

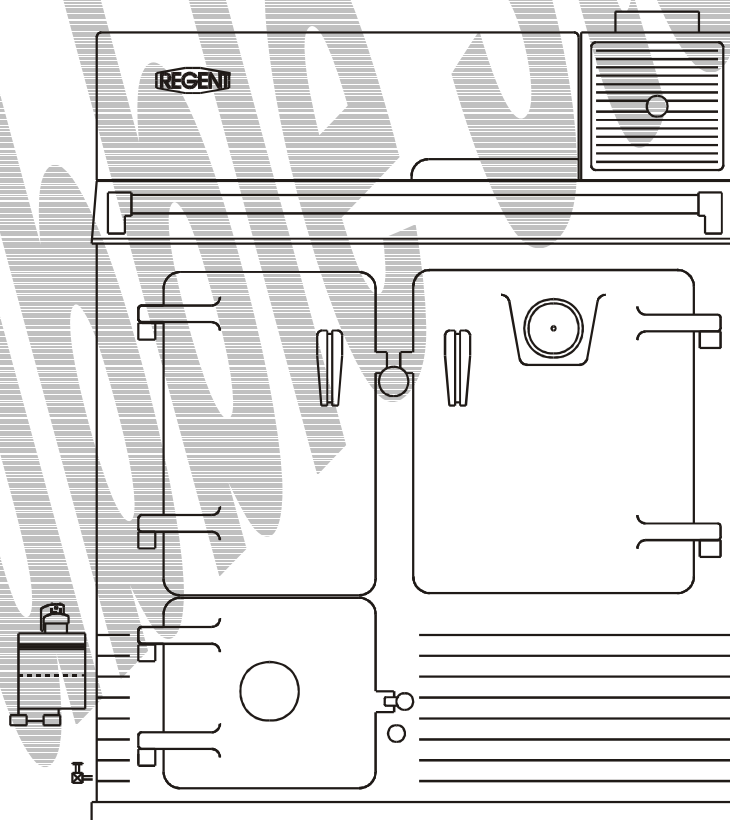


## MARINE FITTING ADDENDUM 06-06-05

VAP AND PJ CONVERSIONS AND PRE CONVERTED COOKERS

Rayburn Regent, Royal, M. F., Supreme and Nouvelle

For commissioning details, read in conjunction with the installation info.



<http://www.oilstoves.co.uk/>

## Contents

<b>1. Introduction.</b>	<b>4</b>
<b>2. Suitability for purpose.</b>	<b>4</b>
<b>3. Safety.</b>	<b>4</b>
Fumes	4
Fire.	4
Burns.	5
<b>4. Clearances from Combustibles.</b>	<b>5</b>
<b>5. Ventilation Requirement and Gross energy input.</b>	<b>6</b>
<b>6. Impact Resistance.</b>	<b>6</b>
<b>7. Chimney vap equipment.</b>	<b>6</b>
The height.	7
The diameter.	7
The temperature of the gasses in it.	7
The resistance of the inner surface of the flue pipe or pipes.	7
The chimney rules.	7
<b>8. Chimney pressure Jet equipment.</b>	<b>7</b>
<b>9. Fuel Supply Vap Equipment.</b>	<b>8</b>
Preamble.	8
Waxing.	8
Trim.	8
Tank.	8
Oil line. Fig 4	9
Water contamination.	9
Remote sensing firevalve.	9
Isolation valves. Fig 4	9
Sleeving. Fig 4	10
<b>9a. Fuel Supply PJ Equipment.</b>	<b>10</b>
Installation of Oil Line Vap	10
<b>9B. Installation of Gravity Plumbing Vap</b>	<b>11</b>
<b>9c. Installation of Pumped Plumbing vap and PJ</b>	<b>11</b>
<b>9d. Appliances with 252 AY ships valves</b>	<b>11</b>
<b>9e Commissioning</b>	<b>12</b>
<b>10. Health and Safety.</b>	<b>12</b>

