



CERTIFICATE OF TYPE APPROVAL

This is to certify that

The product detailed below will be accepted for compliance with the applicable Lloyd's Register Rules and Regulations and with the International Convention for the Safety of Life at Sea, (SOLAS), 1974, as amended, for use on ships and offshore installations classed with Lloyd's Register, and for use on ships and offshore installations when authorised by contracting governments to issue the relevant certificates, licences, permits etc.

Manufacturer	Zodiac Hurricane Technologies Inc.
Address	7830 Vantage Way Delta, British Columbia Canada V4G 1A7
Product Type	RIGID/INFLATED FAST RESCUE BOATS
Product Description	6 persons inboard powered davit-launched rigid/inflated fast rescue boat - Type: "H638 MID DJ"
Specified Standards	SOLAS 74, as amended, Regulations III/4, 26.3, 34 and X/3 IMO Resolution MSC.48(66), LSA Code, Regulations I/1.2 and V/5.1 IMO Resolution MSC.97(73), 2000 HSC Code, Regulation 8.1 IMO MSC/Circular 809 IMO Resolution MSC.81(70), Part 1

The attached Design Appraisal Document forms part of this certificate.
This certificate remains valid unless cancelled or revoked, provided the conditions in the attached Design Appraisal Document are complied with and the equipment remains satisfactory in service.

Date of issue 1 October 2004

Expiry date 30 September 2009

Certificate No. SAS S040112

Signed

Sheet No 1 of 5

Name

S. Marsh
Surveyor to Lloyd's Register EMEA
A Member of the Lloyd's Register Group

Note:

This certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. The manufacturer should notify Lloyd's Register of any modification or changes to the equipment in order to obtain a valid certificate.



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Document number SAS S040112
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ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. SAS S040112

The undernoted documents have been appraised for compliance with the relevant requirements of International Conventions, and this Design Appraisal Document forms part of the Certificate.

APPROVAL DOCUMENTATION

<u>Drawing No.</u>	<u>Date</u>	<u>Title</u>	<u>Status</u>	<u>Date</u>
SM638006(1A)	28.05.2004	General Arrangement	A	24.09.2004
SM638006(1B)	28.05.2004	Console Layout	N	24.09.2004
SM638006(2A)	25.09.2003	Tube Details	N	24.09.2004
SM638006(3A)	28.05.2004	Tow & Under tow arrangement	N	24.09.2004
GH6380103(1A)	28.05.2004	Drawing Index & Materials Schedule	N	24.09.2004
GH6380103(3B)	28.05.2004	Hull Laminate Section	N	24.09.2004
ZH638S6303(1A)	28.05.2004	Emergency Tiller	A	24.09.2004
ZH638S103E(1B)	25.09.2003	Transom Equipment	N	24.09.2004
ZH638S103P(1A)	16.10.2003	Propulsion - Engine and Jet Installation	N	24.09.2004
ZH638S103P(1C)	30.09.2003	Engine Installation - Exhaust	N	24.09.2004
ZH638S103X(1C)	27.05.2004	Battery and Breaker Panel Electrical	A	24.09.2004
ZH6381403-2(1A)	11.05.2004	Fast Rescue Boat Self-righting System - CO2	N	24.09.2004
GF6300192(1A)	28.05.2004	Hull Flotation Foam - LD15 6.5 cu ft	A	24.09.2004

H638 SOLAS Fast Rescue Boat, Technical Manual No. M-B-10245, dated 17th June 2004.

Zodiac of North America, Inc., Stability Report of H638 MID DJ SOLAS FRB, dated May 2004.

TEST REPORTS

Zodiac Hurricane Technologies Inc., Evaluation and Test Report of Serial No. XDC 632971304 dated November 2003, witnessed by Lloyd's Register North America Inc., Vancouver Office.

Mooring Out Test Report of "Zodiac Bombard SOLAS Boat 6E" dated August-September 1991, witnessed by Bureau Veritas.

Levelton Consultants Ltd., Laminate Material Test Report Nos. 01A, 01B & 01C dated 3 May 2004.

IMANNA Laboratory Inc. Certification Test Report No. 16471-1, NMMA Slosh test of 182 liter Fuel Tank FT4802, dated 19 May 2004.

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CONDITIONS OF CERTIFICATION

1. **Maximum weights:-**

Lightweight:	1615 kg	Dimensions:-	6.70 x 2.59 x 0.37 metres
Equipment & fuel weight:	212 kg		
Person's weight:	450 kg	(6 persons)	
Fully laden weight:	2277 kg		

2. **Inboard engine and propeller details:-**

Engine manufacturer:	Volvo Penta AB
Engine type:	TAMD31P (110 kW @ 3900 rpm)
Propeller type:	Hamilton 212 Jet
Maximum Towing Power:	5068 N

3. **Materials of GRP hull construction:-**

	<i>Type</i>	<i>Manufacturer</i>
Fire-retardant resin:	VE8440B	Interplastic Corp.
Chopped Strand Mat:	M723A	Owens Corning
Woven Roving:	Bayex 0312	Saint-Gobain Vetrotex America Inc.
Buoyant Material:	Plastazote LD15	Zotefoams plc

Note: Other materials than those specified above could be used for the hull construction subject to acceptance on a case by case basis. Metals in contact with each other must be either galvanically compatible or insulated with suitable non-porous materials such as plastic, rubber, neoprene based compounds or equivalent materials. Provisions shall also be made to prevent loosening or tightening resulting from differences of thermal expansion, freezing, buckling of parts, galvanic corrosion, or other incompatibilities.

