



OPERATING AND INSTALLATION INSTRUCTIONS FOR ELECTROLUX REFRIGERATORS

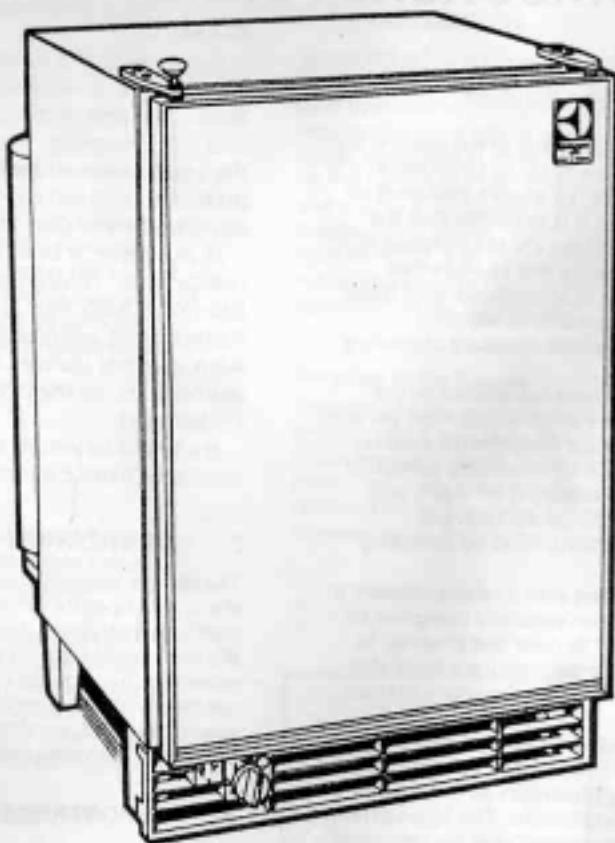
Model RM 123E

(Bottled Gas and 12/240 Volt Operation)

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Model RM122F

(Bottled Gas and 12 Volt Operation)



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IMPORTANT USER INFORMATION

It is most important that this instruction book should be retained with the appliance for future reference. Should the appliance be sold or transferred to another owner, always ensure that the book is supplied with the appliance in order that the new owner can be acquainted with the functioning of the appliance and the relevant warnings.

These warnings are provided in the interest of safety. You must read them carefully before installing or using the appliance.

- This product is designed to be operated by adults. Children should not be allowed to tamper with the controls or play with the product.
- Any electrical work required to install this appliance should be carried out by a qualified electrician.
- This product should be serviced by an authorised Electrolux Service Engineer, and only genuine Electrolux spare parts should be used.
- It is dangerous to alter the specifications or modify this product in any way.
- Care must be taken to ensure that the appliance does not stand on the electrical supply cable.
- Electrolux refrigerators are designed to be used specifically for the storage of edible foodstuffs only.
- There are working parts in this product which heat up. Always ensure that there is adequate ventilation as failure to do this will result in component failure and possible food loss. See installation instructions.
- Parts which heat up should not be exposed. Wherever possible the back of the product should be close to a wall but leaving the required distance for ventilation as stated in the installation instructions.
- Before defrosting, cleaning or maintenance work is carried out, be sure to switch off the appliance and unplug it.
- The ice box in this appliance contains tubes through which the refrigerant passes. If these are damaged this would cause substantial damage and result in food loss. DO NOT USE SHARP INSTRUMENTS to scrape off frost or ice. Under no circumstances should solid ice be forced off the ice box. Solid ice should be allowed to thaw when defrosting the appliance. See defrost instructions.

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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 11).

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.

