

# *AIRTRONIC<sup>\*</sup> D2*

## Boat Heating Kit

### Installation and Operating Instructions

Kit N°:	Outlets	Voltage	Heater
E4465	1	12v	25 2069 05 00 00
E4466	2	12v	25 2069 05 00 00
E4467	1	24v	25 2070 05 00 00
E4468	2	24v	25 2070 05 00 00

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## Uncontrolled Copy

This publication was correct at the time of going to print.  
However, Eberspächer (UK) Ltd. have a policy of continuous improvement  
and reserve the right to amend any specifications without prior notice.

## Introduction

The *AIRTRONIC D2* is designed for boats with a heating requirement of up to 2.2kW. The instructions must be read carefully, prior to installation and followed exactly. Any deviations or proposed changes must be approved by one of the dealers listed under the service and maintenance section.

## Technical description

The boat heater kit is based around the Eberspächer *AIRTRONIC D2* diesel fuelled air heater.

The unit burns diesel in a sealed combustion chamber and heat exchanger over which ambient air is passed to collect the heat from the walls of the heat exchanger for distribution through ducting to the cabins. Combustion air, drawn from the outside, is mixed with the diesel fuel supplied by the fuel metering pump and ignited by an integral glow pin in the unit. The waste products of combustion pass through a flexible stainless steel exhaust tube to the hull fitting for escape to atmosphere. The system is an indirect burner unit for delivering warm air to the various areas of the boat requiring heat.

## Operation

### Starting the heater

The heater is started by pressing and releasing  on the programmer.

Switch-on symbol  is shown on the display.

When the heater is switched on, the glow pin is automatically switched on and the blower starts up at a low speed.

**Note:** If the heat exchanger still contains residual heat, only the blower runs (cold-blowing phase). The start-up procedure commences after residual heat has been dissipated.

### Start-up procedure

Fuel feed starts after approx. 60 seconds. The fuel/air mixture ignites. Blower speed and fuel delivery are increased continuously. Once a flame has been detected and the combustion process has stabilised, the glow pin is switched off after 80 seconds. The heater is now in operation.

### Control During Operation

The cabin air temperature is continually monitored when the heater is in operation. When the cabin air temperature exceeds the desired temperature (selected on the controller) the heater will alter its heating level (modulate) accordingly.

If the heater is operating in its lowest heat level and the cabin temperature continues to rise above the desired temperature selected then the heater will switch itself off. After a cooling cycle of approximately 4 minutes the heater will remain in standby mode until the cabin temperature falls sufficiently to restart the heater.

### Switching off the heater

To switch off the heater press and release the  key and the  symbol will disappear.

When the heater is switched off the cooling cycle is initiated, and the fuel feed is shut off. The glow pin is automatically switched on for another 40 seconds to clear the heater of combustion residues. The blower continues to run to cool down the heater (for approximately 4 minutes).

**Note:** If no fuel is delivered during the start-up procedure or if the heater is in the >OFF< setting, the heater is switched off immediately without afterrun.

## Controls and safety equipment

The flame is monitored by the flame sensor, and the maximum permissible temperature by the safety thermal cutout switch. Both affect the control unit, which shuts down the heater in the event of faults.

1. If the heater fails to ignite within 90 seconds of fuel delivery, starting is repeated as described. If the heater still fails to ignite after 90 seconds of fuel delivery, a fault shutdown at approximately 4 minutes is initiated.
2. If the flame goes out spontaneously during operation, a restart is first attempted. If the heater fails to ignite within 90 seconds of fuel pumping, or if it does ignite but goes out again within 15 minutes, fault shutdown takes place. The heater can be reset by switching it off and then back on again (do not repeat this more than twice in succession).
3. In the event of overheating the flame monitor/overheating sensor is operated, the fuel supply is interrupted, and fault shutdown takes place. Once the cause of the overheat has been removed, the unit can be restarted by switching it off and then back on again.
4. If the voltage drops below 10 or 20 V or rises above 16 or 32V as the case may be, fault shutdown takes place after 20 seconds.
5. If the glow pin is defective and/or the electric cable to the metering pump is interrupted, the heater will not start.
6. When the heater starts the operation of the blower motor is checked once. If it does not start, the heater reacts as for fault. During operation, the blower motor is monitored continuously. If the motor speed is below the allowed limit, fault shutdown follows.
7. When the heater is switched off the glow plug is switched on during the delayed shutdown for about 40 seconds after-glow) to clear the heater of combustion residues.

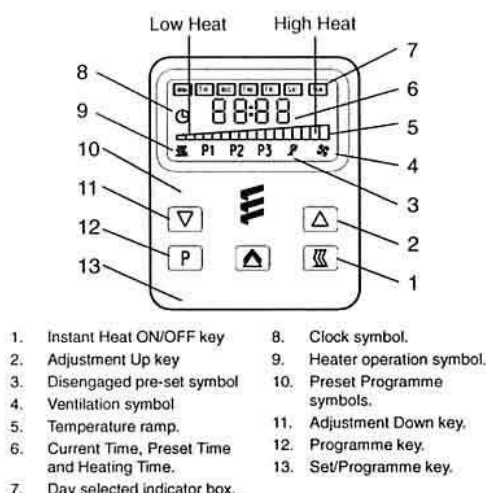
Please note:

When carrying out electric welding work on the boat disconnect the positive terminal from the battery and earth it in order to protect the control unit.

The heater must always be switched off when the fuel tank is being filled.

The heater must not be operated in a storage shed.

## 701 Series Timer / Modulator Instructions



### Introduction

Your Timer/Modulator offers manual and programmable control along with temperature adjustment of your heater. When the heater is switched on by the Timer/Modulator in a programmed mode it will only run for the duration time that you have selected e.g Heater on at 0700, duration selected 1 hour, so heater will be switched off automatically at 0800.

### Clock Settings

When power is initially supplied to the unit, all the display segments will flash.

Pressing the key will display the flashing symbol and using the and keys the correct time can be set.

Press the key again and the day box will flash. Use the and keys once more to select the required day.

A further press of the key will set the time, reset the seconds and the symbol will remain static. This can be pressed to coincide with a known time signal for accuracy.

NB: The clock may be adjusted when required by pressing and holding the key but please note adjustment is not possible when the heater is in operation.

### Switching on the Heater (Manually)

Press the key and the symbol will appear and heater will commence its startup cycle.

The display will change to show a default one hour heating countdown time.

This can be extended up to eight hours or to continuous C:- by repeatedly pressing the key while the heater is in operation.

### Switching off the Heater (Manually)

The heater may be switched off at any time by pressing the key and the cooling cycle will be initiated.

### Adjusting the Temperature

Pressing the and keys will alter the 20 segment temperature ramp shown on the display. This level may be adjusted at any time and will remain in the timer memory when the heater is not in operation.

### Setting Program Times

Press the key and the P1 symbol will begin to flash. Pressing the key will toggle the display between a time display and "OFF". With P1 flashing in the time display mode the desired program time can be set using the and keys.

Once the desired time has been selected and if no keys are depressed for 8 seconds the display will revert to the clock mode. During this 8 second period pressing the key will select P2 which can be used to select another program time or be set to "OFF" if not required.

A further pressing of the key will select the P3 symbol which can be set or turned off in the same manner.

### Setting Program Days

Having set program times P1 or P2 or P3 or all three, and with the P3 symbol still flashing press the key again and a box will appear around one of the days. Toggle the key to select "ON" if you require the selected day to be programmed, or "OFF" if you do not wish it to be selected.

To move onto the following day press the key once again and select "ON" or "OFF" as before. Repeat this procedure for all seven days and to store these settings in the Timer / Modulator memory wait for 8 seconds and the display will revert to the clock mode.

### Setting Program Duration

To set the desired duration, press and hold the key and whilst holding repeatedly press the key to select the desired time.

NOTE: Continuous operation is not selectable in this program mode.

### Switching on the Heater (Programmed)

To activate your selected program settings to switch the heater on, toggle the key to show the P1,P2,P3 (depending on what you have programmed) or symbol to turn off all settings.

NOTE: If all presets and days have been selected to "OFF" pressing the key will have no effect.

