

Refrigerator
Model RM122
(Bottled Gas and 12 Volt Operation)

FOR USE IN CARAVANS AND MOBILE HOMES

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**INSTRUCTIONS FOR INSTALLATION,
USE, AND MAINTENANCE.**

INSTRUCTIONS FOR INSTALLATION

1. INTRODUCTION

Before starting to install the refrigerator, please read these instructions carefully in order to obtain a thorough understanding of what is required.

When operating, heat is emitted from parts of the cooling unit at the rear and this has to be carried away by air circulating freely over the back of the refrigerator. **To ensure sufficient air circulation for satisfactory operation, it is essential that the clearances called for in these instructions are not reduced in any way otherwise cooling performance will be impaired.** Providing the refrigerator is installed in accordance with these instructions, it should operate satisfactorily in ambient temperatures up to 32°C (90°F), with some measure of cooling up to about 35°C (95°F).

It is recommended that the refrigerator is installed by the caravan manufacturer, the supplier or another qualified person. Owners who are competent to carry out the work themselves can do so, but, for the sake of safety, they must take particular care in making the gas connections, checking for leaks, and installing the electrical wiring and fittings. All relevant regulations concerning such installations must be complied with.

Many caravans are already provided with a recess, usually in the form of a cupboard which has been specially designed so that it can be adapted, by removal of its door and shelves, to house a refrigerator. Some caravan manufacturers have also devised kits of parts to aid installation of refrigerators in their particular caravans.

A ventilator for fitting above the door as shown in fig.4 is supplied with the refrigerator. The connection pipe, gas cock, and connectors are not supplied by Electrolux as the sizes of these may vary to suit particular installations. The appropriate parts should, however, be readily available from the refrigerator supplier or an Agent dealing in gas fittings (see note in item 13).

The refrigerator weighs approximately 14.5 kg (32lb) and the surface on which it is installed must be capable of carrying this weight, plus that of the food, satisfactorily.

All surfaces above and adjacent to the flue outlet, and beside and below the burner housing should be of, or covered with, metal or other non-flammable material.

IMPORTANT : On motorised vehicles, the refrigerator must be installed well away from fuel tanks, fuel filling inlets, pipes leading from inlets to fuel tanks, and fuel tank breathers.

WARNING :

Because of the hazards associated with the use of continuously operating bottled-gas appliances with open-flame burners in difficult-to-ventilate confined spaces, and other considerations, Electrolux do not recommend the installation of their bottled-gas caravan refrigerators on

boats, and refrigerators so installed will not be covered by the Company's guarantee.

If, however, a boat installation is planned for the refrigerator, reference should be made to British Standard 5482 Part 3, 1979 and to the Thames Water Authority "Launch Digest" and "Launch Specification". Also, current Guide Lines published by local Water Authorities, or the Ship and Boat Builders' National Federation.

It should be noted that special Marine Refrigerators are available from Electrolux for use on boats.

2. VENTILATION

The refrigerator will usually be built into a recess but it can be installed as a free-standing model. Whichever method is used, to enable the unit to operate efficiently, it is essential that air is allowed to circulate freely over the cooling unit at the back to carry away the heat generated during the cooling process (see fig.1). The minimum free spaces called for under, behind and over the cabinet must not, therefore, be reduced in any way. **The more space provided, particularly behind and over the cabinet, the better the performance you can expect from the cooling unit.**

3. IMPORTANCE OF LEVELLING

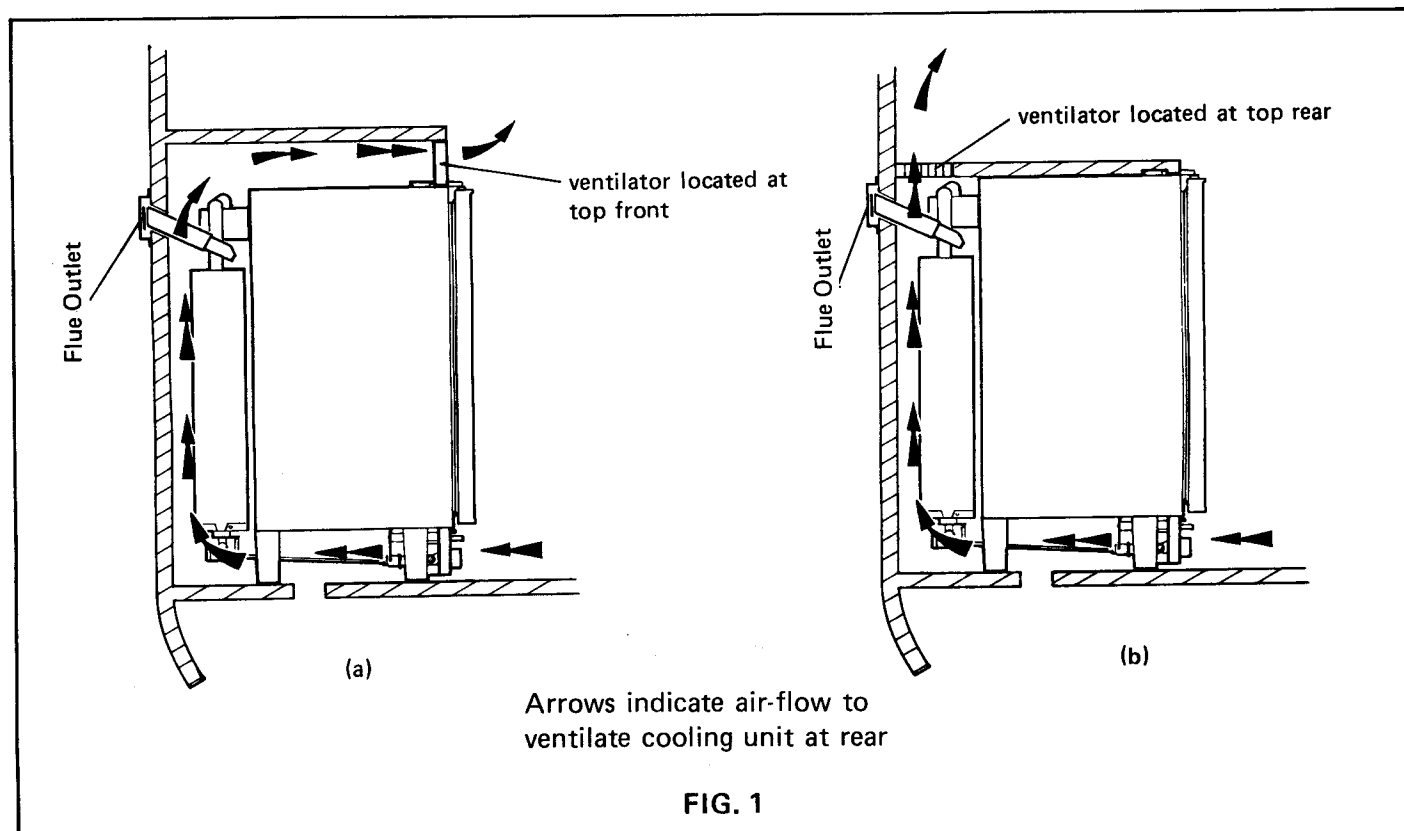
The downward circulation of refrigerant within the cooling unit is by gravity and the refrigerator has to be reasonably level, when it is stationary, for the cooling unit to operate properly. If the refrigerator is left operating with a sustained list in excess of about 3° in any direction, pockets of liquid refrigerant can collect at various points within the unit impairing or preventing normal circulation of the refrigerant vapour until level conditions return. **It is essential, therefore, that the refrigerator is installed so that the ice-tray shelf inside the refrigerator is level in relation to the caravan, in both directions, so that when the caravan is level, the ice-tray shelf is level.**

4. CHANGING DOOR HINGES TO OPPOSITE SIDE

The refrigerator is manufactured with the door hinged on the right hand side, however, it can be changed to left hand opening if required.

Gently place the refrigerator on its back (taking care not to damage the burner assembly), pull off the gas control knob, then remove the lower ventilator by taking out the screws from each end.

Remove upper hinge blade and travel catch blade from top of cabinet. Fit the upper hinge blade and travel catch blade to their new positions on the top of the cabinet and transfer the lower hinge blade to the opposite side. Refit the ventilator by means of the screws, then push the gas control knob onto its spindle so that the flat on the spindle engages the flat in the recess of the knob.



5. CHANGING OUTER DOOR PANEL

If required, the outer door panel can be removed and replaced by one of a different material or colour to match other fittings in the caravan. To do this, lay the refrigerator on its back (taking care not to damage the burner shield), then slide the panel up as far as it will go. Push the lower edge of the door panel inwards, against the insulation, then pull the plastic retaining strip along the bottom edge, forward and out. Holding the top and bottom of the panel, bow out its centre until it can be removed from the door frame.

The replacement panel can be of rust-proofed metal, or a plastic laminate. It should be from 0.5mm to 3mm thick, and 359.5mm wide x 487mm high.

Fit the panel to the door and push it up as far as it will go. Re-fit the plastic strip along the bottom edge, then slide the panel down against the plastic strip.

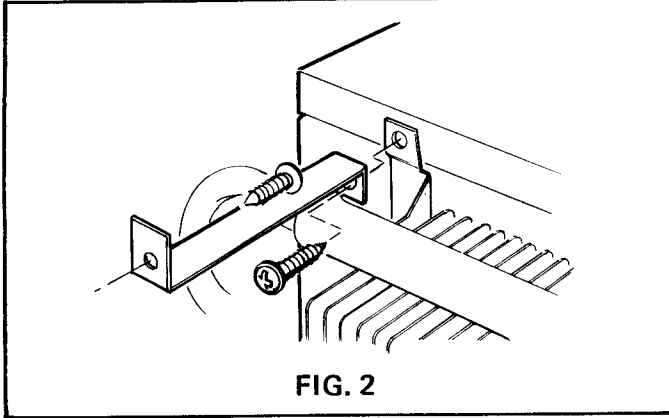


FIG. 2

6. DIMENSIONS OF REFRIGERATOR

The exterior dimensions of the refrigerator are given in fig.3. For dimensions of the recess to house the refrigerator when building-in, refer to item 9.

