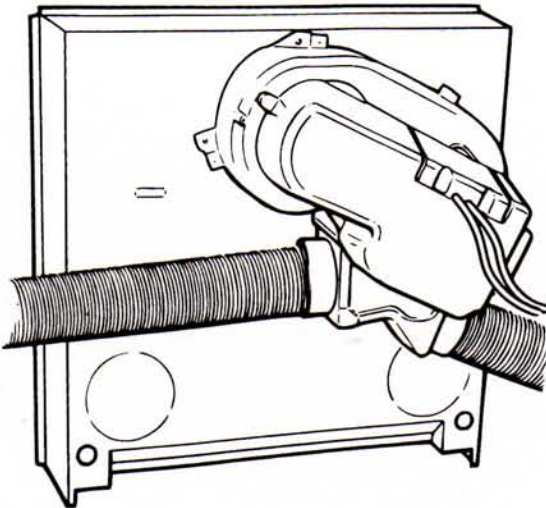


CARVER

FANMASTER WARM AIR FAN HEATER INSTALLATION INSTRUCTIONS



PLEASE LEAVE THESE INSTRUCTIONS WITH THE APPLIANCE

1. GENERAL DESCRIPTION

The Fanmaster is an automatically controlled fan designed to distribute warm air through ducts, to outlets positioned around the caravan.

The Fanmaster is designed to fit on to the back of the installation box of any Carver 1800, 2000 or 3000 heater and the air may be heated either by the Carver heater or by the Fanmaster's own integral electric elements, but not by both simultaneously.

The integral elements are automatically or manually switchable between 0kW, 1kW and 2kW. They require a 230v AC mains supply and will draw approximately 8 amps at 2kW.

The fan and the electronic control require a 12v DC supply and will draw approximately 1.5A at full speed.

All functions of the Fanmaster are controlled by a remote, wall mounted, controller. This controller does not contain a thermostat sensor so it can be mounted in any convenient position.

2. Specification

- 2.1 Heating Element Supply: 230v AC, 8.1 amp, 1863 W
Fused at 10 - 13 amp.
- 2.2 Fan and Control Supply: 12v DC, 1.5 amp, 18 W
Fused at 5 amp.
- 2.3 Air Delivery: 100m³/h maximum.
- 2.4 Weight 3.05Kg
- 2.5 Safety Features: A thermistor in the fan, sensing air temperature and controlling the element power and fan speed.
An over temperature, manually resettable trip sensing element temperature.
- 2.6 The Fanmaster is approved to BS 3456 pt 201 (1990), EN 60335 pt 1 (1988) and manufactured to BS 5750 pt 2 (1987). It is suitable for installation in caravans complying with BS 4626 (1970).
- 2.7 The rating and data plate is on top of the Fanmaster body.

3. Warnings

- 3.1 It is recommended that the Fanmaster be installed by a competent electrician working to IEE Regulations 16th edition and these fitting instructions. Before connection to the mains supply the work must be certified by a NICEIC approved electrical contractor.
- 3.2 Any work involving gas fittings on the Carver heaters must be performed by a competent gas fitter working to the current Gas and Safety (Installations and Use) Regulations 1984.
- 3.3 The Fanmaster uses 230V mains supply. This can be dangerous. Exercise extreme caution during installation.
- 3.4 Before starting work, disconnect the caravan from the mains electrical supply and isolate any on-board 12v battery.

4. Fanmaster Kit and Tools required.

4.1 Fanmaster

- 1 off Fanmaster
- 1 off Remote Controller
- 1 off Twin wire loom
- 1 off Three wire loom
- 3 off No. 6x16mm Self tapping screws
- 1 off Connection lid
- 2 off Connection lid screws No. 4x9.5mm
- 4 off Cable clamp screws No. 4x16mm
- 2 off Screw covers for controller
- 2 off m/c screws for use with optional controller box
- 1 set of literature
- 1 Fanmaster front case badge

4.2 Tools Required

- No. 1 Posidriv driver
- No. 2 Posidriv driver with 200mm blade length
- No. 2 Slotted Screwdriver
- Two 7mm A/F spanners
- Electrical Screwdriver
- 10mm drill
- Pad saw
- No. 2 Flat blade screwdriver
- Two 7mm A/F spanners.