## AIRTRONIC D2 Technical data



### Specifications

Heating medium	Air	Electric	
Heating capacity <sup>1)</sup> Power/High/Medium/Low W + 10%	2200 / 1800 / 1200 / 850	Power consumption <sup>1)</sup>	at start 12V ≤ 100W 24V ≤ 100W In operation Boost/High/Medium/Low 34 / 23 / 12 / 8 W + 10%
Hot air throughput without counter- pressure <sup>4)</sup> kg/h + 10%	105 / 87 / 60 / 42	Radio interference suppression level 3	R.S.I additional suppression measures possible
Heating capacity control	Power - High - Medium - Low - Off	Weight	approx. 2.7 kg
Fuel	Diesel fuel (commercially available)	1) at rated voltage	
Fuel consumption <sup>1)</sup> Power/High/Medium/Low l/h + 10%	0.28 / 0.23 / 0.15 / 0.10	2) an undervoltage safety device built into the control unit switches off the heater at around 10V or 20V respec- tively.	
Rated voltage	12V or 24V respectively	3) an overvoltage safety device built into the control unit switches off the heater at around 16V or 32V respectively.	
Operating range Minimum voltage <sup>2)</sup> Maximum voltage <sup>3)</sup>	10V or 20V respectively 16V or 32V respectively	4) without backpressure.	
Ambient temperature In operation Not in operation	-40 to +70°C -40 to +85°C		

## Siting the heater

Fig N°. 1

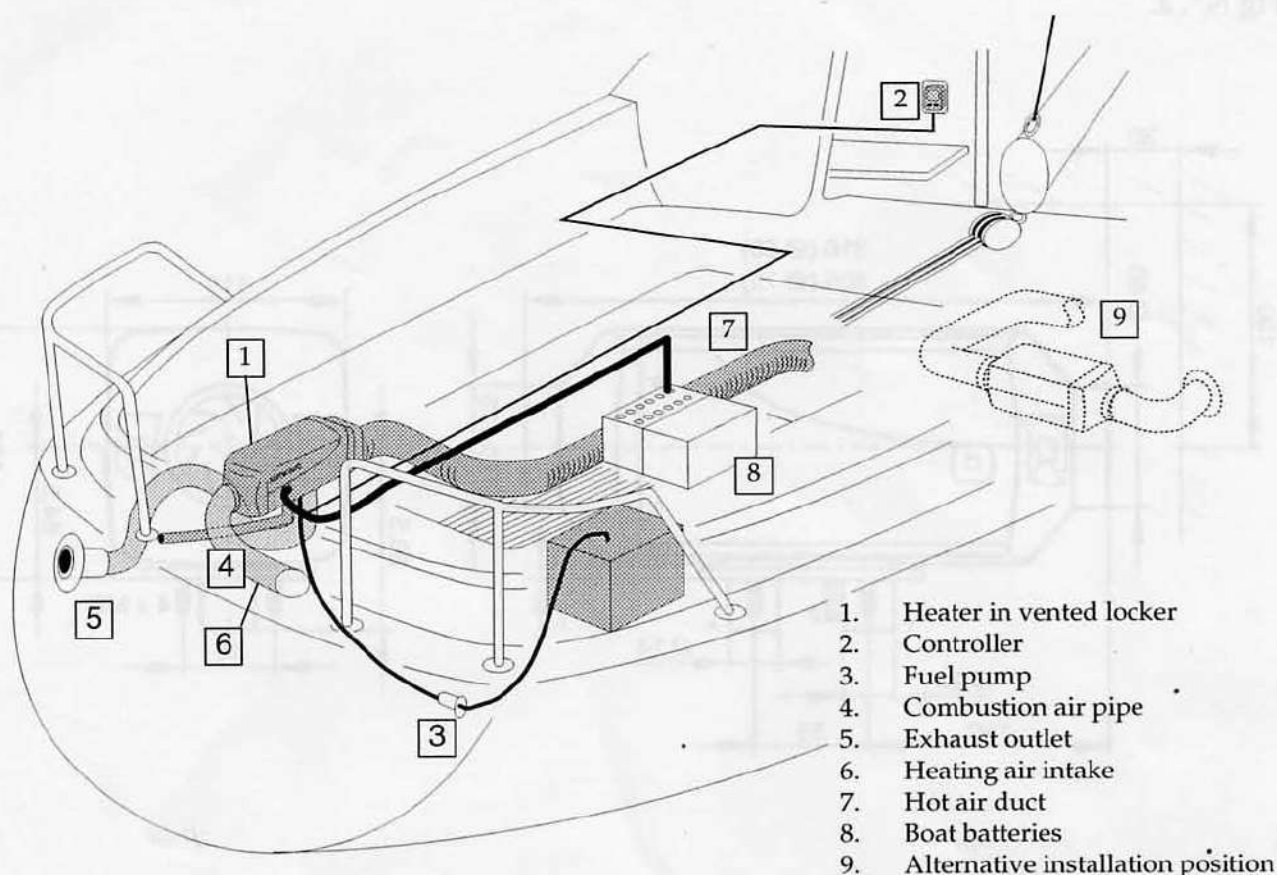


Fig. N°. 1 shows the general position of the heater and associated components. The heater unit is mounted on the stainless steel mounting plate supplied in the kit and in such a way that the heater manifold spigots are downward. See Fig. N°. 2

The mounting plate is pre-drilled to accept the heater manifolds and has provisions for self tapping to bulkheads. A suitable and strong enough bulkhead will need to be provided particularly in the GRP boat where thin GRP coaming or panels will need suitable plywood support to give the heater a firm mounting. Care should be taken to avoid mounting on cabin bulkheads where vibration could be amplified through the acoustic effects of large bulkhead panels.

Mount the heater in a dry protected position but with due regard to the other aspects of the installation, i.e. exhaust, fuel line, ducting, electric's etc. For instance, the exhaust length supplied is 2 metres so the heater body **must not** be more than this length away from the exhaust skin fitting.

A cockpit locker is normally an ideal site. **The heater should not be mounted inside the cabins.** Access should be considered for servicing. See Fig. N°. 2 for dimensions.

The heater is bolted to the mounting plate by four M6 nuts and spring washers. Four self tap screws secures the mounting plate to the bulkhead.

It is important to ensure that the heater is installed with the exhaust, fuel and combustion air manifold spigots pointing vertically downward. Failure to achieve this will affect the optimum running of the heater particularly when sailing at an angle of heel. The heater will operate in conditions of permanent 15° heel and after starting to a maximum heel of up to 30°. Deviations exceeding 30° may cause the heater to lock out under safety control but no damage of the unit can occur.

See Fig. N°.3

## Permissible installation positions

Fig N°. 2.

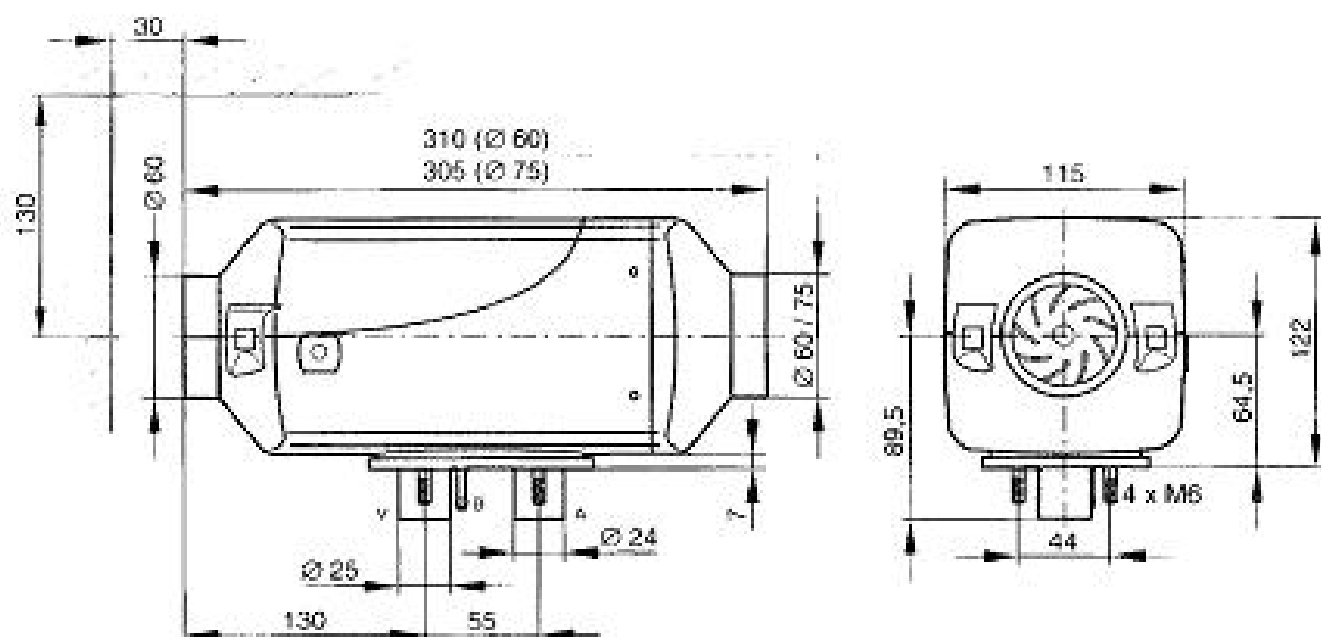
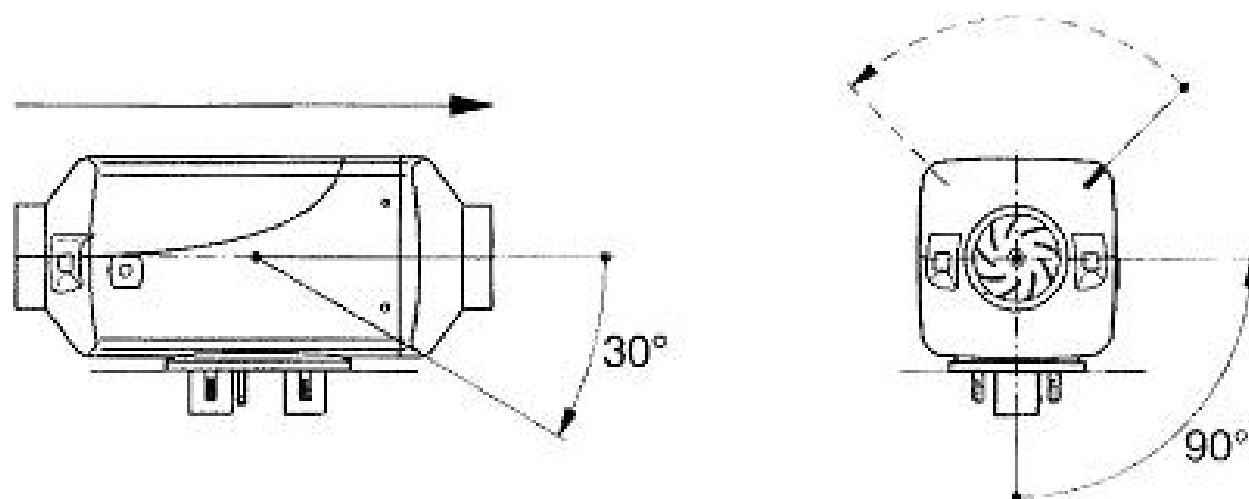


