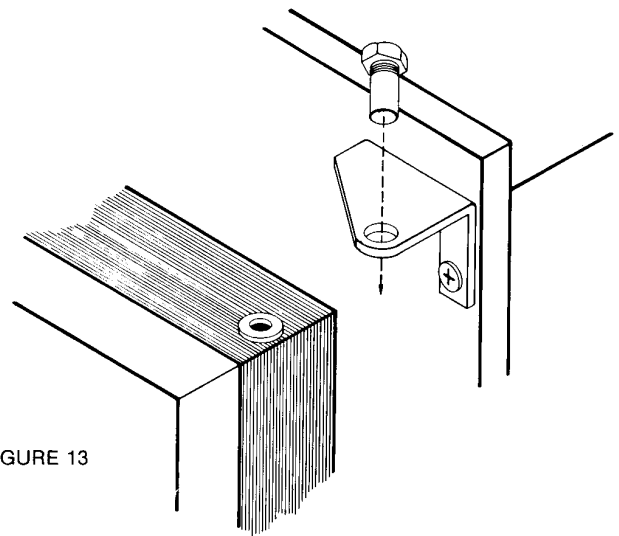


FIGURE 13

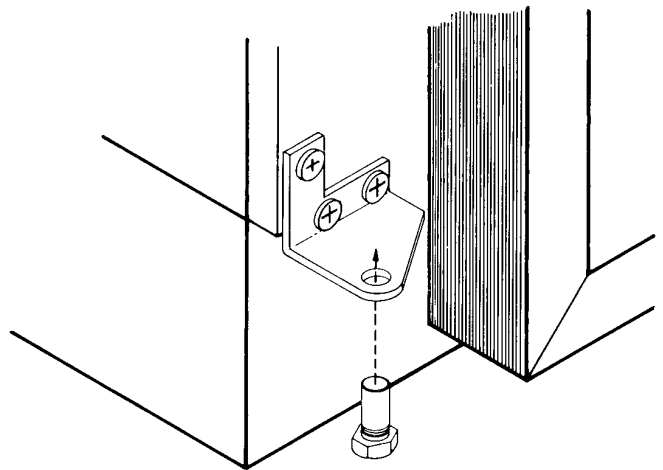


FIGURE 14

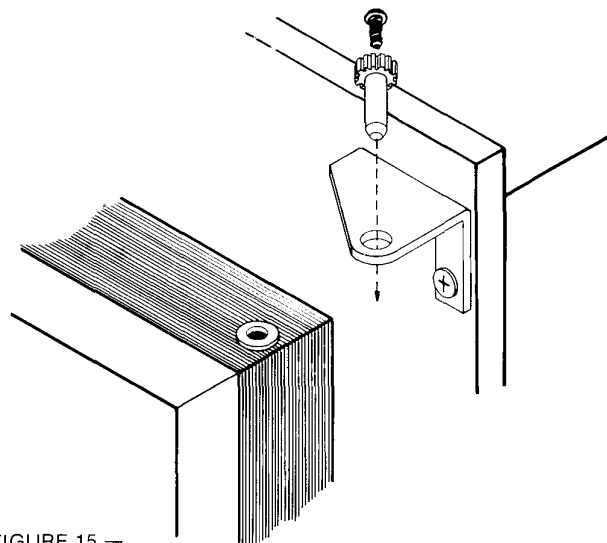


FIGURE 15 —  
SINGLE DOOR TRAVEL LOCK PIN

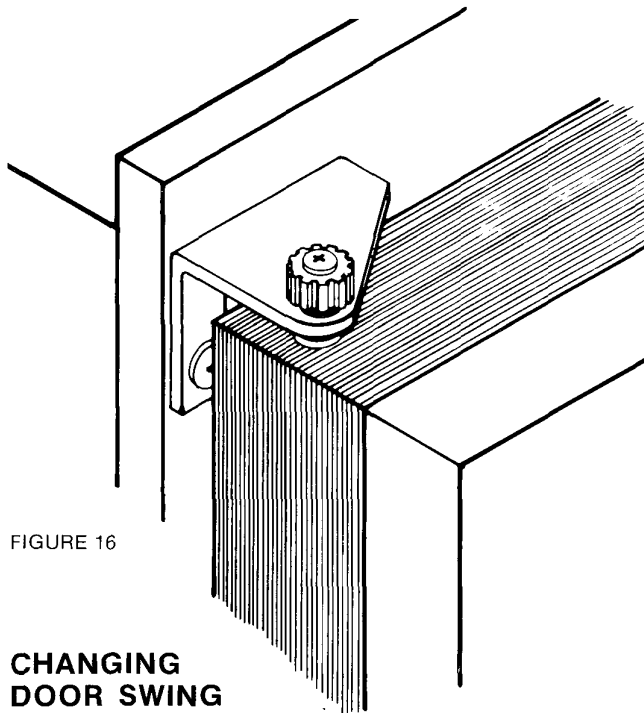


FIGURE 16

### CHANGING DOOR SWING FROM LEFT TO RIGHT

This door hinging design allows you to make either right-hand or left-hand door opening. To change the opening:

1. Unscrew and remove top hinge pin (Fig. 12 and 13).
2. Lift and remove door.
3. Unscrew and remove bottom hinge pin and fit it to opposite side (Fig. 14).
4. Replace door and top hinge pin.
5. Change the travel lock pin to opposite side (Fig. 15 and 16).

OR

6. Change travel latch to opposite side (Fig. 17, 18).

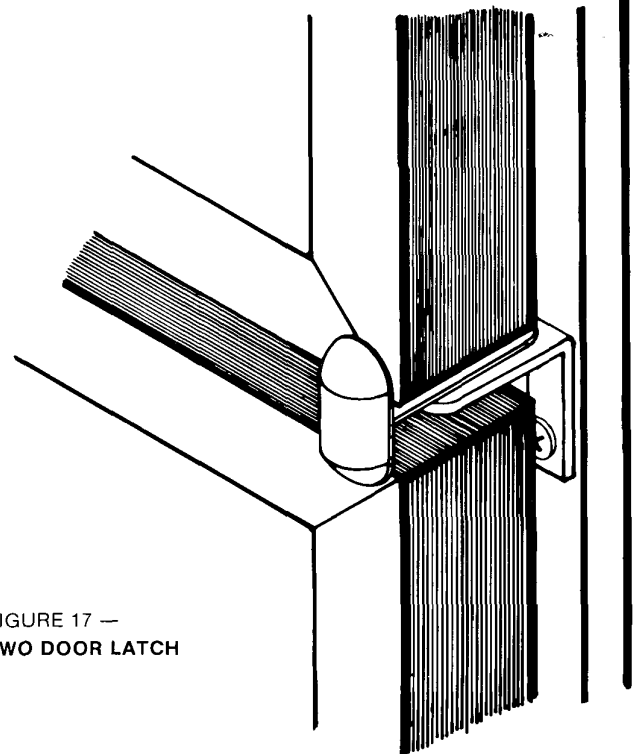


FIGURE 17 —  
TWO DOOR LATCH

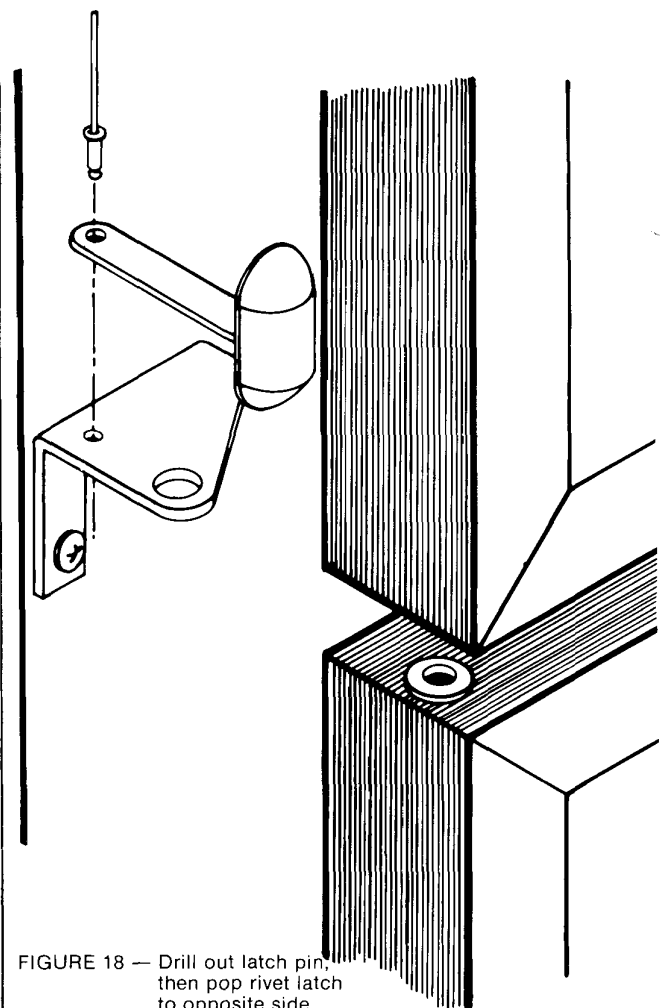


FIGURE 18 — Drill out latch pin,  
then pop rivet latch  
to opposite side.

# Installation Instructions

## GENERAL

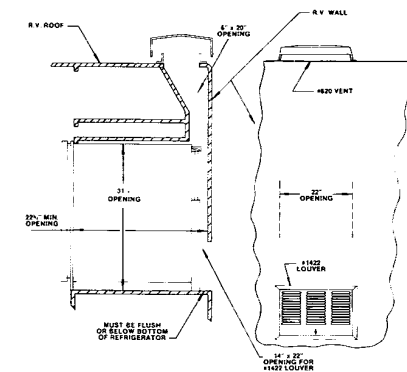
The refrigerator must be installed on a solid floor and secured in place by running screws through holes in the cabinet support rails and into the floor, in addition to the front cabinet mounting holes. The method of installing the combustion air kit is shown in **Figs. 19, 20, 21, and 22**. The service door at the bottom must be a rectangular or radius #1422 as shown in **Fig. 23**. The top vent must be a #620 roof vent (**Fig. 24**). An ALTERNATE INSTALLATION using a louver plate above the refrigerator in place of the #620 roof vent IS NOT RECOMMENDED.

Since an absorption type refrigerator depends upon air circulation over the cooling unit for good operation, it is necessary that it be installed so that the air behind and above the unit is unrestricted. The refrigerator cabinet must be enclosed at the bottom, sides and top to exclude any pockets of hot air. All joints in the enclosure must be tight to assure that no combustion products enter into the living area. This is an ANSI 119.2 requirement that must be adhered to. The recess between the cabinet and refrigerator can be enclosed with mouldings or other suitable sealing means. Set refrigerator in cut-out and secure to vehicle by inserting wood type screws through pre-drilled holes in refrigerator base legs and cabinet molding.

## GAS CONNECTIONS

The inlet is a 3/8 inch male flared tube fitting. It is recommended that 3/8 inch copper tubing be used for the gas supply line. The gas line must be free of kinks and sharp bends and it should be positioned in such a way that it will not be damaged when the refrigerator is slid in or out of the recess. LP gas is highly flammable and it is of extreme importance that all joints in piping from the LP tank to the appliance be absolutely gas tight.

## INSTALLATION



**FIGURE 19 — MODEL IM-140 SERIES**  
Usable storage volume 3.2 cu. ft.  
See page 28 for large detail view.

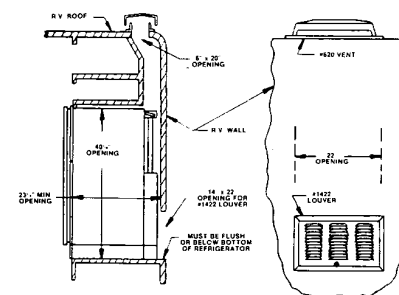
### INSTAMATIC REFRIGERATOR SPECIFICATIONS

Model	UNIT EXTERIOR DIMENSION			BUILT-IN DIMENSION		
	Height	Width	Depth	Height	Width	Depth
IM-142	31	21 $\frac{1}{2}$	22 $\frac{1}{2}$	31 $\frac{1}{2}$	22	23
IM-143	31	21 $\frac{1}{2}$	22 $\frac{1}{2}$	31 $\frac{1}{2}$	22	23
IM-162	40	21 $\frac{1}{2}$	22 $\frac{1}{2}$	40 $\frac{1}{2}$	22	23
IM-163	40	21 $\frac{1}{2}$	22 $\frac{1}{2}$	40 $\frac{1}{2}$	22	23
IM-272	51 $\frac{1}{2}$	23 $\frac{1}{2}$	23	51 $\frac{1}{2}$	23 $\frac{1}{2}$	23 $\frac{1}{2}$
IM-273	51 $\frac{1}{2}$	23 $\frac{1}{2}$	23	51 $\frac{1}{2}$	23 $\frac{1}{2}$	23 $\frac{1}{2}$
IM-292	55 $\frac{1}{2}$	23 $\frac{1}{2}$	23	55 $\frac{1}{2}$	23 $\frac{1}{2}$	23 $\frac{1}{2}$
IM-293	55 $\frac{1}{2}$	23 $\frac{1}{2}$	23	55 $\frac{1}{2}$	23 $\frac{1}{2}$	23 $\frac{1}{2}$

The minimum clearances to combustible materials, as tested and certified by A.G.A. and C.G.A. are as follows:  
Sides 0 inches  
Top 0 inches  
Back 0 inches

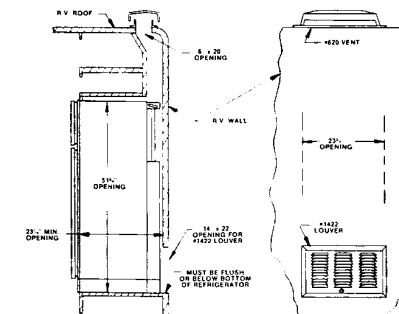
See page 29 for large detail view.

## INSTALLATION



**FIGURE 20 — MODEL IM-160 SERIES**  
Usable storage volume 4.7 cu. ft.  
See page 28 for large detail view.

## INSTALLATION



**FIGURE 21 — MODEL IM-270 SERIES**  
Usable storage volume 5.8 cu. ft.  
See page 28 for large detail view.

## INSTALLATION PROCEDURE FOR IM SERIES IM-140, IM-160, IM-270, and IM-290

1. Cut hole to size of refrigerator as shown in installation diagram, allowing for zero clearance of sides, top and back.
2. Install air combustion kit supplied with refrigerator. See diagram for dimensions and location. Combustion kit must not be modified.
3. Attach gasket tape (Polyether or equal) 1/4" x 1/2" on back of refrigerator mounting flange. Apply same tape at bottom front to assure combustion chamber is isolated from vehicle interior.
4. Inspect flue pipe opening for any foreign materials.
5. Set refrigerator in cut-out and secure to vehicle by inserting wood type screws through pre-drilled holes in refrigerator base legs and cabinet molding (**Fig. 25**).
6. Connect gas supply, 3/8 inch copper tubing, to 3/8 inch male fitting on refrigerator. **USE LP GAS ONLY. Check for leaks with SOAP AND WATER solution only.**
7. Plug in refrigerator using 3 prong plug supplied by manufacturer only in 115 volt receptacle. **NOTE:** The following statement must be on all refrigerator flexible service cords.

### WARNING Electrical Grounding Instructions

This appliance is equipped with a three prong (grounding) plug for your protection against shock hazards and should be plugged directly into a properly grounded three prong receptacle.

**DO NOT CUT OR REMOVE THE GROUNDING PRONG FROM THIS PLUG!**

After installation, the gas should be turned on and all the joints checked for gas leaks up to the burner with a solution of soap and water. Do not use open flame to test for gas leaks. Occasionally connections become loose during shipment or from vibration while in transit and this method of testing with soap should be done periodically on all the gas fittings.

8. Allow 10 to 12 hours before checking cabinet temperature after putting into operation. Cooling down time may be longer under adverse conditions.



**NOTE:** Any work involving gas piping must be done by the RV manufacturer or by an authorized service dealer. If you feel that something is wrong with the gas pressure or the gas installation, go to your authorized service dealer. The customer must not attempt any job that involves the loosening of a gas connection.

### ELECTRICAL (12v Battery)

The wiring must be heavy enough to handle the current rating shown on the name plate. It is recommended that not less than No. 10 stranded copper wire with a minimum of 1/32 inch thermoplastic insulation (type MTW or equivalent) be used for the 12 volt circuit. Two separate conductors must be used and connections made to the two 12 volt leads at the back of the refrigerator. Unless the wiring is in the ignition circuit, an

automatic cut-out relay must be installed so no current will be drawn from the battery when the car engine is shut off.

On 3-way models: Connect 12 volt DC black and white wires from vehicle to 12 volt black and white wires at the back of the refrigerator base. The following wire size must be adhered to:

- IM-143 — Use 10 gauge wire
- IM-163 — Use 10 gauge wire
- IM-273 — Use 10 gauge wire
- IM-293 — Use 10 gauge wire

**NOTE:** Do not try to operate refrigerator from a battery charger as the output from a battery charger will not be sufficient for good operation.

**NOTE:** Before attempting any service on the refrigerator, be sure to disconnect both the 12 volt leads and the 115 volt plug.

### LOW VOLTAGE WIRE SPECIFICATIONS

Any wire meeting the following specifications may be used for low voltage wiring:

Stranded copper wire with a minimum of 30 mils (1/32") thermoplastic insulation rated at least 60 deg. C. This would allow the use of primary wire. Also, it should be pointed out that the conductors must withstand the applied potential without breakdown of a one-minute 500-volt or a one-second 600-volt dielectric strength test.