7. GAS PRESSURE, BURNER JET, AND GAS CONTROL VALVE

The burner jet (12, fig.16), and the combined gas control valve and flame failure device at the front of the cabinet (3, fig.14) must be of the correct sizes for the gas and gas pressure to be used. The gas pressure is determined by the type of regulator fitted to the gas bottle, and this may vary according to the Standard adopted in the country concerned. In the United Kingdom, and many other parts of Europe, the standard pressures used for butane and propane gas are as shown in section 1 of the table on the right. In Germany and Austria, the higher pressure shown in section 2 of the table usually applies.

Before installing the refrigerator, check from the label attached to it that the gas equipment is correct for the gas and gas pressure to be used. If it is not, the burner jet, and combined gas control valve and flame failure device must be changed for the correct type in accordance with the table. For future reference, any changes made should be recorded on or beside the data label.

It is essential that a reliable pressure regulator, set to deliver no more than the appropriate pressure shown in the table, is fitted - directly to the gas bottle. **Needle valve operated gas control taps are NOT suitable for use with this refrigerator and must not be used as a substitute for a pressure regulator.**

	Type of Gas	Gas Supply Pressure (Water gauge)	Size of Burner Jet	Type of Gas Control Valve
1	*Butane	11" (280mm) (28mbar)	BC	Part No. 344002
	Propane	14" (370mm) (37mbar)		
2	Butane & Propane	20" (500mm) (50mbar) (Usually in Germany and Austria)	AB	Part No. 344003 †

*e.g. Calor Gas, or Camping Gaz.

† Identified by letter D on valve body.

8. FREE-STANDING INSTALLATIONS

If the refrigerator is to be used as a free-standing model, a vertical free space of at least 75 mm (3") must be left over the top so that the air circulating over the cooling unit at the back can emerge unhindered. The flue kit for venting the flue gases to the outside air must still be fitted, - see item 11.

The refrigerator must be secured by some means to prevent it moving and causing damage to the gas pipe or its connections. A suggested method of securing is by means of metal brackets about 20 mm (¾") wide, (which should be made to suit the particular installation), screwed to the rear of the refrigerator by means of the two existing cooling unit fixing screws (fig.2) and to the rear wall of the caravan. It should not be fixed by means of screws or bolts through the holes in the feet as this could make subsequent removal for servicing, difficult or time consuming, and, in any case would not be secure enough for a mobile installation.

9. BUILDING-IN

When the refrigerator is built-in, adequate space must be left under, over and behind it to allow a sufficient circulation of air over the cooling unit at the back for satisfactory operation. The recommended method of building-in is shown in fig.5 with the upper ventilator at the front. However, where space limitations do not permit the upper ventilator to be fitted at the front, the alternative arrangement shown in fig.6 may be adopted and the height of the recess reduced accordingly. A work-surface can then be fitted over the top front of the refrigerator, but it must not over-hang the door where it could interfere with the operation of the travel catch.

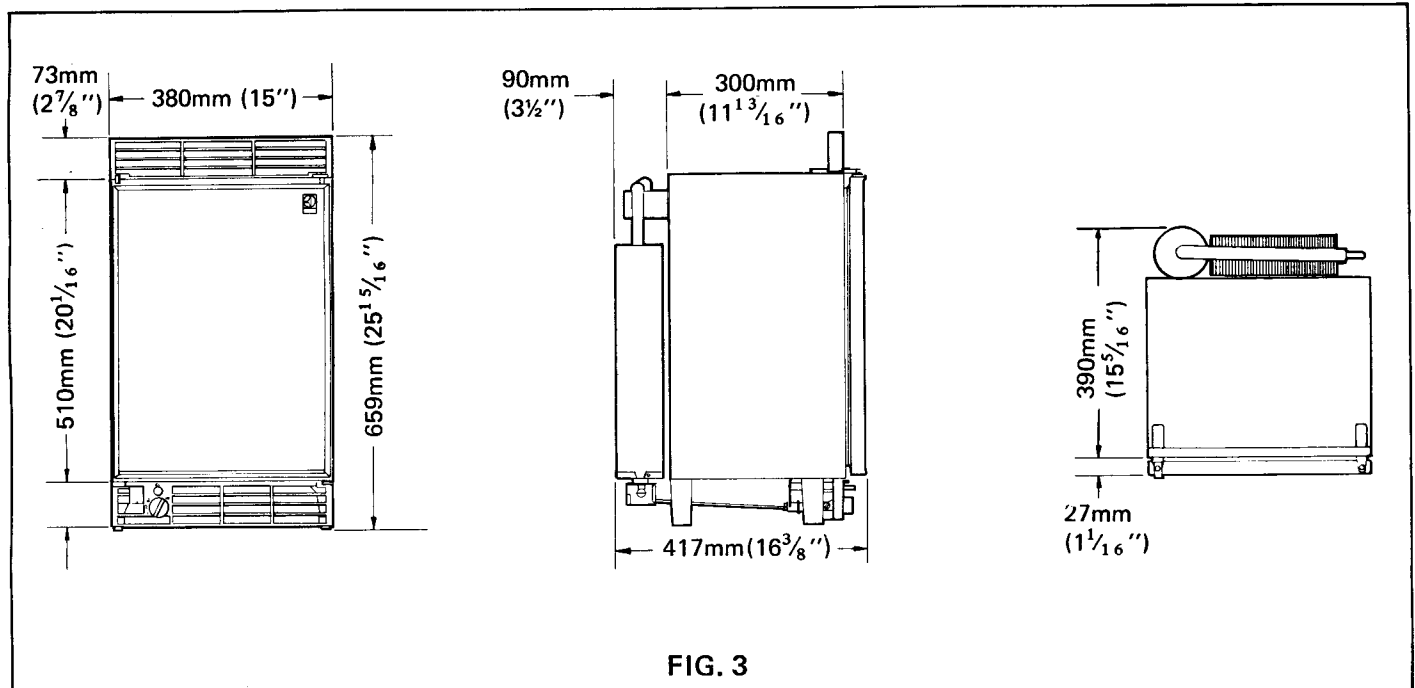


FIG. 3

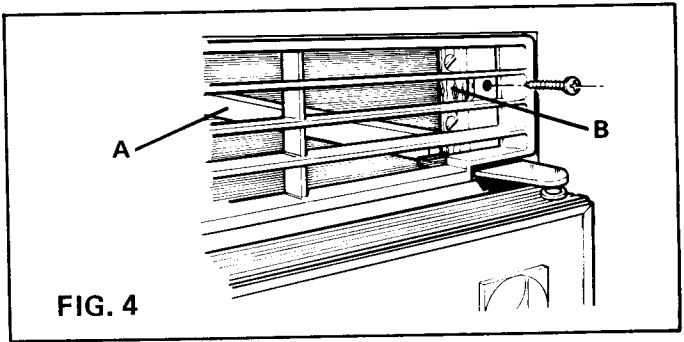
Securing in the Recess

The refrigerator must be secured in the recess to prevent movement. The method suggested in item 8 may be adopted, or wooden battens may be screwed to the sides of the recess, from front to back, bearing down on the top of the cabinet to hold it firmly, as shown at A, fig.4. Whichever method is used, it must be possible to remove the refrigerator easily for subsequent servicing purposes. The brackets or battens must be in a position where they will not restrict the air circulation over the cooling unit; they must not be positioned across the cabinet over the fins of the condenser of the cooling unit at the rear, otherwise air-flow will be impaired and performance affected.

If any other type of ventilator is used, the total area of the openings in it for the passage of air must not be less than 240 cm² (37 in²).