Fig N°. 3.





## Ducting — (a) air intake

Air is drawn into the heater for heating at the intake as shown in Fig. N° 4 . Re-circulated air from the cabin is introduced to the heater with ducting connected to the inlet of the heater. Engine room air or air likely to be contaminated must not be used.

When using fresh air from outside care must be taken to ensure that no water may enter the heater. Siting of the fixed air intake should be carried out particularly in cockpit areas with due regard to protecting against an ingress of water at sea or during any cockpit cleaning operations.

To ensure sufficient free air reaches the heater and to avoid overheat through air starvation, the supplied grille should be used to cover a minimum 3 inch diameter hole. Any existing grille in the cockpit walls etc., can be used providing the air stream to the heater is unrestricted (36 sq. cm.) minimum.

When deciding on a suitable location for air intake of the grill, the positioning of the existing engine ,generator and indeed heater exhaust should be taken into consideration to avoid the possibility of circulating smoke or fume into the boat via the grill. The aforementioned is particularly important in the event of an engine becoming faulty and producing excessive exhaust fume.

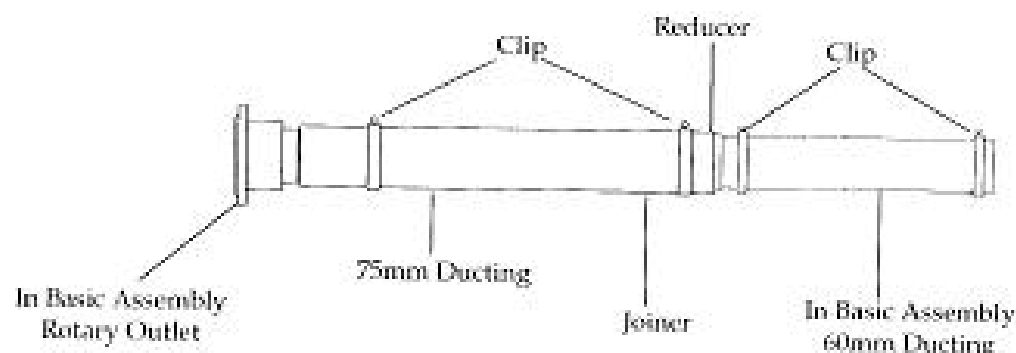
Which ever method is chosen a sufficient supply of free, clean air must be allowed to reach the heater at all times (36 sq. cm.) minimum.

### Note:

The reducer and 75mm ducting indicated on Fig. No. 4 and 5 can be purchased as an additional assembly (Part No. 6508) if required for a system using re-circulated air from the cabin. The maximum length of 60mm diameter duct on the air intake is limited to 1 metre, any additional length should be 75mm diameter duct.

Fig N°. 4

### Parts contained in 6508



Part N°	Description	Qty
10025	Ducting 76 APK (3")	2m
10029	Clip 3" - 3.25 Duct	2
10 2064 05 00 70	Clip 50-70 Duct 60mm	2
22 1000 01 00 06	Joiner Duct 75mm Plastic	1
25 1226 89 00 50	Adaptor 75-60 Plastic	1
131 31 051	Rivet Black	2

## (b) Hot air outlet

When fitting the ducting, plan for "runs" or "routes" to be as straight as possible, and avoiding areas where ducting could be crushed or damaged.

Attempt to locate the heater outlets in a position low down and close to the cabin floor. Ideally this should be in such a position that the air will move unobstructed along the cabin floor towards the forward end of the boat. In this way the maximum heating effect is achieved with minimal loss through hatchways. See Fig. N° 5 and 6.

Fig N°. 5

*AIRTRONIC D2* duct schematic marine 2 outlet

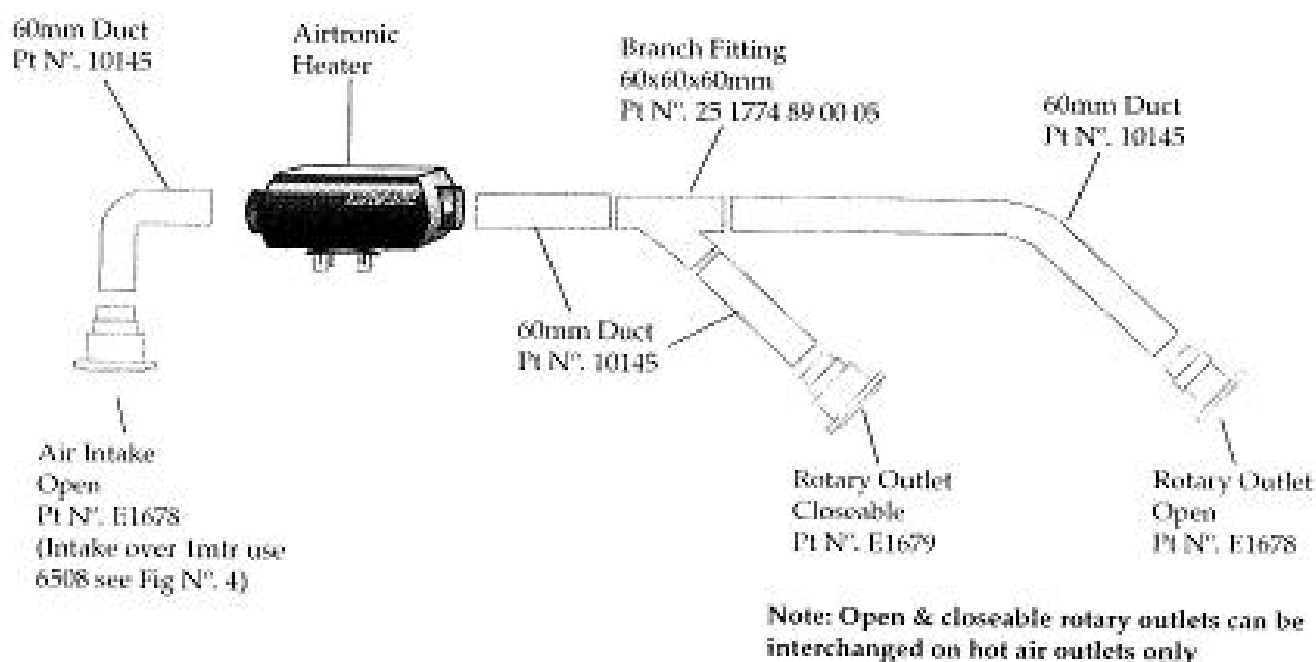
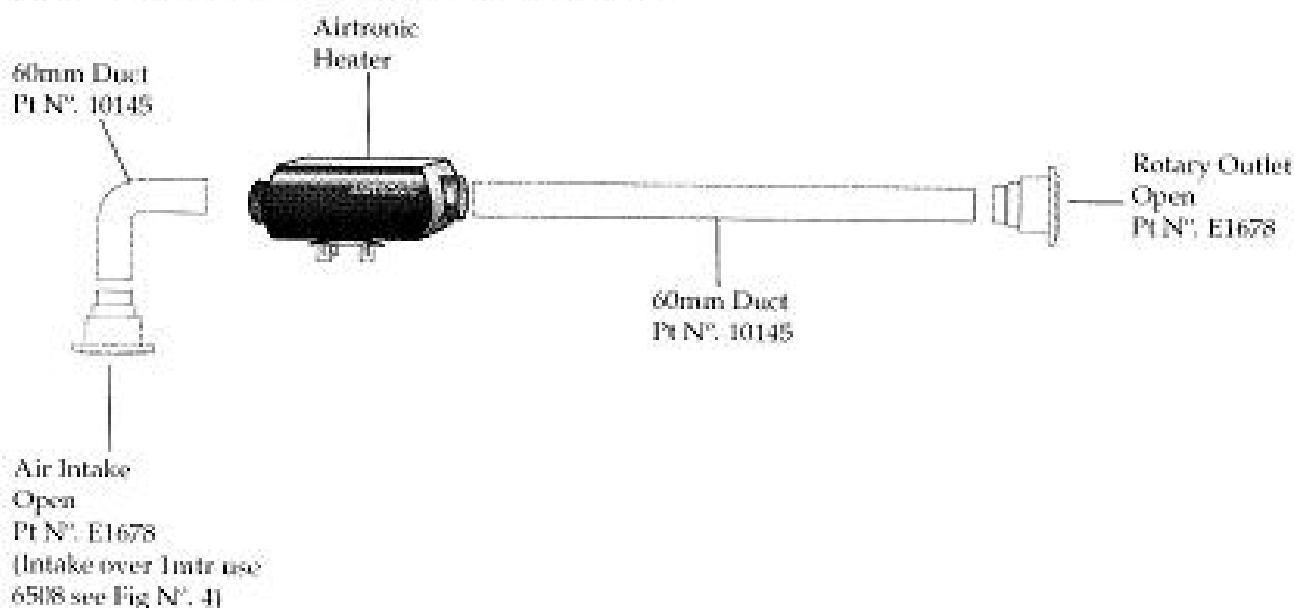


