



OFF-GRID APPLIANCES

40L / 60L (1.4 cu ft / 2.1 cu ft)

3-way Portable Propane Refrigerator



XC-40



XC-60

OWNER'S GUIDE

PORTABLE CAMPING REFRIGERATOR

Installation and Owner's Manual

WARNING: Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Refer to this manual. For assistance or additional information consult a qualified installer, service agency or the gas supplier.

!SAVE THESE INSTRUCTIONS!

FOR YOUR SAFETY IF YOU SMELL GAS

- Open windows.
- Do not touch electrical switches.
- Extinguish any open flame
- Immediately turn off gas supply and call your gas supplier
- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance

FOR YOUR SAFETY

If you smell gas:

1. Evacuate enclosure
2. Call professional for help

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Welcome & Congratulations

Congratulations on your purchase of a **Smad** refrigerator!. We are very proud of our product and we are completely committed to providing you with the best service possible. Your satisfaction is our #1 priority. Please read this manual very carefully. It contains valuable information on how to properly maintain your new gas refrigerator.

We know you will enjoy your new refrigerator and thank you for choosing one of our Gas Products. We hope you will consider us for future purchases.

PLEASE READ AND SAVE THESE INSTRUCTIONS

This manual provides specific operation instructions for your model. Use your refrigerator only as instructed in this manual. These instructions are not meant to cover every possible condition and situation that may occur. Common sense and caution must be practiced when installing, operating and maintaining the appliance

Please record your model and serial # shown below for future reference. This information is found on your serial plate on the back of the refrigerator.



Safety and Warnings

If you smell gas

- Open windows
- Don't touch electrical switches
- Extinguish any open flame
- Immediately call your gas supplier



For you Safety

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this unit or any other appliance.

Warning

- Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Refer to this manual. For assistance or additional information consult a qualified installer, service agency or the gas supplier.
- This product can produce Carbon Monoxide. Carbon Monoxide has no odour and can kill you. The burner and flue system must be kept clean. See owner's manual for cleaning instructions.
- 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
- Provide ample ventilation, especially when sleeping. This refrigerator "consumes air (oxygen). Do not use this refrigerator in unventilated structures to avoid endangering your life. Provide additional ventilation for any additional fuel-burning appliances and additional "occupants."

Installation and Operating Instructions

Installation

For best performance at high ambient temperatures, there must be free air circulation over the cooling unit at the rear of the refrigerator.

Ensure that there is a free air space above the refrigerator and that the flue (chimney) on top of the cabinet is not covered in any way. Do not place the refrigerator in a space where air circulation is restricted. Follow “clearance” instructions.

This appliance has been certified as a portable camping appliance in North America it must be used as a portable camping appliance for use outdoors in sheltered area. While using on electrical operation this unit can be used in an enclosed area but must still be protected from moisture as comply with all clearances.

For installation, for maintaining proper clearances from combustible material to the refrigerator, the following minimum clearance must be observed:

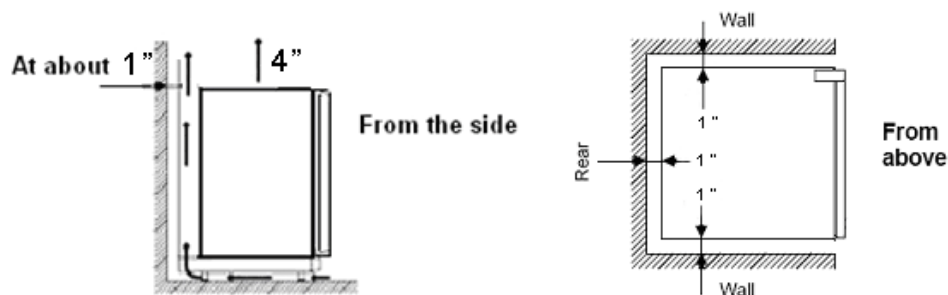
Clearances

Minimum clearances to combustible materials are:

Top – 4”

Sides – 1”

Rear – 1”



Note: DO NOT install the appliance directly on carpeting. Carpeting must be removed or protected by a metal or wood panel beneath the appliance, which extends at least the full width and depth of the appliance.

Keep appliance area clear and free from combustible materials, gasoline and other liquids with flammable vapors.



