HENRIKSEN HOOKS

HMKTWE

ELECTRIC REMOTE RELEASE OFF-LOAD HOOKS

TWIN SYSTEM

USER MANUAL

Rev.: -2

M000305

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GENERAL

- Read this user manual carefully before you use the hook and save it for future reference.
- Operational scenarios with corresponding risk evaluations must be well known for the operators.
- It is important that the hook is inspected and maintained periodically to ensure a safe and well-functioning equipment.
- Monthly controls by the operators are limited to visual check and practical operations.
- All necessary service and maintenance shall be carried out by authorized service personal annually and by 5-years controls. On-line annual inspection course for Henriksen hooks is available on the internet, please check our website for more information.
- Contact the manufacturer in case of any visible damage and/or if malfunction occurs.
- Any unauthorized repair, service and/or parts used in the hook will violate the warranty.

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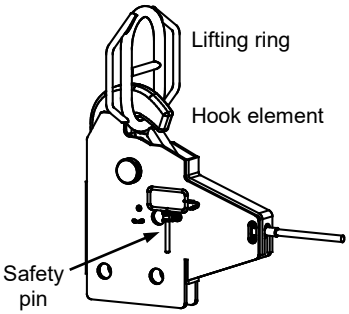
LAUNCH

1 Check that the power supply is on.

2 Check the following on both hooks:

- the hook is not damaged
- the hook element is in closed position
- the lifting ring is properly placed
- the toggle switch is in closed position
- the safety pin is **not** inserted into the hook
- the hook is free of any impurities or ice



3 Start the lowering process with a continuous motion.

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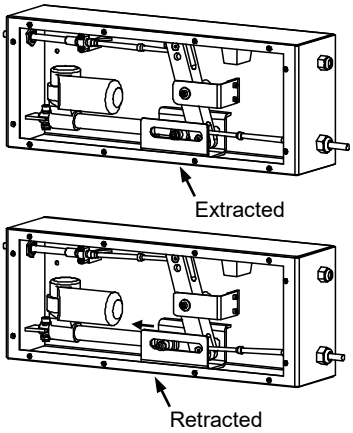
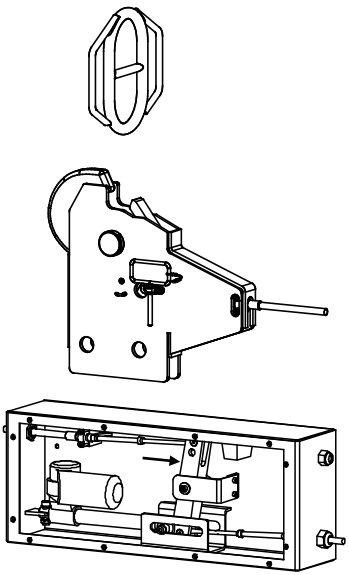
LAUNCH

4 When the boat is close to the water surface set the toggle switch to activated/open position to retract the actuator in the control box and activate the hooks.

NOTE:
Set the toggle switch to closed position to extract the actuator and cancel the activated state of the hooks if necessary.



5 When the boat is waterborne and **both** hooks are off-loaded, the hooks will open automatically **at the same time** and release the lifting rings.



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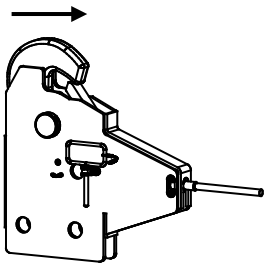
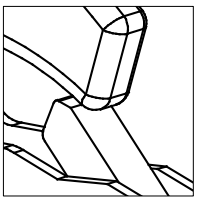
RESET

1 Set the toggle switch to closed position to extract the actuator.

The hook elements move to closed position on both hooks.



2 Visually check that the hook elements are closed and synchronized: the position of the tip of the hook element and the tip of the latch compared to each other are the same on both hooks, refer to the illustration.



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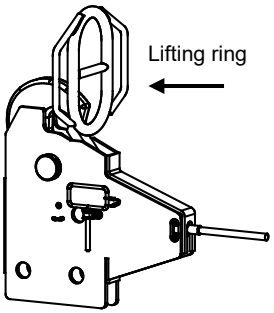
RECOVERY

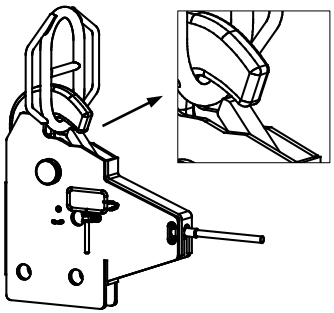
1 Check visually that the hooks are not damaged.

Make sure that the hooks are reset.

2 Place the lifting ring properly into the jaw of the forward hook and make sure that the latch is completely locked, refer to the illustration.



3 Place the second lifting ring properly into the jaw of the aft hook and make sure that the latch is completely locked, refer to the illustration.