- The appliance should be left for 2 hours after installation before it is turned on in order to allow refrigerant to settle, unless it is of the absorption type in which case it can be turned on immediately.
- This appliance is heavy. Care should be taken when moving it.
- Ice cubes can cause frost burns if consumed straight from the freezer.
- Frozen food must not be refrozen once it has thawed out.
- Manufacturers' food storage recommendations should be strictly adhered to. Refer to relevant instructions.
- Do not place carbonated or fizzy drinks in the freezer as it creates pressure on the container which may cause it to explode resulting in damage to the appliance.
- Under no circumstances should you attempt to repair the appliance yourself. Repairs carried out by inexperienced persons may cause injury or more serious malfunctioning. Refer to your local Electrolux Service Centre and always insist on genuine Electrolux spare parts.

GENERAL GUIDE TO FITTING ANY PLUG

- Ensure the lengths of wire inside the plug are prepared correctly.
- Connections should be firmly made after all conductor strands are entered into the terminal posts.
- When preparing the cable ends take care not to damage the outer screen, or the insulation surrounding the inner conductors.
- Tighten all screws.
- Replace the toe cover of the plug and secure.

WARNING:

Because of the hazards associated with the use of continuous 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.

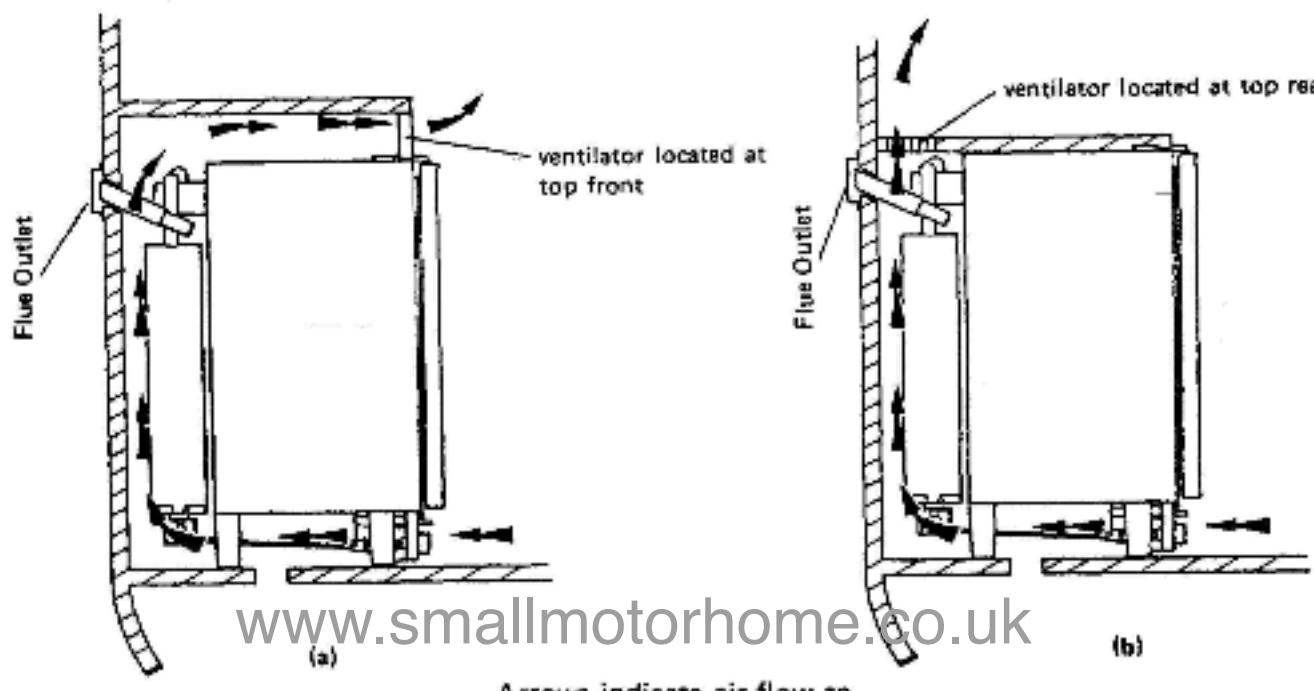
It should be noted that special Marine Refrigerators are available from Electrolux for use on boats.