Battery circuits furnished and installed by the recreational vehicle manufacturer and not part of the automobile ignition circuit do not require a cut-out relay. An overcurrent protective device (circuit breaker or fuse) must be provided however.

### INSTALLATION

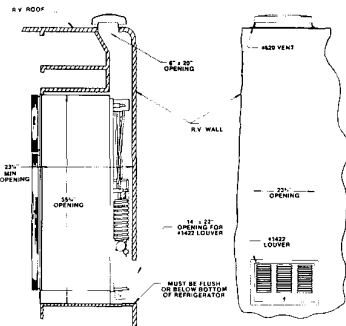


FIGURE 22 — MODEL IM-290 SERIES  
Usable storage volume 6.2 cu. ft.  
See page 28 for large detail view.

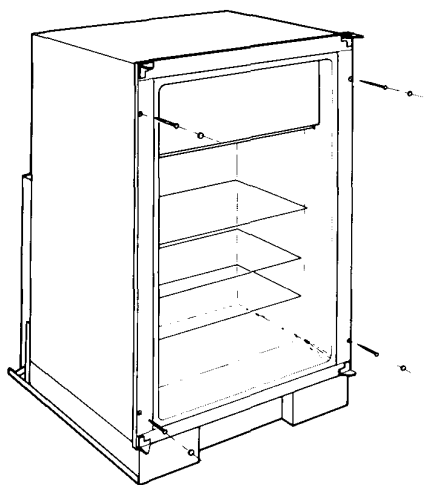


FIGURE 25 — Use holes in cabinet molding for fastening in cut out

### #1422 RECTANGULAR SERVICE DOOR

Cut out size: 14" x 22"

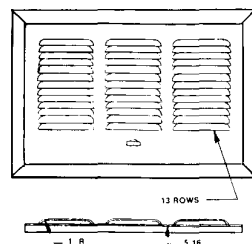


FIGURE 23  
See page 30 for large detail view.

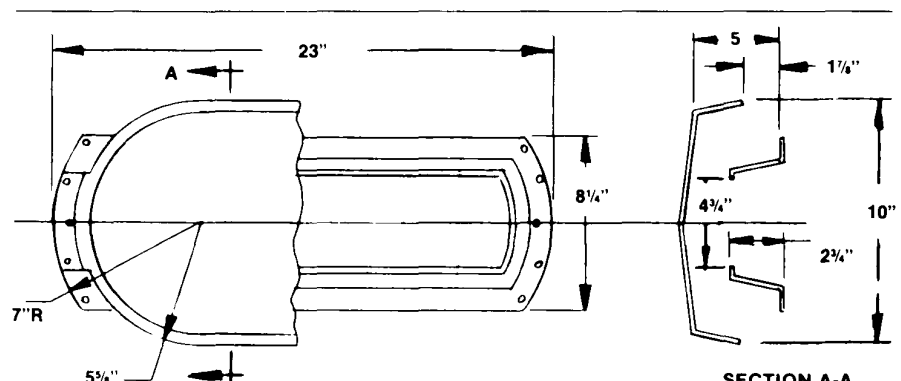
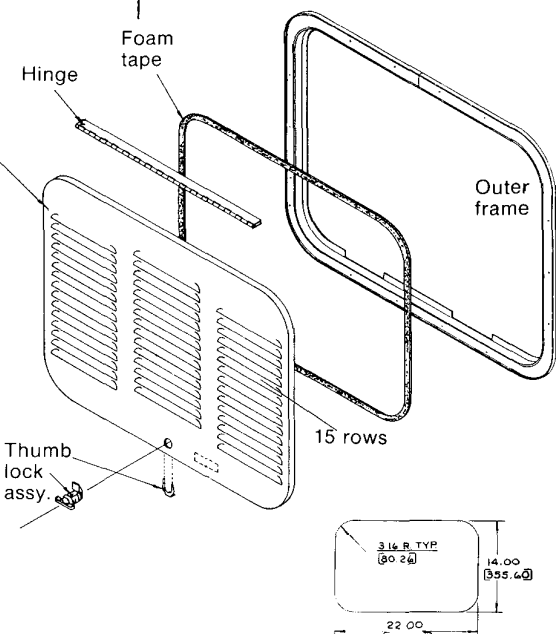
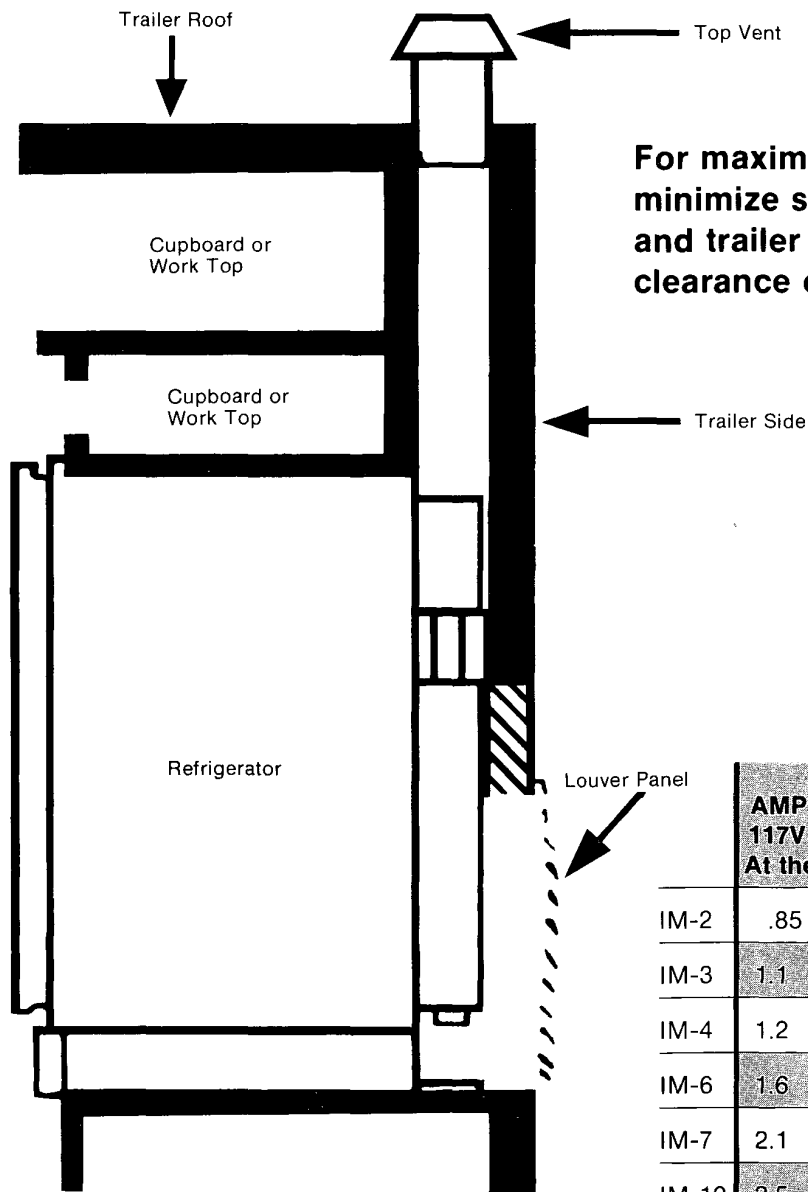


FIGURE 24 — ROOF VENT #620  
Cut out size: 5 3/4" x 20 3/4"

# INSTALLATION INSTRUCTIONS FOR IM SERIES INSTAMATIC REFRIGERATORS

MODEL	EXTERIOR DIMENSIONS			MINIMUM BUILT IN DIMENSIONS			MIN. A.G.A. CLEARANCE		
	Height "	Width "	Depth "	Height "	Width "	Depth "	Top	Sides	Back
IM-2	22	19 $\frac{1}{8}$	17 $\frac{1}{2}$	22 $\frac{3}{8}$	19 $\frac{1}{4}$	17 $\frac{1}{2}$	0"	0"	0"
IM-3	28 $\frac{3}{8}$	20 $\frac{1}{8}$	20 $\frac{1}{4}$	28 $\frac{3}{4}$	20 $\frac{1}{2}$	20 $\frac{1}{4}$	0"	0"	0"
IM-4	30 $\frac{3}{8}$	21 $\frac{1}{4}$	22 $\frac{3}{4}$	31 $\frac{1}{4}$	21 $\frac{5}{8}$	23 $\frac{1}{4}$	0"	0"	0"
IM-6	38 $\frac{3}{4}$	21 $\frac{1}{4}$	23 $\frac{1}{2}$	39 $\frac{1}{8}$	21 $\frac{5}{8}$	23 $\frac{1}{2}$	0"	0"	0"
IM-7	56 $\frac{1}{2}$	23 $\frac{3}{8}$	23 $\frac{1}{2}$	56 $\frac{7}{8}$	23 $\frac{3}{8}$	23 $\frac{1}{2}$	0"	0"	0"
IM-10	55 $\frac{1}{4}$	23 $\frac{3}{8}$	23 $\frac{1}{2}$	55 $\frac{5}{8}$	23 $\frac{3}{8}$	23 $\frac{1}{2}$	0"	0"	0"

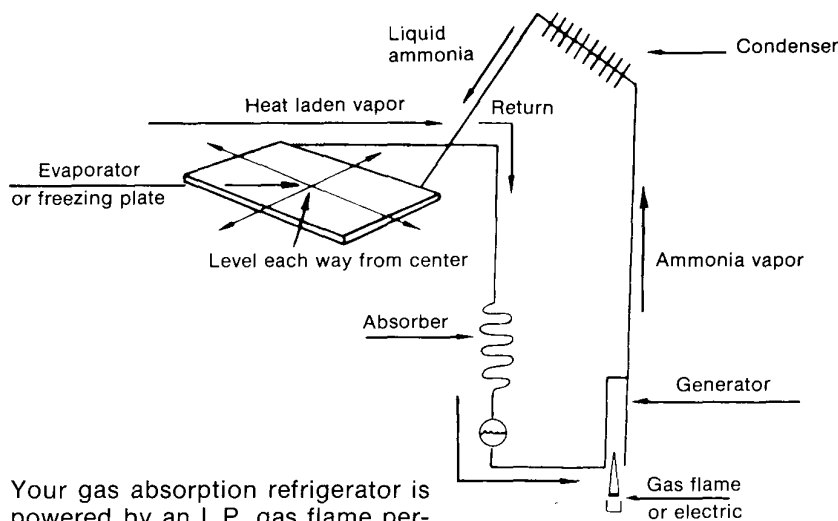


**For maximum operation characteristics — minimize space between refrigerator back and trailer side wall. Also maintain "0" clearance on side, top and bottom.**

	AMP DRAW		MIN. WIRE SIZE 12V Operation	VENT REQUIREMENTS	
	117V	12V At the Refrig.		Lower Side Wall	Roof Mount
IM-2	.85	9.2	#10	#1422	#620
IM-3	1.1	11.7	#10	#1422	#620
IM-4	1.2	14.2	#10	#1422	#620
IM-6	1.6	16.7	#10	#1422	#620
IM-7	2.1	—	#10	#1422	#620
IM-10	2.5	—	#10	#1422	#620

FIGURE 26

FIGURE 27 — OPERATION SCHEMATIC



Your gas absorption refrigerator is powered by an L.P. gas flame permitting you to have silent refrigeration wherever you go. **In order for this to be possible and practical, certain conditions must be met.**

The cooling unit is one that uses heat as a source of power. The heat generated by either gas flame or electricity circulates the refrigerant in the form of a vapor up through the condenser where it is changed to a liquid. From this point, it flows down through the freezing zone (or freez-

ing plate) on its way back to the generator, completing the cycle.

When the liquid ammonia passes through the freezing plate it is again changed into a vapor by heat absorbed from the food and cabinet area. If this heat laden vapor is trapped or partially trapped by liquid ammonia preventing it from passing out of the evaporator (or freezing plate) due to an unlevel condition,

# Leveling and Why

the results will be a total or partial loss of refrigeration. For this reason, TAKE A LITTLE TIME TO LEVEL the freezing plate, using a small bubble level (see Fig. 27) and adjust the RV so that this point (center of freezer plate) is level in each direction.

The refrigerator is normally installed with the freezing plate level in relation to the floor (center) of RV; if you find this true, then level the RV floor; if not, level from the plate.

## OPERATION IN TRANSIT

While the refrigerator must be level when the RV is stopped, the refrigerator has been so designed that it will perform during transit.

When your RV is moving, a washing action caused by the motion will prevent any liquid from trapping this vapor on its way back to the generator for recirculation. In addition, traveling creates more air circulation for the air cooled unit, resulting in improved performance.

# Operation Analysis for Cooling Unit

It is obviously important that all external factors affecting the unit should be checked thoroughly before a unit is condemned as faulty. Emphasis has been placed upon the necessity for correct installation, level refrigerator, correct heat input, baffle position, etc. If the refrigerator is the gas/electric model, check the size and wattage of the electric heater and make sure that the heater element is inserted to the bottom of the well pocket or receptacle. If the electric element is only partly inserted, the heat distribution will be incorrect, causing an excessive vaporizing of the ammonia within the boiler. This symptom can show up with too much or too little heat input either on electric or on gas operation and also if the refrigerator had been operating in an off-level position or with inadequate ventilation.

If excessive vaporizing of the ammonia within the boiler occurs due to the above causes, the liquid mix-

ture in the boiler becomes very weak and the pump will cease to operate. This means that the circulation of liquid stops with the result that the evaporator inside the cabinet ceases to produce cooling.

Such a blockage of the unit in the liquid circuit is most usually made evident by signs of overheating on the vapor pipe leading from the boiler to the condenser, the paint on this pipe being blistered and the metal becoming discolored.

The temperatures on various parts of a unit vary continuously when it is operating on thermostatic control and it is impossible to base a judgment on the symptoms given unless the refrigerator has been operating continuously on fully correct heat input for at least 5 hours, and preferably 12 hours, prior to examination. In many cases this can be arranged by a telephone call to the customer, asking him to switch the

thermostat to "COLDEST" on the day before the inspection call. If after 12 hours' operation on "COLDEST," the performance is satisfactory, the unit is not at fault unless the complaint is one of varying intermittent performance. In this connection the room temperature at the time of the complaint must be considered, since a unit which is satisfactory at an ambient temperature of 50° F may not be satisfactory at 95° F.

In cases where satisfactory performance is obtained on "COLDEST" but not on other settings, the thermostat is to be suspected.

When a normal unit is working on "COLDEST," the absorber coil will be warmer at the bottom than at the top. The absorber vessel will be warmer. The vapor cooling pipe from the boiler to the condenser will be warm, bearable to the hand, at the bend where it joins the condenser, with a gradual rise in temperature towards the boiler end.

# Operating Instructions

## 1. LEVELING

When the coach is parked, care should be taken that the refrigerator is properly leveled. It is standard procedure to check in the freezer compartment, using a small level for this purpose. Whenever possible, the coach should be parked so that maximum protection from the elements is afforded. Direct sunlight can raise the air temperature around the refrigerator enough to reduce its cooling efficiency.

## 2. CONTROLS

All controls are mounted on a panel at the base for easy access without the necessity of opening the refrigerator door. A gas thermostat is used to control temperatures during gas operation and a separate electric thermostat is used for electric operation. These thermostats can control temperatures ranging from "defrost" to very cold. The "coldest" setting may be useful for faster ice making and for starting up of the refrigerator.

## 3. STARTING UP

### Gas Operation

- Turn on gas at tank.
- Before relighting, turn valve knob to "off" and wait 5 minutes.
- Turn gas knob to "gas on" position.
- Turn gas control knob to "coldest" position.
- Holding the ignition button in, push in the ignition lever for ignition of the burner. Repeat if flame is not visible through view port.
- Release button in about 20 seconds.
- If the cabinet gets too cold, turn gas control knob to a warmer setting.

**IMPORTANT:** As air may be present in the gas lines when first starting up, it may be necessary to repeat ignition procedure.

### Electric Operation—115v

- Plug in the power cord to the 115v supply receptacle.
- Turn gas knob to "gas off" position.

- Flip the electric on/off switch to "on."
- Turn the electric thermostat knob to "coldest" setting.
- If the cabinet temperature is too cold, turn the electric thermostat control knob to a warmer setting.

### Electric Operation—12v DC (3-way models only)

- Turn gas valve knob to "gas off" position.
- Turn the electric on/off switch to "on."
- The AC/DC selector switch should be on DC.
- Turn the electric thermostat knob to "coldest" setting.
- If the cabinet temperature is too cold, turn the electric thermostat control knob to a warmer setting.

### IMPORTANT:

**12 volt DC operation should only be used while in transit.**

When going on a trip, plug in your RV utility cord at home and operate refrigerator on 115v (or LP gas if desired) for about 6 hours before leaving. Your refrigerator will then be cold before you start your journey. For highway use, switch to 12v until you get to your destination. When you arrive, switch to LP gas or 115v.

## 4. OPERATION CHANGE

### From Electricity to Gas

- Follow the starting up instructions of "Gas Operation," Para. 3. Be sure to set the electric on/off snap switch to "elec. off" position.
- When the burner is lit, turn the gas temperature control knob to the desired setting.

### From Gas to Electricity

- Follow the starting up instructions of "Electric Operation."
- Turn the electric temperature control knob to a desired setting.

## 5. ICE MAKING

For rapid ice production, set the temperature control knob at "coldest" position. When ice has been produced, turn the temperature control knob to the normal operating position, otherwise, food in the cabinet may become frozen. Ice cubes take some time to form and it is advisable to keep the ice tray full and ready for immediate use. When storing frozen foods in the freezer section, the temperature

control knob should be positioned at or near "coldest" setting position depending on such factors as outside temperature and frequency of door opening, and also on amount of exposure to the sun.