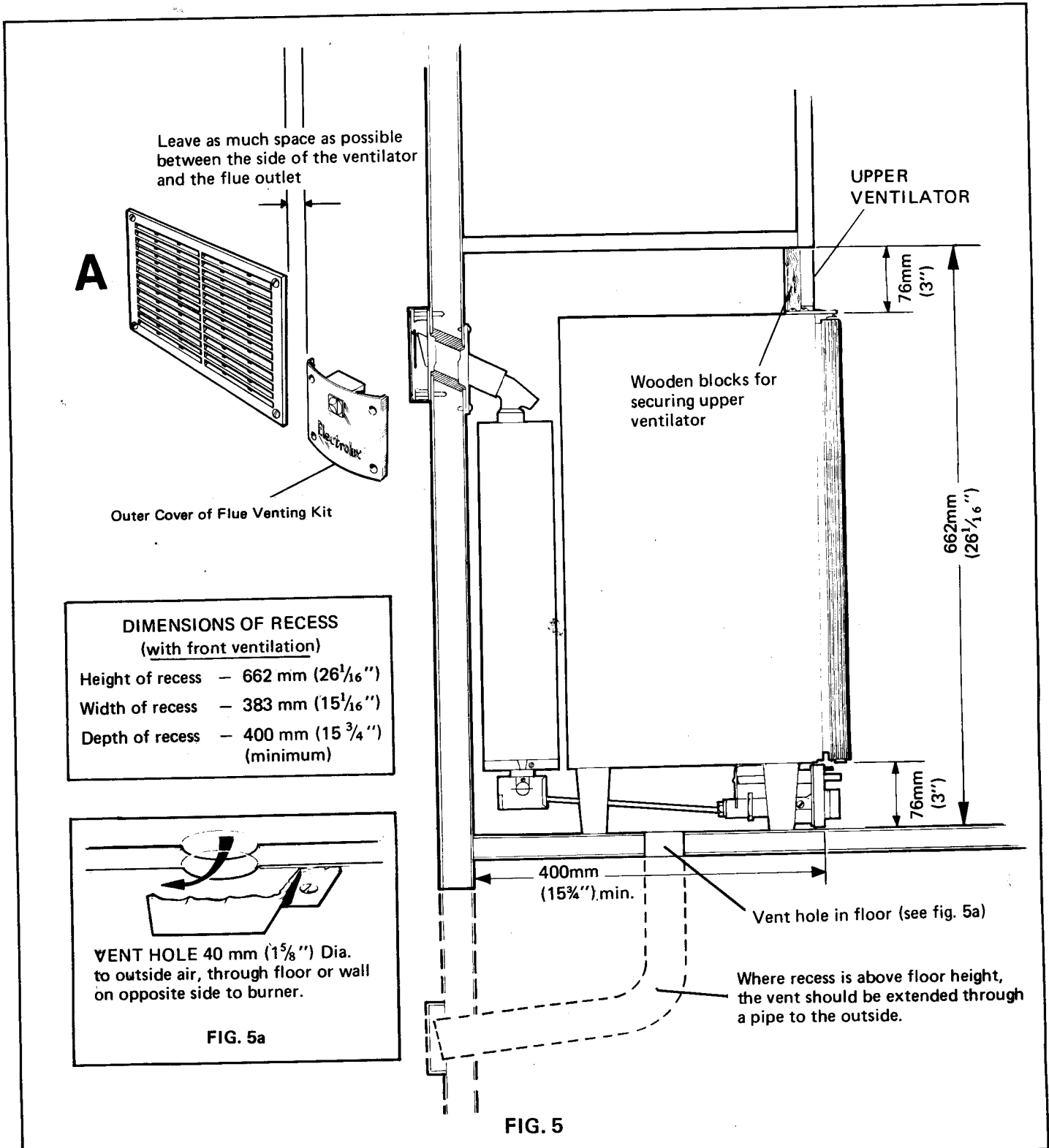
Fitting the Upper Ventilator

To fit the upper ventilator, screw a block of wood approx. 25 mm (1") square x 66 mm (2 5/8") long, to each side of the recess, 16 mm (5/8") back from the front edge, as shown at B, fig.4. Secure the ventilator to the blocks with a screw through the hole provided at each end.



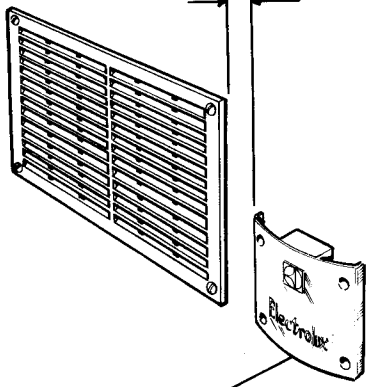
Additional Ventilator

To reduce the amount of heat entering the caravan, particularly when used in warmer climates, an additional ventilator (A, fig.5), may be fitted in the wall of the vehicle, preferably above the level of the top of the refrigerator. (The exterior flue venting kit must still be used).



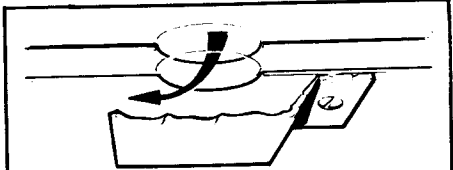
Leave as much space as possible between the side of the ventilator and the flue outlet

A



Outer Cover of Flue Venting Kit

DIMENSIONS OF RECESS (with front ventilation)	
Height of recess	- 662 mm (26 1/16")
Width of recess	- 383 mm (15 1/16")
Depth of recess	- 400 mm (15 3/4") (minimum)



VENT HOLE 40 mm (1 5/8") Dia.
to outside air, through floor or wall
on opposite side to burner.

FIG. 5a

FIG. 5

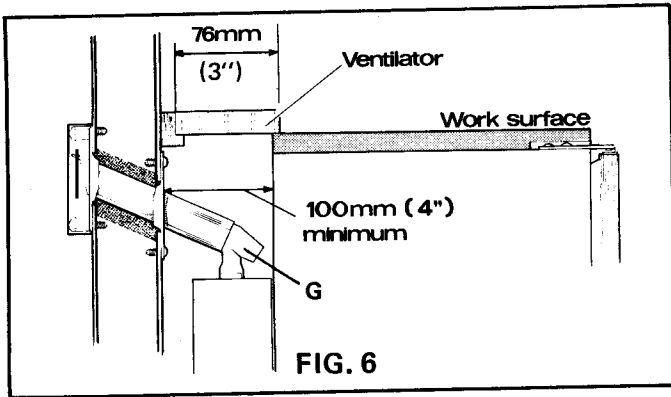


FIG. 6

10. VENT HOLE UNDER REFRIGERATOR

A ventilation hole of not less than 13 cm² (2 in²) effective area (40 mm or 1 5/8 inch diameter) must be provided in the floor below the refrigerator as shown in fig.5. The hole should lead directly to the outside air through the floor or wall so that, in the event of a gas leak, it would provide an escape outlet for the heavier-than-air gas. It should not be too close to the burner where draught could affect the flame.

On mobile installations, the vent hole should be shielded against entry of mud etc., by a deflector as shown in fig.5a, fitted underneath with its "closed" end facing the front of the vehicle. The deflector should be made from a suitable piece of metal, to suit the particular installation.

11. FLUE ARRANGEMENT

Flue Baffle

The flue baffle (4, fig.11) must be in position in the central tube of the boiler, suspended on its support wire so that the lower end of the baffle is 75 mm (3 inch) above the bottom of the central tube, over the burner. The top end of the baffle support wire is bent into the shape of an "O", and rests horizontally on the top of the central tube. The baffle is correctly positioned during manufacture and should not become displaced during normal use. If the flue baffle is missing or is incorrectly located, the cooling unit will not operate properly on gas. Any strapping tape used to retain the baffle support wire to the top of the boiler casing during transit should be removed before installation.

Flue Venting Kit

The flue gases must be vented directly to the outside air. Only the ELECTROLUX flue venting kit (supplied with the refrigerator in the United Kingdom) is recommended for this purpose. It consists of the following parts (see fig.9).

A.	Screw (4 off) 1 1/4 inch No.6	F.	Extension Tube for flue top
B.	Outer Cover	G.	Flue Top
C.	Flue Outlet	H.	Heat-resistant rubber flap
D.	Cover Washer (inner)	I.	Screw (1 off) 5/16 inch No.6
E.	Screw (4 off) 3/8 inch No.6		

Note: It is recommended that, where possible, the flue top (G) is fitted directly on top of the central tube of the boiler as shown in figs. 5 and 6. If, however, due to the shape or construction of the caravan wall, or other reasons, it is desired to raise the height of the flue outlet, the additional flue pipe (part No. 343995) may be fitted to the top of the central tube of the boiler (secured by a screw), and the flue top (G) then fitted to the top of this flue pipe as illustrated in fig.7. This will raise the height of the flue outlet in the wall of the caravan by approximately 120mm (4 3/4 inch).

The flue top (G) is in the form of a lazy "T" and incorporates an air-break to minimise the possibility of flame extinction due to draughts.

Leading from the flue-top, the extension tube (F) has to pass through the wall of the vehicle to direct the flue gases to the outside. Care must be taken in determining the positions of the centres of the holes in the inner and outer skins of the caravan wall to accept the extension tube. As the amount of space between the back of the refrigerator and the inside wall of the vehicle as well as the thickness of the wall, may vary for each type of caravan, it is not possible to give actual dimensions therefore each case must be considered carefully before starting to make the opening. Take particular care to ensure that the angle is correct so that when in position, the extension tube will line up accurately with the sloping part of the flue-top.

The opening must be large enough to allow the insertion of a layer of non-combustible material around the extension tube as shown in fig.8, but the opening in the outer skin must not exceed 70 mm (2 3/4 inch) in diameter, otherwise the flange on the flue outlet (C) may not cover it completely.

(NOTE: On caravans for export to Sweden, to comply with their regulations, the opening through the inner skin of the caravan wall must