Fig N°. 6

*AIRTRONIC D2* duct schematic marine 1 outlet



## Exhaust

The exhaust passes through the centre spigot of the skin fitting. See Fig. N°. 7.

Mount the skin fitting in as dry an area as possible since the heater exhaust is a totally dry exhaust. The maximum length of exhaust allowed is 2 metre. The skin fitting must be installed on an outside vertical surface such as transom, hull side, coaming etc., and located so exhaust fumes cannot reach cabins or heater fresh air intake. The skin fitting must not be fitted to a deck or flat horizontal surface without the use of a deck stackpipe which is available as an optional extra from an approved Eberspächer dealer.

**Under no circumstances connect the heater exhaust to an engine exhaust or any other exhaust system.**

When routing the flexible exhaust tube between the hull fitting and the heater a swan neck should be incorporated immediately adjacent to the skin fitting. See Fig N°. 7

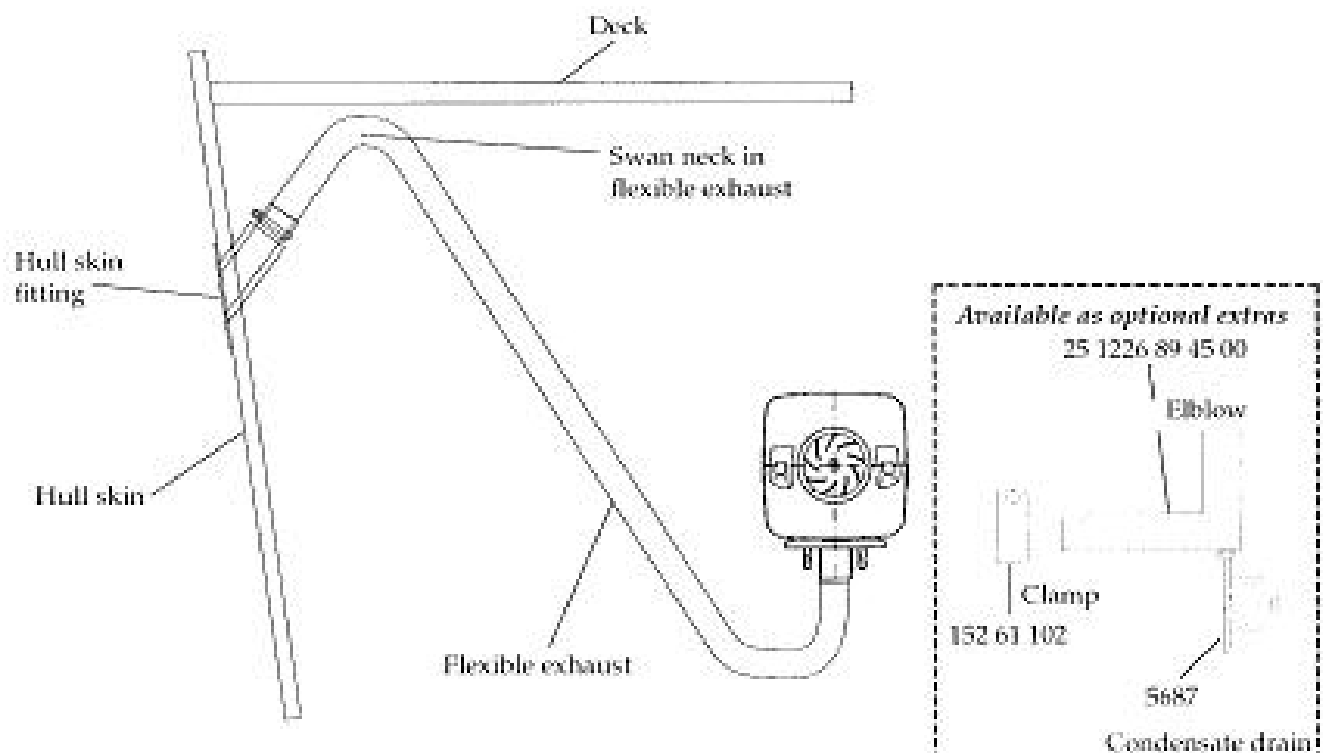
The 2 metre flexible exhaust supplied in the kit is pre-wrapped in a fibre glass woven sock and oversleeved with 50mm APK ducting. The exhaust is prepared to fit both the heater and exhaust skin fitting spigots along with two clamps for connection. Ensure these connections are tight and do not allow exhaust fumes to escape.

### Note:

Ensure that the exhaust does not come into contact with electric cables, fenders, pipes or fittings that could become damaged by any increased temperature.

It should not be necessary on many installations to change the length of exhaust since the 2 metre length is suitable for most applications. Should you require to shorten the exhaust for any reason please consult your nearest approved Eberspächer dealer.