## 6. DEFROSTING

Frost will gradually form on the evaporator. Since excessive frost accumulation may reduce cooling efficiency, it is recommended that you defrost at regular intervals (every 10 days or so).

### How to Defrost

When operating on gas, turn the temperature control knob to "defrost" (**off**) position. To defrost when operating on electricity, turn the electric thermostat knob left to the "off" position. Empty the ice trays and fill with hot water to hasten the defrost time. As soon as the frost build-up has completely disappeared, wipe the interior of the cabinet so it is dry before turning the unit on.

## 7. CLEANING

It is a good practice to clean the cabinet interior and other parts at regular intervals, preferably when defrosting. Remove all stored foods. Wash the lining with lukewarm water to which a little detergent has been added. Wash the ice cube trays, shelves and vegetable bin. Also, clean around the evaporator, door frame and door gasket. Rinsing with a solution of baking soda and water is recommended. Finish wiping with a soft dry cloth.

## 8. MAINTENANCE INSTRUCTIONS

### Trouble Shooting

If your refrigerator is not working properly, check the trouble shooting hints listed on pages 11, 18 and 19. If your refrigerator still fails to operate, turn it off at the on/off knob and electric on/off switch and contact your dealer immediately, giving him the model number and the serial number shown on the nameplate, and complete details of your trouble.

**IMPORTANT:** Repair of your Instamatic refrigerator must be performed by an authorized service point or your selling dealer. Tampering with any part of the refrigerator by unauthorized personnel will automatically void the warranty.

## 9. FLUE CLEANING

An obstruction in the flue will reduce flue draft and can result in higher cabinet temperatures and other faulty operation. It is advisable to clean the flue at least once each year so that it will be kept free of dust and soot. To do this, it will be necessary to gain complete access to the back of the cooling unit and then proceed as follows: Remove the metal burner housing and cover the burner assembly with a rag so that loose dirt will not fall into the burner. Remove the flue baffle by lifting on the baffle support wire until it is out of the flue tube. From the top, clean the flue with a suitable wire brush. Clean the baffle before replacing.

### IMPORTANT

The refrigerator must be inspected periodically and before re-use after shut-down.

1. Check all gas connections for possible leaks using a solution of soap and water. **(Do not use a lighted match.)**
2. Inspect the flame for color. It should be a sharp blue—not yellow. Check for a high and low flame. This can only be observed after several hours operation.
3. Check the interior of the flue tube for possible soot deposits. Remove flue extension tube by removing bracket and removing the flue baffle. Clean inside of flue tube with a wire brush and reassemble parts.

### TEMPERATURE CONTROL

When the temperature control (thermostat) is set at a higher number, refrigerating effect will be increased. This will tend to lower the temperature in the freezing compartment and in the food storage compart-

ment.

When the temperature control is set at a lower number, refrigerating effect will be reduced.

When the temperature control is set at mid-dial position, medium refrigerating effect will be produced.

### THERMOSTAT SENSING TUBE

On some current Classic refrigerators at the bottom of the freezing compartment is a sleeve in which the end of the thermostat sensing tube must be inserted. If the tube end is not properly inserted in its sleeve, the burner will operate continuously at maximum flame. It will cause too low cabinet temperatures.

On other models the tubing is held against the evaporator by a stainless steel retainer. If the retainer screws are not tight, improper cabinet temperatures may result.

# Service Hints for Electric Operated Refrigerators

#### CAUSE

#### REMEDY

#### The refrigerator does not cool satisfactorily.

Thermostat at wrong setting	Turn the thermostat dial to a higher number.
Air circulation over cooling unit restricted	Remove any restriction. The minimum clearances stated in "Cabinet and Recess Dimensions" for air circulation must be allowed.
Refrigerator not level	The refrigerator must be level in both directions for proper operation. If in a caravan, always make sure it is level when parked. See "Installation Instructions" and "Leveling."
Air leakage into cabinet	Check fit of door gasket, and that the sealing plug is in the hole for the thermostat capillary in the rear wall of cabinet. Check door seal.
Evaporator heavily coated with frost	See "Storing Food in the Refrigerator" and "Door Seal."
Heater faulty, wrong voltage or type	Fit a new heater of rated voltage. See Fig. 42, page 21.
Intermittent electricity supply and/or drop in supply voltage	Look for loose connections or other reason for interruption, and correct. CAUTION: Do not operate refrigerator with less than the recommended voltage. Switch refrigerator to GAS operation if necessary.
Thermostat at "OFF" position	Turn thermostat dial to colder setting.
Electric circuit failures	Check fuses, switches, wiring, etc., and repair the defects.
Heater faulty (open circuit)	Fit a new heater. See "Replacement of Heating Element."
Thermostat faulty	Check placement of sensing tubes. Refer to Gas/Electric Thermostats. See page 22.

#### The refrigerator is too cold.

Thermostat at wrong setting	Turn the thermostat dial to warmer setting.
Improper location of the thermosensing tube	Re-insert the tube fully in the pocket under the ice tray compartment. See "Thermostat Sensing Tube," page 23. Also see Fig. 53, page 25.
Thermostat faulty	Have new thermostat installed. Refer to Gas/Electric Thermostats. See page 22.



## WARNING

Tampering with cooling unit will void warranty . . .

CONTENTS  
HIGHLY  
FLAMMABLE  
AND  
TOXIC!

See  
page 24

# Refrigerator Care and Maintenance

## STORING FOOD

1. Proper refrigeration requires free air circulation within the food storage compartment. Restricted air circulation within the food storage compartment will cause higher cabinet temperatures. Rearrange foods.
2. It is also essential that the shelves are not covered with paper or large storage containers.
3. Odorous foods or highly flavored foods should always be stored in covered dishes, plastic bags or wrapped in foil or waxed paper to prevent food odors. Vegetables, lettuce, etc., should be covered to retain their crispness. Never put hot food into the refrigerator.
4. To reduce frost formation in and on the freezing compartment, cover stored liquids and moist foods and do not leave the door open longer than necessary.
5. When the refrigerator is heavily loaded, it takes longer for refrigerator temperatures to lower, requiring much longer time for ice-making. A very heavy load may also cause defrosting.

## CLEANING

The cabinet interior should be cleaned regularly. Wash shelves and lining with lukewarm water to which a little mild detergent may be added. Dry thoroughly, especially around door frames and door gasket. Warm water only should be used to wash the cooling evaporator, ice trays and shelves.

Plastic crisper may be washed in warm soapy water—no hotter than is bearable to the hand. Do not expose them to dry heat. Never use strong chemicals or abrasive cleaning materials on any part of the cabinet.

## ICE CUBES

**Do not use warm water.** Faster freezing will result if precooled water is used.

## TRAVEL LOCK

The travel lock **must be** fitted to hold the door closed while in transit.

## TO SHUT DOWN WHEN NOT IN USE

If for any reason refrigeration is not required over a period of weeks, the gas taps and/or electric switch **must be** turned off. The cabinet and ice trays **must be** emptied, cleaned and dried. It is required to keep the door open a little when not in use for longer periods of time.

## DOOR GASKET SEAL

1. It is essential, for correct operation, that the door gasket makes a good seal all around, against the front of the cabinet.

The compression of the gasket down the hinge side must not be too great. The gasket should just contact the front of the cabinet when the door is closed. This is normally allowed for during manufacturing.

Failure of the door gasket to contact the front of the cabinet can be determined visually when the door is closed. Run a "dollar bill" along the door seal, inserted between the seal and the cabinet front. Nowhere should the bill feel loose.

2. Improper door sealing on cabinets provided with magnetic door gaskets can be corrected by slackening the upper and lower hinge fixing screws and moving the door inward or outward as required until a satisfactory seal is obtained. If a good seal cannot be obtained, a new gasket should be installed.
3. It is also essential to check that the cabinet opening through which the evaporators enter the cabinet should be properly sealed by a gasket or sealing compound. If these seals leak, warm air enters the cabinet, causing high cabinet temperatures and excessive frost formation in the freezing compartment.

## FLUE OBSTRUCTIONS

On gas refrigerators, the flue will require occasional cleaning. To do this it will be necessary to gain access to the back of the cabinet. When cleaning the flue, proceed as follows:

Completely remove refrigerator. Then remove burner box and cover the entire burner assembly with a piece of foil and lift out the baffle on its support wire from the top of the boiler tube. From the top, clean the

flue with a suitable flue brush. Clean baffle before replacing.

An obstruction in the flue will reduce or stop flue draft. Flue obstructions will cause odors outside the refrigerator, slow freezing and higher cabinet temperatures. Flue blockage may also cause the flame to burn outside the flue tube. Refer to "Odors from Fumes."

## ODORS INSIDE THE REFRIGERATOR

Odors inside the refrigerator are caused by improper food storage. See "Storing Food." They may also be caused by too infrequent cleaning of the food compartment or from the refrigerator being shut off for some time with the door closed.

## ODORS FROM FUMES

1. Odors outside the refrigerator may be caused by gas leaks. Make sure that all shut-off valves on all gas appliances are closed. Test gas connections and all joints in the gas line with soap and water solution, up to and including gas cock. **Never look for a leak with an open flame.** Use a flashlight when necessary in looking for soap bubbles caused by leaks. The gas line should be free of kinks and sharp ends. Turn on gas valve, light burner and test connections between the gas valve and the burner carefully with soap and water.
2. Odors outside the refrigerator may be caused by improper burner flame.
3. The flame touches side of the boiler due to dislocation of the burner. Relocate. Burner dislocation may also cause smoking, and sooting of walls and ceiling.
4. Burner damaged. Replace.
5. The flame touches the flue baffle. Correct position of baffle. See **Figs. 28 and 29.**
6. The flue tube is dirty. Clean the flue.

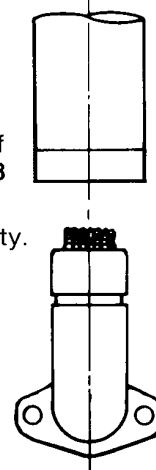


FIGURE 28

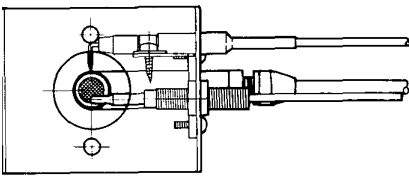


FIGURE 29

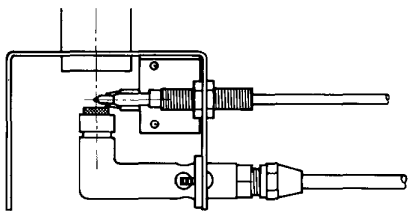
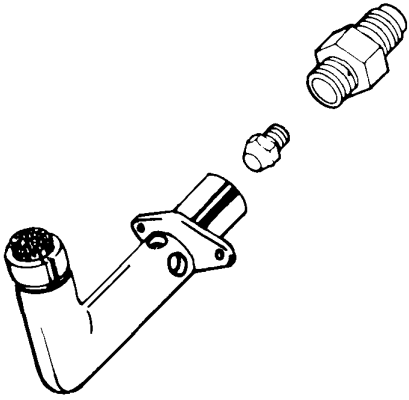


FIGURE 30

## FLAME BLOWS OUT

If trouble is encountered with the flame blowing out under especially windy conditions, move your vehicle so the wind does not blow directly into the vent outlets. If the trouble persists, set the thermostat on "COLDEST." This latter method can, of course, only be temporary such as when the caravan is on tow, for after several hours at this setting, the foodstuffs in the cabinet may become too cold.

## LOST THERMOSTAT CHARGE

The thermostat sensing tubes are filled with inert gas. When the tube is ruptured, the thermostat loses its charge and will become inactive. If the charge is lost, the burner flame will remain on minimum regardless of the position of the dial. Proceed as follows for the test: After removing the tube from tube sleeve in the evaporator, warm up the tip (approximately 3 inches) of the capillary tube by holding it with fingers. If the flame fails to magnify in size, the thermostat has lost its charge and the thermostat must be replaced.

## SERVICE HINTS FOR BURNER

If the burner flame extinguishes when the thermostat is set to reduce the flame to a very low or by-pass flame:

1. The tip of the thermocouple is located too far away from the flame. Check the bend of the burner bracket. If it is improper, bend it correctly or replace with a new one.

Adjust the bracket toward the flame so that the tip of the thermocouple can receive sufficient heat and perform the normal function of opening.

2. The connection between the thermocouple and the housing is not screwed tight enough. For correct connection, a torque ranging from 5-6 lb./inch is recommended. See page 23.

The correct position of the feeler is shown in **Figs. 29 and 30**. Setting dimensions as instructed should be maintained in as reference to **Figs. 29 and 30**.

**IMPORTANT:** The tips of the thermocouple and the ignition plug must be so set as to point at the burner head.

*In case the attempt at burner ignition has to be repeated because of lighting failures:*

1. Push ignition button in and remove air from gas lines.
2. The point of the ignition device is positioned too far away from the burner head. Carefully reset the point in order for the point to make proper sparking to the burner head.
3. A short-circuit will result from a cracked electrode. Replace ignition electrode. **Use shrink tubing.** Correct position to set the point is shown in **Fig. 30**.

**IMPORTANT:** The tips of the thermocouple and the ignition device must be set at the same level and point to the top of the burner head as shown in **Fig. 29**.

### Burner Orifice Clogged

When the burner orifice is clogged, the flame will become too small on the maximum setting of the thermostat which may affect the burner heating output and result in a decrease of cooling efficiency. Removal of the flame blow out guard is not necessary to remove the

orifice, however, there may be some other foreign matter in the burner box which could affect burner operation.

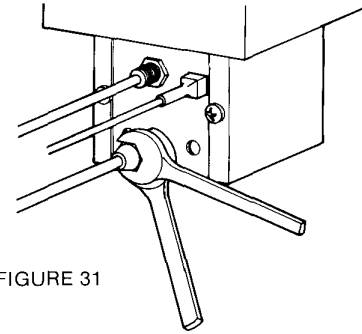


FIGURE 31

**Fig. 31** shows the removal of the gas line to the burner. Always use a back up wrench as shown.

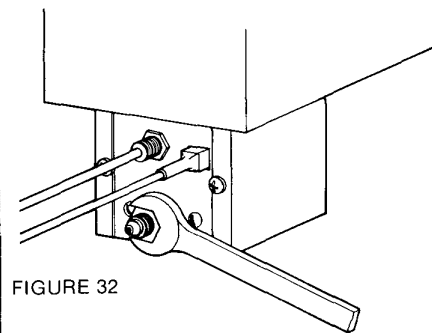


FIGURE 32

**Fig. 32** shows the removal of the orifice fitting from the burner tube.

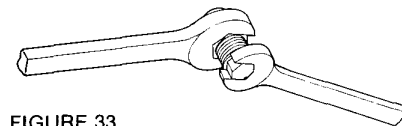


FIGURE 33

**Fig. 33** shows the removal of the orifice from the orifice fitting. A back up wrench is necessary.

The burner has the orifice and adaptor horizontally located and the burner mixing tube is formed as a bend with vertical outlet. The primary air inlets are pre-set and therefore not adjustable.

## BURNER ORIFICE

The burner orifice size is determined by the number stamped on the side of the orifice as follows:

Model	Orifice Size
IM-140 Series	81
IM-160 Series	79
IM-270 Series	78
IM-290 Series	79

Should an orifice of a different size be substituted, cooling efficiency will be affected and may cause cooling unit failure, and will void the cooling unit warranty.