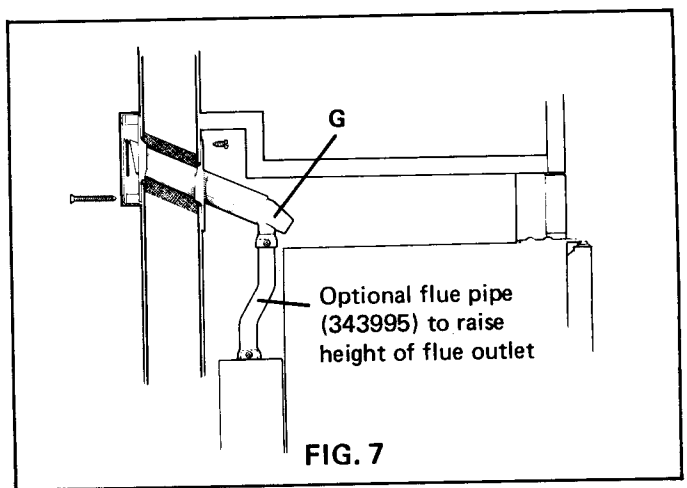


FIG. 7

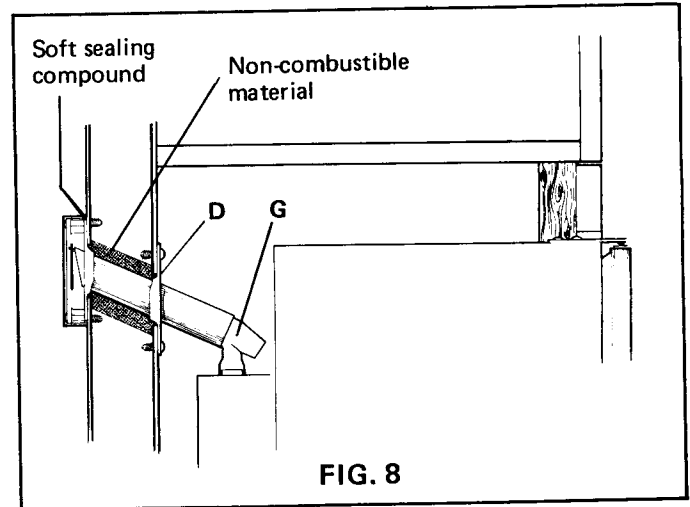
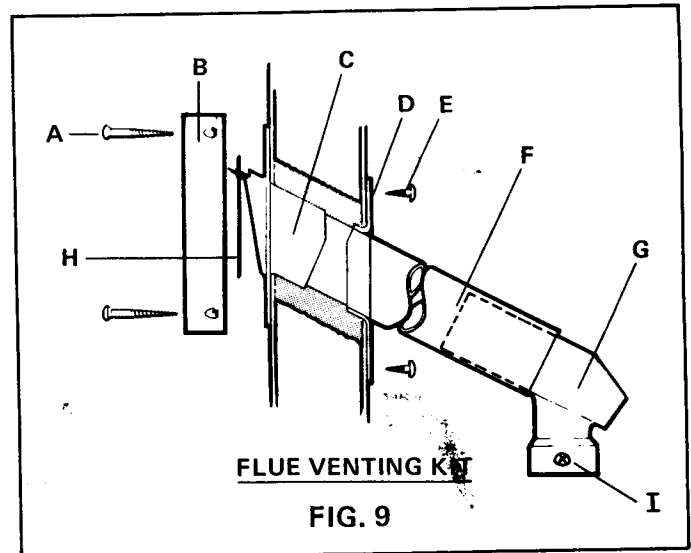


FIG. 8



FLUE VENTING KIT

FIG. 9

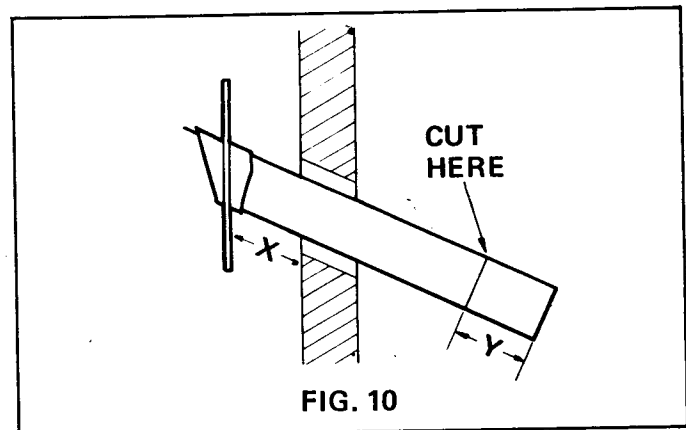


FIG. 10

be at least 80 mm (3 1/8") in diameter and the exposed wall cavity faced with aluminium strip; the space between the aluminium strip and the flue extension must then be filled with glass wool or other non-combustible material).

When the opening has been made in the caravan wall, the extension tube (F) may need to be shortened to suit the particular installation. To determine if this is necessary, fit the flue top (G) to the top of the central tube of the boiler casing (or to the top of the optional flue pipe 343995, if being used) and secure it by means of the screw (I). Place the refrigerator into position, push the extension tube (F) into the tapered opening of the flue outlet (C) so that the two items fit firmly together, then insert the free end of the extension tube through the wall of the caravan and over the outlet of the flue-top as far as it will go. Measure the length 'X' (fig.10) of any tube protruding from the outside. Transfer this measurement to the other end of the tube as shown at 'Y' (fig.10) and cut at right angles through the tube at this point to shorten the tube to the correct length.

Note 1. If the caravan wall is not vertical or is contoured in the vicinity of the flue outlet, it may be necessary to make a packing piece from metal or other non-combustible material, of a suitable shape to ensure that, when in position, the plate on the flue outlet is parallel with the back of the refrigerator.

Note 2. It is not advisable to lengthen the flue venting arrangement for more than a short distance as this may result in the flue gases becoming prematurely cooled and water vapour (which is produced during the natural process of combustion) condensing in the flue and running back into the boiler insulation and burner.

At this stage, refer to items 12 and 13 in order to prepare for the 12V and bottled gas connections. When these have been made, before finally positioning the flue extension tube (F), ensure that the portion passing through the wall of the vehicle is surrounded by non-combustible material as shown in fig.8, and that the inner cover washer (D) is in place. Use a soft sealing compound between the flange of the flue outlet (C) and the wall of the caravan to prevent ingress of rain water. (Note. If the cavity in the caravan wall is not wide enough to accept the flanges of the inner cover washer and the flue outlet together (less than 32 mm), the inner cover washer should be fitted with its flange facing away from the wall).

Hang the heat-resistant rubber flap (H) from the hook on the outer end of the flue outlet (C), checking that it hangs clear of the flue outlet opening but is free to move readily during adverse conditions of draught.

IMPORTANT. This flap must be fitted to all installations, except on vehicles to be exported to Sweden.

Fit the outer cover (B) by means of the 4 screws (A), making sure that the angle of the extension tube is as steep as possible and that the front plate of the flue outlet (C) locates properly in the recess in the outer cover, with the tongue engaging the slot at the bottom.

It will be necessary to remove the outer cover and withdraw the extension tube before the refrigerator can be moved out of position at any time.

12. 12V ELECTRICAL INSTALLATION (See figs. 11, 12, 12a, and 12b)

For operation on 12V, the boiler of the cooling unit is fitted with an 85 watt heating element (2, fig.11) connected to a terminal block (3) attached to the back of the refrigerator. Before installing the refrigerator, the wiring for the 12V supply should be connected to the terminal block, leaving enough slack for subsequent insertion and withdrawal of the refrigerator for servicing purposes.

The wire used for connecting must be at least 2mm² in cross-sectional area (e.g. 28/030mm) and should be kept as short as possible. Polarity is not important therefore it does not matter which way round the two wires are connected to the terminal block on the refrigerator.

A suitable size switch or plug and socket should be fitted in a convenient position in the wiring in the caravan so that the refrigerator can be readily disconnected from the 12V supply when 12V operation is not required, see fig. 12a.

To prevent undue voltage drop (which would impair the performance of the cooling unit) the wiring for the 12V refrigerator supply should be connected directly to the terminals of the main battery in the towing vehicle and not to an auxiliary battery in the car or caravan. Existing wiring in the car should not be used for the refrigerator supply as this would normally be intended for a different purpose and may not be capable of carrying the 7 amp (min.) load of the refrigerator satisfactorily.

The chassis or body of the caravan should not be used as a substitute for one of the wires otherwise voltage drop is almost certain to occur either now or later on. The body of the car can, however, be used in place of one of the wires for the 'earth' return but the connection to it must be well made, with paint, grease, etc. removed from the area of contact and it should be located in a position protected from the weather, such as inside the boot.

A 10 amp, continuous rating, fuse (for example, Lucas fuse, part No. 188215, rated at 10/20 amps) must be incorporated in the supply to the refrigerator, as near to the battery as possible. A good quality fuse holder should be used having adequate size well-made contacts which will carry the current load without undue resistance.

For the flexible connection between the car and caravan, a weather-proof plug and socket must be used and sufficient slack cable allowed for the normal manoeuvring of the car and caravan. This