4.3 Material Required

- 3 core wire, PVC sheathed, Brown, Blue, Green/Yellow CSA 1.5mm² 600v grade to BS 6004 for connecting Fanmaster to mains supply.
- Double pole switched outlet with contact separation of at least 3mm on each pole fused at 10A or 13A plug (See Section 11).

- 4.4 NOTE if fitting the new FANMASTER to a NEW Carver space heater with no rear mounted accessory fan unit previously attached, proceed immediately with section 7 ("Fitting Fanmaster to the installation box").

- 4.5 If a Central Heating accessory fan unit of the TBM ("Junior"), TEB, TEN or TN type has been fitted, and it is desired to replace with the FANMASTER, section 5 or section 6, as appropriate, must be followed before fitting the new heater.

- 4.6 If fitting a new Fanmaster to an SB, SD or SBT type of heater, this can only be done with the later "UB" type of installation box which has threaded fan retaining inserts in place. In this case, fitting kit, Part No. 101584 should be obtained, and the procedure detailed in section 7 should be followed.

5. REMOVAL OF TBM "JUNIOR" FAN, PRIOR TO FANMASTER INSTALLATION

5.1 Remove the screws securing the "UR" ducting to the inlet and outlets of the TBM fan.

5.2 Following the advice in section 3.4, remove the old fan, with its associated wiring and wall switch, leaving the existing main caravan wiring loom safe.

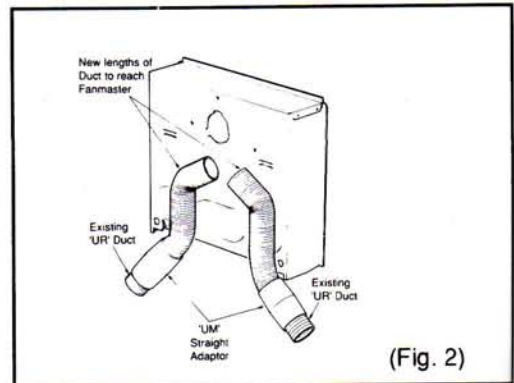
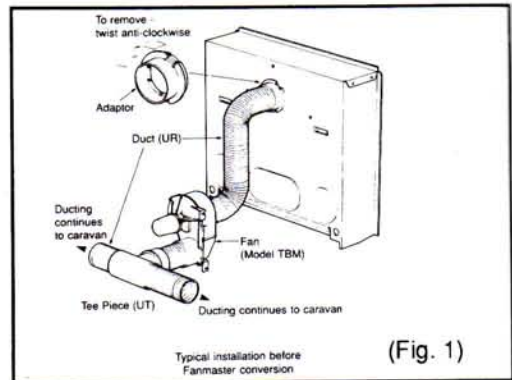
5.3 On the downstream side of the old fan, remove the first existing plastic "Tee" piece. This can be retained for any desired ducting modifications further downstream.

5.4 Remove the installation box plastic adaptor and its short length of ducting. The adaptor should be discarded.

5.5 For each of the two duct ends now remaining at the rear of the gas heater a straight adaptor - type "UM" should be fitted to extend these ducts to meet the new Fanmaster. Secure the new adaptors to the ducting with self tapping screws.

5.6 Now proceed from Section 7 "Fitting Fanmaster to the Installation Box".

5.7 When this has been completed, extend the two warm air ducts with short new lengths, to meet up with the Fanmaster outlets. Follow the details in Section 10.



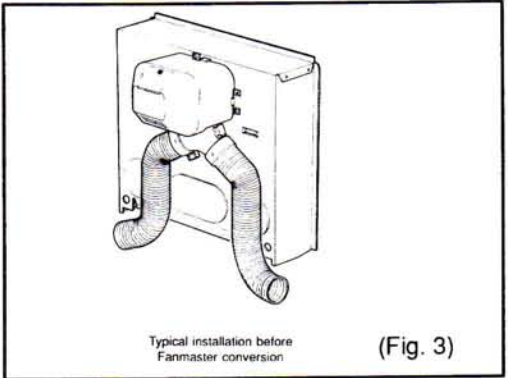
5.8 **IMPORTANT:** Fanmaster has been designed and approved to operate with BOTH warm air outlets fully utilised, therefore modifications may be required to update the ducting when converting from the TBM type fan. Particular attention must be paid to the notes in Section 9. Failure to do so will cause the Fanmaster's thermal trip protection to operate prematurely.