WARNING_– DO NOT USE FLAME TO CHECK FOR GAS LEAKS

Levelling

Ensure the fridge is leveled by using the foot level; the operation of this unit uses an absorption system which requires the appliance to be level in order to operate effectively.

General Operating Instructions

Importance of Leveling a Refrigerator

The refrigerator must be adjusted to a vertical position in both directions. In an absorption refrigeration system, ammonia is liquefied in the finned condenser coil at the top rear of the refrigerator. The liquid ammonia then flows into the Evaporator (inside the freezer section) and is exposed to circulating flow of hydrogen gas, which causes the ammonia to evaporate, creating a cold condition in the freezer.

When starting this refrigerator, the cooling cycle may require 6 to 8 hours of running time to begin cooling before the cooling unit is fully operational, you can then begin slowly loading the compartment.

The tubing in the evaporator section is specifically sloped to provide a continuous movement of liquid ammonia, flowing downward by gravity through this section. If the refrigerator is operated when not level, liquid ammonia will accumulate in sections of the evaporator tubing. This will slow the circulation of hydrogen and ammonia gas, or in severe cases, completely block it, resulting in a loss of cooling. Warranty will not cover recharge/rebuild if caused by not running the fridge level.

This refrigerator operates LP Gas (Propane), 110V (Electricity) and 12V DC

Gas Operation

“Start Up” Procedure

After initial installation, servicing, or changing gas cylinders etc., the gas pipes may contain some air which should be allowed to escape by briefly turning on the refrigerator. This will ensure that the flame lights immediately.

1. Make sure that all valves between the gas container and the refrigerator are open.
2. Depress the safety device control (D) and hold it down while immediately depressing the electronic igniter button (B)
3. Once the flame indicator (C) starts to move into the green, release the electronic igniter button (B) but continue to keep the safety device control (D) depressed for a further 10-15 seconds.
4. Release the safety device control (D) and again check to see that the flame is alight, making sure the needle is in the green area of the flame indicator.
5. Adjust the thermostat knob (E) to desired temperature setting and allow for 8 to 10 hours of operation to achieve desired temperature.

Notice:

1) For XC-40, it's Piezo Ignition, while XC-60 is battery Ignition. The working theory is the same. Section (A) is battery power for the Ignition, change the battery simply by switching to left, then you can open it to put new battery.

2) Shut the gas off at the LP-gas supply cylinder when the appliance is not in use. If the refrigerator will not be in operation for a period of weeks, it should be emptied, defrosted, cleaned and the doors left open.

110V Operation

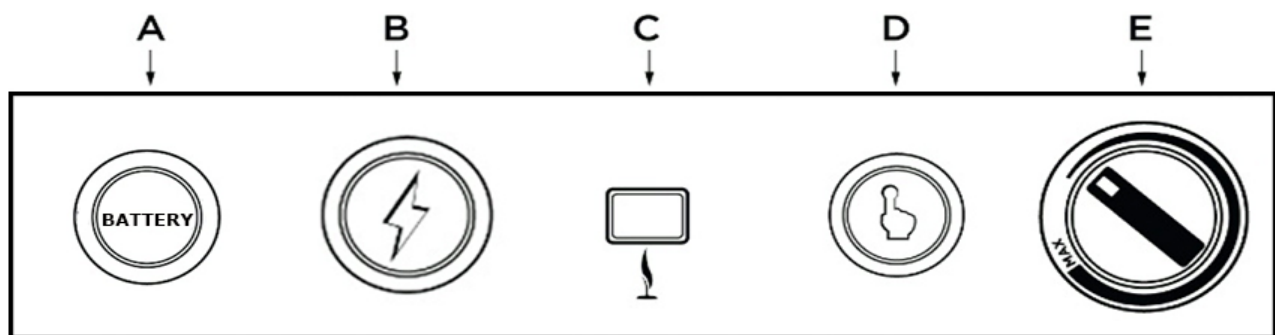
1. Make sure that the gas valve is turned off at the tank.
2. Ensure the electrical cord is plugged into a grounded outlet
3. Adjust the thermostat knob (E) to desired temperature setting and allow for 8 to 10 hours of operation to achieve desired temperature.