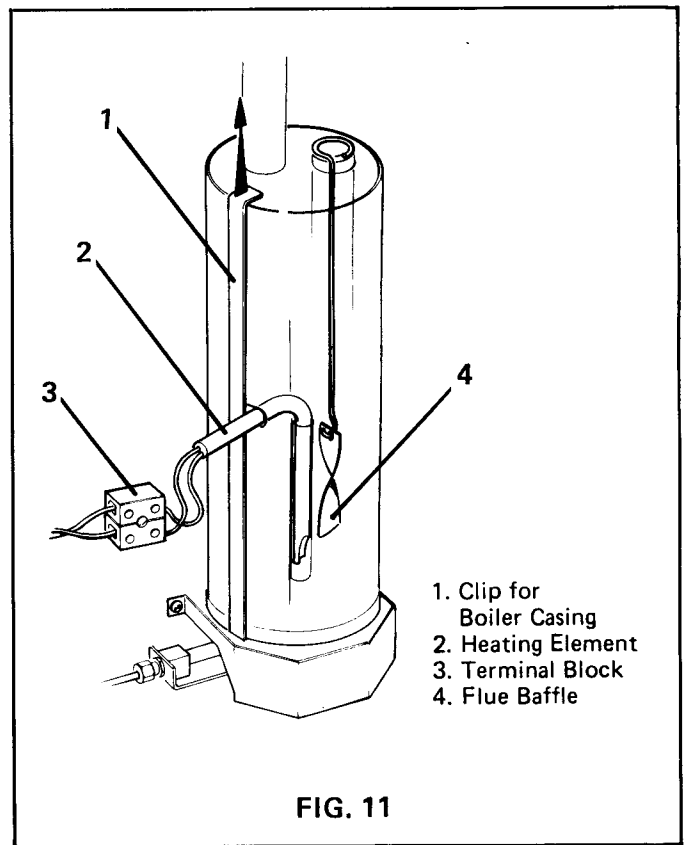


FIG. 11

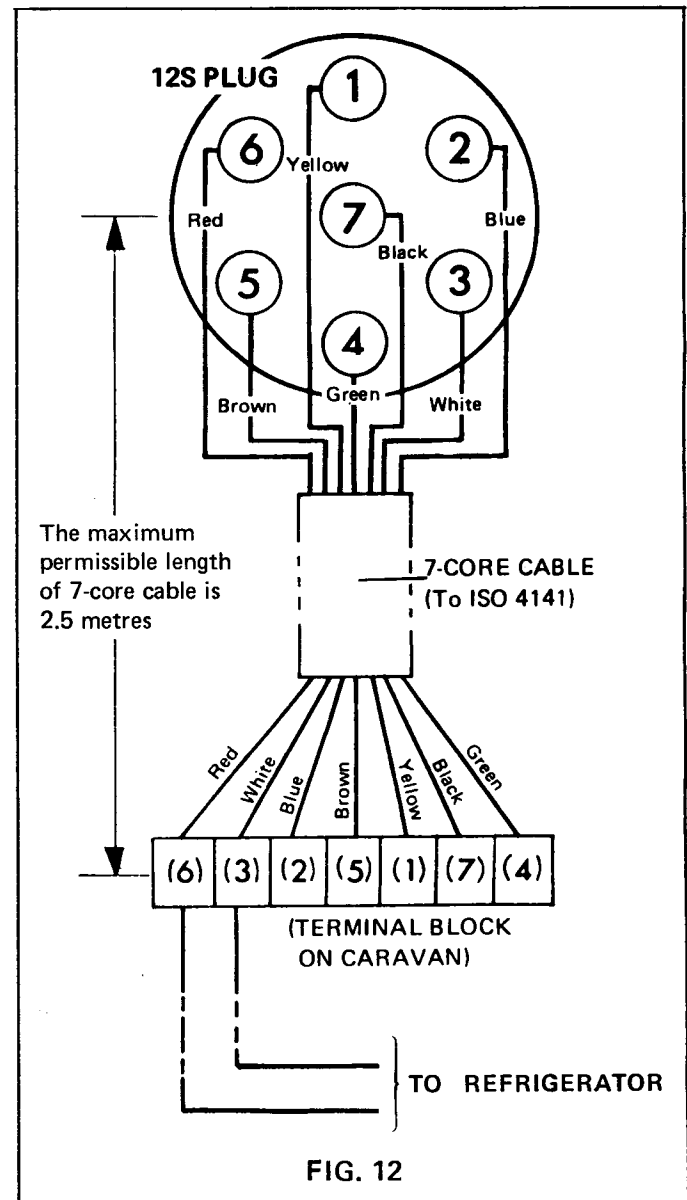


FIG. 12

connection may be made using two pins (No.6 for the supply, and No.3 for the return) of a type 12S (Supplementary) 7-pin plug and socket, and the red (supply) and white (return) conductors of a length of 7-core flexible cable manufactured to International Standard ISO 4141, see fig.12. This cable is of heavier construction than earlier types and has six conductors of 1.5mm² and one (common return) of 2.5mm². It is permissible to use this type of cable for the flexible link of the refrigerator supply provided the total length of this cable does not exceed 2.5 metres and that all other wiring for the refrigerator, in the car and caravan, is not less than 2mm² in cross-sectional area.

It should be noted that other types of 7-core cable have conductors of only 1.0mm²(or less) and are therefore not large enough to meet the requirements of the refrigerator.

The 12S plug and socket are additional to the Normal (12N) 7-pin plug and socket. For the sake of standardisation, it is recommended that the 12S socket is located on the left and the 12N socket on the right, when looking at the back of the towing vehicle.

When operating on 12 volts, the refrigerator has a relatively high current consumption (7 amps) and it is only intended to be used by this method of operation whilst the engine is running and charging the battery otherwise the battery may become discharged to a point where it will not re-start the car engine. 12 volt operation is not thermostatically controlled and the 85 watt heater is 'on' all the time the refrigerator is connected to the 12V supply and any switches in the line are 'on'.

Note: To minimise the possibility of a drained battery due to the refrigerator being inadvertently left operating when the engine is at rest, it is strongly recommended that a suitable relay device (for instance, Lucas type 28RA 33398, or 6RA 33213, or Hella type 4RA 003 205 141) is fitted in the car, in circuit with the ignition switch, so that when the engine is switched off, the refrigerator is automatically switched off, - see Fig.12b.

13. GAS CONNECTION

The gas installation should only be carried out by a person experienced in gas fitting.

It is recommended that the gas pipe feeding the refrigerator is run underneath the caravan and is so arranged that it is possible to turn off the supply to all appliances other than the refrigerator when they are not required. The supply pipe should preferably be of copper; if any other material is used, it must be of a type approved for use with continuously operating bottled gas appliances and have threaded connections throughout. Push-on connections must not be used. (We do not recommend the use of "rubber" type flexible tubing for connecting permanently operating appliances of this type in the United Kingdom). All connectors etc., should be of a type specifically designed

for the connection pipe used. Screwed joints should be sealed with a jointing compound approved for use with bottled gas.

The gas supply pipe should be connected to the 1/8" B.S.P. female inlet adaptor (located underneath the refrigerator) by means of a suitable threaded coupling, - see note below. The inlet adaptor will accept a 1/8" B.S.P. male thread. (Access to the inlet adaptor may be obtained by pulling off the knob of the gas control valve then removing the lower ventilator by taking out the screws at the ends).

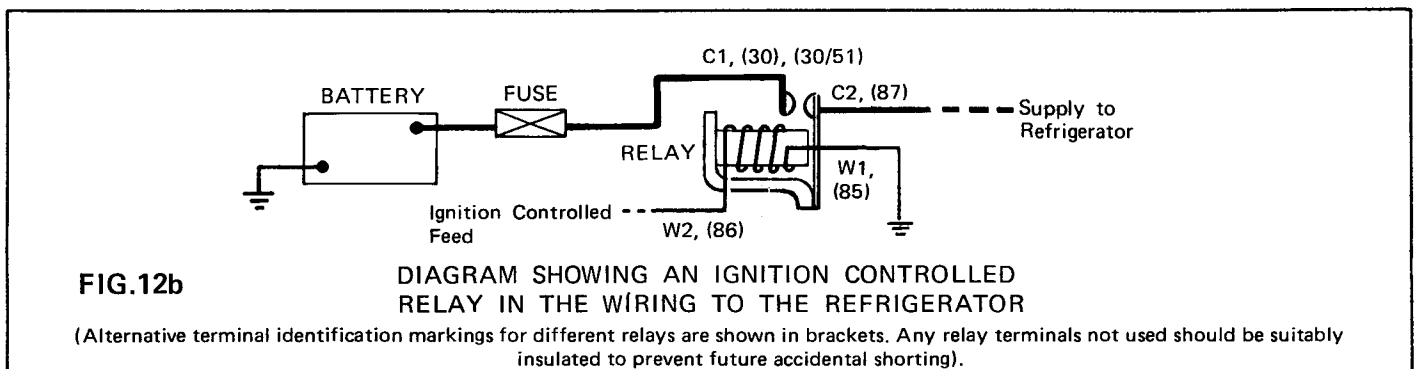
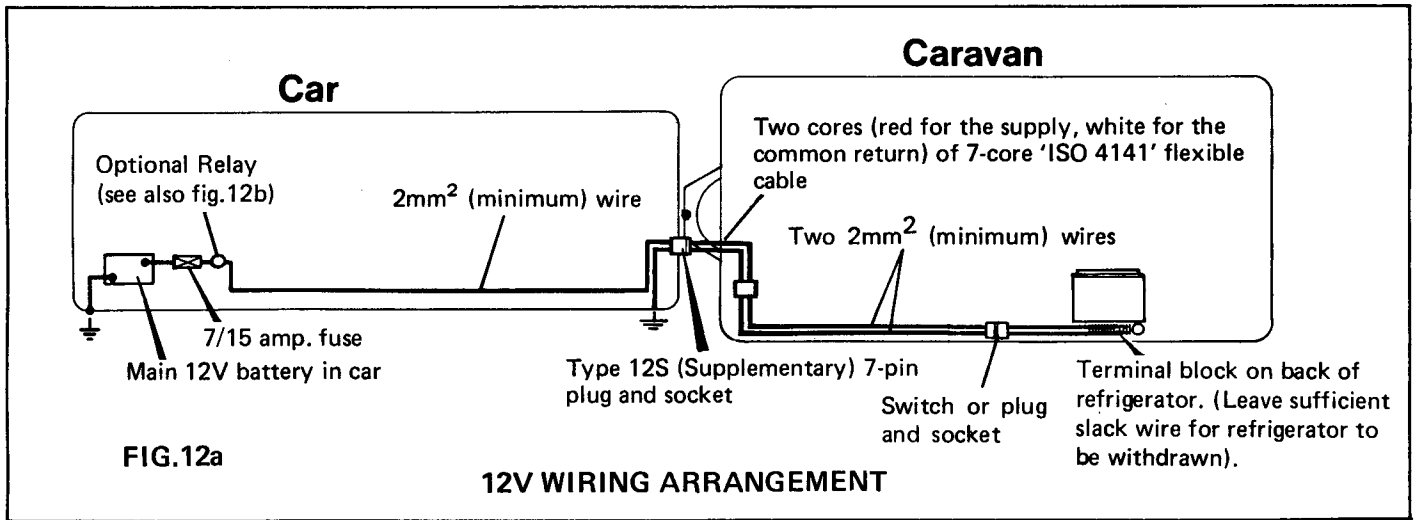
Note:- In the United Kingdom, 'Wade' Couplings are available from Caravan Dealers and Gas Fitting Suppliers in suitable sizes to connect the refrigerator to any of the usual sizes of metal tubing. For example, Wade Coupling No. 7061 has a union on the inlet to take 3/16" o.d. metal tubing, and has a 1/8" B.S.P. male thread on the outlet which will fit the thread on the refrigerator inlet adaptor. However, some dealers may not stock this particular fitting and Wade Coupling No. 1061 can be used as a substitute. A further alternative is Wade Coupling No. 1041 which has union nuts and olives at both ends; - by removing and discarding the nuts and olive at one end, it can be used in place of the types 7061 and 1061 described above.

When fitting one of these couplings, its thread should be smeared with an approved sealing compound before screwing it into the refrigerator inlet adaptor.