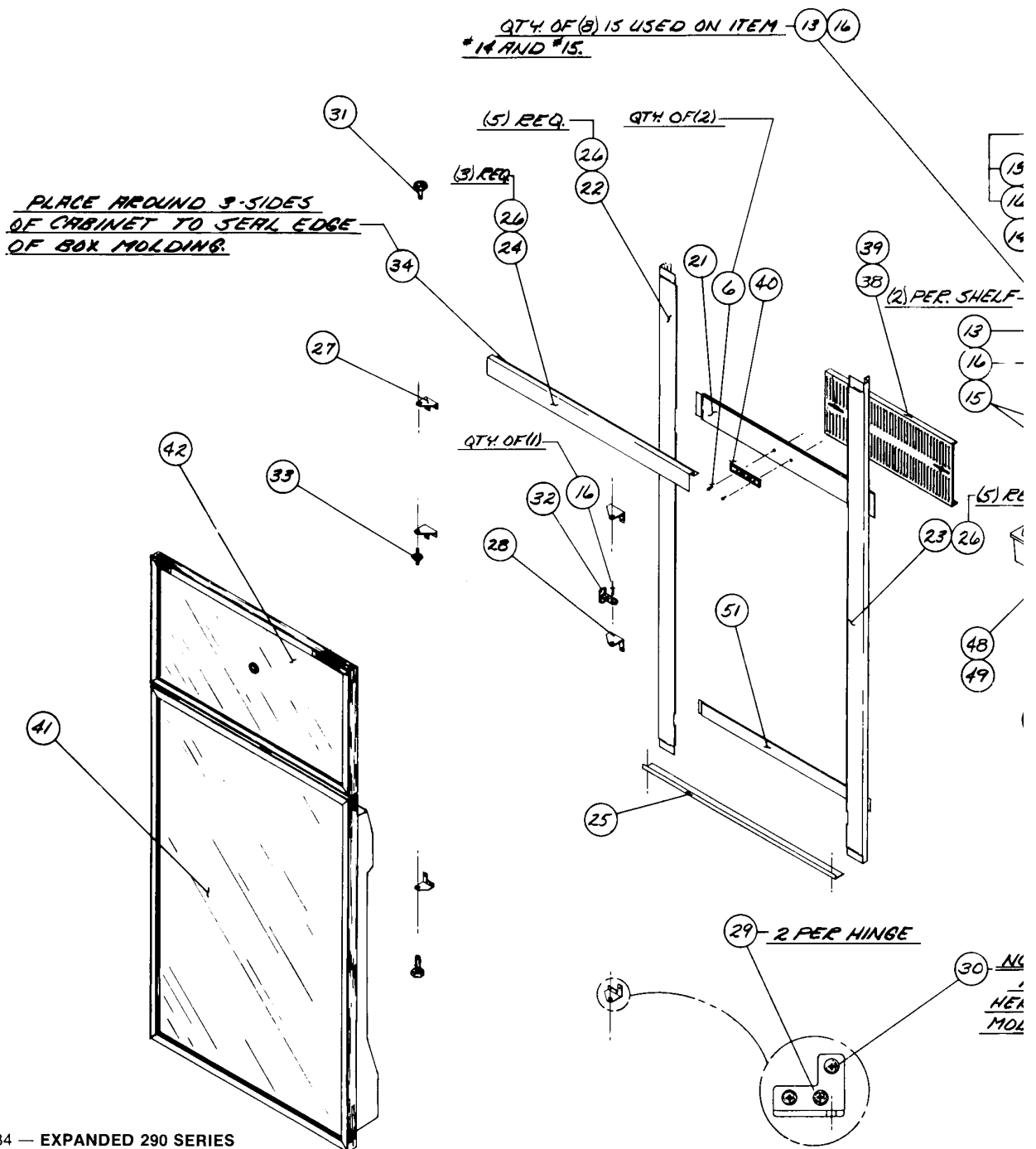
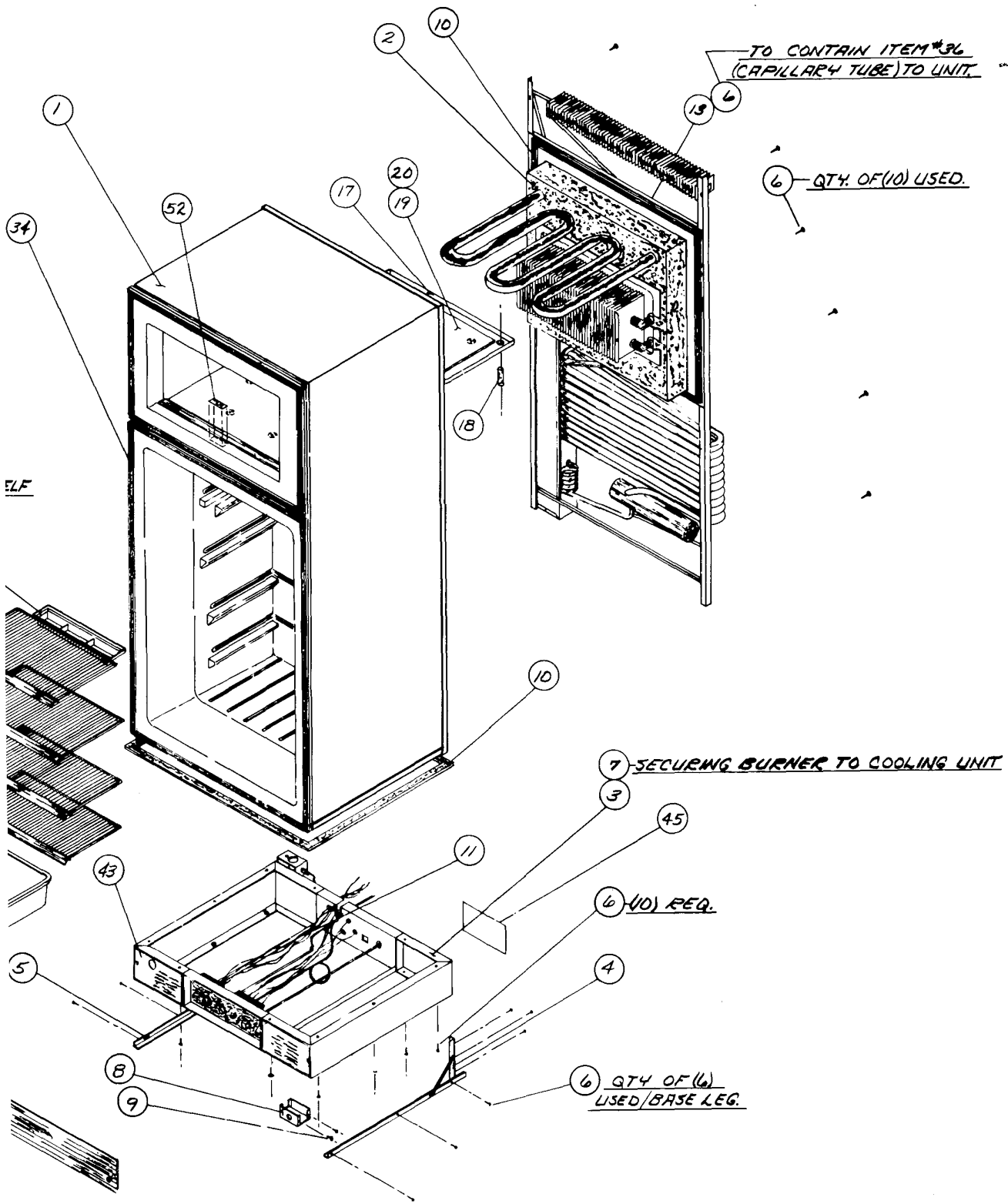


FIGURE 34 — EXPANDED 290 SERIES





ELF

ITEM	REQ.	DESCRIPTION	290	270	160	140
1	1	Cabinet assembly	4-320013	4-320280	4-320066	3-320128
2	1	Cooling unit	2-330209	S-300349 or C-2-330209	S-2-330214 or C-2-330107	2-330137
3	1	Base assembly, complete	3-320076	3-320076-2	3-320076-4	3-320076-3
4	1	Base leg, right hand	2-330354	2-330354	3-340302	2-330354
5	1	Base leg, left hand	2-330353	2-330353	3-340300	2-330353
6	35	Screws, sm. #10-16x.50 Tek.	any	any	any	any
7	2	Screws, mach. #¼x20x.50	any	any	any	any
8	1	Burner cover	2-300347	2-300347	2-300347	2-300347
9	2	Screws, sm. #8-18x.38 (AB)	any	any	any	any
10	2	Foam tape (.50x.25x82.00)	any	any	any	any
11	1	Factory wiring assembly	2 way 300079 3 way 300068	2 way 300079 3 way 300068	2 way 300079 3 way 300068	2 way 300079 3 way 300068
* 12	2	Clamp, wire	1-030018-7	1-030018-7	1-030018-7	1-030018-7
13	9	Cable hanger	1-330488	300488	300488	300488
14	2	Shelf, upper	300398	300398	3-330255-001	3-330255-002
15	2	Shelf, lower	300397	300397	3-330256	3-330256
16	9	Rivet, pop	any	any	any	any
17	1	Drain plate	3-330338	3-330360	none	none
18	1	Tube, drip	3/8" plastic	3/8" plastic	none	none
19	1	Freezer box support plate	2-340251	3-030014-5	none	none
20	5	Mach. screw #10-24x1.00"	any	any	any	any
21	1	Molding, middle cabinet	3-330505	3-330505	2-330298	none
22	1	Molding, left hand cabinet	3-330509	3-330509	3-330508	3-330140
23	1	Molding, right hand cabinet	3-330513	3-330513	3-330512	3-330139
24	1	Molding, top cabinet	3-330504	3-330504	3-330503	3-330503
25	1	Molding, bottom cabinet	2-330297-2	3-330297-2	2-330297-1	2-330297-1
26	13	Screws, sm. #8-18x.50" Tek.	any	any	any	any
27	3	Hinge, left hand	2-330235	300223-2	2-330223-2	2-330223-2
28	3	Hinge, right hand	2-330236	300223-1	2-330223-1	2-330223-1
29	12	Screws, sm. #10-16x1.00" AB	any	any	any	any
30	6	Screws, sm. #10-16x.50 PHCR.	any	any	any	any
31	2	Hinge pin	1-330229	1-330229	1-330229	1-330229
32	1	Bracket, travel lock	1-330381	1-330381	1-330355	1-330355
33	1	Center hinge pin	300230	300230	none	none
34	2	Foam tape (.50x.25x117.00")	any	any	any	any
* 35	A.R.	Wax, paraffin	as required	as required	as required	as required
* 36	1	Retainer, capillary tube	300674	1-340281	1-340281	300674
* 37	A.R.	Permagum	any	any	any	any
38	1	Grille, secondary evaporator.	330444	2-330444	300250	2-330444
39	2	Screws, sm. #8-18x.50 AB	any	any	any	any
40	1	Plate, center molding	300553	300553	none	none
41	1	Door assembly	3-320038-002	3-320038-002	3-320038-001	3-320146
42	1	Freezer door assembly	2-320053	2-320053	3-320081	3-320081
43	1	Decal, electric operation	1-330294	1-330294	1-330294	1-330340
44	1	Kick plate assembly	2-320048	2-320048	2-320046	2-320046
45	1	Rating plate	1-330537	1-330536	1-330532	1-330193
* 46	1	Bubble level	300595	300595	300595	300595
* 47	2	Tray, plastic ice cube	2-330679	2-330679	2-330363	2-330363
48	1	Vegetable basket	3-330661	3-330661	3-330657	none
49	1	Cover, vegetable basket	3-330663	3-330663	3-330662	none
50	1	Drip tray	4-330263	4-330263	3-330027	3-330027
51	1	Molding, lower middle cabinet	2-330296	2-330296	2-330298	2-330298
52	1	Label, warranty notice	1-030049	1-030049	1-030049	1-030049

\* Parts not shown

**SERVICE PARTS  
AND ASSEMBLIES FOR**

**IM-142    IM-143  
IM-162    IM-163  
IM-272    IM-273  
IM-292    IM-293**

Item No.	Part No.	Description
1	1-330011	Knob for Electric Thermostat
3	3-340339	Control Panel
4	2-330693	Control Panel Gasket
7	3-030014-002	Machine Screws (2)
8	2-330096	Electric Thermostat
10	1-340312-001	Gas Control Spacer (Junkers)
10	1-330678-002	Gas Control Spacer (Baso)
11	1-330678	External Flare Connector
12	2-330311	Gas Thermostat (Junkers) (shown)
12	2-330689	Gas Thermostat (Baso) (not shown)
13	300043	Gas Line (burner to thermostat)
13	300035	Gas Line (burner to thermostat) (not shown)
14	300347	Burner Cover
15	300318	Burner (Lincoln Brass)
15	1-330153	Burner (inset) (w/Baso control only)
16	3-030014-001	Machine Screw
17	2-320159	Burner Bracket
17	2-340321-003	Burner Bracket (not shown) (w/Baso control only)
18	3-030013-003	Self Tapping Screws (2)
19	300080	Electrode Bracket
20	300324	Piezo Electrode
21	1-330200	Heat Shrink Tape
22	1-330329	Thermocouple (Junkers) (shown)
22	1-330169	Thermocouple (Baso) (not shown)
24	1-330320	Orifice Fitting
25	3-030013-004	Machine Screw
26	3-030015-003	Machine Screw
27	300303	Gas Connector
28	3-030015-003	Hex Nuts (2)
29	2-320041	Control Tray
29	30092	Control Tray (not shown)
30	300042	Gas Line (from connector to gas valve)
31	300310	Gas Valve Shut Off
32	3-030015-002	Hex Nuts (2)
33	300323	Piezo Igniter
34	3-030014-003	Machine Screws (2)
35	1-330012-002	Knob for Gas Shut Off (Junkers)
35	1-330012-002	Knob for Gas Shut Off (Baso) (not shown)

**PARTS COMMON TO**

**IM-143    IM-163  
IM-273    IM-293**

2	3-330380	Control Panel Label (Junkers)
2	3-330383	Control Panel Label (Baso) (not shown)
5	300502	12v Green Indicator Light
6	300581	Red 115v Indicator Light
9	2-330583	3/way Toggle Switch

**PARTS COMMON TO**

**IM-142    IM-162  
IM-272    IM-292**

2	3-330580	Control Panel Label (Junkers)
2	3-330386	Control Panel Label (Baso) (not shown)

**PARTS COMMON TO  
IM-142    IM-143**

23	1-330696	Orifice
not shown	330-135	2/way Heating Element
not shown	330191	3/way Heating Element

**PARTS COMMON TO  
IM-162C    IM-163C  
IM-272C    IM-273C  
IM-292    IM-293**

23	300319	Orifice
not shown	330238	2/way Heating Element
not shown	330110	3/way Heating Element

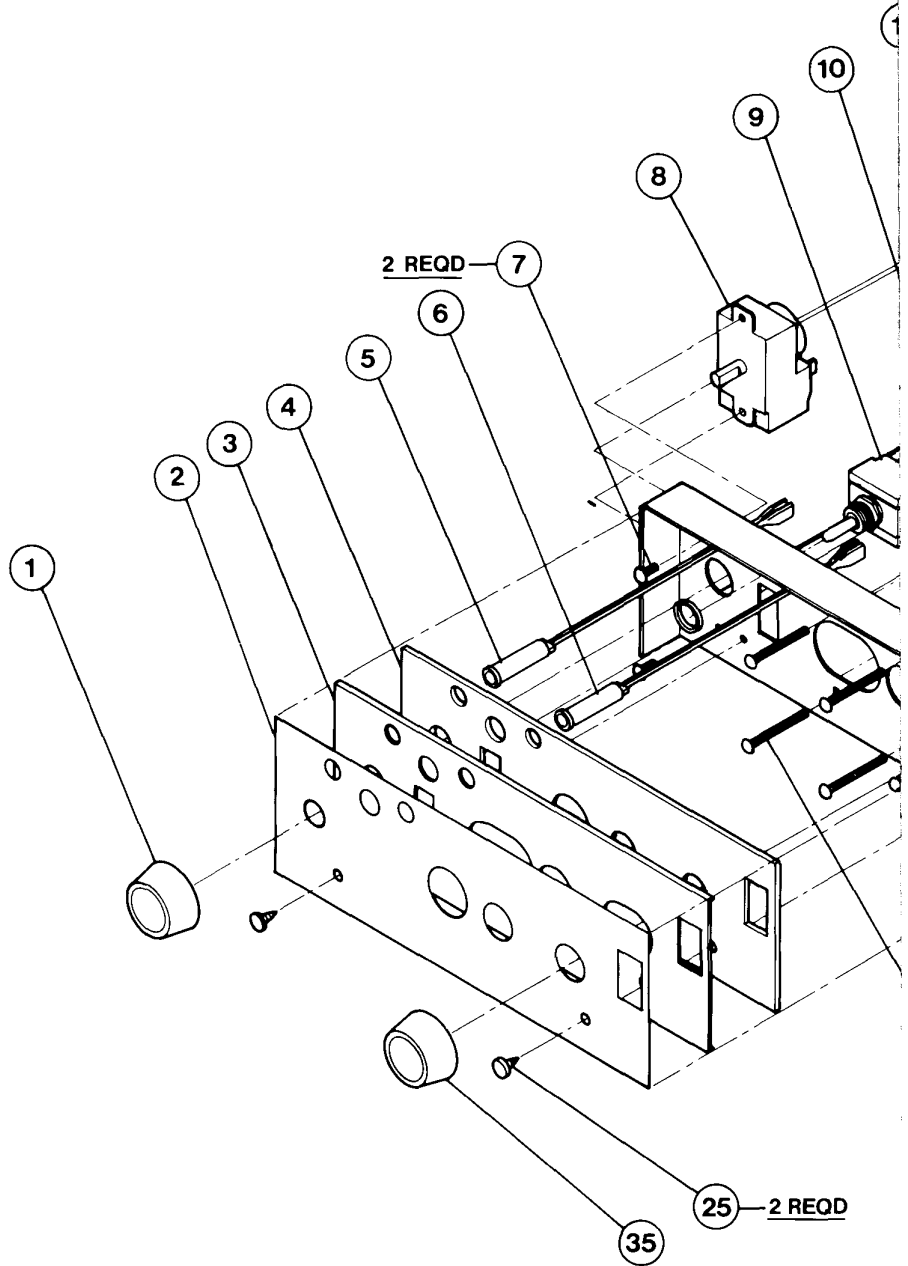
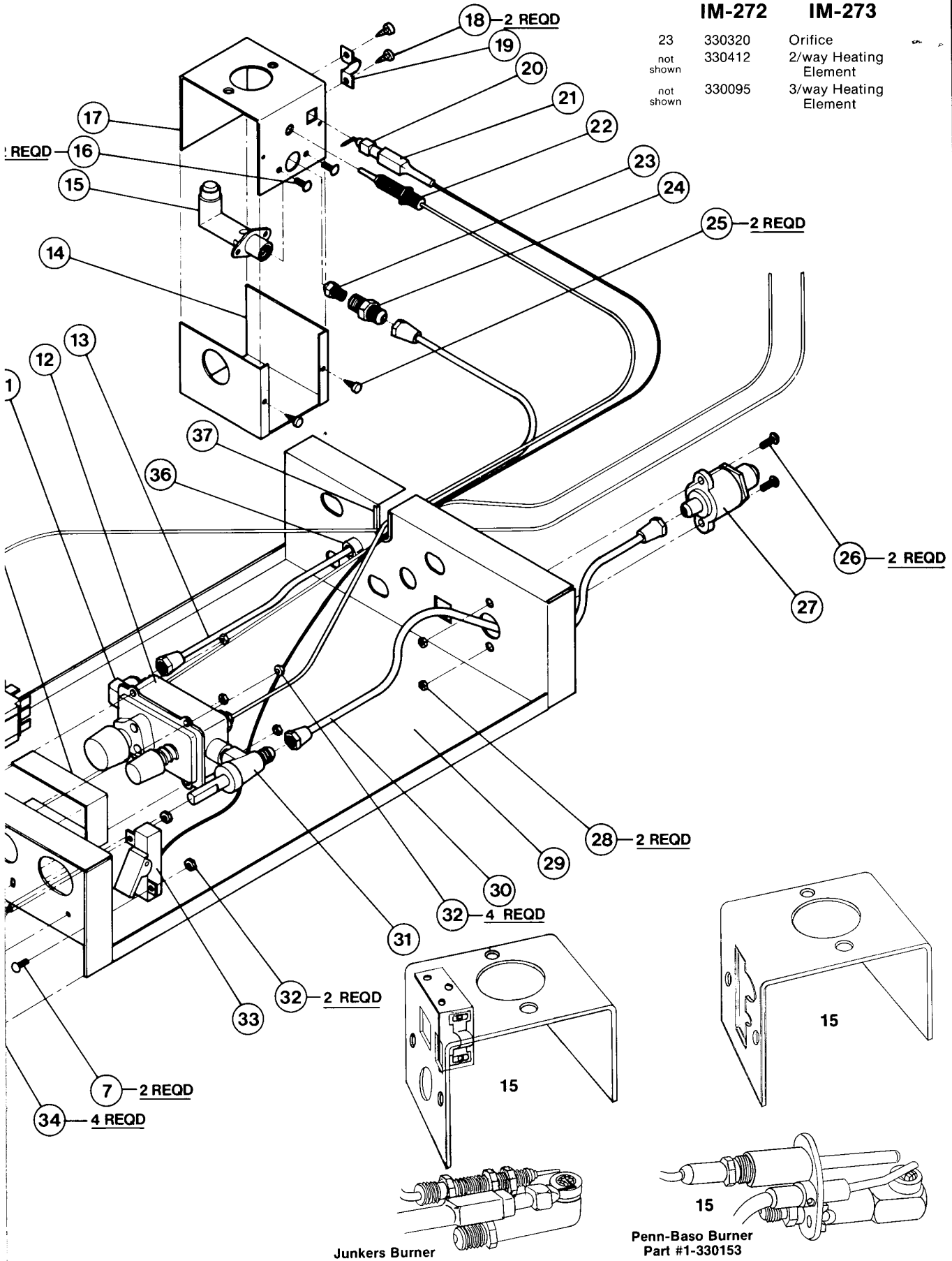


