

## CHAPTER 6

### INFLATED BOATS (NON SOLAS BOATS)

#### 6.1 General

The statutory requirements for inflated boats (also commonly known as a DOTI boat) are contained in Parts 1 and 3 of Schedule 3 of MSN 1676(M). Such boats are acceptable as suitable for carriage as a boat on ships of Classes III to VIA and XI.

##### 6.1.1 Submissions

6.1.1.1 A formal application for consideration of each design of inflated boat should be submitted to the Nominated Body for acceptance. This submission should include fully detailed plans and specifications for construction, methods of inflation, fabrics, mouldings, adhesives and equipment.

6.1.1.2 Due account of the motor should be taken at the design stage and the details and plans submitted should include details of:

- (i) Maximum power and weight of engine for which the boat has been designed.
- (ii) Arrangements for securing engine, fuel tank and piping.
- (iii) Stowage of fire extinguisher.

6.1.1.3 A prototype inflatable boat should be tested as required by Chapter 3, Section 1 of Volume 2 - Testing of Life-Saving Appliances and the results of the tests submitted to the Nominated Body. On completion a set of "as fitted" plans should be forwarded to the Nominated Body for record purposes.

6.1.1.4 Boats built subsequently to the same design need not be subjected to prototype testing provided that the material and workmanship are satisfactory and the production and installation tests listed in Chapter 3, Sections 2 and 3 of Volume 2 are completed satisfactorily.

##### 6.1.2 Certification

A Certificate of Manufacture should be issued for each boat on completion certifying that it complies fully with the drawings and specifications accepted by the Nominated Body. For this purpose the constructional drawings and specifications together with all items of equipment should be embodied and identified by a number in a Master Record Index (MRI) or Schedule held by the Nominated Body. Reference to this number will then imply compliance with all the details contained in the documents listed on it. Manufacturers should take care that the Master

Record Index or Schedule submitted for acceptance contains details of all alternative arrangements which are permitted or which it may be desired to supply as optional extras.

### 6.1.3 Thwarts or seats

6.1.3.1 At least one thwart or seat must be fitted so that the boat can be rowed satisfactorily. It may be of wood, or any other suitable material, or an inflatable tube. Thwarts and seats should be portable and suitable arrangements made to secure them in the boat. Inflatable thwarts or seats should have their own inflation systems and their material and construction should be to the same standards as buoyancy chambers.

6.1.3.2 Timber, if used, should be in accordance with Appendix C.

6.1.3.3 Any attachments to the buoyancy tubes should be such that they do not impair the pressure tightness of the whole system.

### 6.1.4 Floors

The outer floor (or bottom) should be secured to the main buoyancy chamber at or about the level of the underside of the chamber. Special attention should be made to the attachment of the floor to the buoyancy chamber to ensure that the resulting joint is watertight and that the floor does not part from the buoyancy tube under loads and strains placed on it in service. An inner floor (or bottom) should be provided to give an efficient working platform. Timber, if used, should be in accordance with Appendix C. Means should be provided for securing the inner floor to the boat and suitable protection provided, particularly at the edges of the floor, to prevent chafing or damage to the boat fabric. Suitable rowing stretchers or equivalent should be fitted to facilitate rowing. A floor combining the performance requirements of the outer and inner floors is acceptable as an alternative.

### 6.1.5 Transom

6.1.5.1 A transom, which must not be inset more than 20% of the overall length of the boat from the extreme after end, must be fitted and, unless the craft is to be propelled by an inboard engine should be of adequate strength for the mounting of an outboard engine and, if of timber, it should be in accordance with Appendix C.

6.1.5.2 Particular care should be taken to form an efficient bond between the material of the transom and the fabric of the boat to ensure a watertight joint of sufficient strength to withstand the loads it will encounter in service, bearing in mind that the boat must be able to tow the largest life-raft carried on the ship when loaded with its full complement of persons and equipment at a speed of at least 2 knots.

6.1.5.3 Drainage arrangements should be fitted to the transom and should be such as to preclude accidental flooding of the boat. With the draining arrangements open and in the operating position the boat should be self draining when under engine power.

#### 6.1.6 Internal grablines

Internal grablines must be fitted round the inside perimeter of all boats and should be not less than 8 mm diameter. If these lines are less than 12 mm diameter they should be fitted with suitable handgrips.

#### 6.1.7 External grablines

6.1.7.1 External grablines must be secured round the outside of the boat. The grablines should form suitable handholds for persons in the water, each loop reaching within 76 mm of the water line in the loaded condition.

6.1.7.2 These grablines should be of webbing of not less than 25 mm width or of cordage of not less than 8 mm diameter. Lines of less than 12 mm diameter must be fitted with suitable handholds.