Depending on the location of the gas supply pipe, it may be necessary to connect a piece of copper pipe to the inlet adaptor on the refrigerator before placing the refrigerator in the recess. This pipe should be of suitable length and pre-shaped so that, when the refrigerator is in place, the end of the pipe will be in a convenient and accessible position for connection to the main gas supply or to another piece of pipe coming from the main gas supply pipe.

In making the connection to the refrigerator, it is recommended that a union gas cock of an approved type for bottled gas is incorporated in the supply line in a position which is readily accessible to the user. For eventual servicing purposes, the union should be on the outlet side of the cock and the pipework should be positioned so as not to prevent the refrigerator from being readily withdrawn.

After the refrigerator has been connected, all accessible connections should be checked for soundness by applying a soap/water solution over them and watching for bubbles with, of course, the gas-bottle and any gas cocks in the line, turned on. DO NOT USE A FLAME. Thereafter, all connections should be checked periodically, in the same way, to ensure that they have not loosened in use. To make all connections on the refrigerator accessible for testing, it would be necessary to withdraw the refrigerator, make a temporary connection to the gas supply with flexible tubing, and light the burner.



INSTRUCTIONS FOR USE

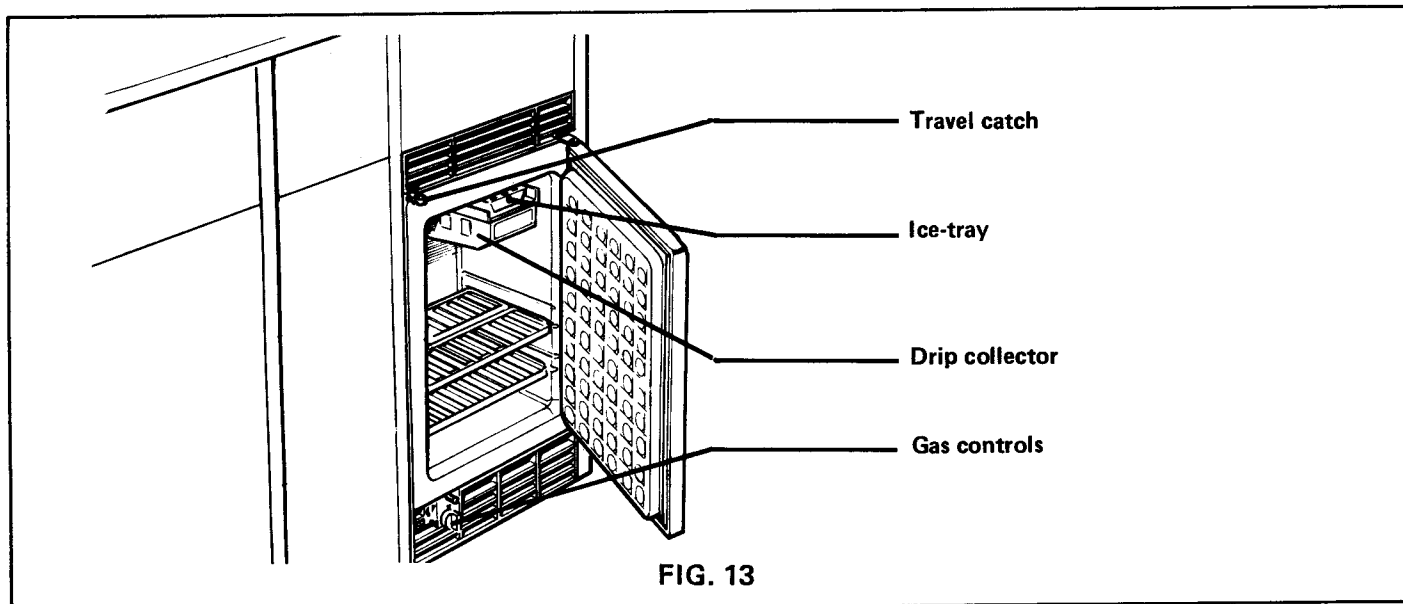


FIG. 13

14. INTRODUCTION

To ensure satisfactory operation, it is essential that the refrigerator is installed and used as directed in this instruction booklet. The ventilation openings above and below the refrigerator must not be reduced in size or obstructed in any way otherwise the performance of the cooling unit may be impaired.

Levelling

When the refrigerator is operating, liquid refrigerant trickles through the pipework of the cooling unit under the influence of gravity. To enable a satisfactory flow to take place, the unit must be reasonably level, from side to side and from front to back, otherwise refrigerant can accumulate in pockets instead of flowing back to the bottom, and the cooling process may be impaired or cease.

In a caravan on tow, the usual continuous rolling and pitching motion, even on long hill climbs, will not normally cause the operation of the cooling unit to be affected unduly, but when the caravan is at rest for more than about half an hour, a list of more than about 3° in any direction may interfere with the operation. (Note: 3° corresponds to about 50 mm at the end of a metre-long plumb-line, or 1½" at the end of a 30" plumb-line). If the list does not exceed 8°, cooling is usually resumed when the refrigerator returns to the upright position, but if it does exceed 8°, the burner should be extinguished or the electricity supply disconnected, as applicable, soon after the list has occurred otherwise the cooling unit may become damaged due to overheating of the boiler.

Whenever the caravan is to be at rest for a period, with the refrigerator operating, the caravan should be levelled, in both directions, so that the refrigerator is level. This can be checked with a small spirit level placed on the ice-tray shelf inside the refrigerator, viewed from above with the aid of a small mirror. If it is not convenient to level the vehicle and it is to stand out of level for more than half an hour, the refrigerator should be temporarily turned off.

Note:— Having checked initially that the refrigerator has been installed level in both directions in relation to the caravan, you may find a more accessible flat surface on which to place the spirit level during future levelling operations. A position on the caravan draw-bar, for instance, for placing (or permanently fixing) a 2-way or circular spirit level, where it may be viewed whilst adjusting the jockey wheel height, will be an aid to speedy levelling of the caravan and, therefore, the refrigerator.

15. GAS PRESSURE

Before using the refrigerator on bottled gas, refer to item 7 in the installation section and check that the type of gas and gas pressure regulator that you intend to use are compatible with the size of burner jet and gas control valve fitted to the refrigerator.

16. STARTING THE REFRIGERATOR (see fig.14)

Before using your refrigerator for the first time, it is advisable to wash the interior and its accessories as described later under 'Cleaning'.

The bottled gas equipment includes a Piezo crystal lighting device which creates a spark over the burner when the button (5) is pushed in fully. No batteries or flints are required to operate this lighter.

Before starting the refrigerator, always check that the alternative method of operation is 'off' as the refrigerator should not

be operated by both means at the same time. If the caravan is to be stationary for a period, check that the refrigerator is level.

When turning the gas control knob (4) from one position to another, the knob must first be pushed in.

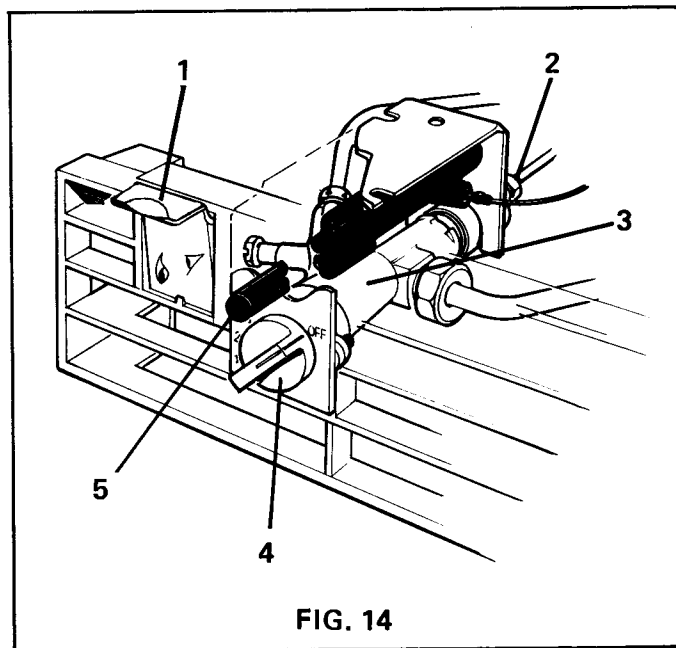


FIG. 14

Lighting the Burner

1. Ensure that gas is available from the bottle and turn on any taps in the supply line to the refrigerator.
2. Open the refrigerator door to give easier access to the gas controls, then pull the flame viewing mirror (1) forward into the open position.
3. Turn the gas control knob (4) to the maximum position (No.3) then press in this knob for about 5 to 10 seconds to clear air from the pipeline. (When starting initially, or after changing a gas bottle, it may be necessary to press in the knob for a longer period to clear all the air from the pipes).
4. Still pressing in the knob (4), push in the button (5), which operates the Piezo igniter, several times in succession. (A click should be heard each time the button is pushed in). Continue to press in the gas control knob (4) for a further 15 seconds to allow time for the thermocouple tip (over the burner) to heat up.
5. Release the gas control knob then check that the burner is alight by looking in the mirror (1) from above. If the burner has not lit, repeat the lighting procedure.

Note:— The refrigerator has a flame failure device which will automatically shut off the gas to the burner if the flame is blown out. While the knob (4) is being pressed in, this device is temporarily inoperative.

17. 12 VOLT ELECTRIC OPERATION

When the caravan is on tow, it is recommended that the refrigerator is operated electrically, i.e. from the 12V battery in the towing vehicle, and not by means of bottled gas.

It is important to understand that 12V operation is intended only to be used whilst the car engine is running and charging the battery, and for short periods when at rest, otherwise the battery may be discharged to a point where it will not re-start the engine. When the caravan is at rest for more than a relatively short period, say about half an hour, the caravan should be levelled, the refrigerator disconnected from the 12V supply, and, if required, started up on bottled gas.