6. REMOVAL OF TEB, TEN OR TN TYPE FANS, PRIOR TO FANMASTER INSTALLATION

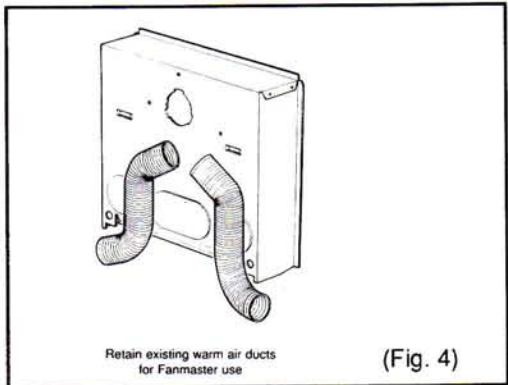
- 6.1 Release the two lengths of warm air ducting from the fan unit by removal of the securing self tapping screws.
- 6.2 All wiring associated with the 12v "TBM" and "TEB" types of fans **MUST** be isolated by removing the fuses, then disconnected. Remove the existing wallswitch and supply cable to the motor.

If the Line and Neutral cables to the existing wallswitch are of 1mm square section and in good condition, and are protected by a suitable fuse (i.e. 5 Amps), they can be used as a 12v supply for Fanmaster.

Should the existing fan be a Mains electric "TEN" or "TN" type, then this wiring should first be isolated from any 220/240v supply. The existing wiring is then removed, back to a suitable termination point. The wiring **MUST** be of sufficiently high rating (minimum of 1.5mm square conductors) to take the 2 kW rating of the 240v Fanmaster heater.



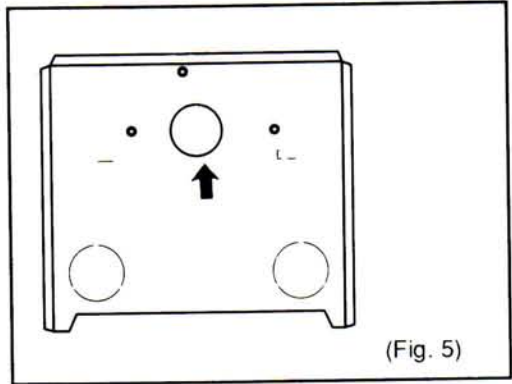
- 6.3 Unscrew the heater at its three location points and remove from the Installation Box.
- 6.4 **IMPORTANT:** All wiring associated with these types of fan must be disconnected and removed completely, as the new replacement Fanmaster requires cable of a superior specification. Failure to do so will cause a hazard.



- 6.5 Now proceed from section 7: "Fitting Fanmaster to the Installation Box".
- 6.6 When this has been completed, connect the existing two ends of ducting to the appropriate Fanmaster outlet connections as detailed in section 10.
- 6.7 **IMPORTANT:** Fanmaster has been designed and approved to operate with BOTH warm air outlets fully utilised. Particular attention must be paid to the notes in Section 9.

7. Fitting Fanmaster to the installation box.

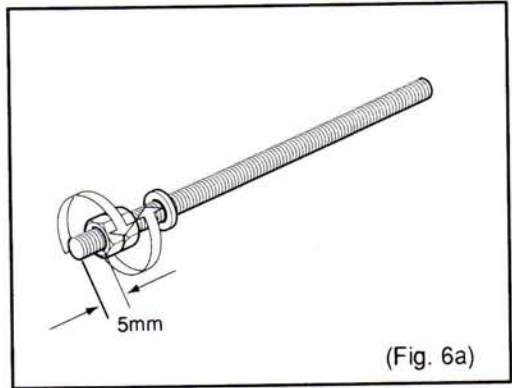
- 7.1 Remove the circular knock-out from the rear of the installation box. (Fig. 5).
- 7.2 Drop one of the 3 off No. 6x16mm self tapping screws provided down the tube located to the left of the terminal block bracket at the back of the Fanmaster inside the terminal enclosure. (Fig. 6b)



(Fig. 5)

Using the 200mm long No.2 Posidriver position the screw so that it projects through its hole.

With the driver still in position locate the Fanmaster as shown in Fig. 6b with the intake aligned with the knock-out and loosely fix the screw into the lower left-hand nut (as seen from the front) (Fig. 6b). Fit the other 2 screws as shown and tighten all three.