4 The hooks are ready to recover the boat.

NOTE: See the “SAFE USE” chapter at the end of the manual for the recommended lifting operations.

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MANUAL OVERRIDE

The hooks can be operated manually in case of:

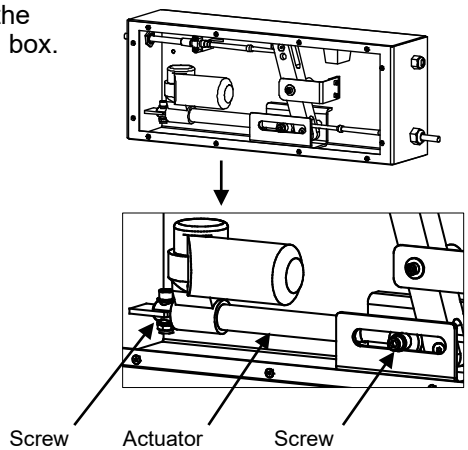
- electrical failure (when the twin control system is still operative)
- damage of the push/pull cable system (when the twin control system is not operative)

The launch and the reset processes are different in these cases however the recovery process is the same as in the normal operation mode.

GENERAL PREPARATION BEFORE MANUAL OVERRIDE

1 Remove the screws from the actuator in the twin control box.

2 Remove the actuator.



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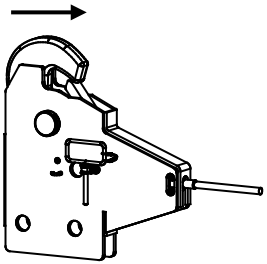
ELECTRICAL FAILURE

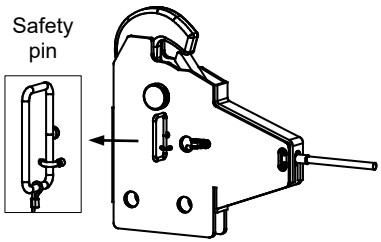
ADDITIONAL PREPARATION BEFORE MANUAL OVERRIDE

1 Set the hook element manually to closed position on the first hook and check that the hook element moves to closed position on the second hook at the same time.



2 Hold the hook element in the closed position on the first hook and insert the safety pin into this hook.

Make sure that the safety pin is properly placed, refer to the illustration.



3 Release the hook element.

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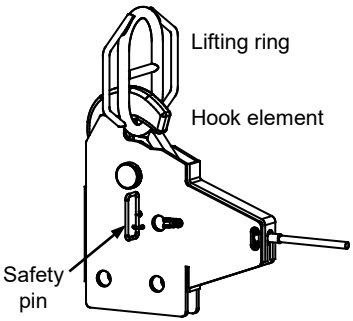
ELECTRICAL FAILURE

LAUNCH

1 Check that the actuator is disconnected.

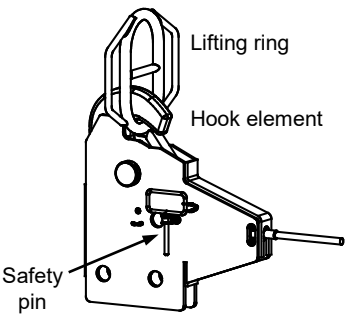
2 Check the following on the first hook:

- the hook element is in closed position
- the safety pin is properly placed
- the lifting ring is properly placed
- the hook is free of any impurities or ice



2 Check the following on the second hook:

- the hook element is in closed position
- The safety pin is **not** inserted into the hook
- the lifting ring is properly placed
- the hook is free of any impurities or ice



MANUAL OVERRIDE

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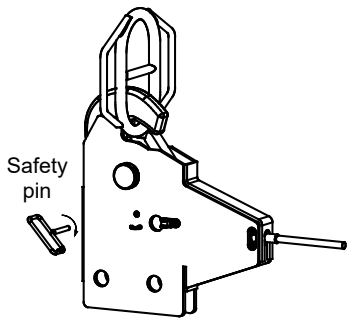
ELECTRICAL FAILURE

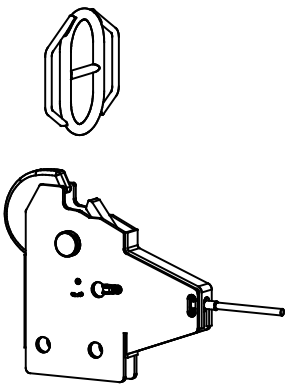
LAUNCH

3 Start the lowering process with a continuous motion.

4 When the boat is close to the water surface, twist the safety pin clockwise and pull it out from the first hook.



5 When the boat is waterborne and **both** hooks are off-loaded, the hooks will open immediately **at the same time** and release the lifting rings.



MANUAL OVERRIDE

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ELECTRICAL FAILURE RESET

1 Check that the actuator is removed from the twin control box.

2 Follow the steps 1 – 3 in the "**Electrical Failure - Additional preparation before manual override**" section to reset the hooks.