2. VENTILATION

The refrigerator will usually be built into a recess but 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.



Arrows indicate air-flow to
ventilate cooling unit at rear

FIG. 1

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. It can be of rust proofed metal, or a plastic laminate.

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, the 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 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. Refit the plastic strip along the bottom edge, then slide the panel down against the plastic strip.

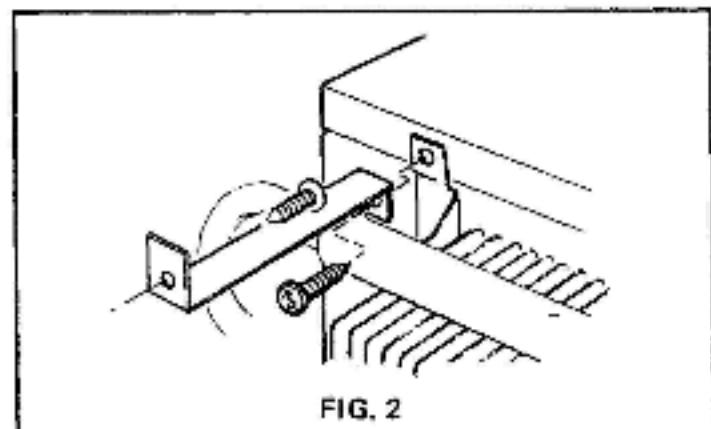
7. BUILDING-IN

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.

Securing in the Recess

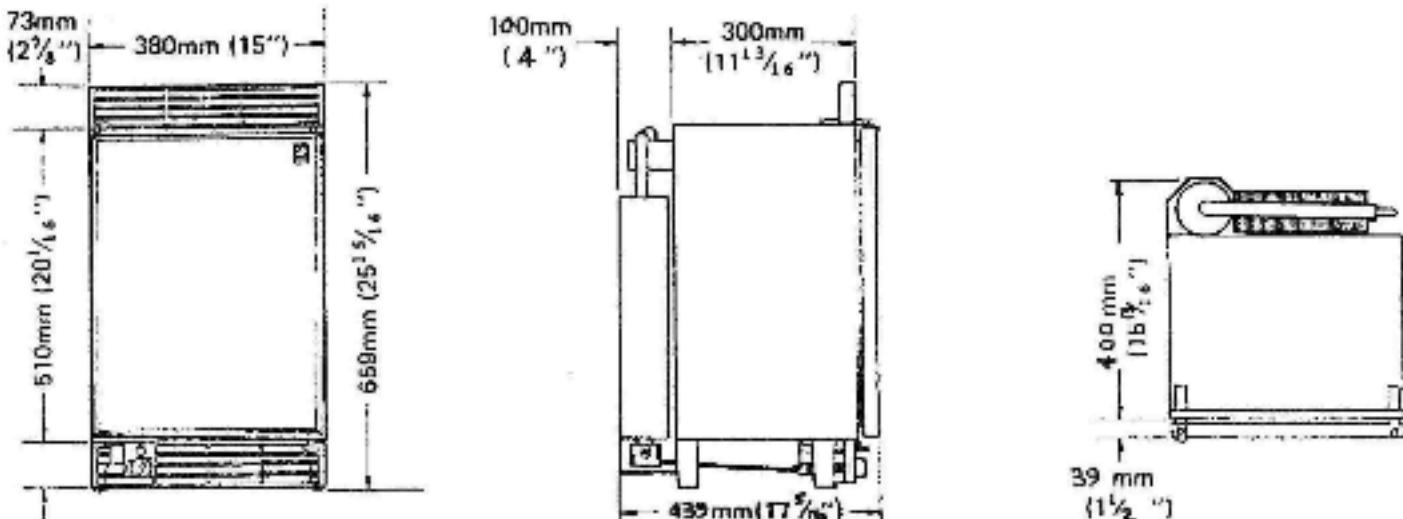
The refrigerator must be secured in the recess to prevent movement. A suggested method of securing is by means of metal brackets about 20mm (3/4") wide, (which should be made to suit the particular installation), screwed to the rear of the refrigerator by means of the two existing cooling unit fixing screws (fig. 2) and to the rear wall of the caravan.