FIGURE 35 —  
BASE PAN ASSEMBLY

**PARTS COMMON TO  
IM-272 IM-273**

23	330320	Orifice
not shown	330412	2/way Heating Element
not shown	330095	3/way Heating Element



# Parts Description

## CLASSIC SERIES

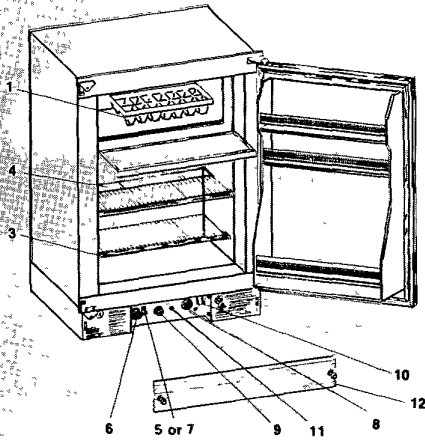


FIGURE 36 — IM-140 Series

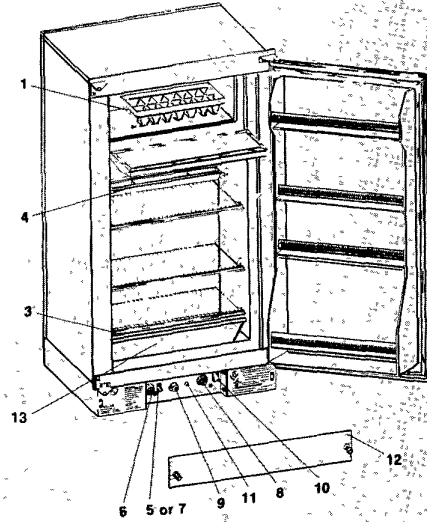


FIGURE 37 — IM-160 Series

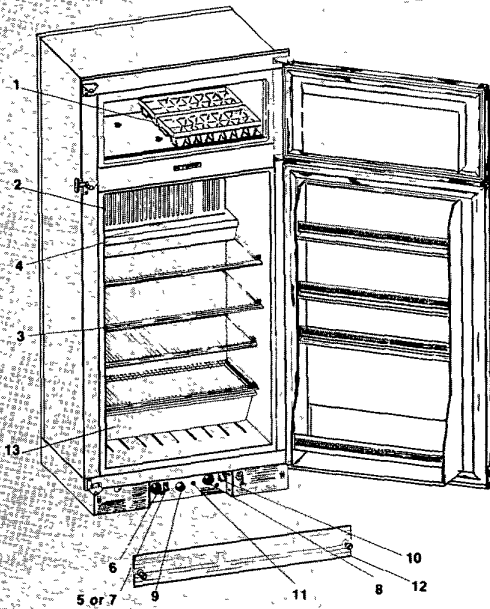


FIGURE 38 — IM-270 Series

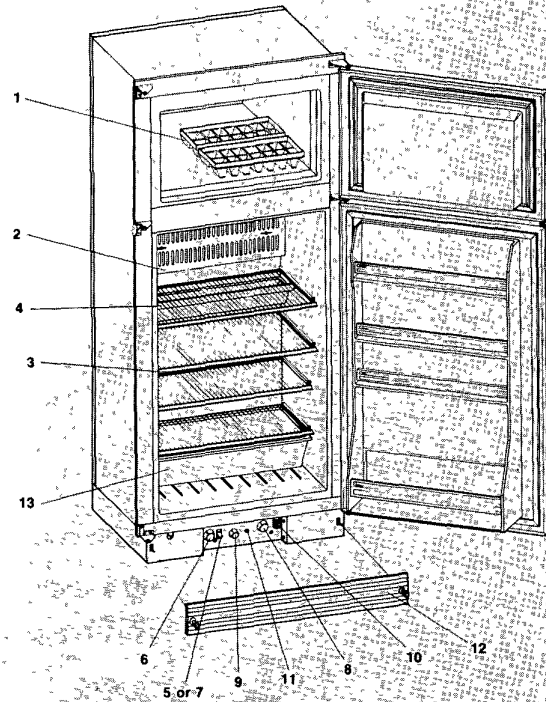


FIGURE 39 — IM-290 Series

- 1. Ice Tray
- 2. Evaporator Grille
- 3. Storage Shelves
- 4. Defrost (Drip) Tray
- 5. AC/DC Switch
- 6. Electric Thermostat Knob

- 7. Electric On/Off Switch
- 8. Gas On/Off Knob
- 9. Gas Thermostat Knob

- 10. Ignitor Lever
- 11. Ignition Button
- 12. Shutter
- 13. Vegetable Crisper

# Operation Analysis for Gas Refrigerator

**WARNING: Tampering with cooling unit will void warranty . . .**  
**CONTENTS HIGHLY FLAMMABLE AND TOXIC.**

SYMPTOM							CAUSE
Refrigerator too cold	Refrigerator not cold enough	Lack of refrigeration	Frost forms rapidly	Burner flame goes out	Odor inside cabinet	Odor outside cabinet	NOTE: It will be noted in this tabulation that several causes can be responsible for the one effect. The real cause or causes should be determined by a process of elimination, investigating each possible cause, proceeding to the bottom.
						•	Gas leaks . . . . . (pages 6, 11, 12)
	•	•					Inadequate ventilation . . . . . (pages 6, 7, 8)
	•	•					Refrigerating unit not level . . . . . (page 9)
	•	•		•			Orifice clogged . . . . . (page 13)
				•			Thermocouple tip improperly located . . . . . (pages 13, 23)
				•			Improper contact between thermocouple & safety valve magnet (page 13)
				•			Faulty safety valve magnet . . . . . (page 23)
	•	•					Improper maximum flame . . . . . (figure 40)
	•	•		•			By-pass flame too small . . . . . (page 22)
	•	•		•			Stainless steel net clogged
•			•				By-pass flame too large . . . . . (page 22)
	•	•		•			Improper position of the flue baffle . . . . . (page 26, figure 58)
	•	•					Unstable burner flame . . . . . (page 26)
	•	•					Improper food storage . . . . . (page 12)
			•				Improper storage of liquid and moist foods . . . . . (page 12)
	•	•	•				Leaky door gaskets . . . . . (page 12)
	•	•	•			•	Obstructed flue . . . . . (page 10)
						•	Burner mis-alignment with flue tube . . . . . (page 12)
						•	Insufficient primary air . . . . . (See "Installation," pages 6, 7, 8)
					•		<b>Infrequent cleaning of food compartment</b>
					•		Refrigerator shut off with closed door
					•		Unwrapped odorous food
•			•				Incomplete contact of thermostat tube . . . . . (page 11)
	•	•					Lost thermostat charge . . . . . (page 13)
	•	•					Defective cooling unit—refer to page 24, "Things to Do"
•							Room temperature too low

# Operation Analysis for Electric Refrigerator

**WARNING: Tampering with cooling unit will void warranty . . .  
CONTENTS HIGHLY FLAMMABLE AND TOXIC.**

SYMPTOM					CAUSE
Refrigerator too cold	Refrigerator not cold enough	Lack of refrigeration	Frost forms rapidly	Odor inside cabinet	NOTE: It will be noted in this tabulation that several causes can be responsible for one effect. The real cause or causes should be determined by a process of elimination, investigating each possible cause, starting at the top of the tabulation and proceeding to the bottom.
	•	•			
	•	•			Refrigerating unit not level . . . . . (page 9)
	•	•			Heater faulty, wrong voltage or type . . . . . (pages 6, 7, 20, 21)
	•	•			Inconsistent voltage
		•			Electric connections loose
	•	•			Heater not inserted correctly in its pocket. . . . . (page 21)
	•	•			Improper food storage . . . . . (page 12)
			•		Improper storage of liquids and moist foods . . . . . (page 12)
	•	•	•		Leaky door gaskets . . . . . (page 12)
				•	<b>Infrequent cleaning of food compartment</b>
				•	Refrigerator shut off with closed door
				•	Unwrapped odorous food
•			•		Incomplete contact of sensing tube. . . . . (page 11)
	•	•			Lost thermostat charge . . . . . (page 13)
	•	•			Defective cooling unit—refer to page 24, "Things to Do"
•					Room temperature too low

The correct flame, at "MAX" setting, should have a bright blue crown at the base of the flame and a slight buzzing noise.

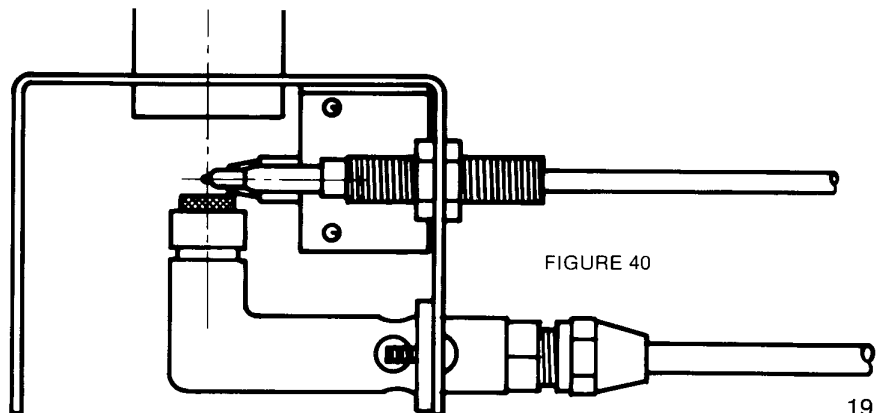


FIGURE 40

WIRING DIAGRAM-115V AC & 12V DC

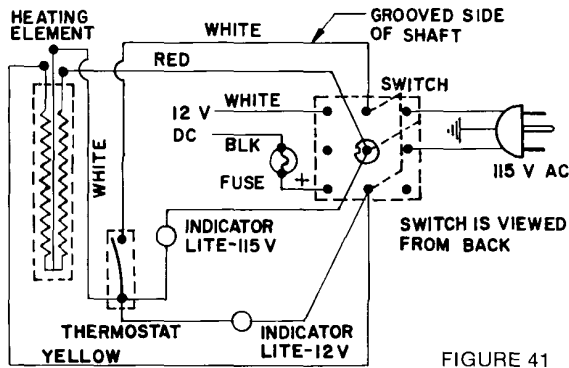
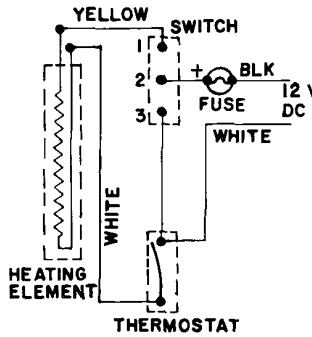
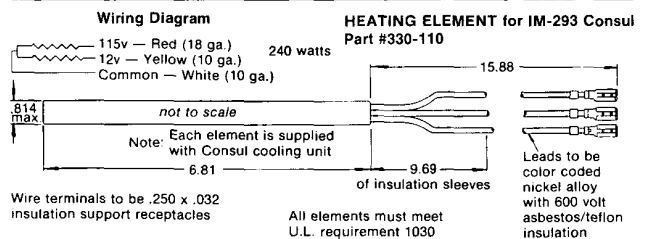
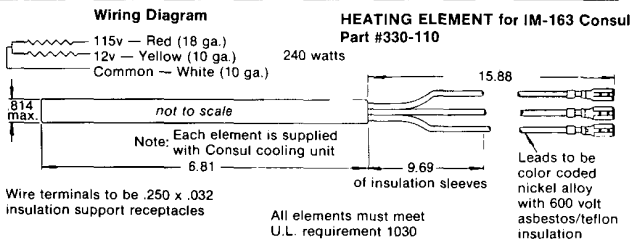
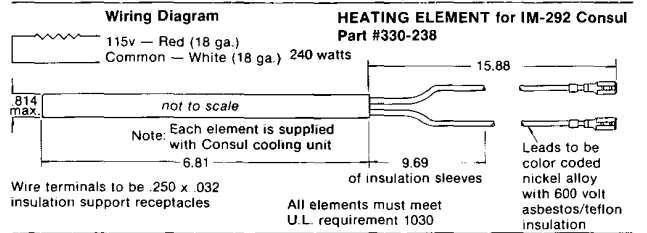
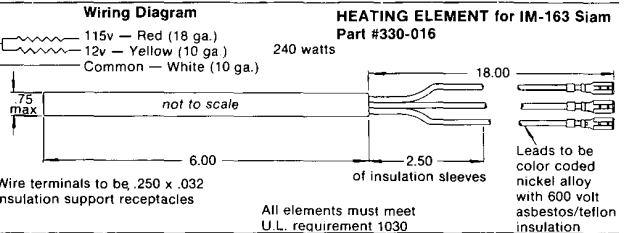
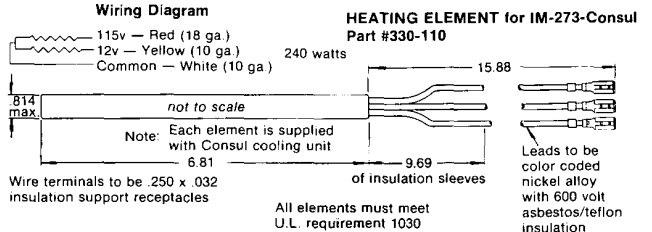
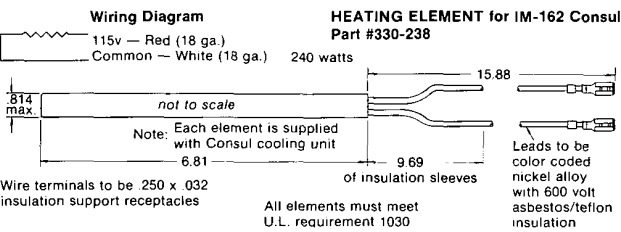
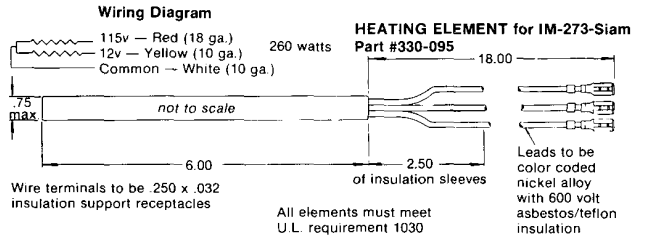
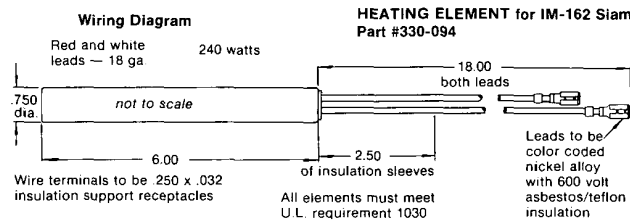
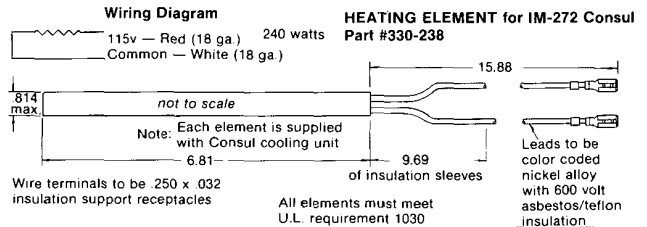
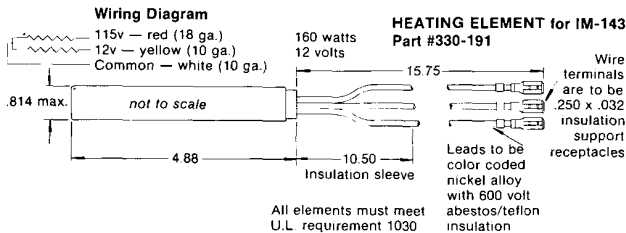
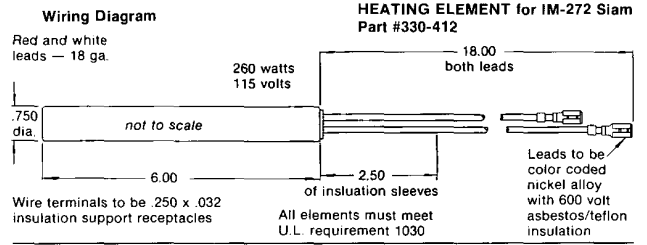
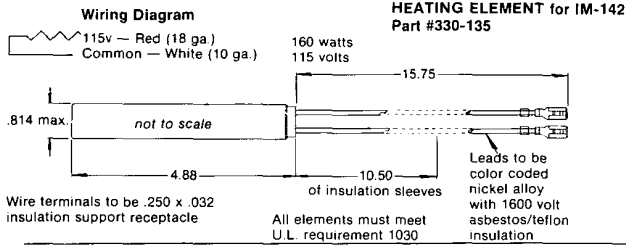
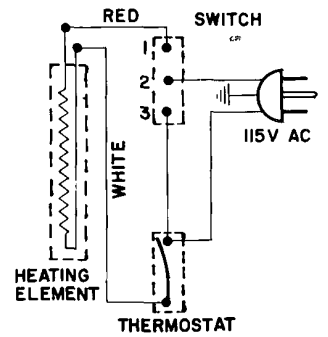


