TECHNICAL BULLETIN

Righting System Inspection and Maintenance

Zodiac Hurricane Technologies Inc. (ZHT) has identified important inspection and maintenance considerations that must be observed to ensure proper and safe functionality of Zodiac Hurricane Rigid Hull Inflatable Boat (ZHT RHIB) righting systems. Failure to observe these considerations can result in malfunction of the ZHT RHIB righting system causing equipment damage and/or injury or death.

Note: ZHT RHIB technical manuals may refer to righting systems as 'self-righting systems'.

Purpose

This Technical Bulletin is provided to notify ZHT RHIB owners and ZHT Certified Service Centers regarding important inspection and maintenance considerations that must be observed to ensure proper and safe activation of ZHT RHIB righting systems.

Scope

This Technical Bulletin details the following important considerations that must be observed when inspecting/maintaining ZHT RHIB righting systems:

- Pull cable tension and inspection
- Inflation cylinder/bottle positioning, inspection, and service
- Firing head assembly inspection and service
- Inflatable bag and righting frame inspection and service

Applicability

This Technical Bulletin is applicable to all ZHT RHIB models fitted with righting systems with Mirada 5000 series firing heads.

Note: Some ZHT RHIB righting systems are fitted with other firing head makes/models. Contact ZHT Customer Service to verify if this Technical Bulletin applies to your ZHT RHIB.

⚠WARNING	⚠WARNING
Use only ZHT approved parts to repair/replace ZHT RHIB righting system components. **Use of non-ZHT approved parts can result in failure of the righting system.**	**ZHT RHIB righting systems are disabled during shipping/transport for safety purposes.** **Remove the safety pin from the firing head before operating the ZHT RHIB.**

Disclaimer

This Technical Bulletin supplements, but does not replace, righting system information provided in ZHT RHIB technical manuals. In the event of disagreement between this Technical Bulletin and the ZHT RHIB technical manual, this Technical Bulletin shall be considered correct.

Observations of inspection criteria can be subjective and may vary depending on the inspector. In the event of any confusion regarding the contents of this Technical Bulletin, contact ZHT Customer Service for additional information or clarification.

Pull Cable

Pull Cable Tension

When light tension is applied to the pull cable, the distance between the conduit and pull cable eye must be a minimum of 50 mm (2") to avoid cable binding that can result in firing head activation failure (see Figure 1).

If the distance between the conduit and pull cable eye is less than 50 mm (2"), contact ZHT Customer Service for repair instructions.