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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 7.



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FIG. 3

Alternatively, wooden batters 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 batters 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.

Fitting the Upper Ventilator

To fit the upper ventilator, screw a block of wood approx. 25mm (1") square x 60mm (2 1/2") long, to each side of the recess, 16mm (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.

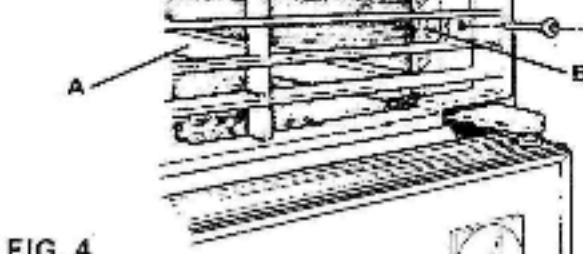


FIG. 4

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).

All surfaces above and adjacent to the flue outlet, and beside and below the burner housing should be of, or protected by, metal or other inflammable material.

B. VENT HOLE UNDER REFRIGERATOR

A ventilation hole of not less than 13cm² (2in²) effective area (10mm or 1 1/8" 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. 6a, fitted under the earth 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.

9. FLUE ARRANGEMENT

Flue Baffle

The flue baffle (4, fig. 10) 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 75mm (3") 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 the 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 gasses must be vented directly to the outside air. Only the F/ECTRQ1 UX flue venting kit (supplied with the refrigerator in the United Kingdom) is recommended for this purpose. It consists of the following parts:

Flue Top Complete — G

Flue Outlet Cover Plate — B

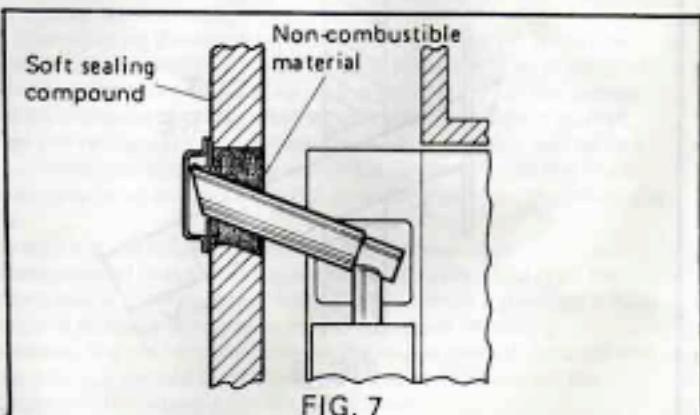
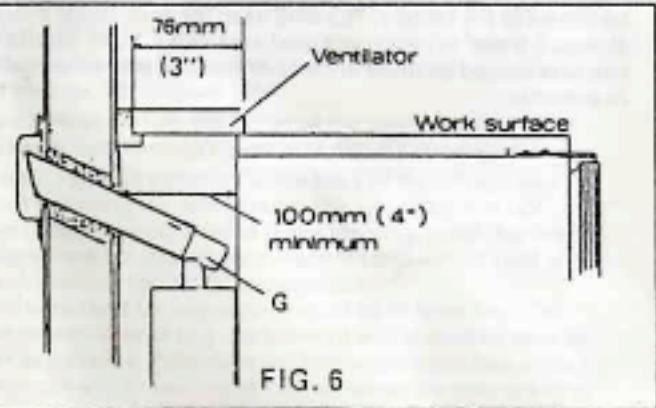
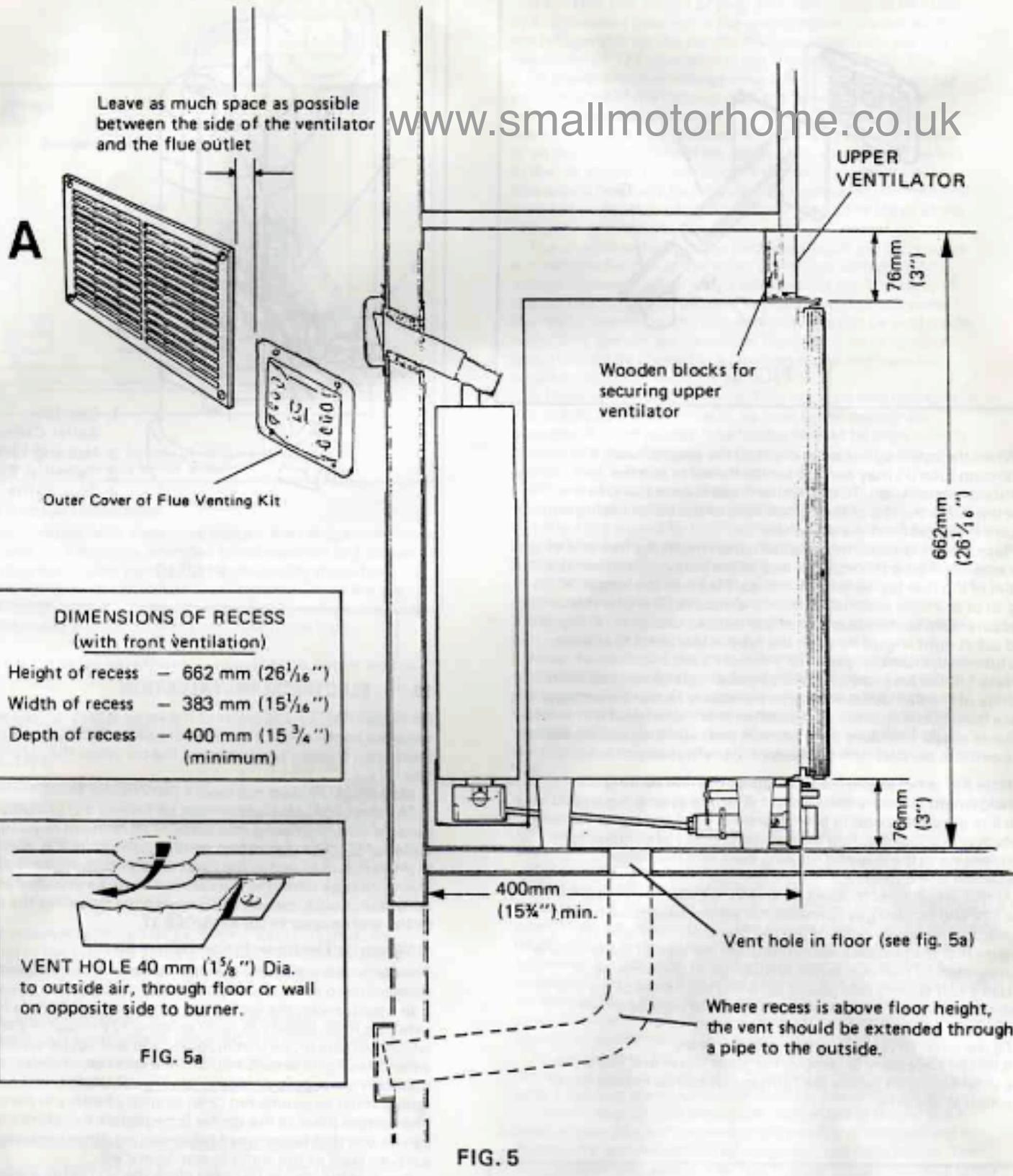
Exhaust Gas Pipe Complete — F

Screw — Self Tapping, No. 6 x 1in — H

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 gasses 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. 7, but the opening in the outer skin must not exceed 70mm (2 3/4") in diameter, otherwise the flange on the flue outlet may not cover it completely.