For operation on 12V, the boiler of the cooling unit is fitted with an 85 watt heating element (2, fig.11), connected to a two-way terminal block (3) at the back of the refrigerator. 12V operation is not thermostatically controlled therefore the cooling unit will operate all the time the refrigerator is connected to the 12V supply. (As 12V operation is intended for use only while the caravan is on tow, over-cooling is unlikely because of the comparatively short time involved. If overcooling does occur during extended towing periods, the refrigerator may be disconnected periodically as experience proves necessary).

The wiring in the car and caravan to supply the refrigerator from the main battery in the car should have been installed in accordance with item 12 on page 6 of the installation section.

To use the refrigerator on 12V, check that the gas is turned off, then connect together the plug(s) and socket(s) fitted during installation, and switch on any switches in the circuit to the refrigerator.

Note:— Before operating the refrigerator on 12V, it should be pre-cooled, together with its contents, by running it on bottled gas for a few hours before changing over to 12V and starting on a journey.

18. TEMPERATURE REGULATION

After starting the refrigerator, it will take about an hour before the ice-tray shelf shows signs of cooling.

The gas control knob (4, fig.14) has four positions, marked 'Off', and 3, 2 and 1, representing three sizes of flame — Maximum, Medium and Minimum. The amount of cooling produced in the refrigerator will depend on the size of flame used.

It is preferable to start the refrigerator with the control knob set at the Maximum flame position (No.3). After an hour or so, it may be turned to the Medium (No.2) or Minimum (No.1) positions, to provide the cooling required under the prevailing conditions.

In warm weather, or with a heavy food load, or frequent door openings, the Medium or Maximum position will usually be needed, but, in cold weather it may only be necessary to use the Minimum flame position.

Remember to alter the setting, as necessary, if there is an appreciable change in room temperature or conditions of use.

19. STORING FOOD IN THE REFRIGERATOR

Four half-depth shelves are provided. Two can be used together to form a full sized shelf (with the rear one reversed so that its raised edge is at the back), or they can be used separately in the four locations in the lining to leave space for bottles at the front.

To prevent drying out and the transfer of flavours from one food to another, always store foods in covered containers or plastic bags. When 'on the move', crumpled pieces of clean paper may be wedged (temporarily) between the various items to retain them.

Never put hot food into the refrigerator.

Remember to engage the travel catch when the caravan is to be on tow (see next item).

20. ICE-MAKING

Fill the ice-tray with water to within $\frac{3}{16}$ inch (5mm) from the top, and place it on its shelf inside the refrigerator. When ice has formed, the tray can be released from the shelf simply by lifting one corner.

When operating on gas, ice will be made more quickly if the control knob (4, fig.14) is temporarily turned to the Maximum flame position, (No.3).

21. TRAVEL CATCH

The travel catch (fig.15) is to keep the refrigerator door securely closed when the vehicle is on the move. Remember to push the catch down so that its lower end fully engages the plastic bush in the top of the door, before moving off.

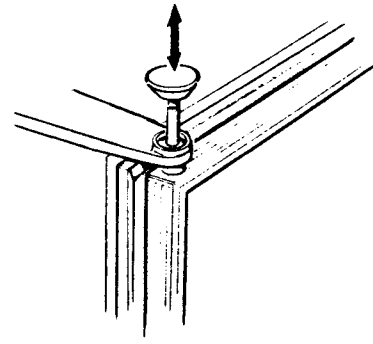


FIG.15

22. DEFROSTING

Frost will gradually form on and under the ice-tray shelf. It is a mistake to assume that an accumulation of frost gives a colder cabinet. For the most efficient operation, the refrigerator should be defrosted regularly, — usually about once a week or ten days, depending on the particular conditions of use.

To defrost, turn off the gas, empty the cabinet, remove the ice-tray and leave the cabinet door open. The frost will melt and run into the drip collector (fig.13).

When defrosting is complete, remove the drip collector by carefully sliding it forward, and empty it of water. Wipe dry the ice-tray shelf, replace the drip collector, turn on the gas and relight the burner. Rinse out the ice-tray, refill it with fresh water and replace it.

Note:— Do not attempt to defrost more quickly by means of an electric fire or other form of heat as this may damage the plastic surfaces.

23. CLEANING

Clean the refrigerator thoroughly at intervals as necessary. Turn off the gas, empty the cabinet and defrost as described above.

The refrigerator and its accessories may then be cleaned with a soft cloth wrung out in a weak solution of bicarbonate of soda and warm water. Finally, wipe over with a cloth rinsed in warm water only and dry thoroughly. Do not wash any plastic parts in water that is more than hand hot and do not expose them to dry heat.

NEVER USE STRONG CHEMICALS, ABRASIVES, OR HIGHLY PERFUMED CLEANING MATERIALS ON ANY PART OF THE REFRIGERATOR.

Replace the accessories and re-light the burner.

24. WHEN NOT IN USE

Whenever your refrigerator is to be out of use for a period, turn off the gas or disconnect from the 12V supply, as applicable. Empty the cabinet and defrost as described earlier. Clean and thoroughly dry the interior and accessories and *leave the door open* otherwise the air inside may go stale giving rise to an unpleasant odour which could be difficult to remove at a later date. (See item 20).

25. CONSUMPTION

The approximate gas consumptions at the various settings of the gas control knob are given below.

GAS CONTROL SETTING	1	2	3
Bottled Gas lb liquid/24 hours	0.33	0.42	0.5
kg per 24 hours	0.15	0.19	0.23

MAINTENANCE

26. CHECKING FOR GAS LEAKS

Periodically, and after service adjustments to the gas equipment, all connections should be checked for leaks by applying a soap/water solution over them (with the burner alight) and watching for bubbles. **DO NOT USE A FLAME.** Screw connections should be tight but not overtight. (To check at the back of the refrigerator it will be necessary to make a *temporary* connection with flexible tubing).

27. FLUE BAFFLE (4, fig.11)

The flue baffle must be in position in the central tube of the boiler, suspended on its support wire so that the lower end of the baffle is 75 mm (3 inches) above the bottom of the central tube. If the baffle is missing or incorrectly located, the cooling unit will not operate properly on bottled gas.

28. CLEANING FLUE, BURNER AND JET

The appearance of the burner flame should be checked at least once a year. To do this, turn the gas control knob to the Maximum flame position (No.3) when the colour of the flame should be predominantly blue. If this is not the case, the flue, burner, and jet should be cleaned, as follows. (It will be necessary to empty the refrigerator and to disconnect and remove it from its recess. The flue extension will have to be removed from the outside before the refrigerator can be withdrawn).

1. Lift out the flue baffle on its support wire from top of boiler central tube (see fig.11).
2. With door travel catch engaged, lay cabinet on its right-hand side, i.e. burner uppermost.
3. Remove burner shield (11, fig.16) by taking out the three screws (2, 5, and 10).
4. Remove screw (8), washer (7) and locking plate (6), and withdraw burner barrel (9) from end of burner box. Clean burner barrel of any deposits.
5. Unscrew gas pipe union (1) and disengage gas pipe from jet (12).
6. Holding cover (3) and jet (12), which will become loose, unscrew locknut (14) and remove washer (13). The cover (3) and jet (12) can then be removed.
Clean the jet by washing it in White Spirit or alcohol, then blowing through with air. **Do not under any circumstances prick out the jet. The orifice in the jet has been carefully designed. It is very delicate and any damage to the orifice could affect safety and performance.**
7. Remove screw (4) and carefully ease the burner box assembly away from bottom of boiler. Examine and clean all traces of soot and other deposits from the burner box, making sure the aeration holes in the bottom are perfectly clear.
8. Clean central tube of the boiler, preferably with a special flue brush, available from your supplier or Electrolux.
9. Reassemble in the reverse order, making certain that the burner barrel is replaced with the slots in the closed end facing the boiler tube. See that gas unions are tight, but not overtight. The small union (2, fig.14) connecting thermocouple to flame failure device must be done up firmly, but do not overtighten.
10. Replace the flue baffle in the central tube of the boiler and re-install refrigerator, (see "Checking for Gas Leaks", item 26). Light burner and test.

29. ELECTRIC HEATING ELEMENT (See fig.11)

The heating element (2) which operates the cooling unit when the refrigerator is connected to the 12V supply is rated at 85 watts and has a current consumption of 7 amps.

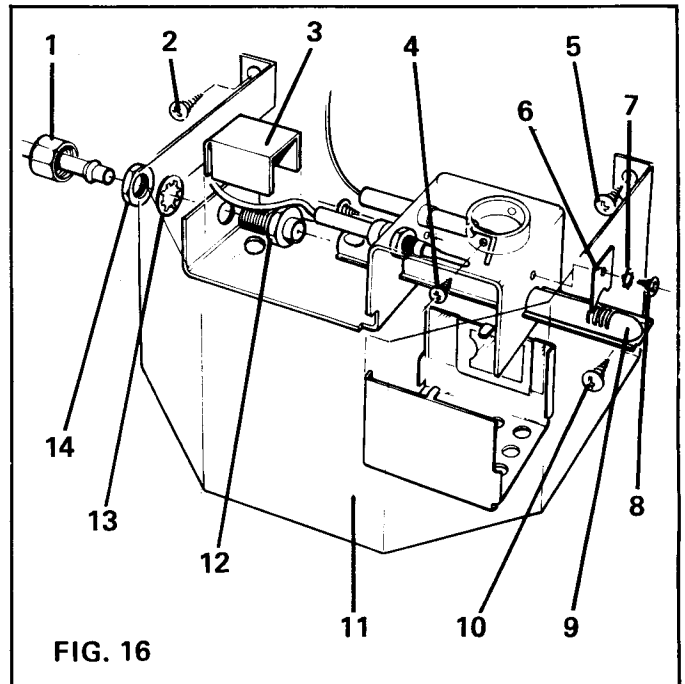
If there is no circuit when the refrigerator is connected to the 12V supply, first check that the fuse (fitted during installation) is intact

and that current is available to the terminal block on the back of the refrigerator. If the fuse has blown, examine the supply wiring etc., and repair any fault before fitting a new fuse and reconnecting.