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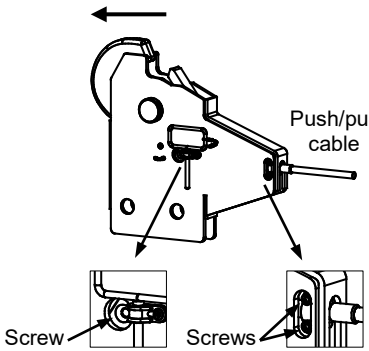
DAMAGE OF THE PUSH/PULL CABLE SYSTEM

ADDITIONAL PREPARATION BEFORE MANUAL OVERRIDE

1 Open the first hook carefully.

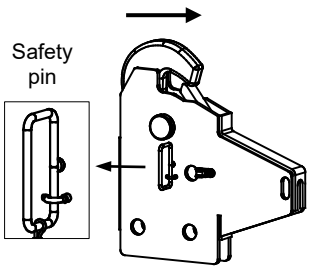
Remove the countersunk screws at the cable end connection and at the clamp on the hook and disconnect the push/pull cable, refer to the illustration.



2 Set the hook element manually to closed position on the first hook and hold it in this position.

Insert the safety pin into the hook.

Make sure that the safety pin is properly placed, refer to the illustration.



3 Release the hook element.

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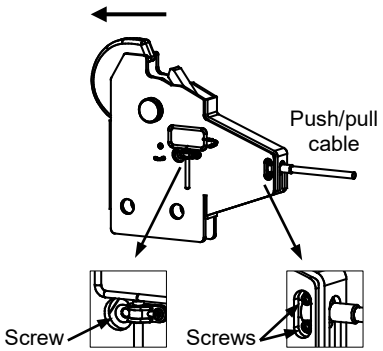
DAMAGE OF THE PUSH/PULL CABLE SYSTEM

ADDITIONAL PREPARATION BEFORE MANUAL OVERRIDE

4 Open the second hook carefully.

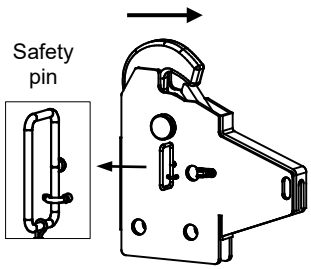
Remove the countersunk screws at the cable end connection and at the clamp on the hook and disconnect the push/pull cable, refer to the illustration.



5 Set the hook element manually to closed position on the second hook and hold it in this position.

Insert the safety pin into the hook.

Make sure that the safety pin is properly placed, refer to the illustration.



6 Release the hook element.

MANUAL OVERRIDE

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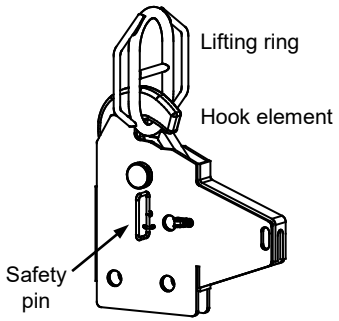
DAMAGE OF THE PUSH/PULL CABLE SYSTEM

LAUNCH

1 Check the following on both hooks:

- the push/pull cable is disconnected
- the hook element is in closed position
- the safety pin is properly placed
- the lifting ring is properly placed
- the hook is free of any impurities or ice



2 Start the lowering process with a continuous motion.

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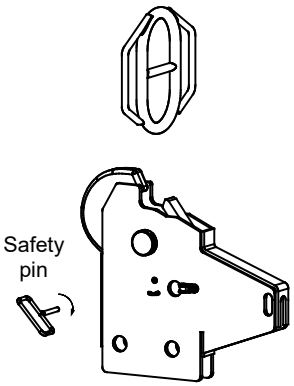
DAMAGE OF THE PUSH/PULL CABLE SYSTEM

LAUNCH

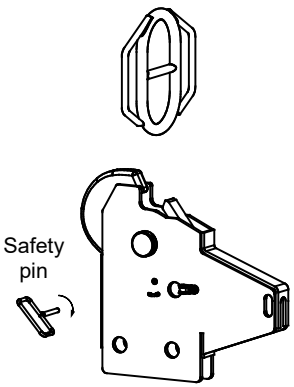
3 When the boat is waterborne and **both** hooks are off-loaded open the aft hook first:

- twist the safety pin clockwise and pull it out, and the hook will open immediately and release the aft lifting ring.



4 Open the forward hook:

- twist the safety pin clockwise and pull it out, and the hook will open immediately and release the forward lifting ring.



MANUAL OVERRIDE

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DAMAGE OF THE PUSH/PULL CABLE SYSTEM RESET

1 Follow the steps 2 – 3 and steps 5 – 6 in the "**Damage of the push/pull cable system - Additional preparation before manual override**" section to reset the hooks.