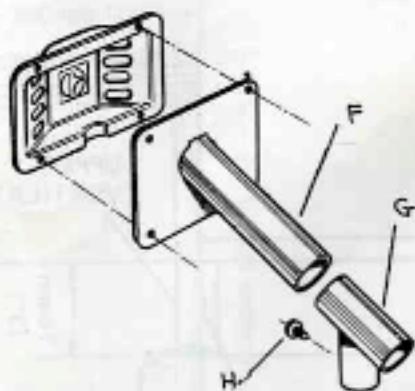


FIG. 8

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 and secure it by means of the screw (H).

Place the refrigerator into position, 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. 9) of any tube protruding from the outside. Transfer this measurement to the other end of the tube as shown at 'Y' (fig. 9) 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 gasses 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 10 and 11 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. 7.

Use a soft sealing compound between the flange of the flue outlet and the wall of the caravan to prevent ingress of rain water.

Fit the outer cover (B) by means of 4 screws.

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.

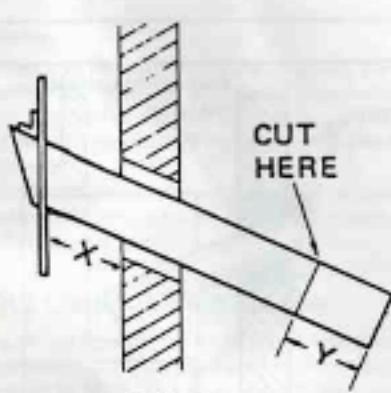


FIG. 9

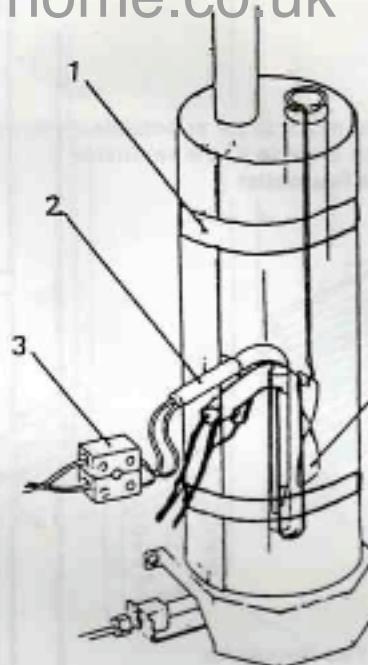


FIG. 10

10. ELECTRICAL INSTALLATION

On model RM123, the boiler of the cooling unit is fitted with two separate heaters, rated at 85W, for use on 240V a.c. mains electricity, and the 12V battery in the car when the caravan is on tow.

Model RM122 does not have a 240V heater fitted.

The electrical installation must be carried out in a proper and durable manner, taking into account all relevant regulations and codes of practice. For mains voltage operation, it is important that the circuit to and in the caravan is effectively earthed. All mains voltage wiring in the caravan must be installed in accordance with current IEE Regulations including the use of an outlet and coupler to BS 4343/CEE 17.

a) Wiring for Electronic Igniter (where fitted)

The electronic igniter for the gas burner is for permanent connection to a 12V d.c. supply, e.g. a car battery.

In a motor-van, the igniter can be connected directly to the vehicle's main battery or to an existing 12V circuit in the vehicle which will remain on continuously and will not be switched off when the engine is switched off. In a caravan, in order to maintain the supply when the towing vehicle is unhitched, the igniter must be connected to an auxiliary battery in the caravan. The current drain of the igniter is negligible therefore the battery can be one that is also used for operating other equipment in the caravan such as the water pump, lights, etc.