4. **Inflated tube material:** 1880 Dtex Hypalon/Neoprene coated fabric 1500 g/m² tested by Zodiac International Laboratoire Central DIP (France), Test Report Nos. ZIT/99/139 dated 17 May 1999 and ZIT/97/098 dated February 1997.

5. This fast rescue boat is approved for use on Ro-Ro Passenger ships in accordance with SOLAS Regulation III/26.3.1.

6. On vessels which are Ro-Ro Passenger ships required to comply with SOLAS Regulation III/26.3.1 the launching/recovery appliance is to be capable of raising the fast rescue boat from the water with its full complement of persons and equipment at a rate of not less than 0.8m/s.



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7. The fast rescue boat is provided with a fixed single-point suspension arrangement for launching from a ship at sea and shall be equipped with an approved release mechanism certified for a maximum safe working load (SWL) of not less than the boat's maximum fully laden weight.
8. The boat is to be provided with "foul weather recovery strops". Additionally, if necessary for stowage without re-launching, provision is to be made for "hanging-off".
9. This rescue boat is capable of being righted by manual initiation of an installed righting system comprising an inflatable bag and a compressed CO₂ system mounted on an aluminium frame. The CO₂ cylinder is to be manufactured and tested to an appropriate recognised international standard and all pressure system shall be periodically inspected in service according to the manufacturer instructions and tested at intervals not exceeding five years and/or to the satisfaction of the Administration.
10. Each boat is to be clearly marked at least with the information required by the LSA Code, Regulations 1.2.2.9 and 5.1.3.4. All materials used to mark the inflated rescue boat shall be of a type which is compatible with the boat's coated fabric and approved by the manufacturer.
11. Detailed instructions for use, maintenance and installation of the vessel complying with SOLAS Regulations III/35 and 36 and also instructions for use and maintenance of all machinery and equipment shall be provided to each purchaser and be available on board.
12. The equipment on board shall be kept in good working order at all times and checked at regular intervals according to the manufacturer's instructions and SOLAS requirements.
13. Water-resistant instructions for starting and operating the engine shall be provided and mounted in a conspicuous place near the engine starting controls. Each marking of control, gage or display shall be permanent and weatherproof.
14. Batteries shall be provided with casings which form a watertight enclosure around the bottom and sides and having a tight fitting top which provides for necessary gas venting.
15. The following equipment is to be approved by the Marine Administration of the country where the ship is registered (i.e. the flag state) or those acting on behalf of that Administration: retro-reflective materials, navigation and position indicating lights, radio equipment, release mechanism and the rescue boat equipment required by LSA Regulation V/5.1.2.
16. Equipment items listed on the current version of Annex 1 of the Marine Equipment Directive which are supplied with the rescue boat are to be delivered with their own Declaration of Conformity issued by the corresponding manufacturer when delivered to EC flagged vessels.
17. **Installation on board:** The launching arrangements and installation of the boat are not part of this design appraisal or certificate. All such arrangements are to be to the satisfaction of the attending Surveyors.
18. **Variants of the Approved design:** Where this fast rescue boat is proposed to be supplied to a purchaser's specification which requests omission of one or more of the facilities necessary to meet the SOLAS performance requirements referred to above, the purchaser is required to request the

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Administration to consider issue of an Exemption Certificate to omit such facilities. Only when the exemption has been granted by the Administration may a variant of this fast rescue boat design be supplied under this certificate.

19. If the specified standards are amended during the validity of this certificate, this product type is to be re-approved prior to it being supplied to vessels to which the amended standards apply.
20. Production items are to be manufactured in accordance with a quality control system which shall be maintained to ensure compliance with SOLAS Regulation III/5.
21. Should a change of Place of Production from that stated below be required, i.e. where the final stages of manufacture/assembly/testing of this product take place, the new Place of Production is to be advised to us prior to the change taking place. This Certificate will require to be updated for Approval to be maintained.

PLACE OF PRODUCTION

Zodiac Hurricane Technologies Inc.
7830 Vantage Way
Delta, British Columbia
Canada V4G 1A7



Stuart Marsh
Senior Surveyor
Fire & Safety Section
Statutory & Structures Services
London Plan Approval
Lloyd's Register EMEA

The drawings as listed above have been examined for compliance with Standards specified on the certificate and are assigned an appraisal status as indicated.

Appraisal Status Key

- A = Approved provided the installation is to the Danish Maritime Authority's satisfaction and the remaining requirements of the Standards and conditions specified on the certificate are complied with.
- N = Noted as supporting documentation for information only

Supplementary Type Approval Terms and Conditions

This certificate and Design Appraisal Document relates to type approval, it certifies that the prototype(s) of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein, it does not mean or imply approval for any other use, nor approval of any products designed or manufactured otherwise than in strict conformity with the said prototype(s).