FIGURE 41

WIRING DIAGRAM-12V DC



WIRING DIAGRAM-115V AC





# Replacement of Heating Element in Gas/Electric Refrigerators

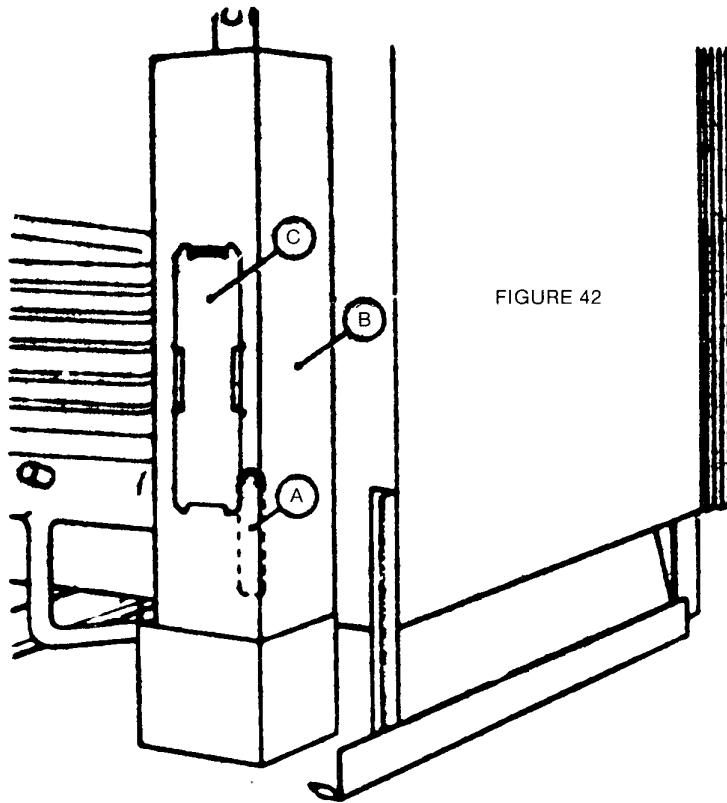


FIGURE 42

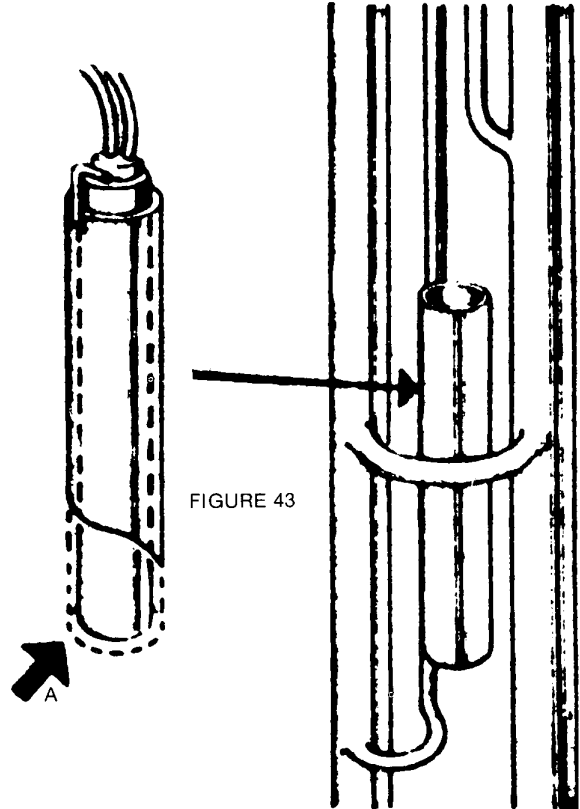


FIGURE 43

On the gas/electric operated refrigerators, heat is supplied by an electric heater (A) mounted on the cooling unit inside the insulated cover (B). See Fig. 42.

The heater is accessible for replacement after removal of access cover (C) and the rockwool insulation.

1. Check that the size and wattage of the heater are correct for the unit. Heater should fit snugly to provide proper heat transfer.
2. Check that the supply voltage corresponds to the voltage stamped on the heating element.
3. Make sure that the heater is inserted to the bottom of the well pocket. See Fig. 43.
4. Be careful to put the insulation in its proper place again after replacement.

**NOTE:** The edges of the opening in the cover may be sharp!

## ELECTRICAL SPECIFICATIONS FOR HEATING ELEMENTS

Model	Part No.	Wattage	Ohms	Amps	Amps
IM-142 — 115v	2-330135	160w	70	1.5	
IM-143 — 12v	2-330191	160w	.9		13.3
IM-162S — 115v	2-330094	240w	58	2.2	
IM-163S — 12v	2-330016	240w	.6		20.
IM-162C — 115v	2-330238	240w	58	2.2	
IM-163C — 12v	2-330110	240w	.6		20.
IM-272S — 115v	2-330412	260w	48	2.4	
IM-273S — 12v	2-330095	260w	.6		21.8
IM-272C — 115v	2-330238	240w	58	2.2	
IM-273C — 12v	2-330110	240w	.6		20.
IM-292 — 115v	2-330238	240w	58	2.2	
IM-293 — 12v	2-330110	240w	.6		20.

# Electric and Gas Thermostats

The following gas and electric thermostats are used on refrigerator models IM-140, IM-160, IM-270, and IM-290 series. In some instances, both the gas and electric thermostats may need to be recalibrated. This can be done as follows:

## ELECTRIC THERMOSTAT ADJUSTMENT

The electric thermostat (Fig. 44) has a small flathead adjustment screw located above the control shaft. If the refrigerator is too cold with the thermostat knob turned to the warm position, thermostat adjustment can be made as follows:

1. Permit refrigerator to operate on electric overnight or until interior of cabinet is 32 degrees F. or colder.
2. **Before removing the control knobs, mark the location of the gas control knob, as it must be put back on in the same position as removed.**
3. Remove control panel and control panel gasket.
4. Turn thermostat to the mid-range position.
5. Turn thermostat adjustment screw clockwise until circuit is broken to electric heater. You will hear a click when the circuit breaks. If more than four (4) complete turns of the adjustment screw are required, replace the thermostat.

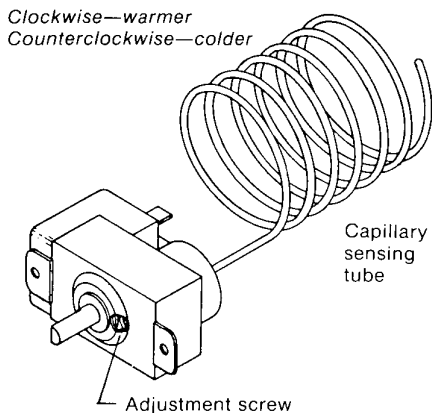


FIGURE 44 — ELECTRIC THERMOSTAT  
Part #33096-3 ART 17

6. After the adjustment is made, turn the control knob to approximately the six o'clock position. The refrigerator compartment should average between 37 degrees F. and 41 degrees F. at this control setting.

## PENN-BASO THERMOSTAT

The Penn-Baso thermostat (Fig. 45) is identified by the white control knob and red push button. This gas valve has a replaceable safety magnet and thermocouple. **These parts are not interchangeable on other type gas valves.** These parts are identified on Figs. 45, 47 and 50. The adjustment is made by changing the position of the knob on the shaft. The knob has an internal stop to prevent more than 315° rotation, whereas the shaft can rotate in excess of two full turns.

Temperature adjustment is made as follows:

1. Turn gas control knob to off position.
2. Remove control knob.
3. Turn knob pointer to the twelve o'clock position and put the control knob back on the control shaft.

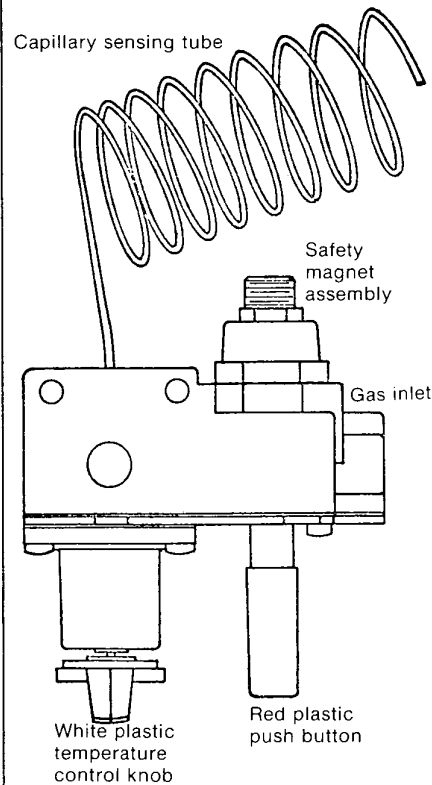


FIGURE 45 — PENN-BASO GAS THERMOSTAT  
Part #2-330689

4. Hold knob when tightening knob retaining screw.

When box is at normal food-keeping temperature, by-pass or low flame should happen at mid-range setting. Should further adjustment be necessary, reposition the control knob one quarter turn at a time clockwise on the shaft, if the refrigerator gets too cold and won't by-pass or counterclockwise if it won't cool enough and is on by-pass too often.

## GAS THERMOSTAT (Junkers)

This control (Fig. 46) has a replaceable safety magnet and thermocouple and is not interchangeable on other type gas valves. See Figs. 46, 47 and 51. The gas valve is identified by the gray plastic push button with the red flame and the grey plastic temperature control knob.

Adjustment of the Junkers gas thermostat is basically the same as the Baso. The only difference is the shaft is not splined and the screw need only be loosened and not removed to rotate the disc, which is under the plastic knob.

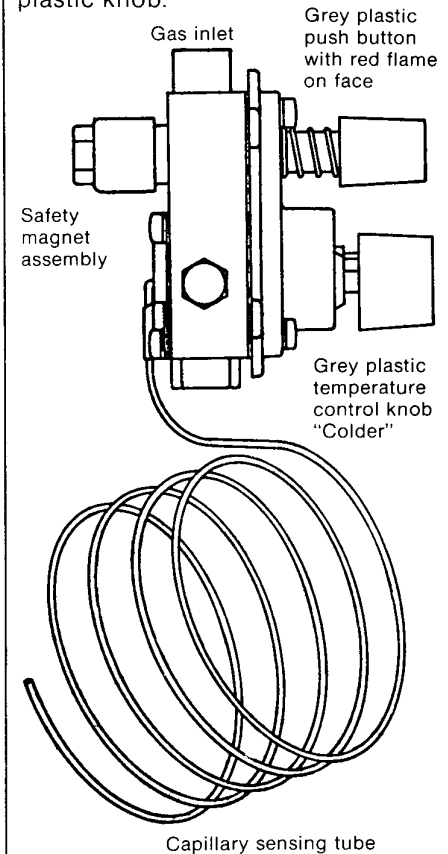


FIGURE 46 — JUNKERS GAS THERMOSTAT  
Part #2-330311

Two other adjustments can be made on the Junkers gas thermostat. Refer to **Figure 48**. If the low flame or main burner flame is too small, turn the adjustment screw counter clockwise to increase the flame size and clockwise to decrease the flame size.

These adjustments should normally not be necessary since the thermostat is calibrated to our specification by the thermostat manufacturer.

# Safety Device Adjustments

When the thermocouple is in the correct position:

The nut which holds the thermocouple to the bracket should be tight at all times. Make sure that the thermocouple tip is in the flame. Should the flame still go out as soon as the safety valve push button is released, check if the thermocouple connection at safety valve is tight. If provisions for checking the safety valve are not available and the thermocouple connection at the safety device is 1/4 turn past finger tight, replace both.

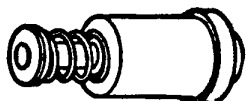
**Check the installation.**

## TEMPERATURE CONTROL

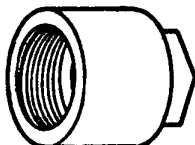
When the temperature control (thermostat) is set at a higher number, refrigerating effect will be increased. This will tend to lower the temperature in the freezing compartment and in the food storage compartment.

When the temperature control is set at a lower number, refrigerating effect will be reduced.

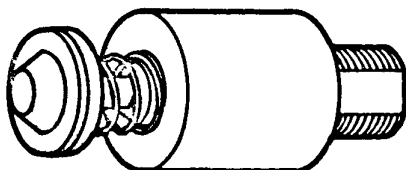
When the temperature control is set at mid-dial position, medium refrigerating effect will be produced.



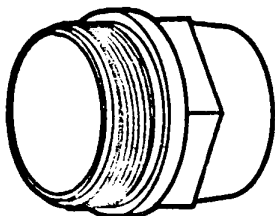
Safety valve magnet for JUNKERS thermostat



Safety valve end cap



Safety valve magnet for BASO thermostat

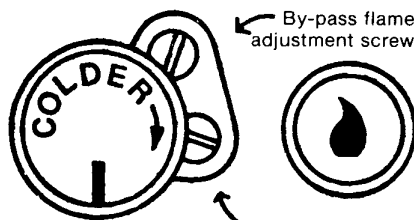


End cap



Lock nut

FIGURE 47



By-pass flame adjustment screw

Main burner flame adjustment screw

Clockwise—decrease flame size  
Counterclockwise—increase flame size

FIGURE 48 — JUNKERS GAS THERMOSTAT ONLY

## THERMOSTAT SENSING TUBE

At the bottom of the freezing compartment is a sleeve in which the end of the thermostat sensing tube must be inserted. If the tube end is not properly inserted in its sleeve, the burner will operate continuously at maximum flame or the electric element will continually operate and will cause too low cabinet temperatures.

In some units the sensing tubes are held in contact with the secondary evaporator coil by means of a stainless steel retainer plate. If the screws in this plate are loose, improper cabinet temperatures will result from continuous burner or electric element operation.

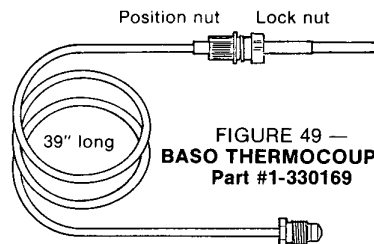


FIGURE 49 —  
BASO THERMOCOUPLE  
Part #1-330169

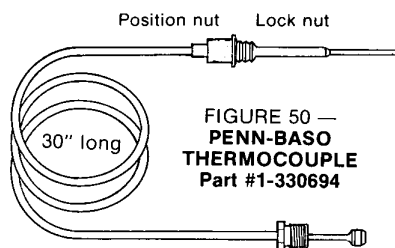


FIGURE 50 —  
PENN-BASO  
THERMOCOUPLE  
Part #1-330694

(Note: Thread differences)

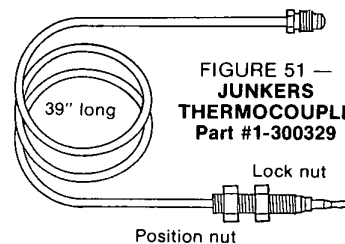


FIGURE 51 —  
JUNKERS  
THERMOCOUPLE  
Part #1-300329

# Things to Do Before Sending Back Defective Cooling Unit to Distributor

**WARNING: Tampering with cooling unit will void warranty . . .  
CONTENTS HIGHLY FLAMMABLE AND TOXIC.**

- |   |  |
|---|--|
| 1. Leveling of the refrigerator   |  |
| 2. Ventilation  |  |
| 3. Cleaning and proper size of burner orifice—<br>do not redrill        |  |
| 4. Proper gas pressure  |  |
| 5. Correct height of flame  |  |
| 6. Correct position of baffle in flue tube                              |  |
| 7. Check heating element  |  |
| 8. Heating element in correct position                                  |  |
| 9. Check size and wattage of heating element                            |  |
| 10. Supply voltage corresponds to voltage<br>stamped on heating element |  |
| 11. No fluctuation in voltage supply                                    |  |
| 12. No loose electric connections                                       |  |
| 13. Check for unit leaks  |  |
| 14. Check location of thermostat sensing tube                           |  |

## UNIT FILLING VALVE (See warning on inside front cover)

The needle valve used for admitting the filling charge to a cooling unit is fitted to the unit's absorber vessel and is covered by an aluminum or plastic cap. It is a strictly applied provision of the warranty extended on the unit to the customer, that any interference with the filling valve will automatically void the warranty.