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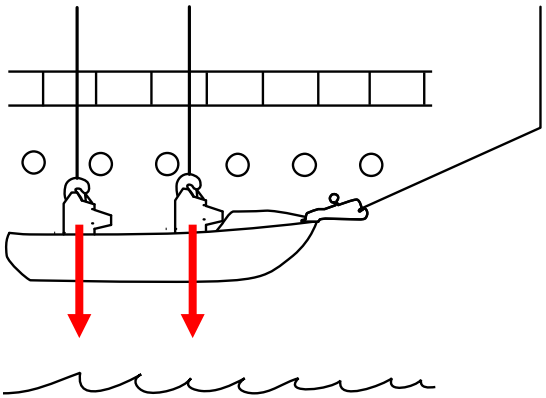
GENERAL CONSIDERATIONS

1 We recommend that the hooks are mounted facing in the same direction and loaded evenly. The position of the boat shall be as horizontal as possible during the **whole** lifting operation.



2 Consider the ergonomical details before mounting the components of the twin system. It shall be easy to install, remove, and safe to operate and inspect the hooks, the twin control box and the toggle switch.

3 We recommend to place the twin control box in the middle between the hooks to ensure almost the same cable length for the push/pull cables.

4 Consider correct drainage and protection against water ingress before mounting of the twin control box.

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GENERAL CONSIDERATIONS

5 Use an installation path for the cables that prevents tripping hazard and protect the cables against wear and tear.

6 Make sure that the minimum bending radius of the push/pull cables will be more than 200 mm / 8 inches (for standard cables) or 127 mm / 5 inch (for arctic cables) after the cables are installed.

7 Consider prevention against impurities and icing on the twin control box and on the hooks.

8 We strongly recommend to use standard Henriksen Lifting Rings, because the ring dimensions are designed to **geometrically fit** together with the Henriksen Hooks.
See more details in our **HLR** document.

9 We offer standard Henriksen Bolt Sets and Shims for mounting.
See more details in our **Bolt Set** and **Shims** documents.

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RECOMMENDED BOLTS AND LOCKNUTS

Hook type	SWL (kg)	Bolts and locknuts (1) dimensions (minimum A4 70 quality)		Max. torque (Nm)
		to frame (2)	to swivel joint	
HMKTWE 5	**5 000**	M30	M30 x 90	70
HMKTWE 8	**8 000**	M30	M30 x 90	70
HMKTWE 12	**12 000**	M30	M30 x 150	70
HMKTWE 15	**15 000**	Ø40/M36 (3)	Ø40/M36 x 75 (4)	70

(1) Locknuts according to DIN 985 – Nylon insert.

(2) The bolt should be unthreaded in the lifting cross-section. Use washers with the locknuts if necessary.

(3) Stud bolt: shaft Ø40 with M36 threaded ends, EN 1.4462 quality. Bolts can be ordered from Henriksen, the length is specified by the boat builder.

(4) Stud bolt: shaft Ø40 with M36 threaded ends, EN 1.4462 quality. Shaft length: 75 mm, total length: 163 mm.

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REMOTE CABLE OVERVIEW

Hook type	Hook part number	Cable part number	
		Standard	Arctic (1)
HMKTWE 5	HH000044	HH090019	HH2540XX
HMKTWE 8	HH000037	HH090019	HH2540XX
HMKTWE 12	HH007640	HH090019	HH2540XX
HMKTWE 15	HH000222	HH090019	HH2540XX

(1) Cables with reduced minimum bending radius requirements.
The last two digits (XX) in the part number describe the cable length in 0,5 m increments: “10” stands for 1,0 m, “15” stands for 1,5 m, etc.
Example: HH253020 is a cable with a length of 2,0 m.

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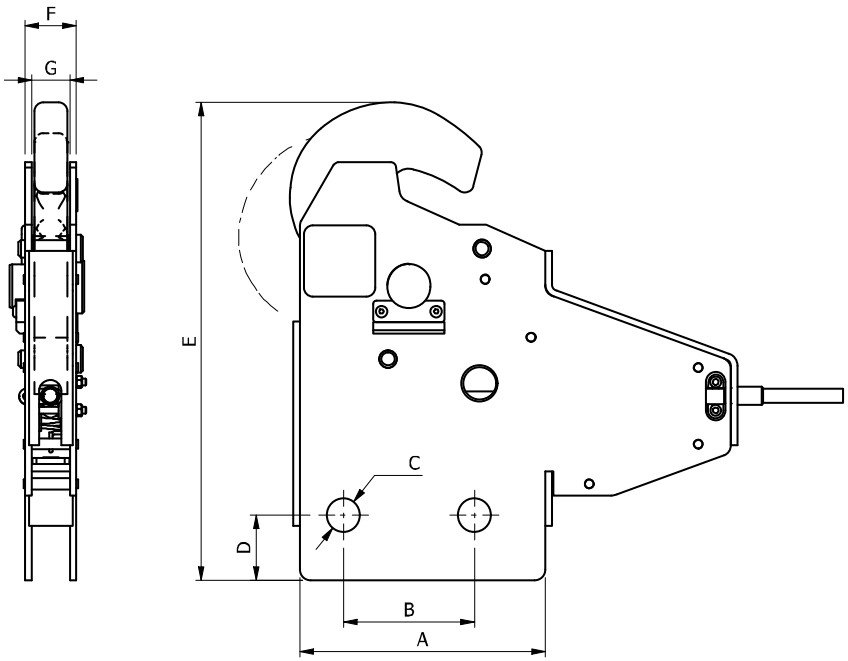
DIMENSIONS