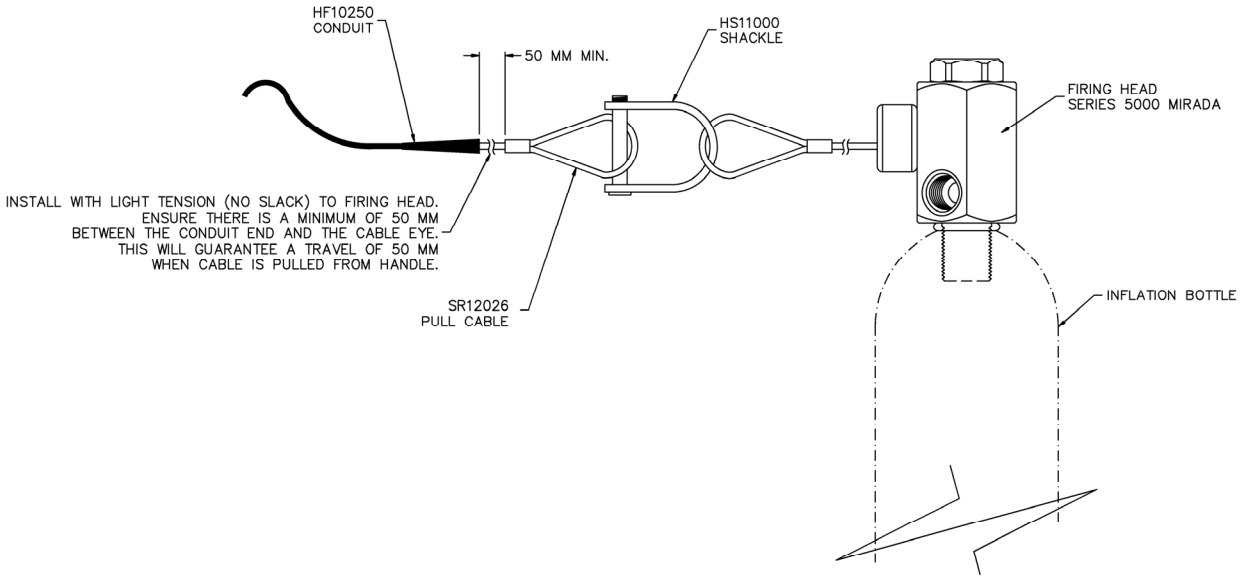

Figure 1: Pull Cable Tension Diagram

Note: If the righting system is not equipped with a shackle, contact ZHT Customer Service for instructions.

Pull Cable Inspection

Inspect the pull cable assembly **weekly** for improper tension, handle attachment snap corrosion, or other damage. Replace any damaged or corroded components.

Test the pull cable assembly **annually** to ensure the pull cable moves freely within the cable conduit.

To test the pull cable movement within the cable conduit:

Step 1. Remove the breakaway pin and install the safety pin in the firing head assembly.

Step 2. Disconnect the pull cable at the shackle.

Note: If the righting system is not equipped with a shackle, contact ZHT Customer Service for instructions.

Step 3. Verify the pull cable moves freely within the conduit. If the pull cable does not move freely within the conduit, replace the pull cable and conduit; otherwise, continue to Step 4.

Step 4. Reconnect the pull cable at the shackle.

Step 5. Remove the safety pin from the firing head assembly and reinstall the breakaway pin; apply waterproof grease to the safety pin hole to prevent moisture from entering the firing head assembly.

Inflation Cylinder/Bottle

Inflation Cylinder/Bottle Inspection

Inspect the inflation cylinder/bottle securing clamps **weekly** for tightness and corrosion/damage. Tighten loose clamps to ensure the inflation cylinder/bottle is properly secured. Replace any corroded or damaged securing clamps. Ensure clamps are tight to the body of the inflation cylinder/bottle.

Inspect the inflation cylinder/bottle **annually** for cracks, distortion, corrosion, or other damage; furthermore, verify that the inflation cylinder/bottle has not exceeded its service life/expiry date. The inflation cylinder/bottle must be replaced if any damage, distortion, or corrosion is discovered during inspection, or if the inflation cylinder/bottle has exceeded its service life/expiry date.

Inflation Cylinder/Bottle Service

The inflation cylinder/bottle must be hydrostatically tested and recertified **every five (5) years**.

Inflation hoses must be replaced **every eight (8) years**.

To remove the inflation cylinder/bottle from the righting system:

Step 1. Discharge the inflation cylinder/bottle fully by activating the firing head assembly via the pull cable handle; verify that the inflatable bag inflates properly.

⚠ WARNING	⚠ WARNING
Ensure the inflation bottle/cylinder is secured properly before activating the firing head assembly.	**Ensure there is sufficient clearance for the inflatable bag to inflate fully before activating the righting system.**

CAUTION
Ensure any antennae, lights, or installed equipment are clear of the inflatable bag prior to activating the righting system.

Step 2. Disconnect the inflation hose from the firing head assembly.

Step 3. Disconnect the pull cable at the shackle; leave the short section of the pull cable attached to the firing head assembly.

Note: If the righting system is not equipped with a shackle, contact ZHT Customer Service for instructions.

Step 4. Loosen the inflation cylinder/bottle securing clamps and remove the inflation cylinder/bottle.