Unsatisfactory unit performance due to an ammonia leak can be determined in the case of a visible leak by traces of a yellow deposit at the point where the ammonia is bleeding. If there is a leak on the

evaporator inside the cabinet, ammonia smell may result.

### PACKING OF DEFECTIVE UNITS

Particular attention must be paid to the packing of a replaced defective unit to ensure, during its return to the distributor, that it will not be damaged in transit.

When the replacement unit is supplied cased, careful note should be taken of the manner in which it is packed to ensure that the same form

of packing; *i.e.*, the use of wood bracing and cardboard pads, is used when the defective unit is packed into the case.

Structural distortion, particularly with the smaller units not having an angle iron frame, can easily occur if the case containing the unit is roughly handled and if internal braces are not in position.

NOTE: Return must be shipped pre-paid to:

**Instamatic Division  
2323 Middlebury St.  
Elkhart, IN 46514**

## CUSTOMER NOTES

INSTAMATIC Model No. \_\_\_\_\_  Gas/Electric  Gas/Electric—12v

INSTAMATIC cooling unit type \_\_\_\_\_ Serial No. \_\_\_\_\_

When purchased \_\_\_\_\_

Where purchased (company's name and address) \_\_\_\_\_

Where installed \_\_\_\_\_

Coach Make \_\_\_\_\_ Model \_\_\_\_\_ Size \_\_\_\_\_

Summer Home \_\_\_\_\_ Other \_\_\_\_\_

*parts and parts price list will be provided on request*

# Replacing a Cooling Unit

1. With the refrigerator in the upright position, remove the mounting screw in freezer box as shown in **Fig. 52**.
2. Remove the protective grill from refrigerator cooling coil (**Fig. 52**).
3. Loosen capillary tubes from the retainer (**Fig. 53**) by backing the Phillips-head screws in the plate retainer out about two turns or by removing the cork from the cork and tube retainer. Straighten the capillary tubes, being careful not to crimp or break them. Pull tubes out from back of cabinet.
4. Lay the refrigerator face down. Remove the two Phillips-head screws holding the burner box cover and slide the cover off (toward the bottom of the refrigerator). Remove both round head machine bolts holding the box to the bottom of the cooling unit (**Fig. 54**).
5. Pull apart the electrical spade connectors in the insulating sleeve to free the electrical heating element from the base control assembly.
6. Remove all self-tapping metal screws holding the cooling unit to the cabinet of the refrigerator.
7. Lift the cooling unit from the refrigerator cabinet. Because of the weight and the hydraulic action of the thermal mastic, this is often a job for two people.
8. Remove the plastic inner lid from behind the secondary evaporator and install on the replacement unit. If liquid adhesive is available, spraying the plate lightly will provide a good seal to the new unit.

**NOTICE:** Because a cooling unit is a delicate instrument and a major component which sometimes sustains rough handling in shipment, it is recommended that any replacement cooling unit be hung level on the wall and operated on the electric element about eight hours prior to installation on a refrigerator. Such a "run-in" assures the quality of the replacement cooling unit.

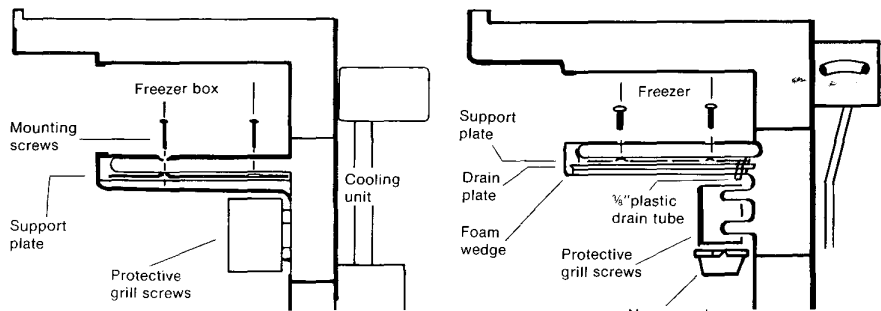


FIGURE 52

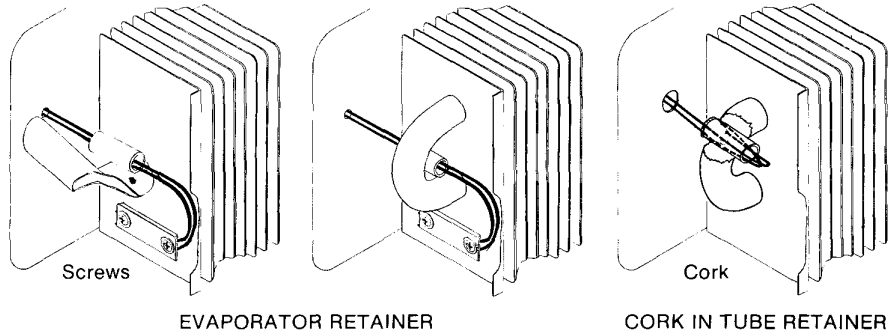


FIGURE 53 — TYPES OF CAPILLARY TUBE RETAINERS

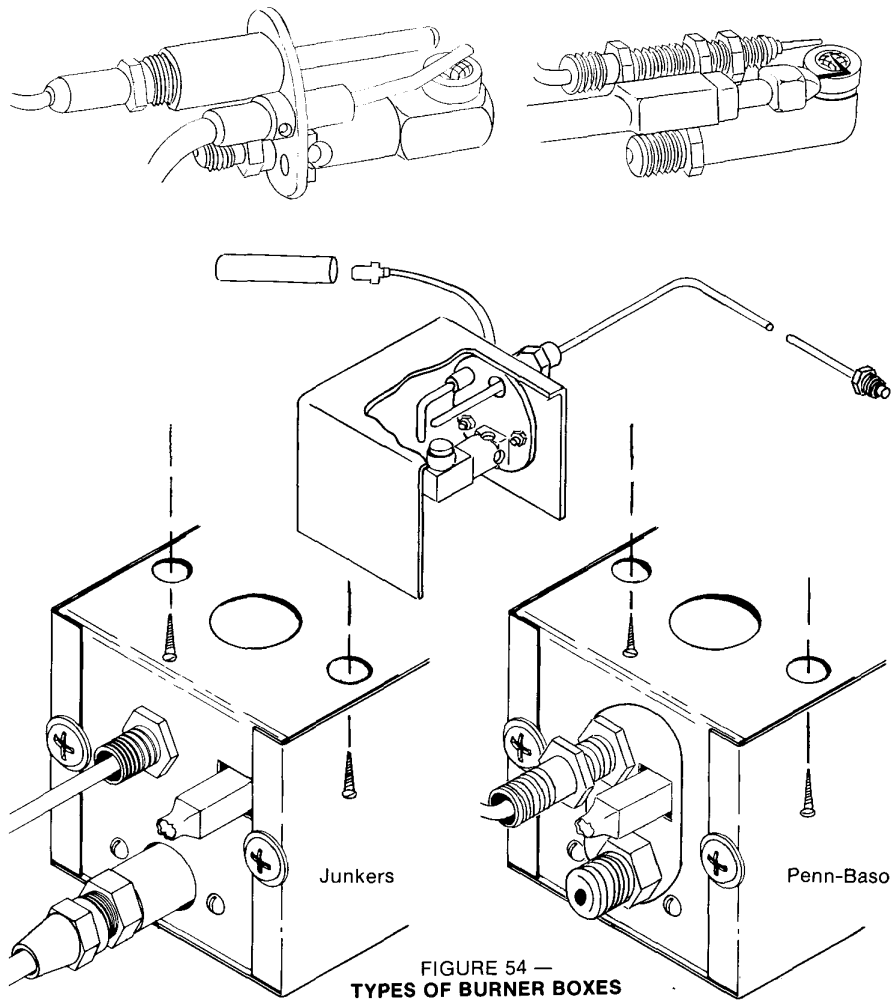


FIGURE 54 — TYPES OF BURNER BOXES

# Pressure Measuring Devices

## WATER "U" GAUGE

The water gauge consists of a glass "U" tube filled with water up to the mid-point. When gas pressure is exerted on one side of the gauge, the water on that side is forced down and there is a corresponding rise of water on the other side (Fig. 55).

Water column pressure is indicated by the difference of the two columns of water measured in inches.

A convenient scale reading in inches and tenths of an inch is mounted between the two columns.

When reading the gauge, proceed as follows:

Fill the gauge with water up to the zero level. Connect the hose to the pressure testing outlet. Normal working pressure may force the water column to go down to 5.5 inches below the zero level, whereas the other column rises up to 5.5 inches above the point zero or mid-point. Adding the two will result in a water column of  $5.5 + 5.5 = 11$  inches.

For accuracy of measurement, a water "U" gauge is far superior to a low pressure gauge. If a low pressure gauge is used, it should be checked for accuracy against a water "U" gauge occasionally.

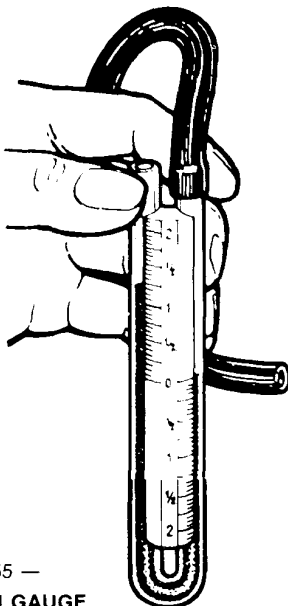


FIGURE 55 — WATER U GAUGE

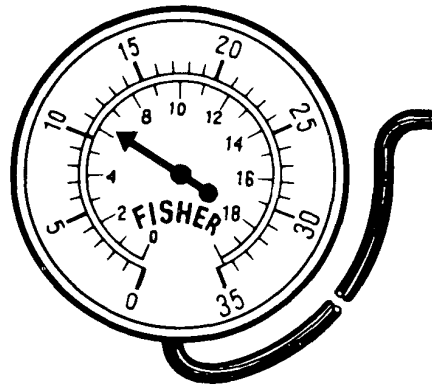


FIGURE 56 — LOW PRESSURE GAUGE (Fisher)

## LOW PRESSURE GAUGE (FISHER)

This gauge is calibrated to read in "inches of water column pressure." It is a standard manometer reading and is colored red.

### How to use the pressure gauge:

Fig. 56 shows the Fisher low pressure gauge. When testing the pressure to the burner, tee into the supply line from the gas bottle (such as a gas range pressure tap as shown in Fig. 57). Then connect the hose from the pressure gauge. It is very important that the gas operated refrigerators operate at correct pressure; *i.e.*, at the pressure specified for the refrigerator.

The pressure of the burner should be checked at the time the refrigerator is started up. After connecting the pressure gauge, set the thermostat dial at "COLDEST." Turn on the gas and light the burner. At the "COLDEST" setting the pressure reading should be at a minimum of  $10\frac{1}{2}$ " or a maximum of  $11\frac{1}{2}$ " if the L.P. gas is supplied directly to the refrigerator from the regulator fitted on the gas bottle at pressure of 11".

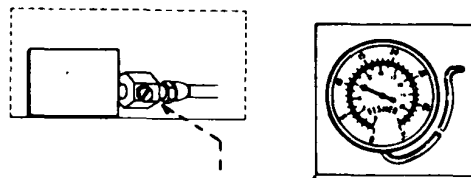
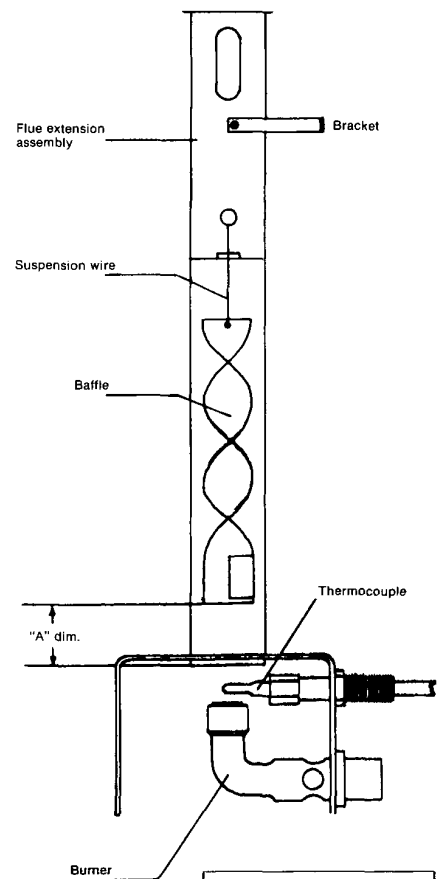


FIGURE 57 — GAS RANGE PRESSURE TAP

# Flue Assembly

The dimensions of the flue and the flue baffle have been engineered to give best possible efficiency and meet A.G.A. and C.S.A. standards. The baffle distributes the heat produced by the burner and enhances the draft, providing primary and secondary air to the burner.

The sizes and distances differ with each cooling unit. It is important that these dimensions be maintained to insure proper performance and safety.



	DIM. "A"	
	Consul	Siam
140	2.22	---
160	2.22	2.00
270	3.75	2.00
290	3.75	---

FIGURE 58 — FLUE ASSEMBLY

The possibility of a loose kick plate or the difficulty in securing the kick plate to the base pan is now eliminated by "HEDLOK II," a 1" diameter black plastic fastener using the Velcro principle.

Interlocking plastic prongs mate positively with a simple push on the kick plate. A firm pull on the kick plate knobs is all that it takes to remove the plate. The foam tape on the plate gives a noiseless, effective and good looking contact with the base.

A kit to eliminate any existing field problem will be available to replace the metal twist fasteners. Kits will include the headlock fasteners, washers, and mounting bolts and nuts for the base pan.

For ordering the "HEDLOK II" conversion kit, please contact our parts department.

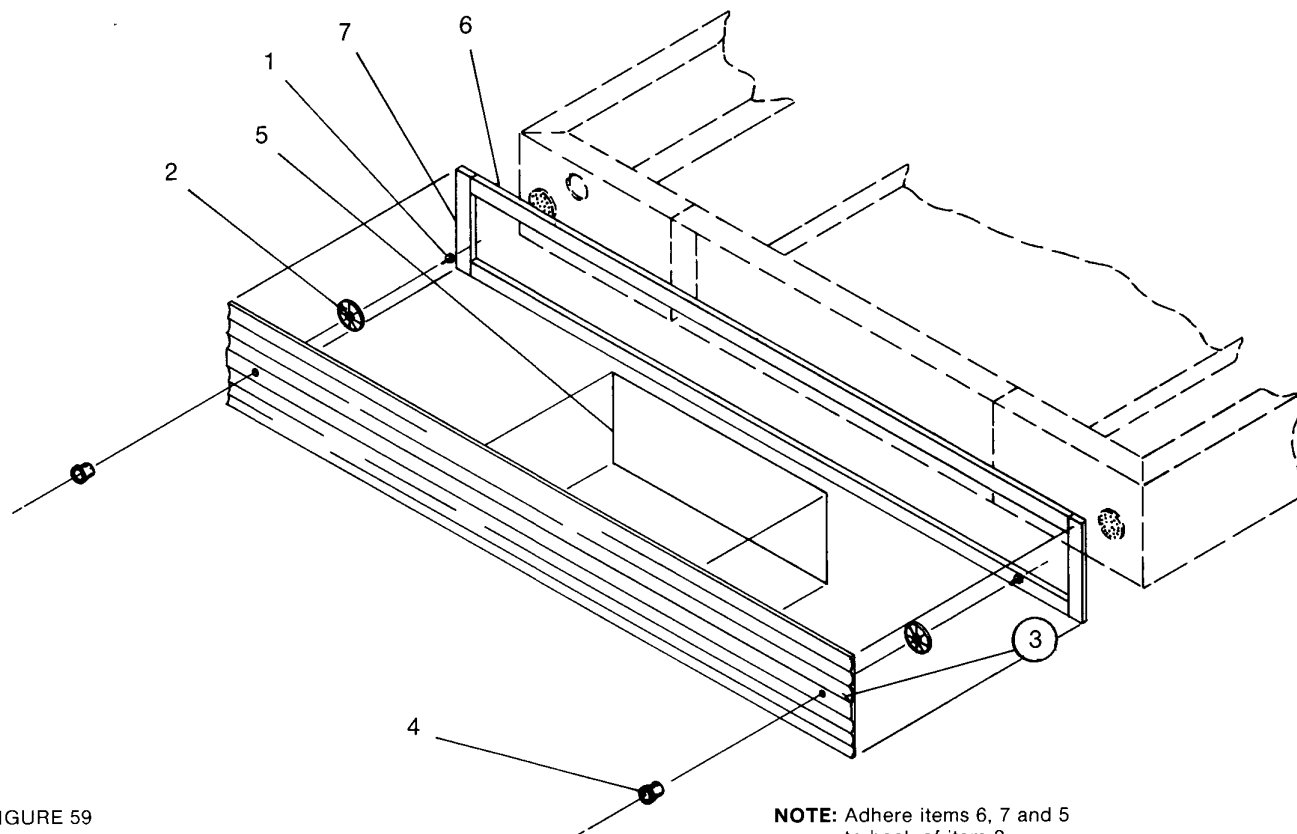


FIGURE 59

**NOTE:** Adhere items 6, 7 and 5 to back of item 3.

Item	Part Number	Req.	Description
1	3-030014-002	2	Screw, Mach. #8-32 x 3/8" Pan
2	1-330374	2	Hedlok II Fastener (1" dia.)
3	2-330343-002	1	Kick Plate
4	1-330375	2	Knob, Kick Plate
5	3-330341	1	Decal, Wiring Diagram
6	1-050040-012	2	Foam Tape (.50 x .25 x 23.00)
7	1-050040-007	2	Foam Tape (.50 x .25 x 3.00)

**Your Kick Plate Conversion Kit Includes:**

- (4) HEDLOK fasteners
- (2) Slotted machine screws
- (2) Phillips-head self tapping drill screws

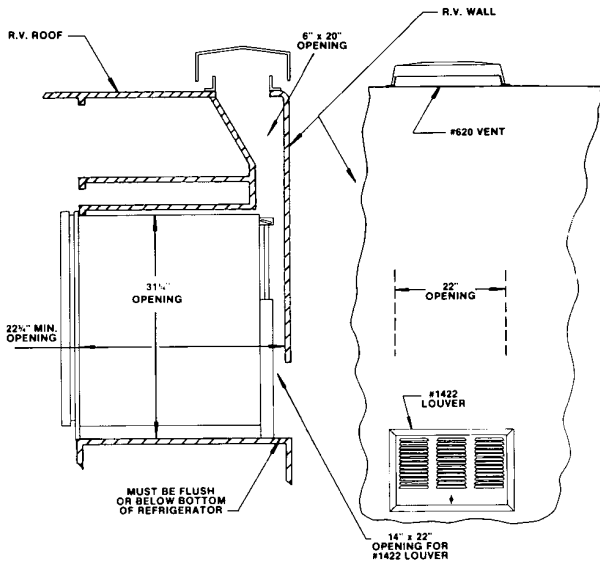
**To Mount HEDLOK Fasteners to Refrigerator Base Assembly:**

1. Using a #33 drill bit, drill a new hole no more than 1/4" above present fastener opening.
2. Drive Phillips-head drill screw into rough side of HEDLOK fastener until it's just snug in new drill hole.