PART NO.	HOOK	SWL	A	B	C	D	E	F	G	WEIGHT
HH000044	HMKTWE 5	5 000 kg	225	120	Ø30,5	60	439	47	35	18,5 kg
HH000037	HMKTWE 8	8 000 kg	225	120	Ø30,5	60	439	51	35	22,3 kg
HH007640	HMKTWE 12	12 000 kg	180	100	Ø30,5	40	351	80	50	26,4 kg
HH000222	HMKTWE 15	15 000 kg	225	120	Ø40,5	73	470	71	47	34,5 kg

NOTE: Detailed drawings and 3D models are available on request.

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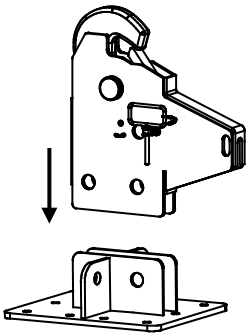
MECHANICAL

1 Place the hook between the plates of the lifting arrangement of the boat.

We recommend:

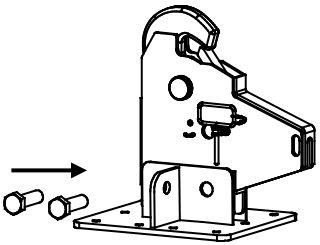
- to use two outside mounting plates if possible.
- To apply shims to reduce the gap between the mounting plates and the hook.

Check that the hook is placed in the correct position.



2 Insert the mounting bolts through the holes on the lifting arrangement and the hook.

WARNING:
Use only recommended bolts, see the table on the previous page.

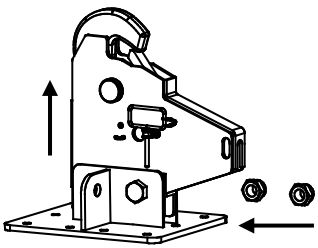


3 Mount the locknuts.

We recommend to hold the hook in lifted position when tightening the locknuts.

WARNING:
Use only recommended locknuts and torques, see the table on the previous page.

Always use new locknuts.



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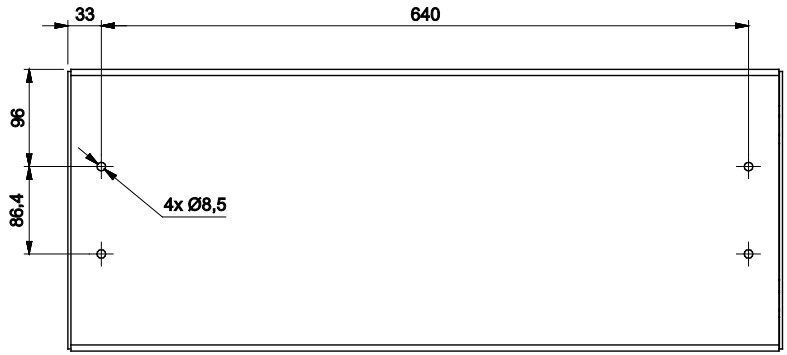
4 Mount the twin control box into the boat.
Refer to the illustration for dimensions and hole positions.

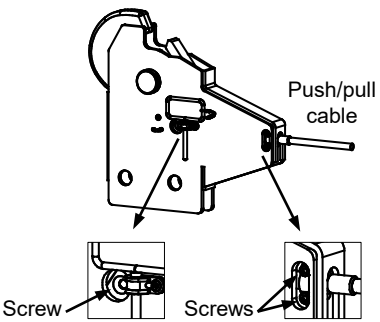


5 Open the hooks carefully.

6 Connect the actuator to the power source temporarily to retract the actuator.

7 Mount the push/pull cables into the hooks with the cable end attachments and the clamps.

Make sure that the cables can move beyond the end position on the twin control box side of the cables when hooks are in the open position.



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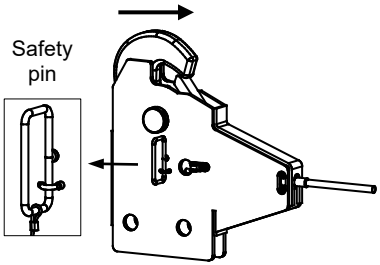
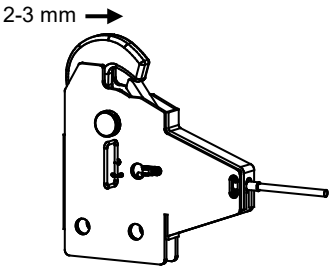
MECHANICAL

8 Close the hook elements manually, hold them, insert the safety pins, and release the hook elements in the closed position.