Control of Substances. \_\_\_\_\_ 12

**11. Applicable Regulations. \_\_\_\_\_ 12**

    Building Regulations. \_\_\_\_\_ 12

    Electrical Regulation. \_\_\_\_\_ 12

    BS5410 Oil Fired Space Heaters. \_\_\_\_\_ 12

    BS5449 Central Heating. \_\_\_\_\_ 13

    BS6461 Pts 1 & 2 1984. \_\_\_\_\_ 13

    BS7566 Parts 1 to 4. \_\_\_\_\_ 13

    OFTEC Regulations. \_\_\_\_\_ 13

    Boat Safety Scheme Regulations \_\_\_\_\_ 13

**12. Amendments List. \_\_\_\_\_ 13**

## **1. INTRODUCTION.**

The fitting of oil fired conversion kits and pre converted appliances into marine environments should only be undertaken by suitably experienced persons.

In addition to our standard instructions we provide the following guidance to ensure that products are safely and correctly installed.

*(Marine means inland waterways vessels)*

## **2. SUITABILITY FOR PURPOSE.**

Before any pre converted appliance or conversion can be used in a marine environment, suitable instructions must be provided.

To ensure that the installation complies with relevant regulations and is safe to use, extra consideration must be given to a variety of additional problems.

Our cookers and conversions have been tested in our factory to ensure that they will work adequately within marine environments.

## **3. SAFETY.**

Take care to make sure that safety and ventilation issues are adequately addressed.

### **FUMES**

Here are the main causes of fume or smoke to leak from the appliance.

- The chimney is blocked.
- There are too many bends in the chimney.
- The above deck chimney extension is not high enough.
- The boat is moored in a position near to high buildings or trees and draughting is occurring.
- The chimney is not airtight.

### **FIRE.**

Fire can be caused by a variety of potential danger points and because of the space limitation on boats; this risk is ever present and must be adequately assessed.

The main danger is the effects of heat from the appliance on combustible materials and boat occupants.

Make sure that all combustibles are adequately protected from the effects of heat radiation.

The appliance must stand on a firm fireproof base of minimum thickness 15mm.

Floors in front of the appliance must have suitable fire protection, 100mm fireproof hearth required.

#### **BURNS.**

During normal, day-to-day use, many parts of the appliance, pipe work, and chimney can become too hot to touch.

Where necessary, we recommend that suitable guards be fitted, to provide adequate protection from the heat generated by the appliance.

#### **Fireguards must comply with BS6539.**

Always use heatproof gloves when working on or near to a hot appliance.

#### **4. CLEARANCES FROM COMBUSTIBLES.**

Combustibles must be a minimum distance of:-

##### **Above**

600mm above the top of the appliance (vertical clearance)

##### **In Front**

300mm in front of the appliance (horizontal)

##### **Side**

25mm to the side of the appliance.

##### **Base**

The appliance must stand on a firm fireproof base of minimum thickness 15mm.

##### **Rear**

The appliance must have a 10mm fireproof board behind it and stand on a fireproof hearth.

**Where these clearances can't be achieved, fireproof boards of appropriate thickness must be used.**

##### **Flue**

Where flue pipes pass through the roof of the boat adequate protection must be provided.

Clearances from the outer dia of flue pipes must be 150mm.

*See our deck flange kit for an example of adequate protection.*

*Flue pipe heat shields are available from sales desk.*

A suitable heat shield or fireproof boards must protect any combustible material within these distances from the appliance.

Protection can be gained by the use of -:

- Sheet metal heat shields and spacers.
- Heat resistant boards of appropriate thickness.

**Combustible materials can be-:**

- Wooden furniture.
- Curtains.
- Wooden panels or frames adjacent to the flue pipe or where it passes through the deck of the boat.
- Wooden fitted kitchen side panels or frames adjacent to the appliance.
- Carpet or flooring close to the appliance.
- Items near to the appliance, which could fall onto it and ignite, should the boat suffer a slight impact.

## **5. VENTILATION REQUIREMENTS AND GROSS ENERGY INPUT.**

Ventilation plays a vital role in the fitting and sighting of any appliance.