#### 6.1.8 Righting arrangements

The boat when floating should be capable of being readily righted from the inverted position by not more than two persons. A sufficient number of handholds or strops in suitable positions must be provided for this purpose.

#### 6.1.9 Protective stowage cover

These boats should be kept covered at all times to protect them, particularly their buoyancy tubes, from funnel deposits such as sparks. The position of the boats and their stowage arrangements will vary from ship to ship it is considered that each cover should be individually made. Shipowners and shipbuilders fitting one of these boats should be advised that the cover supported by a lightweight frame or wires to allow the drainage of spray and rain-water should protect the whole of the boat. The cover may be of canvas, synthetic hatch tarpaulin material, accepted lifeboat exposure cover material, or other similar material, and should be arranged for quick release and removal in an emergency. The arrangement should be to the satisfaction of the surveyor.

## 6.2 Inflation systems

### 6.2.1 Submissions

Many of the components dealt with under this heading will in general be obtained by the boat manufacturer from a supplier of this type of equipment, and covering acceptance can be issued by the Nominated or Notified Body to the equipment manufacturer for such items. In these cases the boat manufacturer should specify the component, its manufacturer and his reference number for it in his submissions (see paragraph 6.1.1) for each design of boat submitted for acceptance. Full information on designs of new components for inflation systems should be submitted to the Nominated Body who will notify the manufacturer of any trials and tests to be carried out before acceptance can be granted.

### 6.2.2 General

6.2.2.1 Arrangements should be made for the boat to be inflated manually. Additional arrangements for inflation by gas or compressed air are acceptable provided that the manual inflation arrangements are unimpaired.

6.2.2.2 All sharp edges which are liable to damage the fabric should be eliminated from the design of the inflation system, and all the material used should be adequately protected against corrosion.

6.2.2.3 The design of the inflated chambers, and the working pressure of the gas or air inside the tubes, should be such as to maintain the proper form and function of the inflated chambers, and prevent breakdown of the fabric through buckling of the tubes caused by the motion of the boat in a seaway.

6.2.2.4 The boat should be capable of operating satisfactorily with the fluctuations in pressure brought about by temperature variation.

### 6.2.3 Gas

If gas is used for inflation it should be inert and non-toxic such as carbon dioxide. The inflation arrangements should be such that high pressure air or gas cannot be released into the chambers in such a way as to cause damage to the fabric.

### 6.2.4 Valves

6.2.4.1 A non-return valve must be fitted to each chamber to allow the boat to be inflated by hand and valves which enable the boat to be inflated by compressed air or gas may also be fitted. Alternatively valves which permit both these operations may be fitted. A safety relief valve, designed to allow gas to escape should the pressure exceed that which would be safe for the tubes to carry, must be fitted to each buoyancy chamber. It must reset at a pressure that will give satisfactory rigidity to the tube.

6.2.4.2 Means of deflating must be fitted to each chamber. This should be arranged to prevent accidental deflation.

6.2.4.3 Details of the construction, position and method of securing the inflation/deflation system to each chamber should be submitted for acceptance.

### **6.3 Equipment**

The requirements of equipment which should be provided are listed in paragraph 6 of Part 1 of Schedule 3 and paragraph 6 of Part 3 of Schedule 3 of MSN 1676(M).

#### **6.3.1 Bellows or pump**

In addition to the above equipment an efficient manually operated bellows or pump, for inflating and topping up the pressure as necessary should be provided. Its design should be such that it is easily operated by one man seated in the boat and should be capable of being quickly attached to the topping-up valve. All sharp edges and features which might damage the fabric of the boat should be avoided in the design.

### **6.4 Boat propulsion**

#### **6.4.1 Design of motor**

When a petrol driven outboard motor is to be fitted the outboard motor should be of a type which has been approved by a Nominated or Notified Body. For such approval the makers should submit full details of the engine to the Nominated or Notified Body. When the design of such a motor is considered to be satisfactory, prototype tests should be carried out as required by Chapter 2, Part V, Section 1 of Volume 2 - Testing of Life-Saving Appliances. The motor should be fitted with the usual controls for hand starting, stopping, regulating speed and going astern. It should be spray proof and as far as practicable waterproof. The motor exhaust should be below the water line. Primary hand starting should be either manual automatic rewind system or a pull cord round the top flywheel of the motor.

#### **6.4.2 Position of motor and fuel tanks**

Suitable arrangements should be made for stowing the motor and fuel tank ready for operating and protected from weather. The stowage position should not be so located on board ship that it may become unreachable in the case of a machinery space or accommodation space fire. If the motor and fuel tank are stowed in the boat they should be stowed in such a manner that damage to the motor, fuel tank and the boat will not occur when the boat is stowed on board ship.