12V DC Operation

1. If 110 Volts or LP gas is not available, the refrigerator can work with DC 12V.
2. You can then connect the 12VDC power cord (supplied) to the terminal block located at the back side of the refrigerator, the other side can plug into your vehicle car cigarette.
3. DC operation is not as efficient as LP Gas or AC operation. DC electric should not be used to initially cool the refrigerator. Only use DC when the other modes are unavailable (for example; while in transit).

CONTROLS – See Fig. #1 for description of controls

Figure #1



Thermostat

The refrigerator cooling temperature is controlled by a combination thermostat that can be adjusted by turning knob **E** to different settings to maintain the desired refrigerator temperature when operating on either gas or 110V. Knob **D** also incorporates a safety device which automatically shuts off the supply of gas if the flame goes out. The electronic igniter discharges sparks onto the burner when the button is pushed.

1. **“DEF” Defrost setting on the Gas/Electric Thermostat:** In gas operation, the thermostat closes its main valve and the burner runs continuously at the bypass rate or pilot flame. (turn fully counter clockwise), and in 110V operation the element will cycle off, until cooling is again required.
2. **“MAX” Setting of the Thermostat:** In gas operation, the thermostat allows the burner to remain on high flame continuously. (turn clockwise), and in 110V operation the element will stay on until the desired temperature is reached inside the fridge.
3. The thermostat can be adjusted between “Max” and “Warm” to obtain the desired fridge temperature. When the thermostat reaches the set temperature, it will reduce the burner back to bypass operation or shut the element off in 110V operation.
4. In DC operation the fridge will only maintain the temperature that’s already been achieved. **There is no thermostatic function.**

When operating on 110V or LP gas, the setting of the thermostat is critical and recommend it be adjusted to maintain a dry frost on the cooling fins (approx. 38° Fahrenheit or 3° Celsius). Adjust the thermostat knob closer to “Max” (clockwise) when the ambient temperature rises.

How to Use the Refrigerator

FOOD STORAGE COMPARTMENT

The food storage compartment is completely closed and unventilated, this is necessary to maintain the required low temperature for food storage. The coldest areas in the refrigerator are under the cooling fins and at the bottom of the refrigerator. The warmer areas are on the upper door shelves. This should be considered when placing different types of food in the refrigerator.

Defrosting

Frost will gradually accumulate inside the refrigerator and freezer surfaces. It must not be allowed to grow too thick as it acts as an insulator and adversely affects the refrigerator performance. Check the formation of frost every week and when it exceeds 1/2" thick, defrost the refrigerator.

Shut off and empty the refrigerator, leaving the fridge and the freezer doors open. Defrosting time can be reduced by filling the ice tray with hot water and placing it in the freezer compartment.



DO NOT USE A HOT AIR BLOWER, PERMANENT DAMAGE COULD RESULT. DO NOT USE A KNIFE, ICE PICK, OR ANY OTHER SHARP TOOLS TO REMOVE FROST FROM THE FREEZER COMPARTMENT.



FRIDGE SECTION

Inside the refrigerator compartment, the defrost water drips into a catch tray and moves to the back of the fridge via a small tube. If heavy frost has built up on the cooling fins creating a lot of defrost water, your water reservoir may overflow, we suggest you inspect reservoir before/after cycle.

Cleaning

Cleaning the refrigerator is usually done after it is defrosted or put into storage. To clean the interior liner of the refrigerator, use a lukewarm water and weak soda solution. Use only warm water to clean the finned evaporator, gasket, ice trays and shelves.



Never use strong chemicals or abrasives to clean these parts as the protective surfaces will be damaged. It is important to always keep the refrigerator clean. Dishwasher detergent is recommended

Maintenance & Service

The user should be aware of service that must be done on a regular schedule to keep the refrigerator operating properly. Installation must be by a licensed gas fitter in accordance with local codes .

- Keep appliance area clear and free from combustible materials, gasoline and other liquids with flammable vapors.
- Do not obstruct the flow of combustion and ventilation air, ensure clearances are followed.

REFRIGERATOR REMOVAL

Before working on the refrigerator, shut off the gas supply. Disconnect the gas supply line at the rear of the refrigerator. Always use a backup wrench when loosening and tightening this connection. Disconnect fridge from 110V source.

Warning: To avoid electrical shock always unplug your fridge before cleaning. Ignoring this may result in injury.