9 Extract the actuator.

10 Simulate load on the hooks and check that the hook elements move 2-3 mm towards the closed position when the load is applied.



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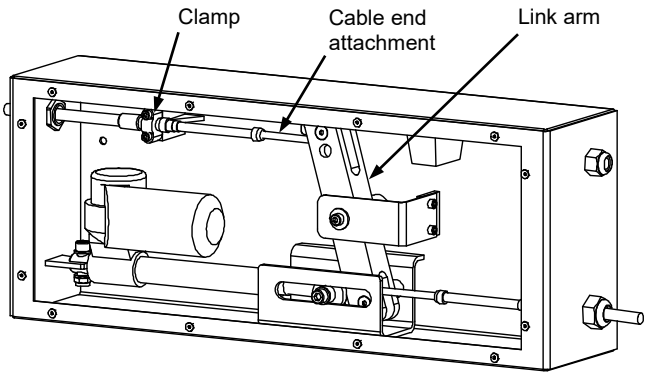
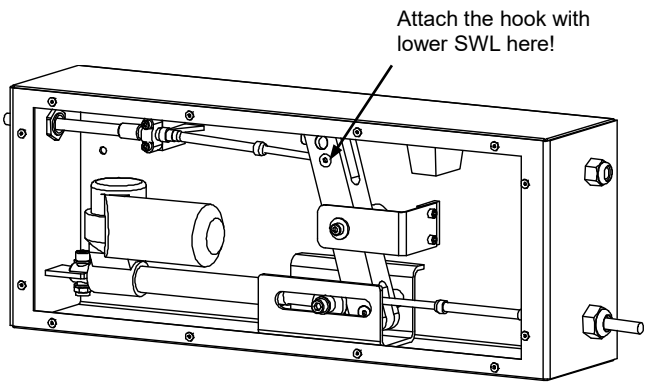
MECHANICAL

11 Mount the push/pull cables into the twin control box with the cable end attachments and the clamps. Hold the link arm against the actuator end when mounting the cables.



The twin system may have hooks with two different SWL. Attach the hook with the lower SWL to the clamp at the hole closer to the center of the clamp, see the illustration below.



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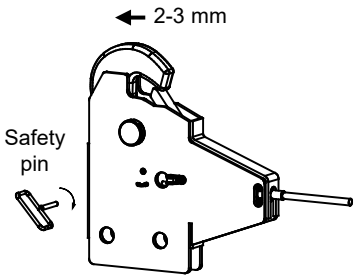
MECHANICAL

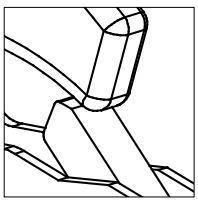
12 Make sure that the cables can move beyond the end position on the hook side of the cables when the hooks are in the closed position.

13 Remove the safety pins and remove the simulated load: the hooks remain in closed position (the actuator is still extracted).

The hook elements shall move 2-3 mm towards the open position when the load is removed.



14 Check that the hook elements are synchronized: the position of the tip of the hook element and the tip of the latch compared to each other are the same on both hooks, refer to the illustration.



15 Retract the actuator and the hooks will open.

16 Adjust the position of the cable end attachment on the twin control box side end of the cables if necessary (see step 13 and step 14) and repeat the adjustment process.

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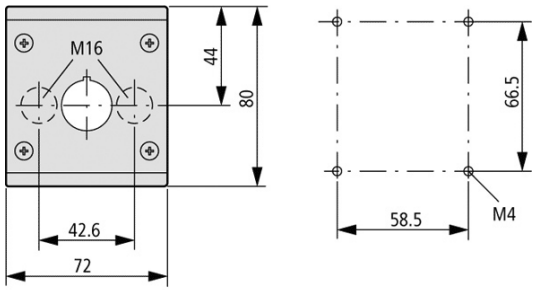
ELECTRICAL

1 Refer to the following illustrations for dimensions and hole positions of the electrical components to install. Use correct type of screws (depending on the board material) to fasten the components.