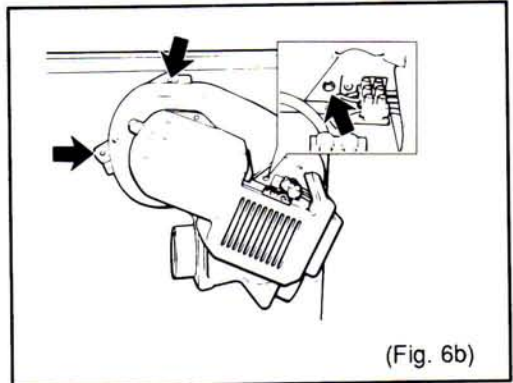


(Fig. 6a)

- 7.3 Ensure that no part of the Fanmaster touches the heater flue.
- 7.4 For SB type heaters.

The standard Fanmaster fitting screws must be discarded, and the single M4 stud and two M4 screws must be used from kit, Part No. 101584.

Follow stage 7.1, then select the 100mm long stud and screw on both M4 nuts and lock together within 5mm from one end (Fig. 6a).



(Fig. 6b)

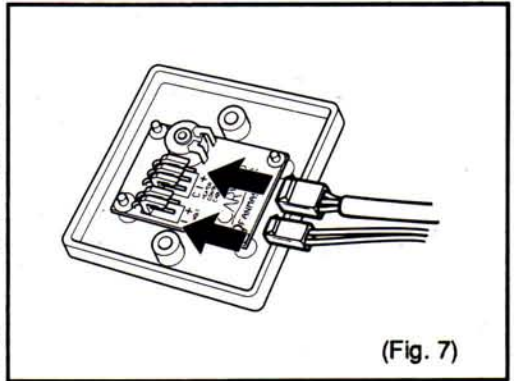
Select a single M4 washer, and position on the stud below the nuts (Fig 6a). Drop the stud assembly down the tube to the left of the terminal bracket, as described in section 7.2, and ensure that the end projects through the hole in the Fanmaster base.

Offer up the Fanmaster to the installation box with this stud and the remaining two M4 x 20 screws as shown in Fig 6b and tighten all three. Check that condition 7.3 is satisfied.

8 Fitting the Remote Controller

- 8.1 Select the position for the controller. This will ideally be in an accessible position on the front wall of an overhead locker or on the wardrobe side. Ensure the three core loom will reach from the controller to the Fanmaster and allow for clipping to the structure.

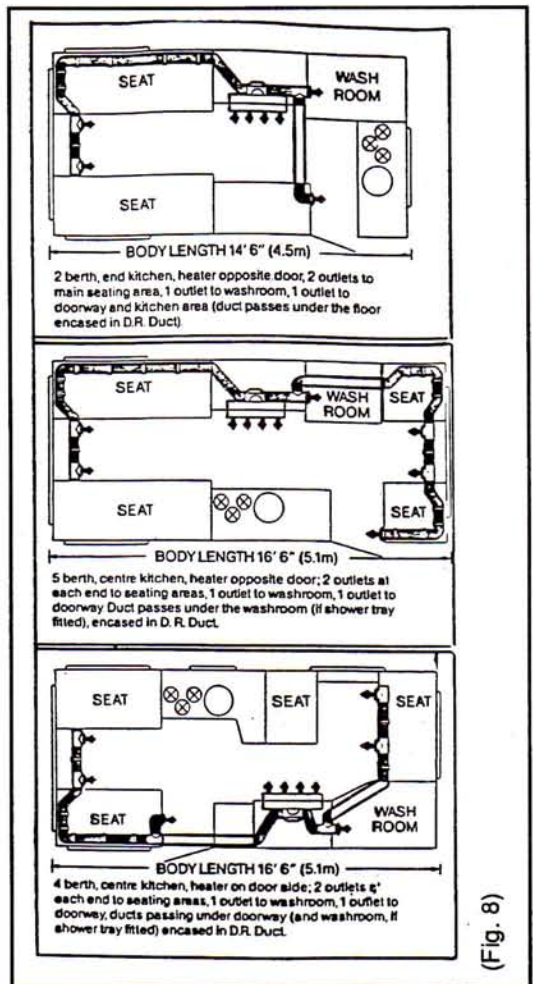
Cable entry is from the rear of the controller through the cut-out in the panel.