If current is available to the refrigerator, but the boiler of the cooling unit at the back does not heat up after being 'on' for at least half an hour, this indicates that the heating element has an open circuit and needs replacing by a new one. (If an electrical test meter is available, the two heater leads can be disconnected from the terminal block on the refrigerator and the element tested for continuity).

To fit a new heating element it will be necessary to disconnect the refrigerator from the gas and electricity supplies and remove it from the recess. Remove the faulty heating element and fit the new one as follows.

1. Slide up the long clip (1) holding edges of boiler casing together, to within 2 or 3 inches of the top of the casing. **Do not remove clip completely.**
2. Disconnect leads of faulty heating element from the terminal block then pull the heating element out of its metal pocket on the boiler tube, taking care not to damage the boiler insulation.
3. Check that replacement heating element is of the correct wattage and voltage and fit it in the **boiler tube pocket** in the same way as the original was fitted.
4. Ensuring that boiler insulation is correctly in place, secure boiler casing edges together by sliding down the clip (1).
5. Connect heater leads to terminal block and re-install refrigerator. Check for gas leaks, and test refrigerator for satisfactory operation.



30. SERVICE

Should you require help or service in connection with your refrigerator, please refer to the addresses on pages 11 and 12.

This Guarantee is offered to you as an extra benefit and does not affect your legal rights.

GUARANTEE

(United Kingdom only. For other countries, please refer to your supplier).

Electrolux products are carefully designed, manufactured, tested and inspected and in consequence we undertake to replace or repair any part found to be defective in material or workmanship, within ONE YEAR from the date of delivery to the original purchaser, free of any charge.

This guarantee does not apply unless the refrigerator is installed in accordance with Electrolux Installation Instructions, and the Company does not accept liability for defects arising from neglect, misuse, or accident.

Proof of the date of purchase will be required before service is provided under the terms of the guarantee. Addresses where service can be requested are given on pages 11 and 12.

For your future reference, please complete the following details on delivery of your refrigerator.

Date of purchase

Purchased from

**RM122 CARAVAN REFRIGERATOR WITH
ELECTRONIC RE-IGNITER**

THE ELECTRONIC IGNITION SYSTEM FITTED TO THIS REFRIGERATOR IS IN PLACE OF THE PIEZO IGNITER USED ON STANDARD MODELS. IN OTHER RESPECTS, THE INFORMATION GIVEN IN THE SEPARATE INSTRUCTIONS FOR INSTALLATION AND USE STILL APPLY AND SHOULD BE REFERRED TO IN CONJUNCTION WITH THIS LEAFLET.

General Information

The electronic ignition system is for permanent connection to a 12V car battery fitted in the caravan. The current drain is negligible therefore the battery can be the same one that is used in the caravan for operating other equipment such as lights, water pump, etc. The same battery must not, however, be used for operating the cooling unit of the refrigerator. Operation of the cooling unit on 12V electricity must be from a separate supply, i.e. from the main battery in the towing vehicle, as detailed in the refrigerator installation instructions.

The Electronic Igniter.

The spark generating components of the igniter are housed in a plastic box fitted at the left-hand side, under the refrigerator (see fig.1), connected to a neon-illuminated switch in the control panel at the front, and to a spark electrode located over the burner head at the bottom rear left hand side, under the boiler.

When the switch is switched on, the electronic circuit is activated producing a series of sparks between the electrode and the burner head. The neon light in the switch will flash on and off as sparking takes place. As soon as the burner lights, the flame is detected by the electrode, sparking ceases, and the neon light will go out.

After the burner has lit, the switch should be left in the 'On' position so that, in the event of the burner going out (due to a gust of wind for instance) the igniter will automatically start sparking again and re-light the burner – provided of course, that gas is present.

If the burner does not re-ignite within 30 to 60 seconds, the flame failure valve will close and automatically shut off the flow of gas to the burner. If this happens, sparking will continue to take place and the neon light in the switch will flash continuously to alert the user that something is wrong, or that the gas bottle is empty and needs replacing.

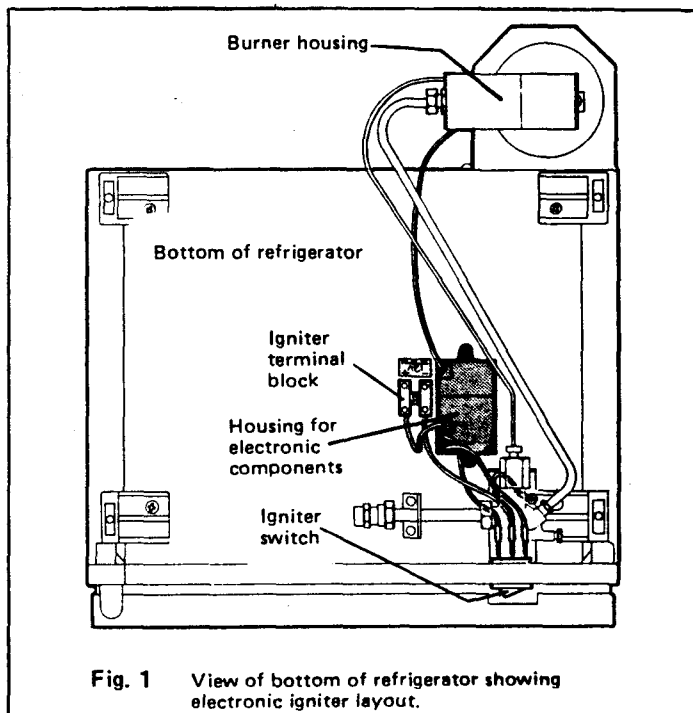


Fig. 1 View of bottom of refrigerator showing electronic igniter layout.

Installation

The refrigerator must be installed in the caravan as detailed in the separate installation instructions for Standard models. In addition, the electronic re-igniter must be connected to a 12V battery in the caravan, – see earlier information re this under the heading "General Information".

The size of the wire used to connect the battery to the igniter terminal block (fig.1), should be at least 0.75mm² in cross-sectional area. Correct polarity must be observed; the '+' and '-' terminals of the battery must be connected to the similarly marked terminals of the terminal block.

All wiring must be kept clear of the burner at the bottom rear of the refrigerator as this becomes hot when it is operating and will damage the insulation of the wire if in contact.

Lighting the burner (see fig.2).

1. Turn on the valve of the gas bottle and open any gas taps in the supply pipe to the refrigerator.

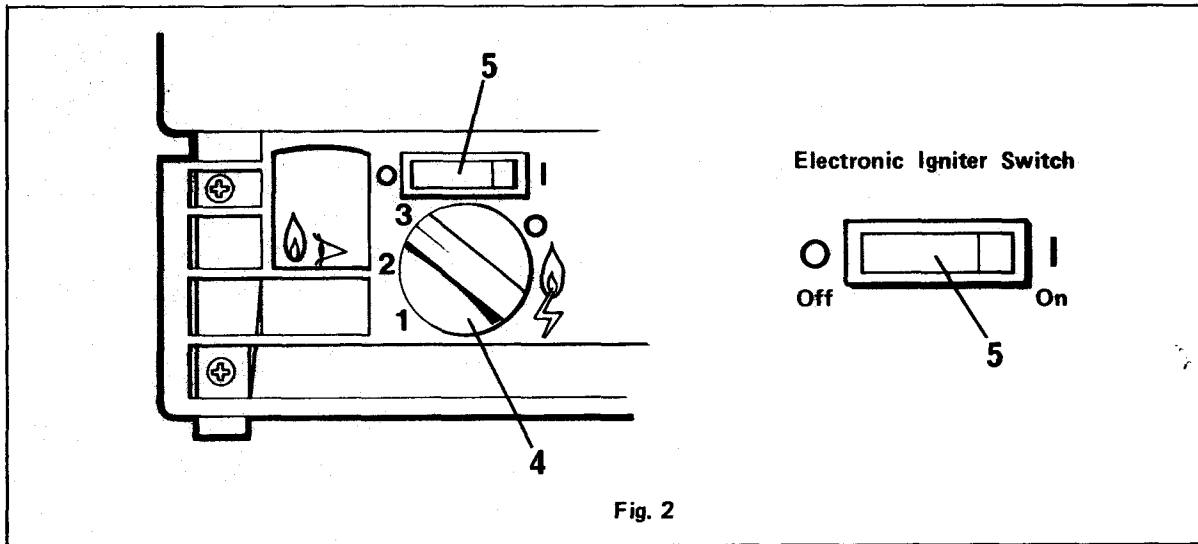


Fig. 2

2. Turn the knob (4) of the gas control valve so that the indicator mark is opposite setting No. 3 which is MAX.
3. Switch on the igniter switch (5) by pushing in the switch against the symbol 'I'. The neon light in the switch should start flashing indicating that sparking is taking place.
4. Push in fully the knob (4) of the gas control valve and keep it held in. When the burner lights, the neon in the switch will stop flashing. When this happens, keep the knob (4) held in for a further 15 seconds or so for the thermocouple over the burner to heat up, then release the knob. If the neon starts flashing again, it indicates that the flame has gone out, in which case, repeat operation No. 4.
5. After lighting the burner, leave the switch (5) in the 'On' position.
Refer to the separate Instructions for Use supplied regarding general use and care of the refrigerator.

Emergency Lighting Procedure

The electronic igniter is primarily designed for operation from a 12V car battery but, in an emergency, the burner can be lit using a 9V dry cell battery such as a PP3, PP7, PP9 or the equivalent, as used for radios etc. (Note that the '+' and '-' terminals must be connected the correct way round).

If using a dry cell battery of this type for lighting the burner, disconnect it soon after the burner has lit otherwise the battery will become drained by the flame detection components of the equipment.