**To Mount HEDLOK Fastener to Kick Plate:**

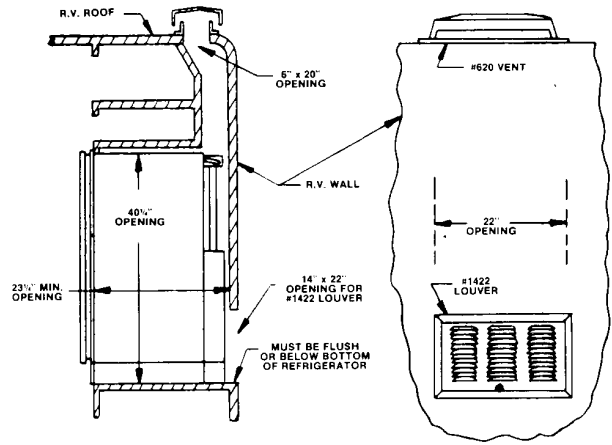
1. Remove present key or knurled knob from kick plate.
2. Drive slotted screw through rough side of HEDLOK fastener, kick plate and snug into knurled knob. Your kick plate is now ready for mounting.

**INSTALLATION**



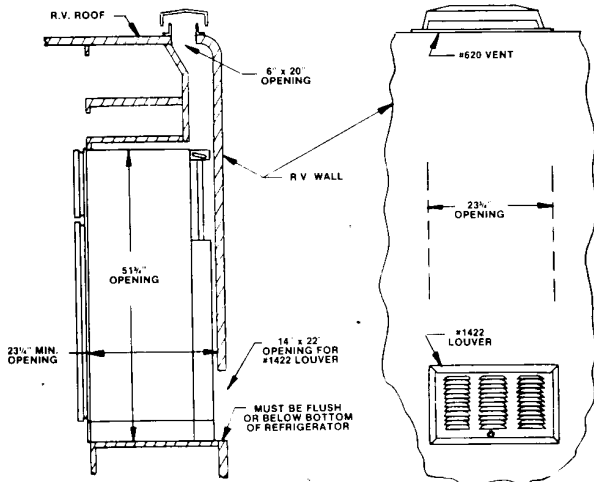
**FIGURE 19 — MODEL IM-140 SERIES**  
Usable storage volume 3.2 cu. ft.

**INSTALLATION**



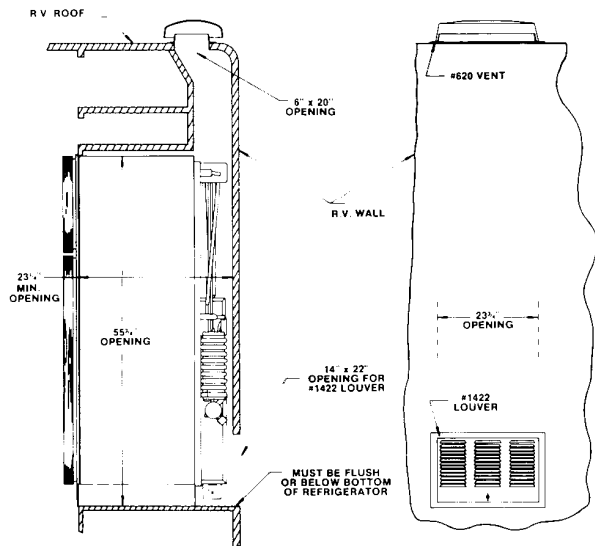
**FIGURE 20 — MODEL IM-160 SERIES**  
Usable storage volume 4.7 cu. ft.

**INSTALLATION**



**FIGURE 21 — MODEL IM-270 SERIES**  
Usable storage volume 5.8 cu. ft.

**INSTALLATION**



**FIGURE 22 — MODEL IM-290 SERIES**  
Usable storage volume 6.2 cu. ft.



# INSTAMATIC REFRIGERATOR SPECIFICATIONS

UNIT EXTERIOR DIMENSION				BUILT-IN DIMENSION		
Model	Height	Width	Depth	Height	Width	Depth
IM-142 .....	31	21 $\frac{3}{4}$	22 $\frac{3}{4}$	31 $\frac{1}{4}$	22	23
IM-143 .....	31	21 $\frac{3}{4}$	22 $\frac{3}{4}$	31 $\frac{1}{4}$	22	23
IM-162 .....	40	21 $\frac{3}{4}$	22 $\frac{3}{4}$	40 $\frac{1}{4}$	22	23
IM-163 .....	40	21 $\frac{3}{4}$	22 $\frac{3}{4}$	40 $\frac{1}{4}$	22	23
IM-272 .....	51 $\frac{5}{8}$	23 $\frac{1}{2}$	23	51 $\frac{7}{8}$	23 $\frac{3}{4}$	23 $\frac{1}{2}$
IM-273 .....	51 $\frac{5}{8}$	23 $\frac{1}{2}$	23	51 $\frac{7}{8}$	23 $\frac{3}{4}$	23 $\frac{1}{2}$
IM-292 .....	55 $\frac{3}{8}$	23 $\frac{1}{2}$	23	55 $\frac{7}{8}$	23 $\frac{3}{4}$	23 $\frac{1}{2}$
IM-293 .....	55 $\frac{3}{8}$	23 $\frac{1}{2}$	23	55 $\frac{7}{8}$	23 $\frac{3}{4}$	23 $\frac{1}{2}$

The minimum clearances to combustible materials, as tested and certified by A.G.A. and C.G.A. are as follows:

Sides: 0 Inches  
 Top: 0 Inches  
 Back: 0 Inches

## REPLACEMENT OF EVAPORATOR DOOR ON THE IM-140 and IM-160

1. Push carrier ("A") inwards by means of a blunt mandrel or pin (Fig. A) and remove the shutter.
2. Pry the spring housings ("B" in Fig. A) away from the lining so that it snaps out and turn the spring housings downwards 180° (Fig. B).
3. Mount the new shutter in close position first on one side, making sure that the cross slots engage in the cross on the hinge plate ("C" in Fig. A).
4. Press the carrier on the opposite side so that the hinge plate on the shutter can be pushed over it. See that the crosses engage.
5. Turn the spring housings round and up until the small tag ("A" in Fig. B) snaps into the slot in the lining.

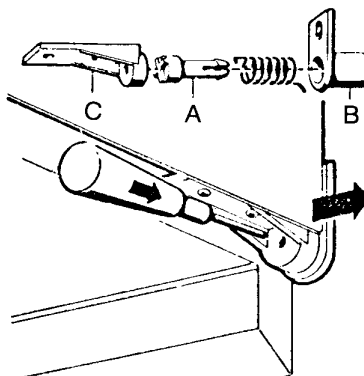


FIGURE A

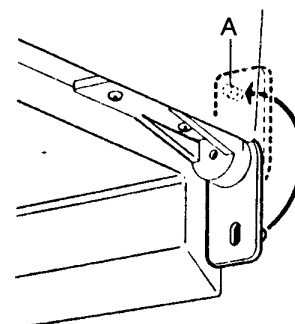
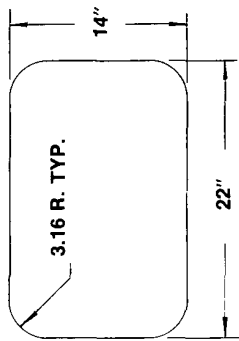


FIGURE B



#1422 RECTANGULAR SERVICE DOOR  
Cut out size: 14" x 22"

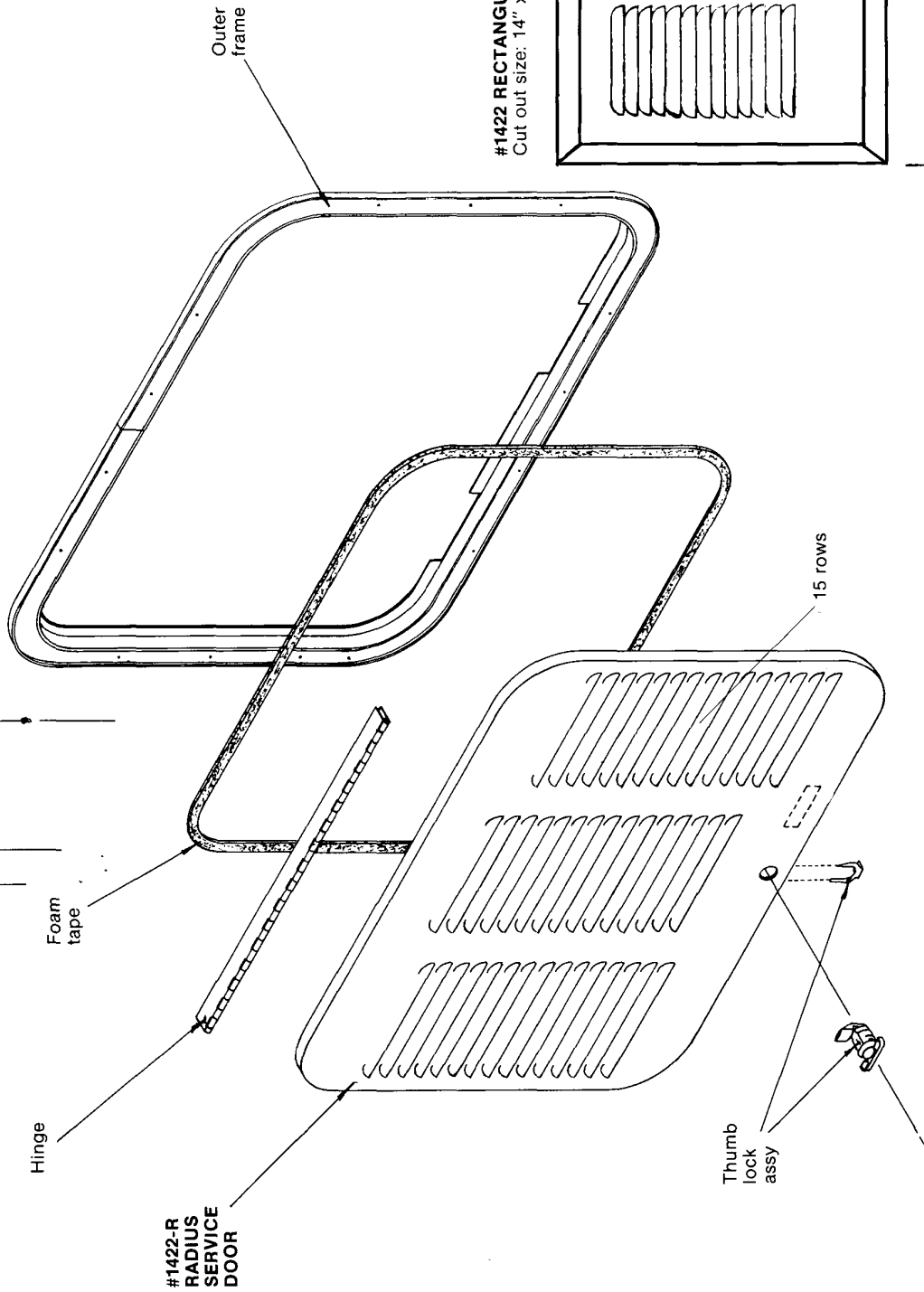
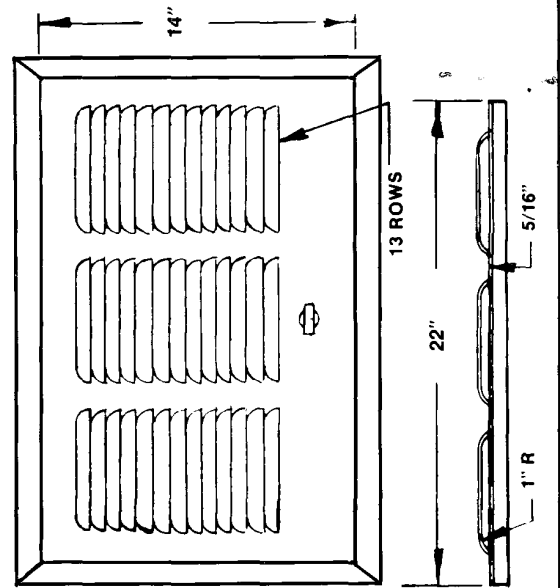
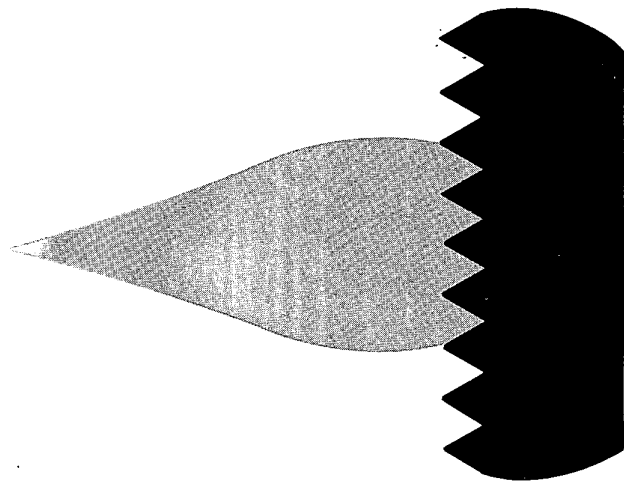
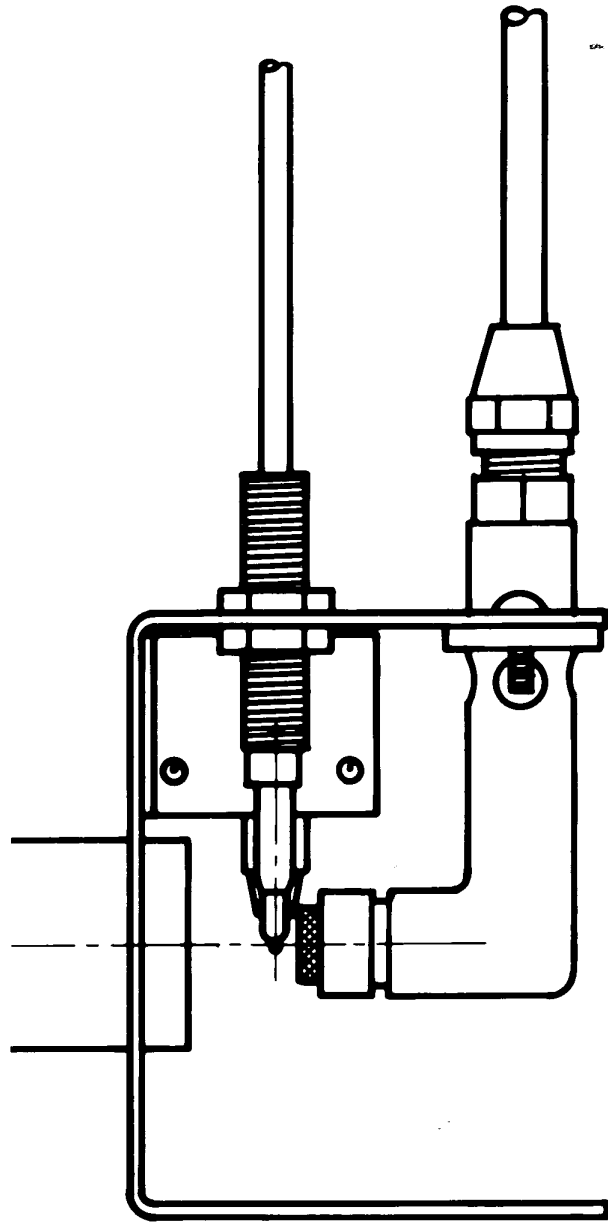


FIGURE 23



The correct flame, at "MAX" setting, should have a bright blue crown at the base of the flame and a slight buzzing noise.

FIGURE 40

Manual provided courtesy  
Bryant RV Services  
[www.byantrv.com](http://www.byantrv.com)

All manuals are believed to be released for distribution, and/or in the public domain.

Service manuals provided with the understanding that persons using them are well versed in proper safety practices, and are familiar with basic safety procedures, including, but not limited to safety procedures dealing with 120 volt electricity, high amperage 12 volt circuits an LPG (propane) systems.

If in doubt, consult a professional (better safe than sorry).