Connect the igniter terminal block (fig. 11) to the battery, ensuring that correct polarity is observed — the terminals marked '+' and '-' must be connected to the similarly marked terminals of the battery. The wire used for connecting should be at least 0.5mm² in cross-sectional area and a 0.5 or 1.0 amp in-line fuse should be fitted in the feed wire, as near to the battery as possible.

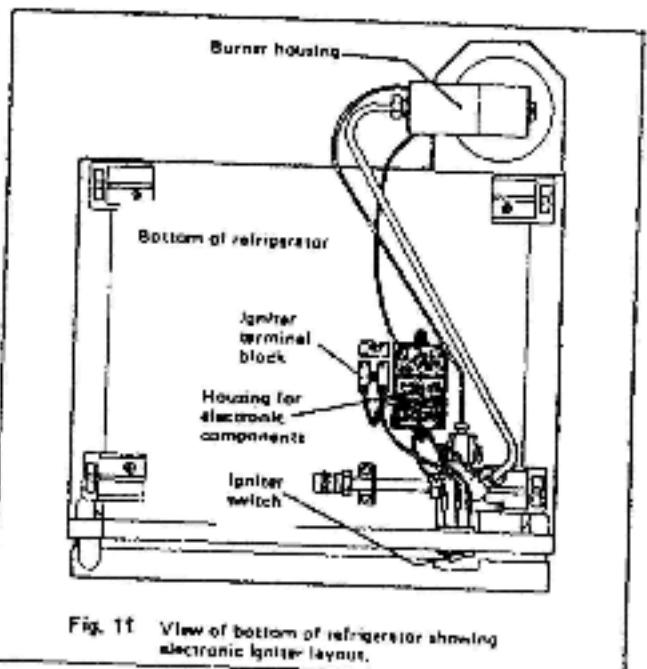


Fig. 11 View of bottom of refrigerator showing electronic igniter layout.

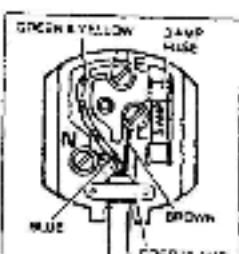
b) Mains Voltage Connection

For connection to a 240V electricity supply, the refrigerator has a 3-core mains lead which is intended for connection to a properly earthed plug and socket outlet. The socket outlet should be fitted in the caravan in a position readily accessible to the user, within reach of the mains lead. In the United Kingdom, the plug and socket outlet should be of the non-reversible type.

IMPORTANT: The wires in the mains lead of this appliance are coloured in accordance with the following code:

**GREEN-AND-YELLOW - EARTH
BLUE - NEUTRAL
BROWN - LIVE**

As the colours of the wires may not correspond with the coloured markings identifying the terminals in your plug, in the United Kingdom, proceed as follows:



The wire which is coloured GREEN AND-YELLOW must be connected to the terminal in the plug which is marked with the letter E or by the earth symbol $\frac{1}{2}$ or coloured green or green-and-yellow.

The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured black. The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured red.

WARNING — THIS APPLIANCE MUST BE EARTHED

In the United Kingdom, the plug or circuit to the refrigerator must be fitted with a fuse not greater than 5 amps. If a 13 amp /BS 1363 fused plug is used, it should be fitted with a 3 amp fuse. In other countries the fuse rating will depend upon the voltage and local practice.

c) Wiring for 12V Operation (See figs. 10, 12a and 12b)

For operation on 12V, the boiler of the cooling unit is fitted with an 85 watt heating element (2, fig. 10) 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 2mm^2 in cross sectional area (e.g. 28/0.00 mm²) 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 caravan 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 (max.) 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 15 amp, continuous rating, fuse 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.

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 16 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 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.

11. 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 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.