PERIODIC MAINTENANCE

Before working on refrigerator, shut off the gas supply. Disconnect the gas line at the rear of the refrigerator. Always use a backup wrench when loosening and tightening this connection.

To keep your refrigerator operating effectively and safely, periodic inspection and cleaning of several components is recommended once or twice a year, sometimes more often depending on environment.

- It's important to keep the area at the back of the refrigerator clean. Clean the coils on the back of the refrigerator. Use a soft bristled brush to dust off the coils.



Note: The following maintenance is required at least once or twice a year at least, more often based upon usage/environment.



- Check all connectors in the complete refrigerator LP gas system for gas leaks. The LP gas supply must be turned on. Apply a non-corrosive bubble solution to all LP connections. The appearance of bubbles indicates a leak and should be repaired **immediately** by a qualified serviceman.



WARNING – DO NOT USE FLAME TO CHECK FOR GAS LEAKS

PROCEDURE FOR CLEANING THE COOLING SYSTEM FLUE

WARNING: Carbon Monoxide can be hazardous to your health. Gas appliances may emit excessive Carbon Monoxide if the refrigerator's burner, burner orifice, and the flue tube are not regularly cleaned. To prevent Carbon Monoxide, the burner, burner orifice, and the cooling system's flue tube must be cleaned at least once a year and after all prolonged (seasonal) shut-down periods. Refer to the following cleaning procedures, or contact a qualified installer, your dealer.

1. Before cleaning, cover the burner to protect it from dirt.
2. Remove the spiral flue baffle from the flue tube.
3. Using a stiff brush or fine emery cloth, clean the spiral flue baffle of debris.
4. Clean the inside of the flue tube with a flue brush. Inspect burner after cleaning.
5. Re-install the spiral flue baffle. Insure the spiral flue baffle is securely in place. The spiral flue baffle is required for efficient cooling while operating in the gas mode.

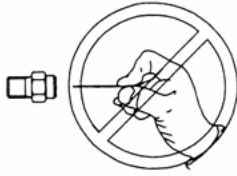
CLEANING THE BURNER

Take off the protection hood and do the following:

1. Clean the openings and the burner screen with a wire brush
2. Clean and inspect the electrode and thermocouple. If either is corroded, have it changed. Check that they are well attached and if necessary tighten the screws
3. Check that the spark is created by pressing the electronic ignition button on the control panel.
4. Before removing burner orifice, clean burner area of any soot, scale or dirt. Remove the orifice and soak it in alcohol (isopropyl alcohol or thinners) and

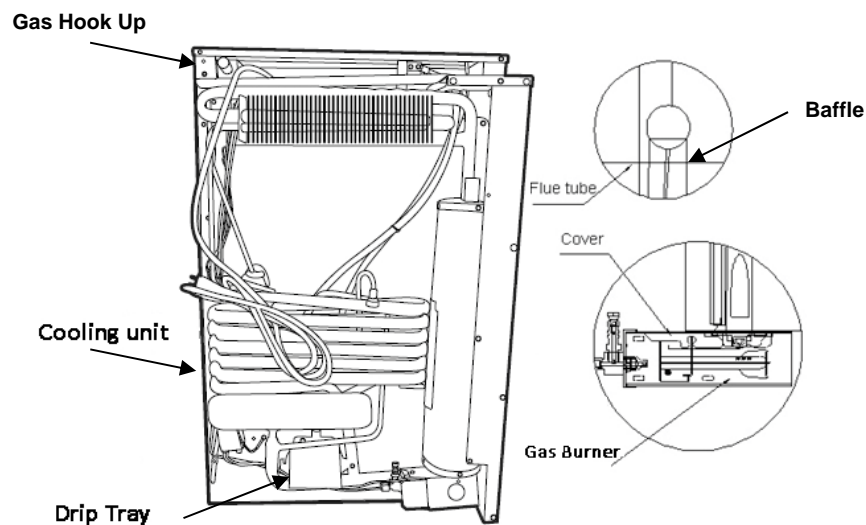
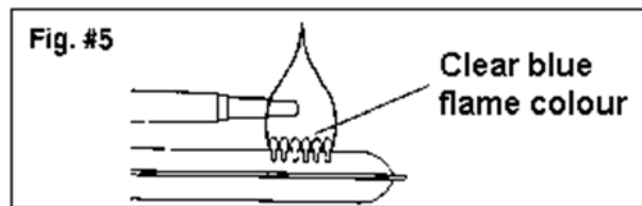
blow it out with compressed air. Do not use thin objects to either clean or unblock the injector. Re-install and tighten burner orifice.