Step 5. Submit the inflation cylinder/bottle and firing head assembly to a certified service center for service/recharging/rearming.

Note: Ensure the short section of the pull cable is included with the firing head assembly when submitting for service/recharging/rearming.

Firing Head and Inflation Hose Assembly

Inspection

Inspect the firing head and inflation hose assembly **weekly** for:

- Loose fill hose connections (both ends)
- Damaged or corroded components
- Fill hose kinking, chafing, or other damage
- Verify the rubber grommet is installed in the firing head release cable outlet

Tighten loose components to ensure the firing head assembly functions properly and safely. Replace any damaged/corroded/missing components.

Note: The firing head assembly is not a user-serviceable part; if the firing head assembly is damaged, corroded, or discharged, the firing head assembly and inflation cylinder/bottle must be submitted to a ZHT Certified Service Center or Mirada Certified Service Facility for repair or service.

Service

The firing head assembly must be submitted to a ZHT Certified Service Center or Mirada Certified Service Facility for repair or service. Refer to the **Inflation Cylinder/Bottle Service** section of this Technical Bulletin for the inflation cylinder/bottle removal procedure.

Inflation hoses must be replaced **every eight (8) years**.

Inflatable Bag and Righting Frame

Inspection

Inflatable Bag

Inspect all exposed sections of the inflatable bag **weekly** for chafing or other damage. If chafing or other damage is discovered during inspection, remove and submit the inflatable bag to a ZHT Certified Service Center for repair. Refer to the **Righting System** or **Self-righting System** (as applicable) section of the **Systems** chapter of the ZHT RHIB technical manual for the inflatable bag removal procedure.

Remove the inflatable bag from the righting frame **annually** and inflate using a foot pump or other air source until the pressure relief valve activates; inspect the inflatable bag for chafing or other damage. If chafing or other damage is discovered during inspection, remove and submit the inflatable bag to a ZHT Certified Service Center for repair.

⚠CAUTION

Do not use carbon dioxide (CO_2) to inflate the inflatable bag for inspection/testing.

Repeated CO_2 exposure can degrade bag fabric.

The inflatable bag must be submitted to a ZHT Certified Service Center for air retention testing **every five (5) years**.

Righting Frame

Inspect the righting frame **weekly** for:

- Loose attachment bolts
- Cracks in the aluminum (especially adjacent to welds)
- Damaged/corroded hinges, latching mechanisms, or other components

Tighten any loose attachment bolts discovered during inspection.

Service

Inflation Bag

Remove and submit the inflatable bag to a ZHT Certified Service Center for any repairs. Refer to the **Righting System** or **Self-righting System** (as applicable) section of the **Systems** chapter of the ZHT RHIB technical manual for the inflatable bag removal procedure.

Righting Frame

Immediately notify ZHT Customer Service if cracks in the righting frame are discovered during inspection. Replace any damaged/corroded components.

Maintenance Schedule

The following table lists the maintenance and repair procedures described in this technical bulletin that can be performed by the vessel owner/operator:

Righting System Maintenance Schedule (Owner/Operator)			
Component	**Period**	**Inspection/Test**	**Corrective Action**
Pull cable assembly	Weekly	Inspect pull cable assembly for improper tension, snap corrosion, or other damage	Contact ZHT Customer Service for instructions to correct improper tension; replace any damaged/corroded components
Cylinder/bottle securing clamps	Weekly	Inspect securing clamps for tightness and corrosion/damage	Tighten loose clamps; replace corroded/damaged clamps
Firing head/inflation hose assembly	Weekly	Inspect firing head assembly for loose hose connections; inspect hoses for kinking and damage	Tighten loose components; replace damaged hoses
Righting Frame	Weekly	Inspect righting frame for loose attachment points and damaged/corroded components	Tighten loose attachment points; replace any damaged/corroded components
Righting Frame	Weekly	Inspect righting frame for cracks in aluminum	Contact ZHT Customer Service for repair instructions
Pull cable assembly	Annually	Inspect pull cable assembly to ensure pull cable moves freely within cable conduit	Replace pull cable and conduit if cable does not move freely within the cable conduit
Inflation Hoses	Every 8 Years	N/A	Replace inflation hoses regardless of condition