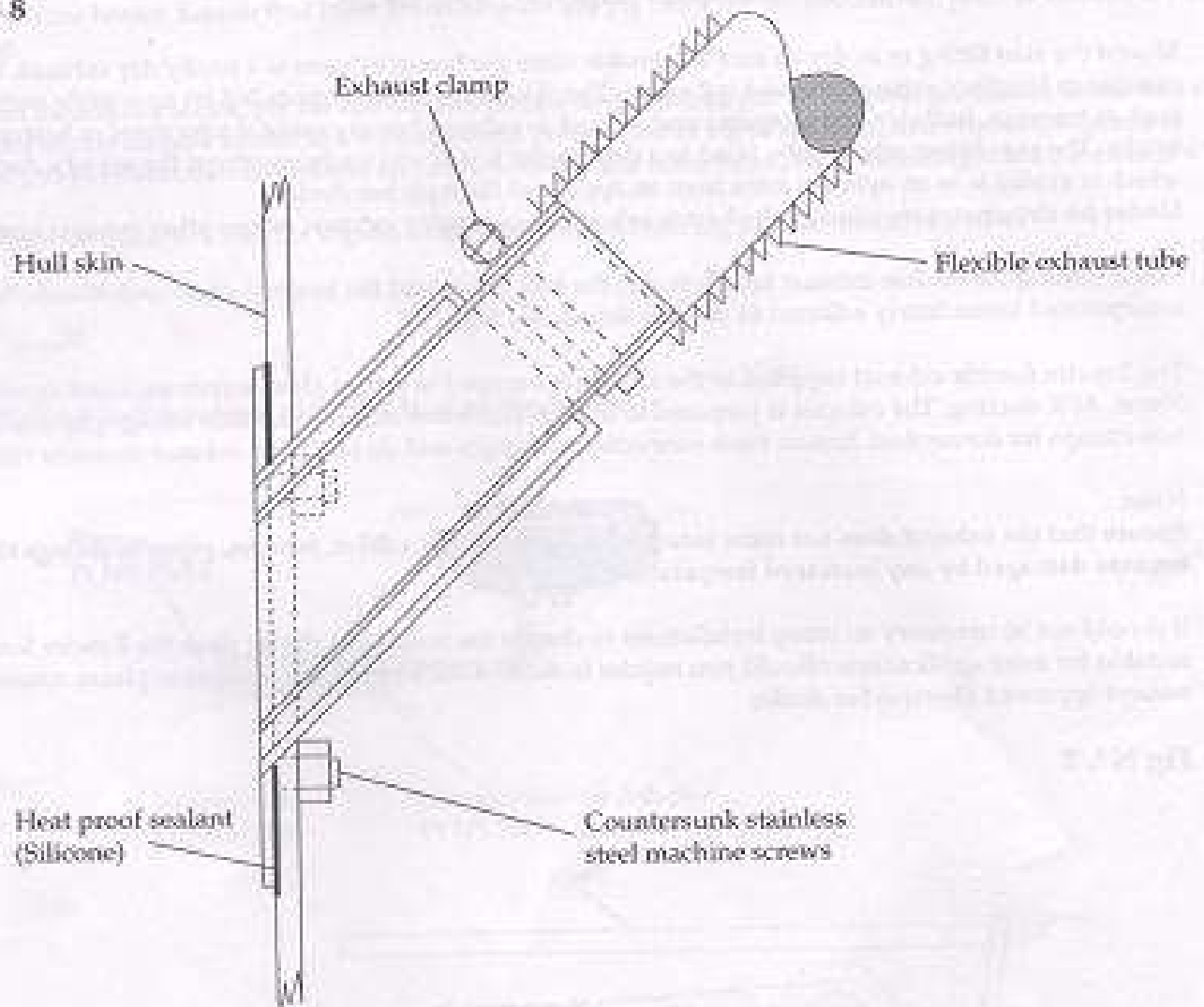
Fig N°. 7



If it is not possible to achieve an adequate swan neck on the exhaust, an exhaust elbow and drain should be fitted. (Note exhaust elbow and drain are not supplied in kit). Should you require to purchase an exhaust elbow, use the three part numbers detailed in the hatched box.

## Exhaust skin fitting

Fig. N°. 8



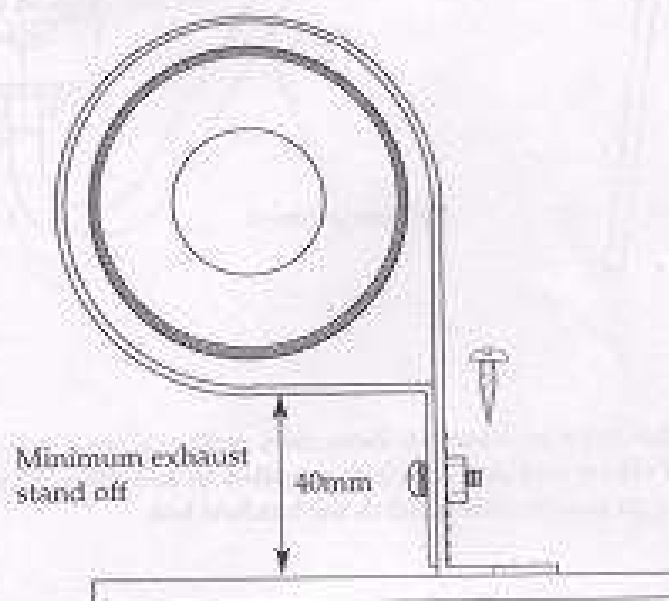
## Exhaust lagging and fitting

The exhaust pipe will become hot in operation, and if not protected will damage plastic pipes and cables. The standard silicone/fibre & APK sleeving supplied with the kit is sufficient to provide adequate insulation in most applications.

However, care should be taken to run and clip the exhaust in a way to avoid "touching" any pipes.

## Exhaust stand off clip

Fig N°. 9



## Combustion air

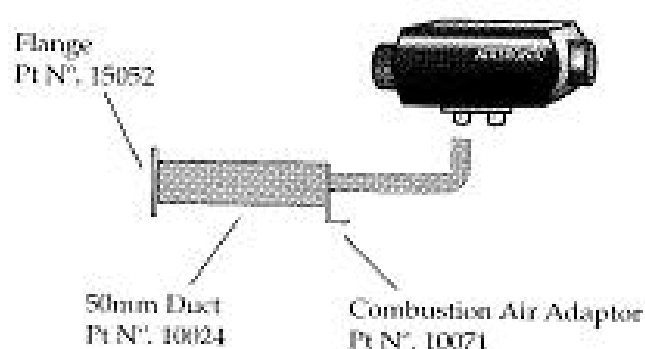
For combustion air, connect the black combustion air tube provided with the heater kit to the combustion air spigot on the heater. Ensure that there is an adequate supply of air for the combustion process where the heater is sited.

With an inadequate air supply for combustion the site area of the heater will require additional ventilation or the combustion air tube routed to a vented source. As detailed in Fig N°10. The parts required required to enable you to extend the combustion air are as detailed. The maximum permissible length is 2.0 metres (6'6")

Care must be taken to avoid the ingress of moisture or dirt entering the combustion air tube.

Fig N°. 10

### Extending combustion air tube to a vented source



### Parts available as optional extras (for extending the combustion air)

Flange	-	Part N° 15052
Duct	-	Part N° 10024
Adaptor	-	Part N° 10071

## Fuel system

The fuel kit supplied contains all necessary fuel lines and connections to enable a tank top fuel connection to be made. See Fig.N°. 11

Note:

If the boat is going to operate in N.R.A. waters a solid fuel system must be fitted.

A variety of methods are available to achieve connection to a fuel supply. If it is necessary to deviate from that supplied please consult your nearest Eberspächer dealer for other fuel options.

Note:

Do not adjust or interfere with the inlet or outlet ports of the fuel metering pump.

### Methods of connection

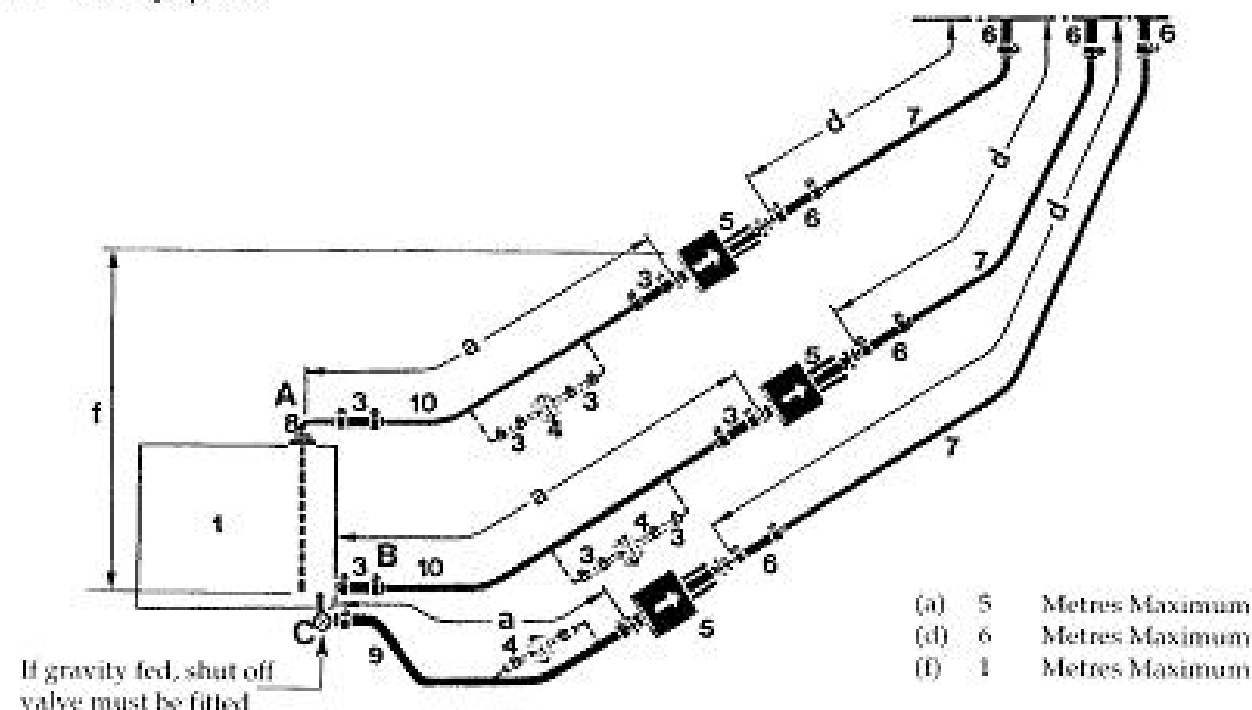
Fig. N°. 11 shows three methods of connection to the fuel tank:

- \* (A) Standpipe into the fuel tank
- (B) Gravity feed from fuel tank
- (C) Gravity feed from bottom of fuel tank

\* Method of connection supplied with heater kit

Fig. N°. 11

- 1 Tank
- 2 Fuel branch
- 3 Fuel tube, internal dia 5 mm
- 4 Fuel prefilter  
Cat. No. 25 1226 89 00 37, only necessary if fuel is contaminated
- 5 Fuel metering pump (15° to vertical, inclined upward)
- 6 Fuel tube, internal dia 3.5 mm
- 7 Fuel pipe, plastic, internal dia.1.5 mm
- 8 Tank connection, internal dia.2mm
- 9 Tube or plastic pipe max.internal dia. 5 mm)
- 10 Fuel Pipe plastic



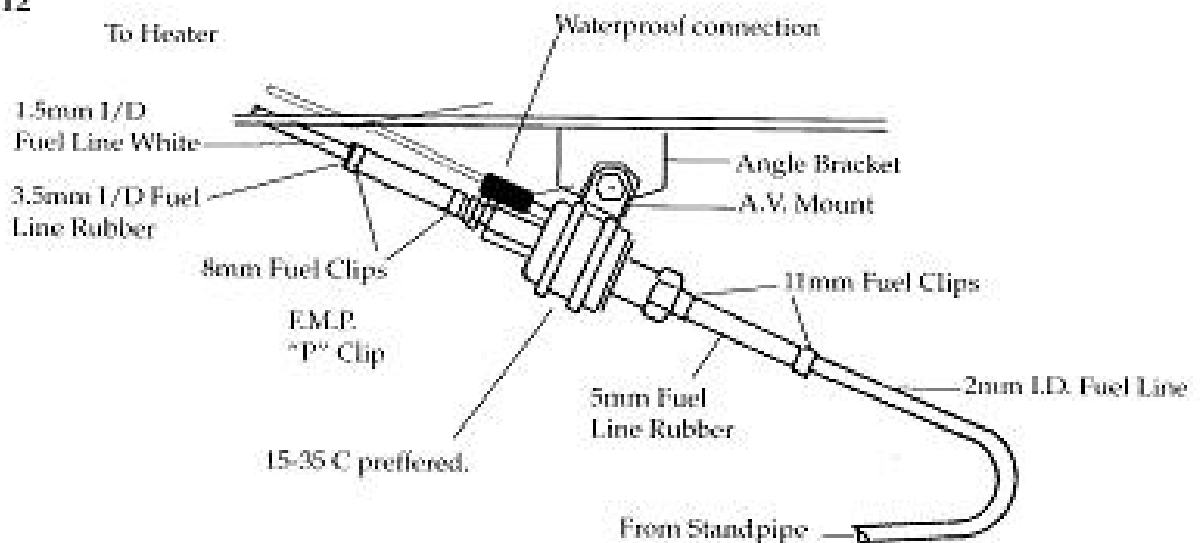
The diagram arrangement "A" with 2mm ID standpipe connection should be followed exactly to ensure that the fuel pump will prime the standpipe and fuel pump suction line, particularly maximum lifting capacity on the fuel inlet side to the fuel pump (dimension (f)) should not be exceeded.

Fig. N°. 12 shows how the fuel metering pump (E.M.P) is assembled and secured to floor bearer or similar.

Note:

1. The angle of the fuel pump 15-35 C preferred.
2. The water proof electrical connection is secure.
3. Fuel lines 1.5mm at top (output) 2mm at bottom (input)

Fig N°. 12

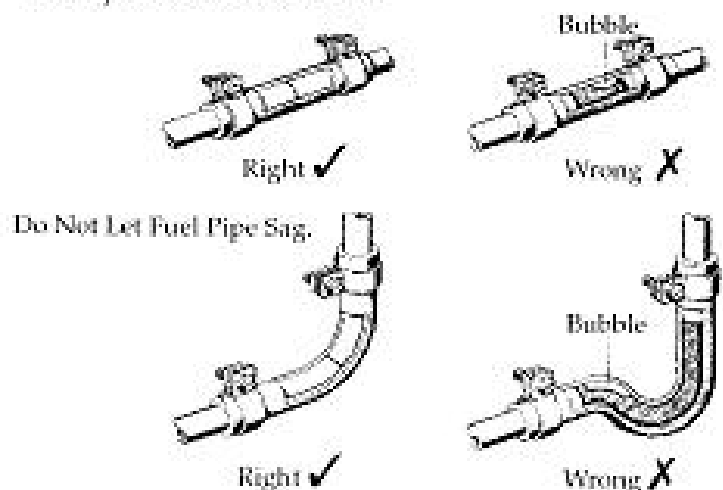


Notes:

- (1) If it is necessary to reduce the length of the standpipe (8) ensure that it is cut at 45 and at least 25mm from the bottom of the tank. (Note check that internal bore of standpipe is not blocked after cutting)
- (2) Do not reduce or increase the lengths of fuel line supplied without prior reference to an authorised dealer.
- (3) Changes in the supplied fuel arrangement \* (A) can result in the pump failing to deliver fuel to the heater.
- (4) Ensure that the run of the fuel lines are as simple as possible and protected against possible damage.
- (5) Keep the fuel lines clear of any hot components associated with the heater or engine.
- (6) Ensure that all fuel lines are secured in position and all joints are butted and secured by clips as Fig. N°. 13

Fig N°. 13

Fuel Pipe Sections Must Abut.



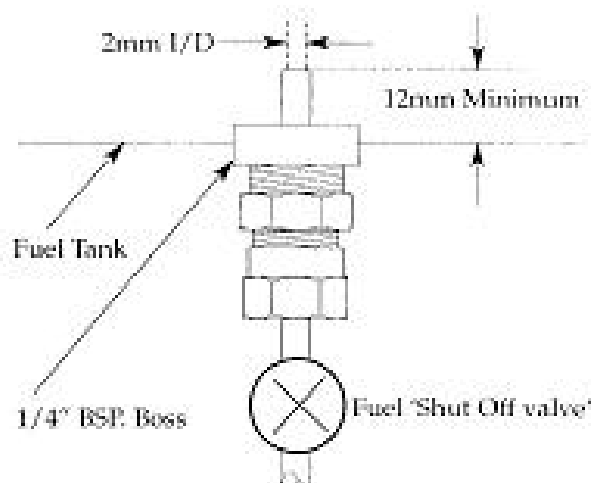
Should you require to shorten any of the fuel lines a sharp stanley knife or nylon pipe cutter (not sidecutters) should be used. After cutting check that the bore of the fuel line is not obstructed in any way.

#### Gravity feed from bottom of fuel tank and separate fuel tanks

When using a fuel connection from the bottom of the fuel tank it is necessary to ensure that the take off comprises of an upstand as Fig. N°. 14 to minimise the ingress of dirt etc into the fuel system.

Initial priming of the fuel system may require several starts of the heater as described under Operating Instructions.

Fig. N°. 14



## Electrical connections

The appropriate wiring diagram for the equipment is shown on Fig. N°. 16 and must be followed exactly. Note: Please ensure all electrical connections are coated with silicone grease or petroleum jelly (not provided in kit). Cable looms are supplied ready for connection with one way plugs to the equipment, but if extensions are necessary please contact your local dealer for advice.