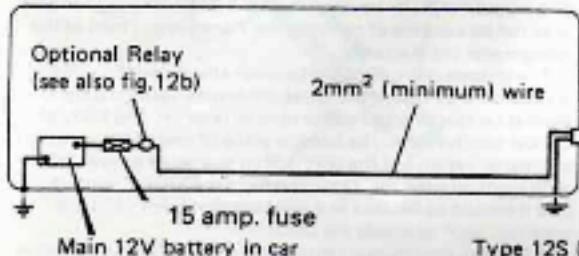
The gas supply pipe should be connected to the 1/2" B.S.P. female inlet adaptor (located underneath the refrigerator) by means of a suitable threaded coupling — see note below. The inlet adaptor will accept a 1/2" B.S.P. male thread. Access to the inlet adaptor may be obtained by pulling off the knob of the gas control valve then removing the lower ventilator by taking out the screws at the ends.

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 mains gas 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.

Car



Caravan

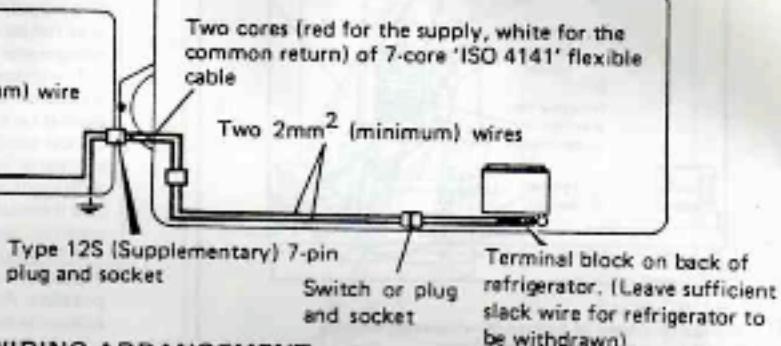


FIG.12a

12V WIRING ARRANGEMENT

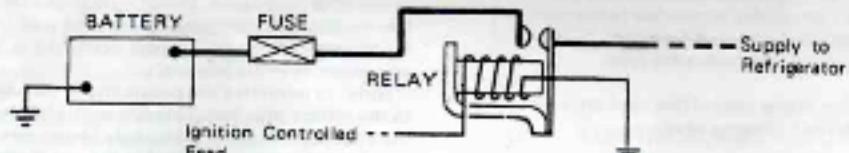


FIG.12b

DIAGRAM SHOWING AN IGNITION CONTROLLED RELAY IN THE WIRING TO THE REFRIGERATOR

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INSTRUCTIONS FOR USE

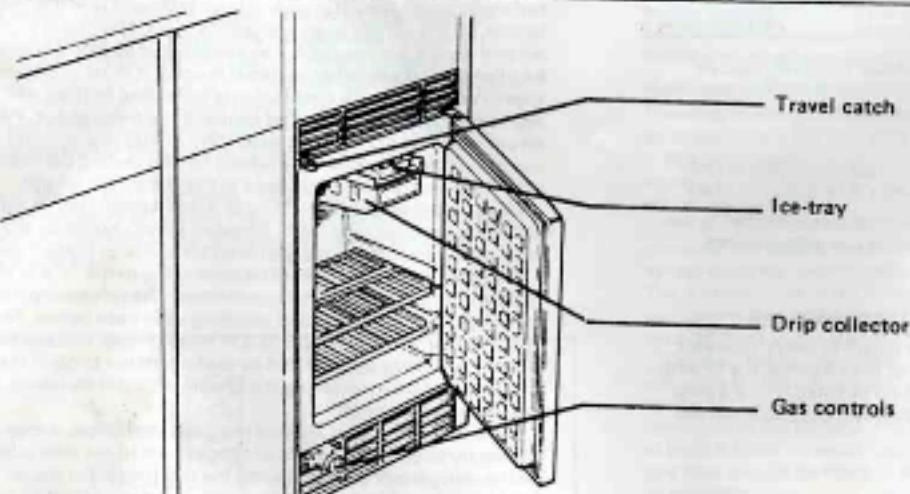


FIG. 13

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.

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