The following table lists the maintenance procedures described in this technical bulletin that can be performed by the vessel owner/operator but must be repaired by a certified service facility:

Righting System Maintenance Schedule (Owner/Operator Inspection / Certified Service Facility Repair)			
Component	**Period**	**Inspection/Test**	**Corrective Action**
Firing head assembly	Weekly	Inspect firing head assembly for damaged/corroded components	Submit damaged/corroded firing head assembly (with cylinder/bottle) to ZHT Certified Service Center or Mirada Certified Service Facility
Inflatable Bag	Weekly	Inspect inflation bag for chafing/damage	Submit inflatable bag to ZHT Certified Service Center
Cylinder/Bottle	Annually	Inspect cylinder/bottle for cracks, distortion, corrosion, damage, and expiry date	Contact ZHT Customer Service for instructions

The following table lists the maintenance and repair procedures described in this technical bulletin that must be performed by a ZHT Certified Service Center or other certified service facility:

Righting System Maintenance Schedule (Certified Service Facility)			
Component	**Period**	**Inspection/Test**	**Corrective Action**
Inflatable Bag	Every 5 Years	Air Retention Test	Submit inflatable bag to ZHT Certified Service Center
Cylinder/Bottle	Every 5 Years	Hydrostatic Test	Submit cylinder/bottle to certified cylinder/bottle service facility

Contacts

For questions regarding the information presented in this Technical Bulletin, please contact ZHT Sales Manager John MacKillop at (604) 940-2702 or ZHT Repair Coordinator Ryan Bull at (604) 940-7641.

The following list provides contact information for ZHT Certified Servicing Dealers in Canada; for information regarding ZHT Certified Servicing Dealers in other regions, please contact ZHT Customer Service.

British Columbia

ZODIAC HURRICANE TECHNOLOGIES, INC. (ZHT)
7830 Vantage Way
Delta, British Columbia
V4G 1A7
Contacts:

John MacKillop - 604-940-2702 - john.mackillop@zodiacmilpro.com
Ryan Bull - 604-940-7641 - ryan.bull@zodiacmilpro.com

VECTOR YACHT SERVICES LTD.
2244 Harbour Road
Sidney, British Columbia
V8L 2P6
Contact: Mark Stoddart - 250-655-3222 - sales@vector-yacht.com

Ontario

INLAND LIFERAFTS AND MARINE LTD.
Unit 1, 30 Titan Road
Toronto, Ontario
M8Z 5Y2
Contact: Michael Edward - 416-207-0446 - michael@inlandliferafts.com

Quebec

BOULET LEMELIN YACHT
1125 Boul. Champlain, CP 2538
Terminus, Quebec
G1K 7R3
Contact: Richard Boulet - 418-681-5655 - yacht@blyacht.com

Maritimes

SEAMASTERS SERVICES LTD.
647 Windmill Road
Dartmouth, Nova Scotia
B2Y 3Y5
Contact: Robert Funder - 902-468-2029 - rfunder@seamasters.ns.ca

Newfoundland

NEWFOUNDLAND MARINE AND SAFETY SYSTEMS
8 Kyle Avenue
Donovan's Industrial Park
Mount Pearl, Newfoundland
A1N 4R5
Contacts: Ken White / Tom Ryan - 709-747-2175 - sales@nfldmarine.com

USA

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Military and Professional Division
540 Thompson Creek Road
Stevensville, MD
21666
Contact: Jacob Heimbuch - 410-643-4141 Ext. 310 - jacob.heimbuch@zodiacmilpro.com