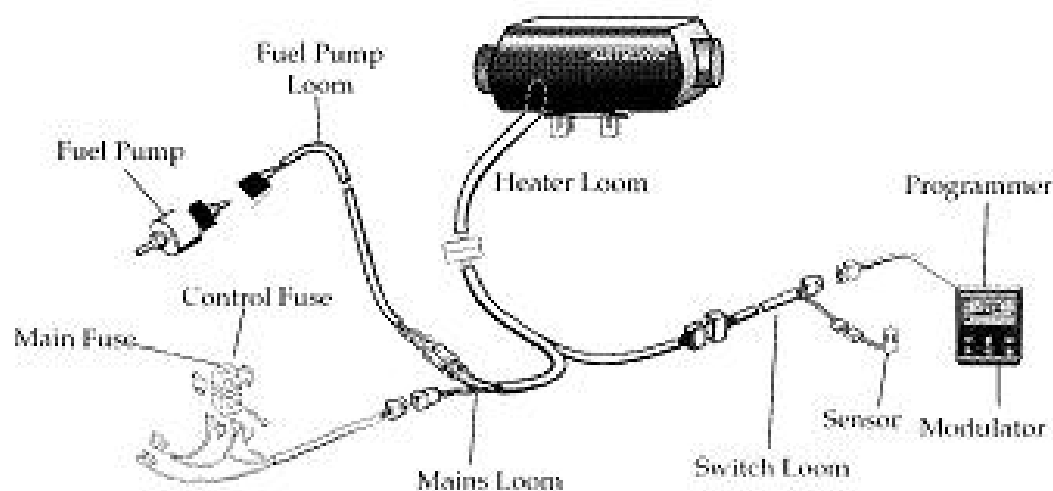
Ensure polarity is correct; that is connect RED cable to positive and BROWN or BLACK cable to negative at the battery or isolator, otherwise serious damage will result in the integrated control unit.

The heater will use up to 34 watts in normal running and around 100 watts for starting. It is important to ensure therefore that an adequate battery supply is available and one which will supply sufficient power for other electrical equipment on board and most important engine starting. If in any doubt please contact a Dealer who will recommend additional battery power as necessary and the appropriate connection required.

A main in line twin fuse 20/5A (Blade) 12v or 10/5A (Blade) 24v are provided and should be installed in the positive line. Fig. N°. 15 shows the looms supplied in the kit and their general arrangement.

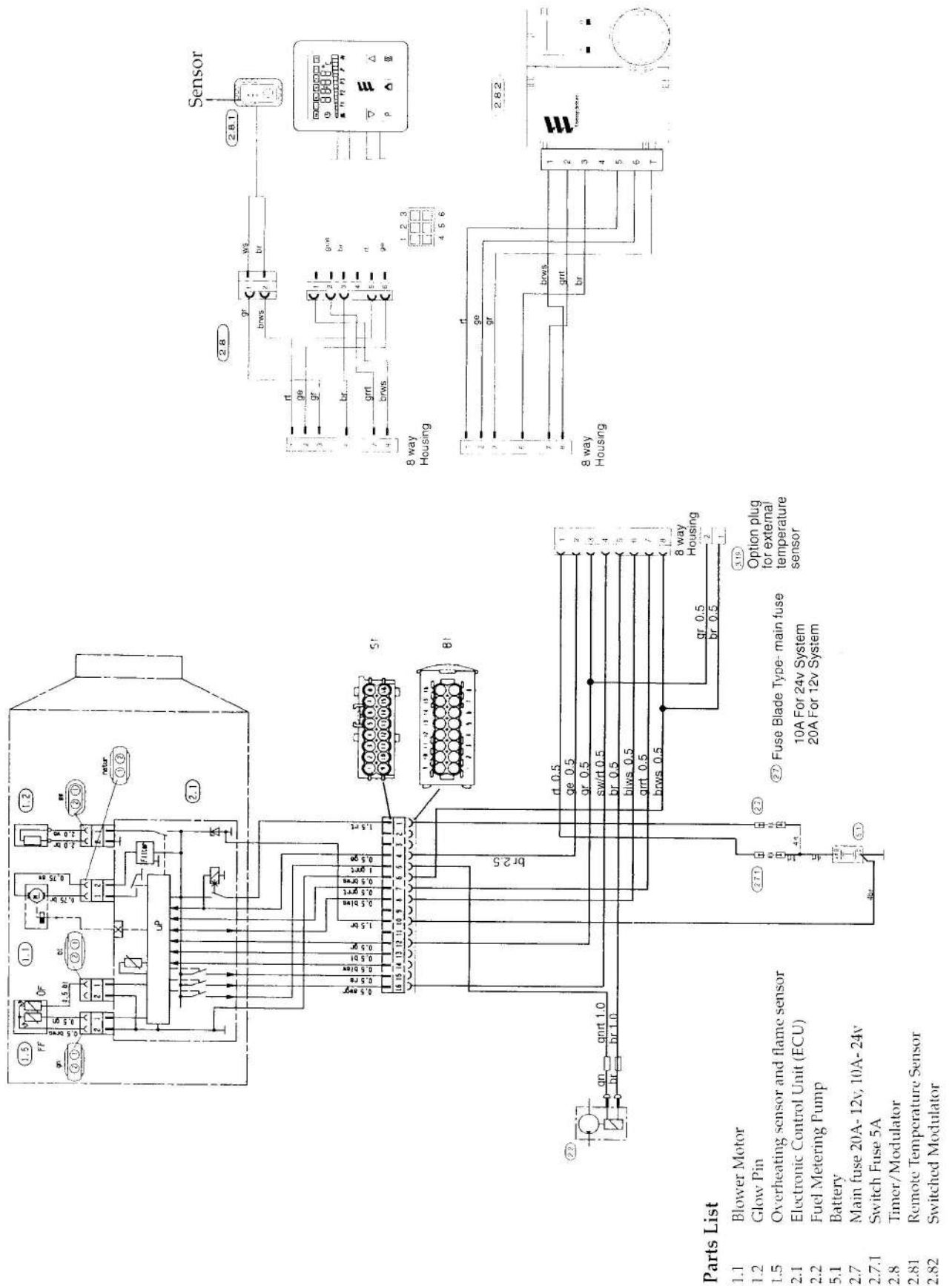
We recommend that the heater is wired to the power supply through an isolator switch in order for the equipment to be isolated when the boat is out of use. Please ensure that the heater has gone through its cool down cycle before operating the isolator switch. Failure to do so could result in serious damage.

Fig N° . 15





# Circuit Diagram - AIRTRONIC D2/D4



## Checks you should carry out prior to switching on, following the completion of the installation:

1. Check that the batteries are fully charged.
2. Check there is sufficient fuel in the fuel tank.
3. Check the mains supply for correct polarity RED - positive +,  
BLACK/BROWN negative -.
4. Check that the setting on the modulator is turned up to its highest setting.
5. Now switch on your heater.

## Service and maintenance

At least once a season and certainly at the start of a season check all electrical connections for good contact and absence of corrosion.

Check all ducting to ensure no sections are damaged and that the heater fan intake is unobstructed.

Check exhaust connection at heater and skin fitting to ensure no damage to exhaust or combustion air pipes.

Depending on usage, but certainly every third season or 2,000 hours running we recommend a dealer to be contacted for a service and de-coke of the heat exchanger and replacement of the integral fuel filter.

If the heater is swamped or takes in water, contact your nearest dealer as soon as possible.

### **Please Note:**

For live aboard applications your heater may need to be serviced/overhauled by an appointed Eberspächer dealer every 6 months depending on frequency of use.

## Terms of warranty

Your Eberspächer diesel heater is covered by warranty for 12 months from date of purchase. This is deemed to cover all parts with the exception of glow pins and fuses.

Following the heater installation & commissioning please complete the warranty control card with the requested information and return the relevant section to Eberspächer (UK) Ltd. for commencement of warranty.

Claims for warranty will not be accepted where failure is caused by faulty installation or where the installation fails to comply with the installation handbooks. Claims for warranty will not be accepted where the equipment has been subjected to external force, pressure or ingress of sea or rain water. Owners are requested not to attempt repairs. In the event of heater failure during the warranty period only authorised dealers should be contacted immediately.

Please note warranty is only accepted for parts failing due to faulty manufacture within a 12 month period which deems to exclude fair wear and tear.

### **Note:**

Owners fitting their own equipment are recommended to take advice on fitting aspects, if in any doubt. A list of dealers is provided.