**The gross energy input of this appliance is 9.6 kW**

**A minimum free air inlet of 25cm sq. (non hit or miss) must be provided for this appliance.**

The provision of ventilation is also adequately covered by the requirements of the boat safety scheme.

## **6. IMPACT RESISTANCE.**

The appliance must be securely bolted down so that it can resist impact or collision and it must be level in both directions.

## **7. CHIMNEY VAP EQUIPMENT.**

**Vaporising Equipment.**

For vaporising conversions and pre converted vaporising cookers, this is the one of the most interesting problems the installer has to deal with and as the chimney affects most aspects of running the appliance, we take time here to list the following information for your consideration.

The power, (*suck or vacuum the chimney can develop*) depends upon the following-:

**THE HEIGHT.**

**THE DIAMETER.**

**THE TEMPERATURE OF THE GASSES IN IT.**

**THE RESISTANCE OF THE INNER SURFACE OF THE FLUE PIPE OR PIPES.**

It is obvious that on a boat all the above elements are in short supply.

Normally, we have low flues which are small in diameter and generally not very well insulated, coupled with all these problems we have another one, which is that the boat moves across constantly changing surroundings, through locks, into headwinds and crosswinds, all creating major opportunity for down draughting to occur.

Any bend in any part of the chimney or roughness on the internal chimney wall will slow down the velocity of rising gases and reduce the effectiveness of the chimney.

Any slight reduction in the flue gas temperature will reduce the chimney vacuum or pull, hence when the appliance is slowed down for all night burning, as the flue gas cools down the chimney vacuum reduces and as the chimney vacuum drops, the appliance may well start to burn sooty. This problem is highlighted even more during very cold weather when the chimney can cool down even faster.

**THE CHIMNEY RULES.**

1. Always use a top outlet for flue pipe take off.
2. Never put any bends in the flue. (*To maintain a concentric fit, we will allow a slight kick off the appliance and a similar kick into the deck flange.*)
3. Always try to get the appliance as low as possible in the boat, this will allow installation of maximum length flue pipe.
4. Always have two double walled, above deck extensions, short for cruising and long (28inch minimum) for mooring. Insulated extensions are a thing of the future but it is possible to fill the space using a vermiculite and cement mix sealed off with flexible fire putty.
5. Fit a rotary swinging cowl to each extension or make one interchangeable.
6. Clean or have the chimney cleaned regularly. (Frequency depends upon type of fuel and length of time used).

**Don't phone in and ask for dispensations on the rules.**

**8. CHIMNEY PRESSURE JET EQUIPMENT.**

On pressure jet burners air for combustion is provided by a powerful fan wheel, which tends to blow the products of combustion up the chimney.

## **9. FUEL SUPPLY VAP EQUIPMENT.**

### **PREAMBLE.**

Suitable oil control valves must be used for Marine applications, appropriate valves are provided with our equipment and the relative booklet will be enclosed in the literature pack provided with the product.

There are several problems relating to diesel fuel supply on marine applications, which need be adequately addressed.

### **WAXING.**

Cold weather waxing or thickening alters the flow characteristics of diesel.

An adequate fuel feed supply can rapidly turn into an inadequate one when the temperature starts to fall.

The worst scenario is fuel feed pipe 50-60 feet long in 8mm dia pipe.

The best-case scenario is a fuel pipe 4 feet long in 10mm dia with insulated lagging.

### **TRIM.**

A minimum pressure head of 8" is required.

This head is measured from the base of the oil tank to the top of the oil control valve. In some cases this head can be affected by the ballast or trim of the boat.

Take great care to try out all the different ballast and trim possibilities to make sure that adequate oil feed is always available at the outlet end of the fuel pipe before it enters the oil control valve at the appliance.

### **TANK.**

If the appliance is fitted at the bow of the boat, a bow tank is recommended.

The tank should comply with the requirements of the boat safety scheme and have-:

- A conveniently sized filler
- A means of venting.
- A conveniently located, easily visible, contents gauge.
- An isolation valve
- An easily replaceable cartridge filter.