### 6.4.3 Fuel

Sufficient fuel should be provided for at least 2 hours running at 6 knots.

### 6.4.4 Security of motor

Suitable arrangements should be provided for securely attaching the motor and fuel tank to the boat and preventing damage to the fuel pipe.

### 6.4.5 Non-portable motors

Where the owners desire to fit a motor larger than that necessary to achieve a speed of over 6 knots the reasons for such a request should be ascertained. Where these are justified the arrangement should be accepted, provided that the motor is attached to the boat at all times; and the boat is attached to its launching and recovery device when the vessel is on a voyage and; the device is capable of launch and recovery without undue effort.

### 6.4.6 Fire extinguisher

Provision should be made for stowing a portable fire extinguisher as part of the boats equipment. The extinguisher should be capable of discharging foam or other substance suitable for extinguishing oil fires, and should be of a type acceptable to the MCA and complying with the requirements of Regulation 44 of the Merchant Shipping (Fire Protection: Large Ships) Regulations 1998 (SI 1998 No. 1012) or Regulation 35 of the Merchant Shipping (Fire Protection: Small Ships) Regulations 1998 (SI 1998 No. 1011) except that the capacity need not exceed 4.5 litres of fluid or its equivalent. Where the extinguisher is of the foam type it should be of the dual seal (positive closure) type and should be stowed in the upright position.

### 6.4.7 Stowage of petrol for outboard motors

Where an outboard motor is fitted, a small quantity of spare petrol (about 50 litres) may be carried if it is stored in suitable containers in a specially constructed, well ventilated compartment situated in a safe place sited whenever possible on the open deck. Warning notices should clearly indicate the contents of the compartment and smoking should not be permitted in the vicinity. The warning notice may contain instructions to jettison the petrol containers overboard in case of shipboard fire in the vicinity of the store.

### 6.4.8 Spare parts and tools

A kit of spare parts and tools should be provided and should include the following as appropriate:

- One set of spark plugs
- Three propeller drive shear pins
- Three propeller nut split pins

- One started rope
- One spark plug spanner
- One pair pliers
- An instruction manual

#### 6.4.9 Petrol fuel tank and pipe

6.4.9.1 Any petrol fuel tank should be specially protected against fire and explosion and separate from the engine. It must be of substantial construction of steel or other accepted material and the joints must not depend on solder for tightness. Provision should be made for sealing the air vent when the tank is not in use to prevent spillage of fuel. (Note: A steel tank constructed according to a recognised standard with rounded corners and edges is considered fire and explosion proof. Aluminium exp-lo-foil is not accepted in steel tanks for explosion proofing.)

6.4.9.2 The fuel pipe may be of suitable non-metallic material and its end connections should be self-sealing. Provision should be made for shutting off the fuel at the motor. Completed fuel tanks and their connections should be capable of withstanding hydraulic pressure corresponding to a head of at least 4.5 metres above the top of the tank. The maker's Certificate of Conformity may be accepted in this respect.

#### 6.4.10 Instructions and controls

Water resistant instructions for starting and operating the motor should be provided and mounted in a conspicuous place near the motor starting controls.

### 6.5 Servicing

6.5.1 Inflated boats which form part of the ships' Life-Saving Appliances are normally required to be serviced annually, and every effort should be made to ensure that this is carried out. When, however, it is clearly impracticable to comply with this requirement, the servicing may be deferred for a period not exceeding 5 months. In such cases, masters or owners are requested to apply to the nearest Marine Office or Headquarters (MSPP2) or in cases outside of the United Kingdom to the British Consulate or the British High Commission indicating their reason for seeking this deferment.

6.5.2 At every bi-annual servicing of an inflatable boat a 10% overload static load test should be carried out with the boat suspended from its lifting hook or bridle in accordance with the manufacturer's approved servicing instructions.

6.5.3 An "approved service station" is one which has been formally appointed by the manufacturer of an approved type of inflatable boat and has been accepted by the Secretary of State. It has certificated personnel who have been trained to undertake servicing and repairs, and it carries genuine spares and is kept fully informed of the current servicing procedures by the approved manufacturer.

6.5.4 Detailed lists of names and addresses of the manufacturers of approved inflatable boats and their currently appointed service stations located in the United Kingdom are given in the Appendices of Marine Guidance Note MGN 62 (M+F). Owners or masters wishing to obtain details of the service stations located overseas or to have confirmation of the continued acceptance of any station in the United Kingdom should make direct contact with the individual manufacturer. Manufacturers must provide the MCA with details of any changes to the approved service stations.

6.5.5 Shipowners and masters are respectfully reminded that it is an offence to carry an inflated boat, which is known to be defective, or which has not been serviced at the intervals prescribed by the Regulations.