- End stop SA 14 (C1) is mounted into the twin control box.
- Actuator LA 30 (M) is mounted into the twin control box.
- Enclosure (E1) for toggle switch (optional Henriksen part):



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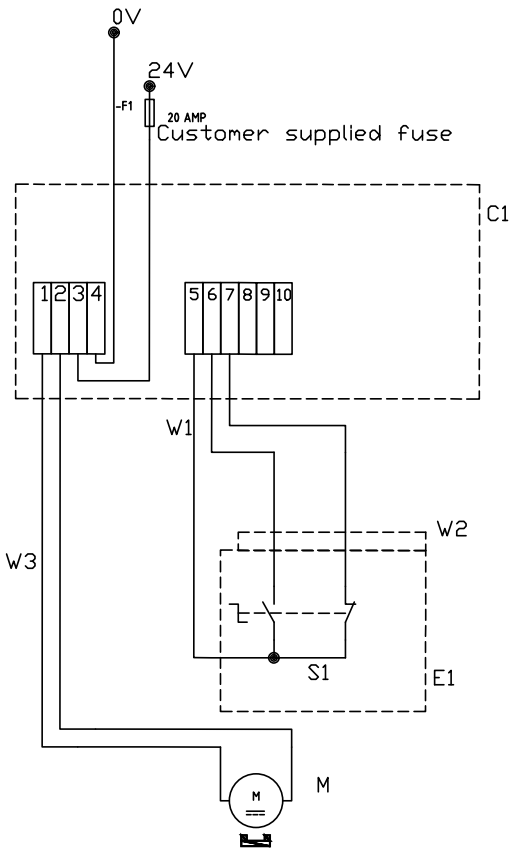
ELECTRICAL

2 Connect the electrical cables, refer to the connection diagram below.

ID	Description
M	Actuator LA 30
S1	Control switch
C1	Motor drive
E1	Enclosure IP66
W1	Cable 3 x 1,5
W2	Cable gland M16
W3	Cable 2 x 2,5



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FUNCTIONAL TEST

Do a functional test of the following after mounting the hooks, the cables and the electrical components on the boat:

- When both hooks are unloaded, they will open immediately at the same time when you activate/open them.
- Load or simulate the load only on the aft hook and check that the activated hooks will not open until the load is removed.
- Load or simulate the load only the on forward hook and check that the activated hooks will not open until the load is removed.
- The hook elements can open freely.
- The rings can be inserted simply and safely.
- The installation path for the cables does not cause tripping hazard and the cables are protected against wear and tear.
- The safety pins are easy to insert into the hooks.
- The synchronization mechanism can move smoothly in the twin control box. Apply lubricants if necessary.

We recommend to prevent the hooks and the twin control box against any ice to build up.

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HENRIKSEN HOOKS

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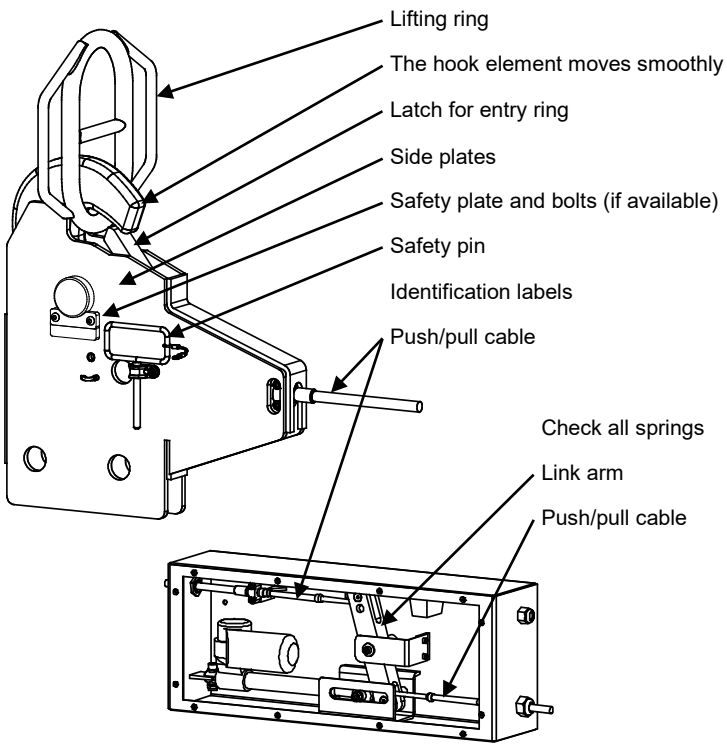
MONTHLY CONTROL

1 For safety reasons carry out the control in good lighting conditions.

2 Remove all impurities (salt, grease, dust, etc.) with fresh water. Remove ice if necessary.

3 Check that the following parts are free from deformations and defects on both hooks and the twin control box:



Contact the manufacturer in case of any deviation!

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4 Do a functional test of the following:

- When both hooks are unloaded, they will open immediately at the same time when you activate/open them.
- Load or simulate the load only on the aft hook and check that the activated hooks will not open until the load is removed.
- Load or simulate the load only the on forward hook and check that the activated hooks will not open until the load is removed.
- The hook elements can open freely.
- The rings can be inserted simply and safely.
- The installation path for the cables does not cause tripping hazard and the cables are protected against wear and tear.
- The safety pins are easy to insert into the hooks.
- The synchronization mechanism can move smoothly in the twin control box. Apply lubricants if necessary.