5. Replace burner



Warning - DO NOT use a pin or wire when cleaning the burner orifice as damage can occur to the precision opening. This can cause damage to the refrigerator or create a fire hazard. It will also create

Visually check flame to ensure you have a clean burning flame, this is represented by a blue looking flame, a yellow/orange flame represents a dirty burner or orifice and needs to be cleaned.



TROUBLESHOOTING INSTRUCTIONS & SUGGESTED SPARE PARTS TO KEEP ON HAND

REFRIGERATOR DOES NOT COOL, CHECK LIKELY CAUSES:

1. Burner orifice clogged. Clean. See section MAINTENANCE & SERVICE, CHAPTER 3
2. Check to ensure refrigerator is level – (left to right and front to back).
3. Restriction on air flow across cooling unit.
4. Heavy frost build up on evaporator fins. Defrost.
5. Flue baffle not inserted properly in flue tube.
6. Improperly set thermostat. See paragraph on thermostat. In hot weather or heavy use the setting should be closer to “Max” than usual.
7. Burner dirty. Clean. See Section MAINTENANCE & SERVICE, CHAPTER 3,
8. LP gas pressure low at burner. Regulator pressure must not drop below 11 inches W.C (water column) on high fire.
9. 110V supply disconnected or heating element not functioning
10. Burner damaged. Replace.
11. Odours and fumes
 - Dislocated burner
 - Damaged Burner
 - Dirty orifice
 - Dirty flue tube – CHAPTER 4.

Suggested Spare Parts

The following is a list of commonly used parts which are available:

- Burner orifice
- Burner
- Electrode
- Thermocouple
- Baffle

Looking Inside

SHELF ADJUSTMENT



Refrigerator shelves are easily adjusted to suit individual needs. Before adjusting the shelves, remove all food.

Food Storage Ideas

FRESH FOOD STORAGE

- The fresh food compartment should be kept between 38° F and 40° F (3.3° C and 4.4° C) with an optimum temperature of 38° F (3.3°C).
- Avoid overcrowding the refrigerator shelves. This reduces the circulation of air around the food and results in uneven cooling.

Care and Cleaning

Keep your refrigerator clean to prevent odor build-up. Wipe up any spills immediately and clean both sections at least twice a year. **Never** use metallic scouring pads, brushes, abrasive cleaners or strong alkaline solutions on any surface. **Do not** wash any removable parts in a dishwasher.

NOTES:

Do not use razor blades or other sharp instruments, which can scratch the appliance surface when removing adhesive labels. Any glue left from tape or labels can be removed with a mixture of warm water and mild detergent, or, touch the glue residue with the sticky side of tape you have already removed. **Do not remove the certification/serial plate.**

Warranty

Smad PROPANE FREEZER - 1 YEAR LIMITED WARRANTY

Smad Electric Appliance Ltd. warrants this freezer for 1 year and 2 year for some of the freezer parts.

1. If there is some damage when you receive the freezer. Please take clear pictures and contact our customer-service, they will handle this for you. For any installation problems you have doubts, our customer representative is always at your service.
2. If you want to return the freezer for some reason, please contact us within 30 days after you receive the freezer.
3. Contact us freely within 1 year's warranty. Your problem will be solved for sure.

The Seller will have no obligation under this warranty with respect to conditions unrelated to the material or workmanship of this freezer. Such unrelated conditions include without limitation:

- a) faulty installation (or venting) and damage resulting therefrom; not installed by Seller
- b) the need for normal maintenance of this freezer (including the cleaning of the Burner, Venturi, Orifice, Flue tubes and assurance of proper propane gas pressure);
- c) any accidents to or misuse of any part of this freezer and any alteration thereof by anyone other than the Seller or its authorized representative.

This freezer **must** be serviced regularly as outlined in the Owner's Manual. **Smad Electric Appliance Ltd.** and the seller will not be liable for direct or indirect loss of foods caused by failure in operation. In case of failure, the owner must provide proof of purchase, Model, and Serial Number to the Seller.