## Eberspächer approved main dealers in the U.K. & Southern Ireland

### Scotland

Aberdeen	Turner Diesel Ltd	(01224) 723925
Edinburgh	Fulton Auto Electrics	(0131) 555 0396
Inverness	Caley Marine	(01463) 236539
Longman South	Lucas Service	(01463) 224855

### North East

Beverley	Yortec	(01904) 654513
Doncaster	Lucas Service	(01302) 342194
Grimsby	C F Parkinson	(01472) 358758
Rotherham	Sheffield Tachograph	(01709) 839 000/1
Sunderland	Thursby AES	(0191) 5658734
Thornaby	Auto Electrics	(01642) 607901
York	Yortec (York)	(01904) 654513

### North West

Carlisle	Cumbria AES	(01228) 531707
Manchester	A.E.S. Limited	(0161) 777 6262
Mirfield	Automotive Electrical Ltd	(01924) 495726/7
Preston	Ribblesdale	(01772) 555011

### Midlands

Birmingham	CLS Vehicle Systems	(0121) 440 1977
Coventry	Carwood	(024) 7644 9533
Derby	Derby AES	(01332) 203592
Ellesmere Port	Tachograph Chester	(0151) 3552101
Gloucester	Lucas Service	(01452) 524951
Gloucester	Prolec MTP	(01425) 508740
Hereford	Lucas Service	(01432) 267678
Mansfield	C F Parkinson	(01623) 625682
Newark	C F Parkinson	(01636) 672631
Northampton	Northampton Diesel	(01604) 755321
Nottingham	C F Parkinson	(0115) 9476624
Peterborough	C F Parkinson	(01733) 311222
Shropshire	CPC Auto Elec	(01952) 249 832
Stoke-on-Trent	H Bowers Ltd	(01782) 599990
Staffordshire	JD Boat Services	(01902) 791811
Tipton	Lucas Tipton	(0121) 557 9601

### East Anglia

Cambridge	Lucas Service	(01223) 315931
Colchester	Colchester Fuel Injection	(01206) 862049
Ipswich	Lucas Service	(01473) 215931
Norwich	Panks Auto Electrical	(01603) 629967

### Wales

Caernarfon	Lucas Service	(01286) 672888
Cardiff	Lucas Service	(0292) 022 8361
Cardiff	Tanner Electrics	(029) 2022 5580
Newtown	Grooms Industries	(01686) 626731
Swansea	Shorts	(01792) 469595

### South West

Bristol	Lucas Service	(0117) 9770772
Plymouth	HSW Services	(01752) 690039
Swindon	Masons	(01793) 752697
Taunton	Hickley Valtone	(01823) 276041
Yate	Halls Auto Electrical	(01454) 319722

### London and South

Brighton	Felton Marine Eng.	(01273) 601779
Erith	South Eastern AES	(01322) 342277
Guildford	Warsop & Co Ltd	(01483) 534222
Langley	Lunalectrics Ltd	(01753) 544118
Leighton Buzzard	AES Ltd	(01525) 372330
London	A23 Tacho Centre Ltd	0208 469 4033
Maidstone	South Eastern Auto	(01622) 690010
New Milton	Krueger	(01425) 619869
Portsmouth	Krueger	(01202) 718871
Reading	T.V.E.D.	(0118) 975 1199
Shepperton	M.M.S. (1981) LTD	(01932) 247427

### East England

Boston	C F Parkinson	(01205) 363008
Lincoln	C F Parkinson	(01522) 530176

### Southern Ireland

Dublin	Metalcove Marine Ltd	003531 6686046
Naas	Coldchain	(00353) 45874788
Eire	Ballinlough Refrigeration	(00 353 1) 6686046

### Northern Ireland

Belfast	John Robertson Belfast Ltd	(028) 9023 2066
County Antrim	C J Collins	(028) 9335 2556

### Channel Islands

Guernsey	Seaward Marine Ltd	(01481) 45353
St Helier	Express Electrix Ltd	(01534) 880660

## Eberspächer approved service stations in the U.K. & Southern Ireland

### Scotland

Dundee	Alans Auto Electrics	(01382) 646455
Galashiels	S. Munro Auto Electrics	(01896) 755726
Glasgow	Diesel Electric	(0141) 7712202
Perth	Reids Auto Electronics	(01738) 622416

### Midlands & North

Telford	A.E.S. (Telford) Ltd	(01952) 616135
Doncaster	Advanced Auto Electrics	(01302) 881999
Bolton	Auto S.I.D.E. Repairs Ltd	(01204) 61791
Worcester	Autostart	(01905) 29266
Tarporley	David Edge Ltd	(01829) 32295
Blossomgate	Ripon Auto Electrics	(01765) 602253
Skipton	Aire Valley Auto Electrics	(01756) 799583
Port St Mary	Castle Marine & Nav.	(01624) 835048

### East Anglia

Norwich	Brister Craft	(01603) 783783
Diss	Diss Autolec Services	(01379) 643461
Fakenham	Fakenham Auto Electrical	(01328) 851492
Ipswich	Securicor Vehicle Services	(01473) 210351
Swaffham	John Ball Commercials	(01760) 721987

### Wales

Newport	New Express Auto Elec.	(01633) 253079
Gwynedd	A M Dickie & Sons Ltd	(01248) 352775

### Ireland

Lisnaskea	Auto Electric Refrigeration	(01365) 721573
Londonderry	Glenbrook Autocare Serv.	(01504) 362495
Ballymena	James McNeill	(01266) 45186
Armagh	Cont. & British Trucks	(01861) 526393
Downpatrick	AC Auto Electric	(01396) 615479

### South West

Chard	Tytherleigh Vehicle Elec.	(01460) 64255
Cinderford	Jeff Harris Transport Ltd	(01594) 826157
Redruth	Scorrier Trucks Limited	(01209) 820820
Bristol	Tachograph Centre	(0117) 9820481

### London and South

Worthing	Auto Electrical Services	(01903) 211892
Flimwell	Mick Gould Commercials	(01580) 879333
Hailsham	Diplock Fuel Injection	(01323) 847282
London	Double Drive	(0181) 9688760
Dover	EVR Commercial	(01304) 203057
Reading	MacDonalds Electrics	(01734) 885698
Bletchley	Oxon Bucks Auto Elec.	(01908) 641205
Andover	Trim Truk	(01264) 334334
High Wycombe	Truck Techniks	(01240) 27568
Salisbury	The Tachograph Centre	(01722) 322004
Basingstoke	Basingstoke Commercials	(01256) 811414
Dover	Fleetcare (UK) Ltd	(01304) 240777
Grays	R & T Auto Electrics Ltd	(01375) 393065
Swansea	Paul Jones Engineering	(01792) 650006
Exeter	Electro Diesel (RCJ) Ltd	(01392) 460011
Market Drayton	Clark Services	(01630) 654214
London	E R E S Limited	(0181) 5041188
Bury St Edmund	Vehicle AC & Heating Serv.	(01284) 750400
Weston Super Mare	Dave Evans Auto Elec.	(01934) 642078

# Digital Timer Modulator With Diagnostic Readout Installation Instructions (701 Series)



Eberspächer

## Digital Timer Modulator

### Part Numbers:

701 10 103 AIRTRONIC D2/D4 heaters only  
With battery back-up,  
Diagnostic readout,  
Hour run meter

701 10 105 Non AIRTRONIC i.e. D5/8LC  
With battery back-up,  
Diagnostic readout,  
Hour run meter

## Installing the Digital Timer Modulator

- Cut out the template and position it.
- Drill the three holes  
Note: 34 mm Diameter hole is clearance size for the electrical plug.
- Fit the Digital Timer Modulator by gently pushing into mounting holes

## Connecting the Digital Timer Modulator

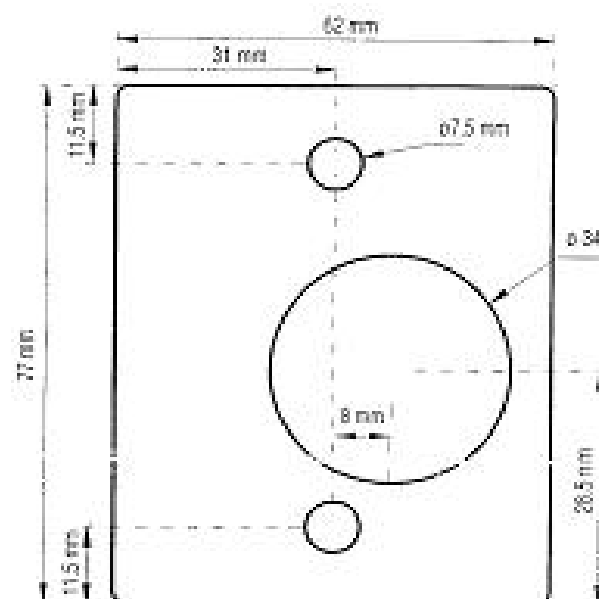
Connect the cables to the 6-way housing supplied with the Digital Timer Modulator as follows:

Red cable.....	connect to PIN 1
Yellow cable.....	connect to PIN 2
Brown cable.....	connect to PIN 3
Grey/Red cable.....	connect to PIN 4
Blue/White cable.....	connect to PIN 6

6-way housing  
looking from cable entry



Drilling template (up to 8mm thickness)



Drilling template for optional mounting plate  
Part no. 190122