We recommend to prevent the hooks and the twin control box against any ice to build up.

5 **DO NOT PAINT ANY PART OF THE HOOKS!**

Contact the manufacturer in case of any deviation!

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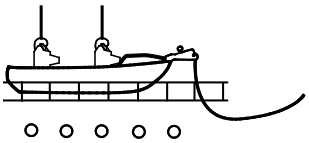
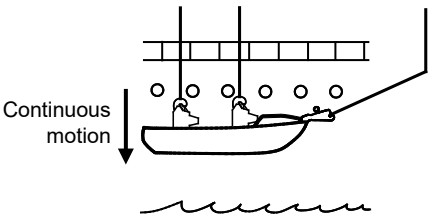
SAFE LAUNCH

1 The hook operator connects the lifting rings and the painter line before launch, and then gives a signal to the crane operator that the lowering process can start.



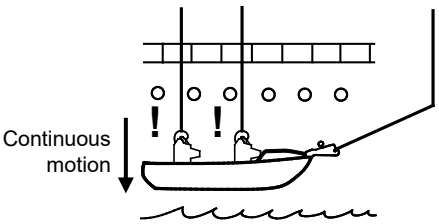
2 The crane operator starts the lowering process with a continuous motion.



3 The operators make sure that there are no obstacles under the boat.

The hook operator then activates the lifting hooks when the boat is close to the water surface.

NOTE:
In case of manual override follow the instructions as described in the "**Manual Override**" chapter.



4 The hook operator stands back and takes a safe stand-by position.

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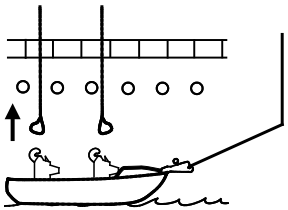
SAFE LAUNCH

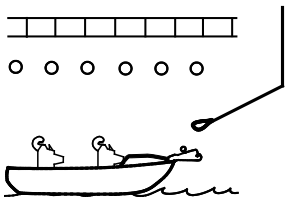
5 When the boat gets waterborne and both lifting hooks are off-loaded, the hooks will open automatically and release the lifting rings.



NOTE:
In case of manual override follow the instructions as described in the "**Manual Override**" chapter.

The crane operator lifts the lifting rings to avoid collision with the boat or the crew.

6 The coxswain or the hook operator releases the painter line when the boat and the crew is ready.



7 The coxswain maneuvers the boat ahead and away from the vessel.

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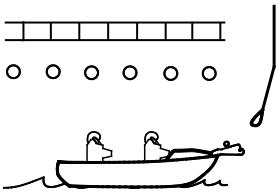
SAFE RECOVERY

1 The hook operator makes sure that both the lifting hooks and the painter hook are reset.

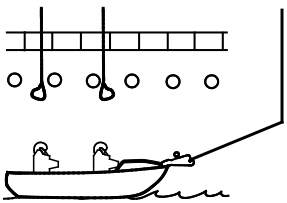
2 The coxswain maneuvers the boat close to the vessel to let the hook operator safely get the painter line.



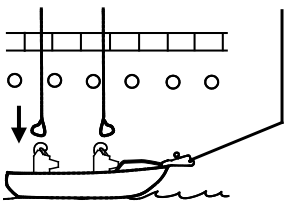
3 The hook operator connects the painter line. The coxswain aligns the direction of the boat to the direction of the vessel.

4 The coxswain reduces the speed of the boat and the painter line is tensioned. The coxswain then makes sure to keep the correct direction of the boat and tension in the painter line.

The boat shall then be in the correct position below the lifting rings.



5 The crane operator lowers the lifting rings to let the hook operator safely get them.



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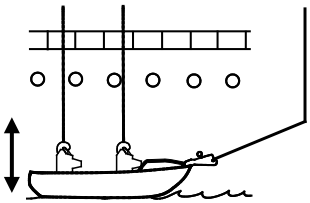
SAFE RECOVERY

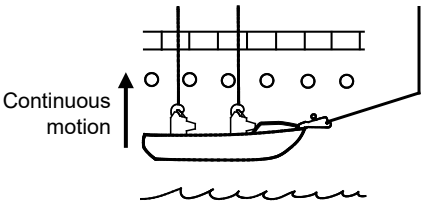
6 The hook operator connects the lifting rings first to the forward, then to the aft hook, and gives a signal to the crane operator.

The crane operator starts the automatic tensioning system (if available) to give tension in the wire.

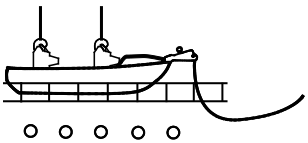


7 The hook operator stands back and takes a safe stand-by position.

8 The crane operator starts the lifting process with a smooth motion as the boat moves upwards on a wave.



9 The crane operator completes the lifting process with a continuous motion and places the boat into the crib.



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