Do not use glass filter bowls, they are not acceptable under the boat safety scheme.

Always add a suitable proprietary antifreeze additive to the appliance fuel for wintertime running.



#### **OIL LINE. FIG 4**

The oil feed line starts after the fuel filter and proceeds to the point of entry, which is where the oil line goes into the cab or saloon of the boat.

*Where oil lines go through bulkheads, use correct bulkhead fittings.*

*The diameter of the oil line is dependant upon the length of run.*

At this point it is necessary to fit a remote sensing fire valve, designed to shut off the oil supply, should a fire occur near to the appliance.

If the appliance is fitted up to the first bulkhead it will be necessary to fit the isolation valve outside the cabin or saloon of the boat.

#### **WATER CONTAMINATION.**

Because of the high risk of fuel contamination with water, we strongly recommend the fitting of a high volume water trap in the oil supply line.

#### **REMOTE SENSING FIREVALVE.**

The fire valve has a capillary tube on the end of which is a temperature sensitive phial, run the capillary tube with the oil line up to the appliance and carefully fit the sensing phial 15mm pipe clips close to the oil valve.

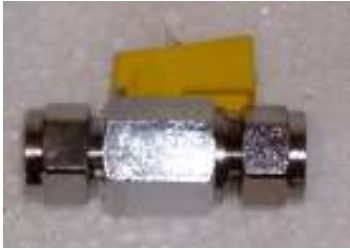


When fitting the fire valve make sure that where the capillary and oil line go through the bulkhead in separate sleeved tubes, so that the capillary can be withdrawn separately should it ever need replacing.

*For fitting of long oil feed lines which pass through bulkheads and various other parts of the boat it may well be necessary to fit more than one fire valve, especially where the oil line passes through an area where a fire could occur i.e. kitchen area etc.*

#### **ISOLATION VALVES. FIG 4**

Two isolation valves are required, one fitted directly into the oil control valve to allow you or the service man to turn the oil off should the need arise, and one on the oil tank fitted before the filter.



**SLEEVING. FIG 4**

Where the oil line goes through panels, a suitable sleeve must be fitted and sealed with a suitable sealant.

**9A. FUEL SUPPLY PJ EQUIPMENT.**

Oil supply to pressure jet burners can be via 8 or 10 mm pipe; the diameter will depend upon the length of run.

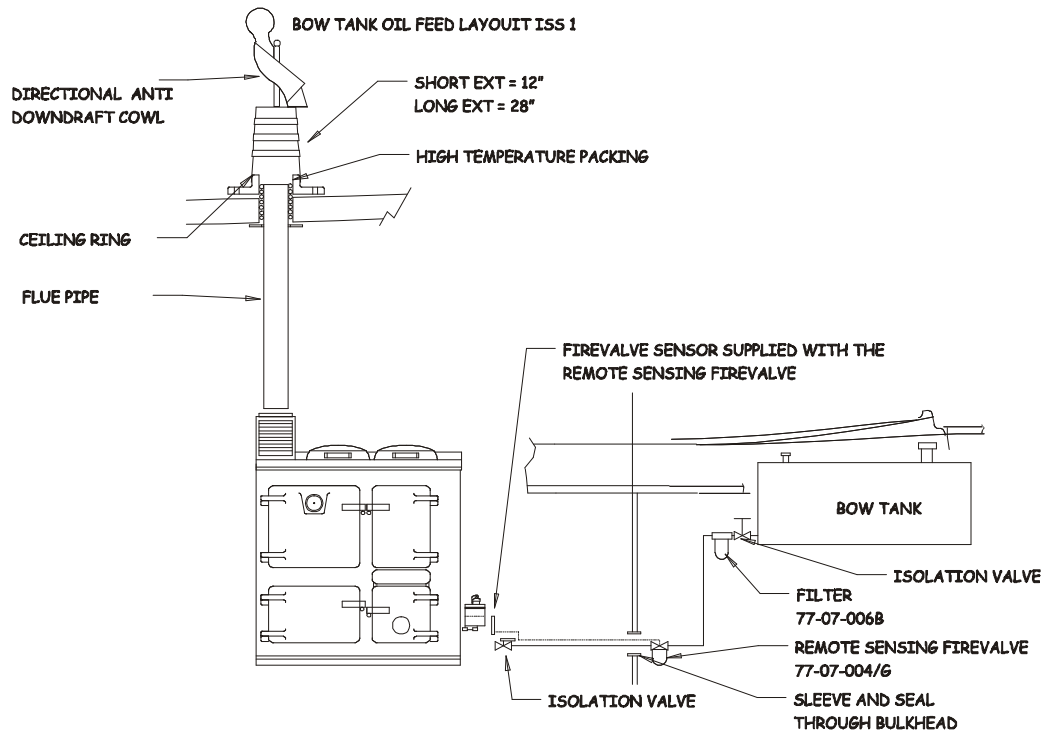
The oil supply must take the same format as for vap appliances.