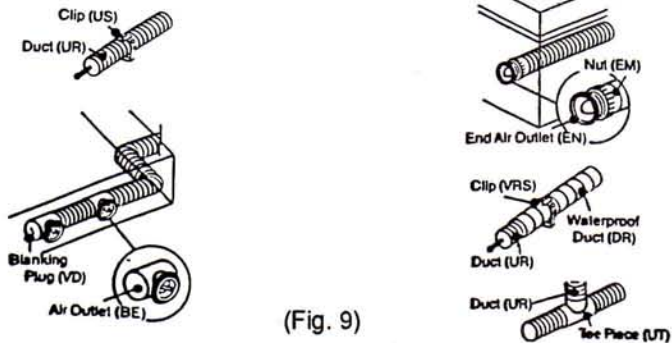
- 8.2 The controller does not contain a temperature sensor so its position is not thermally sensitive.
- 8.3 In the selected position use the template from page 10 to make the cut-out and drill the holes. If the panel is thin it may need reinforcement to take the screws. The use of masking tape on the area to be cut will prevent splintering of wood.
- 8.4 Lead the three-core loom from the Fanmaster to the Controller and plug it into the controller at one end & into the Fanmaster at the other. The plugs will only go in the correct way round. Do not use force. Fig. 7 and Fig. 12.
- 8.5 Lead the two-core loom from the controller to the van's 12v DC supply. The white lead goes to the negative and the green via a 5 amp fuse to the positive. Fig. 7.
- 8.6 Screw the controller in position using self tapping screws or the machine screws if the optional rear protection box is used. Insert the screw covers.
- 8.7 Clip the looms to the caravan structure leaving slack to remove the controller.

9. Ducting and Duct Layouts

- 9.1 The Fanmaster is a major component of the Carver Blown Air Central Heating System.
- 9.2 The layout and installation of the ducts and outlets is identical to that required for the Carver TEB 12v Fan.
- 9.3 Each of the twin outlets on the Fanmaster accept "UR" flexible ducting to give a warm air supply to both ends of the caravan. Each duct run can supply 2 or 3 outlets. It is recommended that at least one outlet is of the permanently open type to prevent overtemperature safety tripping of the electric elements.
- 9.4 Detailed Duct installation information is available from Carver but the three layouts shown are typical. Fig. 8.



(Fig. 8)

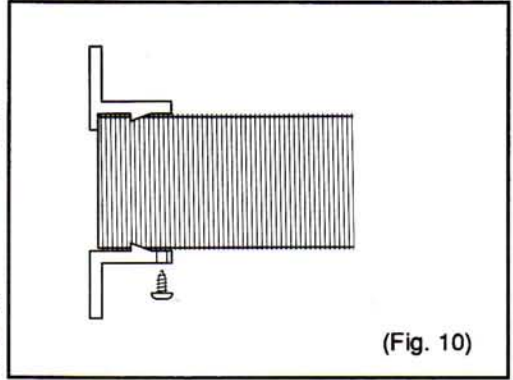


(Fig. 9)

10. Connection of Ducting to Fanmaster

10.1 Push the ends of the duct firmly past the retaining ridges into the Fanmaster ports up to the stops and retain with self tapping screws. Fig. 10.

10.2 In some installations care must be taken in routing the duct into the ports to avoid kinks. Fig. 11. It may be easier to fit the ducts before securing the Fanmaster.



(Fig. 10)

11. Mains Electrical Connection.

11.1 Wire the mains supply cable (PVC sheathed, 3 core, Brown, Blue and Green/Yellow, 1.5mm²/core, 600v grade to BS 6004) into the main terminal block on the Fanmaster.

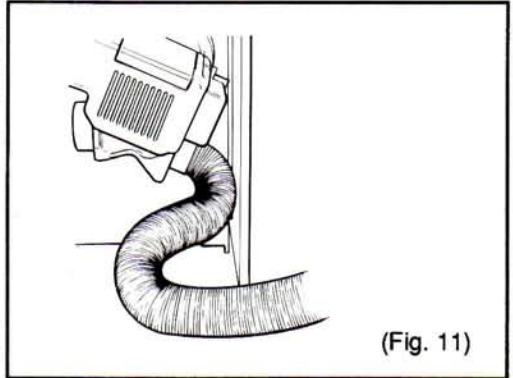
This is marked:

"E" Earth Green/Yellow wire

"N" Neutral Blue wire

"L" Live Brown wire

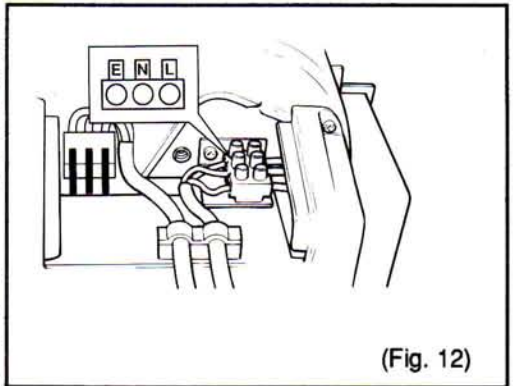
Secure the 12v 3 core loom and the mains supply cable with the cable clamp. Fig. 12.



(Fig. 11)

11.2 To supply mains current to the Fanmaster by means of fixed wiring, lead the mains cable from the Fanmaster to an accessible double pole switched outlet with contact separation of at least 3mm on each pole fused at 10A which is supplied from the output of the MCB which serves the 13A sockets.

11.3 Alternatively to retro-fit the Fanmaster to an existing mains installation the Fanmaster may be supplied through a 13A plug from an existing 13A socket.



(Fig. 12)

- 11.4 Before connection check the Fanmaster and its cable for Earth Continuity and Insulation Resistance. After connection check for Earth Impedance.
- 11.5 Clip the cables to the caravan structure so that they cannot be disturbed or strained by items dropping behind the heater and fit the lid to the Fanmaster connection box.
- 11.6 Remove Fanmaster badge backing and stick on bottom right hand side of heater. The badge must be firmly pressed on to allow the self adhesive backing to stick to the case.

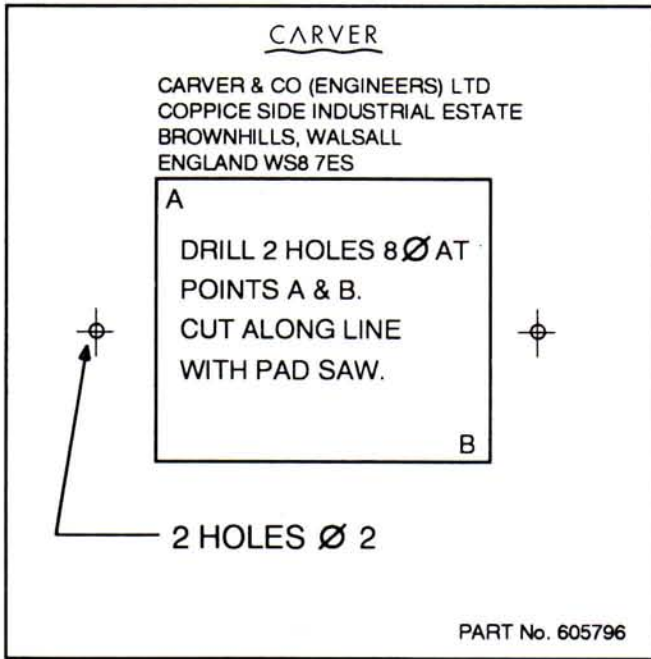
12. Testing of Fanmaster Functions

- 12.1 Reconnect the battery, gas and mains electrical supplies to the caravan.
- 12.2 Test the functions mode by mode referring to Section 3 of the Fanmaster User's Instructions.