Oil feed hoses used in the system must comply with ISO 7840

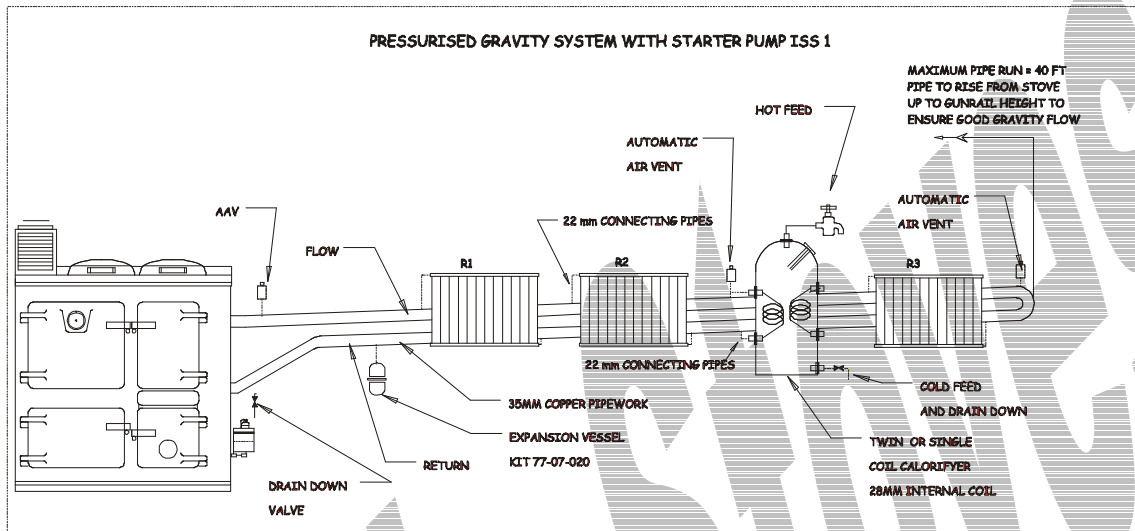
Note

Flexi hoses must not be used on Vap appliances and conversions.

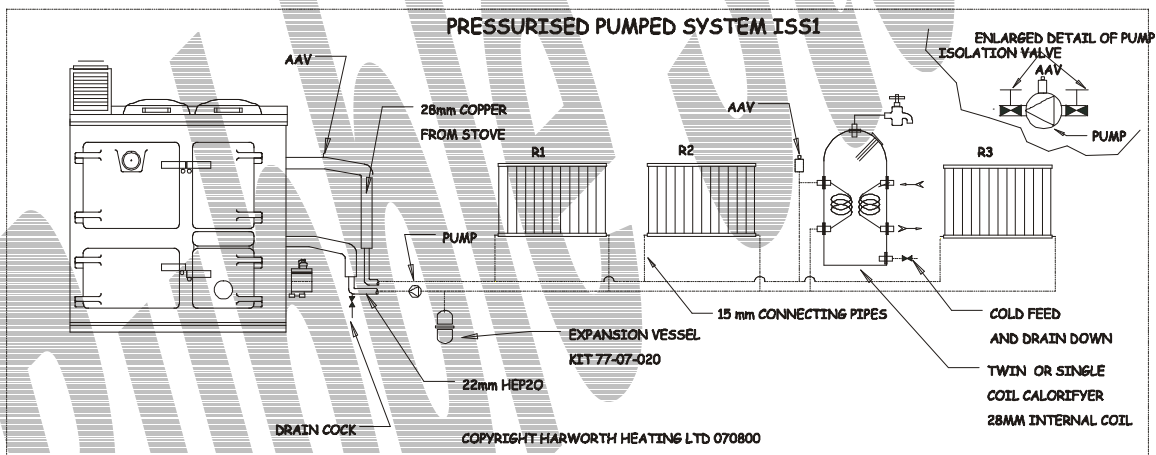
**INSTALLATION OF OIL LINE VAP**



## 9B. INSTALLATION OF GRAVITY PLUMBING VAP



## 9C. INSTALLATION OF PUMPED PLUMBING VAP AND PJ



## 9D. APPLIANCES WITH 252 AY SHIPS VALVES

Appliances with 252 AY ships valves fitted must have an additional 90 deg C remote sensing fire valve fitted to act as an over boil protection device.

The valve sensor must be fitted onto the hot water out pipe and the valve body as close as possible to the oil control valve.

This is necessary because the 252 AY valve does not have an auto thermostat.

Available from our sales office.

Oil line kits - Plumbing kits - Calorifiers - Pressure systems - Circulating pumps - Chimney systems.

## **9E COMMISSIONING**

Make sure that the high and low fire settings are correctly adjusted in line with our commissioning procedure.

## **10. HEALTH AND SAFETY.**

### **CONTROL OF SUBSTANCES.**

Take great care when handling materials such as insulation boards, glass fibre ropes, ceramic wool, artificial fuel, kerosene and diesel oil, they are all irritants and suitable protective clothing such as disposable gloves dust masks and protective goggles should be worn.

Wash off thoroughly after handling any of these materials.

Carefully dispose of redundant or surplus materials and always vac up after service or installation work.

### **11. APPLICABLE REGULATIONS.**

The installation of oil fired BUBBLE © equipment must be carried out by an experienced, technically competent person.

The competent person must be capable of installing, commissioning and servicing to the current requirements of all the relevant statutory regulations.

### **BUILDING REGULATIONS.**

In England and Wales these are J 1-2-3 Provision for introduction of air supply and discharge of products of combustion. Provision for protection against fire and heat.

In Scotland Part F sec 3.

In Northern Ireland Part L. In Ireland Part J.

### **ELECTRICAL REGULATION.**

British IEEE wiring regulations, latest edition.

Codes of practice which apply in the UK are -:

### **BS5410 OIL FIRED SPACE HEATERS.**

Installation of oil fired space heating and hot water supply Part 1, boilers of rated output not exceeding 44kW

### **BS4543 CHIMNEY SPECIFICATIONS.**

Specification for chimney for oil fired s. Part3.

**BS5449 CENTRAL HEATING.**

Central heating for domestic premises Part 1 Forced circulation hot water systems.

**BS 5601 BS8303.**

**BS6461 Pts 1 & 2 1984.**

**BS7566 PARTS 1 TO 4.**

**OFTEC REGULATIONS.**

Installers must have successfully completed OFTEC courses, OFT101 and OFT105.

**BOAT SAFETY SCHEME REGULATIONS**

Failure to comply with the relevant requirements listed above can be hazardous and could lead to prosecution under the law.

If you have any difficulties please phone our sales department on

PHONE 01302 742520. (3 lines.)

FAX 01302 750573

Email [sales@oilstoves.co.uk](mailto:sales@oilstoves.co.uk)

Web site [www.oilstoves.co.uk](http://www.oilstoves.co.uk)

**12. AMENDMENTS LIST.**

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