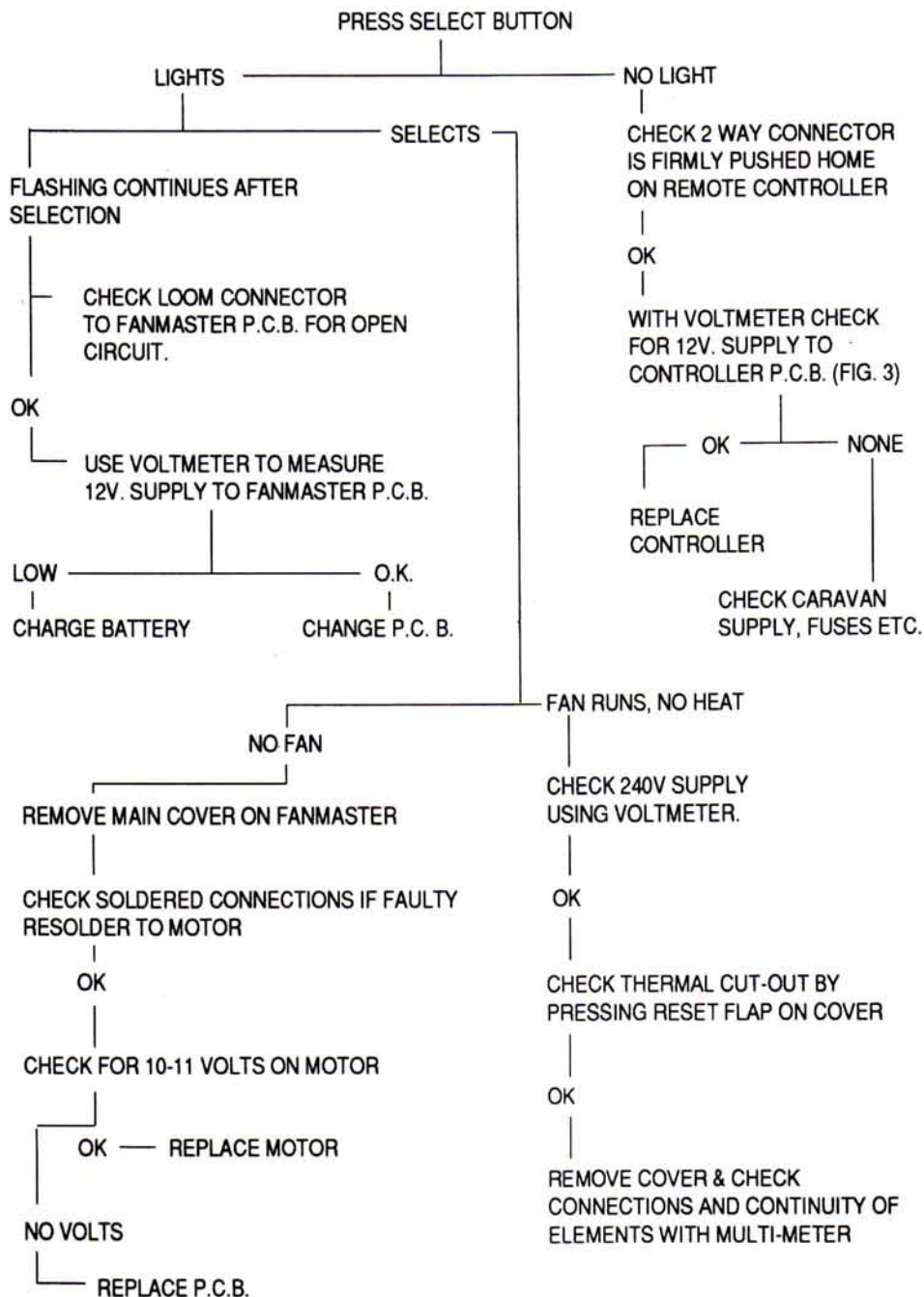
13 Servicing

- 13.1 No regular servicing of the Fanmaster is required but it is recommended that the earth continuity and insulation resistance of the entire caravan mains installation is checked annually.

TRIM TEMPLATE TO THIS LINE



14. Fault Diagnosis Flow diagram



GUARANTEE

CARVER PRODUCTS ARE FULLY GUARANTEED FOR A PERIOD
OF 2 YEARS FROM DATE OF FIRST PURCHASE AGAINST
FAULTY WORKMANSHIP OR MATERIALS. WE WILL REPAIR OR
REPLACE ANY SUCH FAULTY ITEMS

"FREE OF CHARGE"

PROVIDED THEY HAVE BEEN INSTALLED AND USED IN
ACCORDANCE WITH OUR INSTRUCTIONS.

"ACCEPTANCE OF THIS GUARANTEE DOES NOT
IN ANY WAY DIMINISH YOUR STATUTORY RIGHTS".

NOTE: THE CUSTOMER MUST WHEREVER POSSIBLE,
LEAVE THE HEATER INSTALLED IN THE VEHICLE,
AND WHEREVER PRACTICAL, RETURN THE HEATER
TO THE CARVER MAIN DEALER FROM WHOM IT WAS PURCHASED
OR INSTALLED. IN SPECIAL CIRCUMSTANCES, HOWEVER, IT
MAY BE TAKEN TO ANOTHER CARVER MAIN DEALER.

CUSTOMER SERVICE DEPARTMENT

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