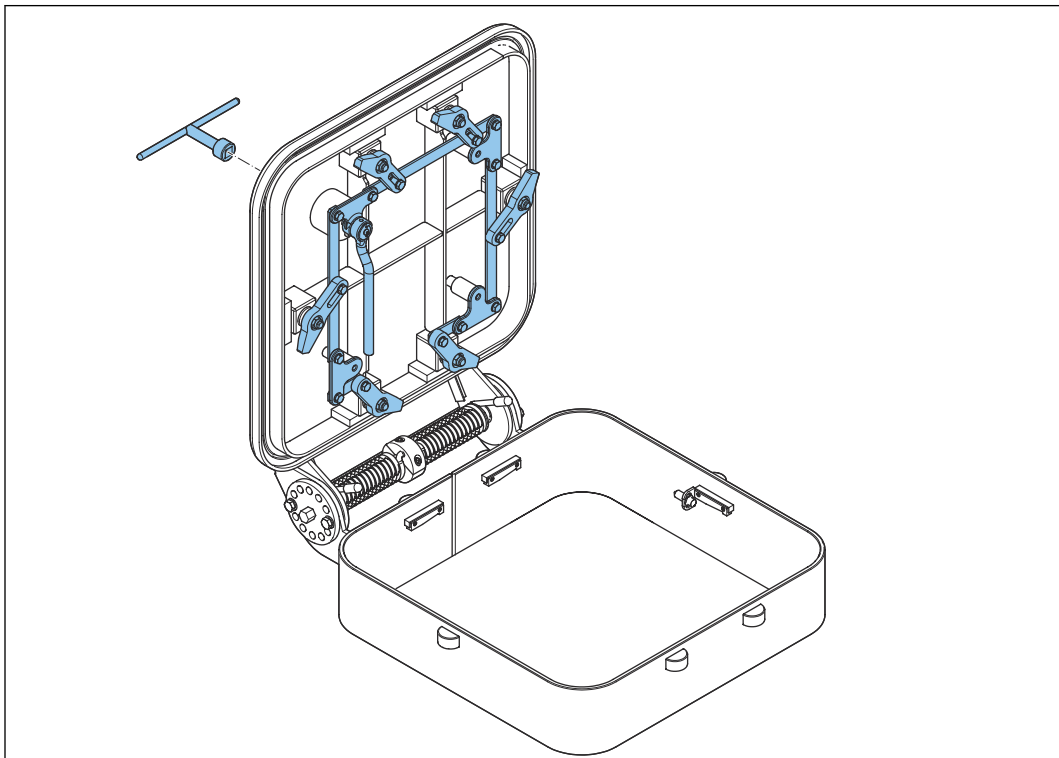




Operation & Maintenance Manual

Musketeer Hatch

Spring loaded



Version: 2.0
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1 About this manual

1.1 Contents of this manual

This manual contains information about the operation and maintenance of the Winel Musketeer hatch. This manual often refers to the Musketeer hatch as "the product".

1.2 Intended audience

This manual is intended for:

- Personnel that installs the product.
- Personnel that operates the product.
- Personnel that does maintenance and repairs on the product.

1.3 Copyright and disclaimer

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No part of this document may be reproduced, distributed or transmitted in any form or by any means, electronically or mechanically, including photocopying and recording for any purpose, without the express written authorisation by WINEL BV.

WINEL BV continuously improves its products, therefore the designs and specifications in this manual are subject to change without prior notice.

1.4 Revision history

Version	Date	History
1.0	January, 2021	Initial version (IOM)
2.0	March, 2024	Handle updated, procedure to replace the rubber updated. (Installation instructions removed: OM)

1.5 Symbols used in this manual

Symbol	Type	Description
	Danger	This indicates a situation with a high level of risk which, if not avoided, can cause death or serious injury.
	Warning	This indicates a situation with a medium level of risk which, if not avoided, can cause serious injury or serious damage to the product.
	Caution	This indicates a situation with a low level of risk which, if not avoided, can cause minor to moderate injury or damage or the product.
	Note	This provides useful background information that is not hazard related.

1.6

Related documents

Document name	Version
Installation Manual Musketeer Hatch Spring loaded	1.0

2 Safety and warranty

2.1 General safety instructions

- Always read the instructions of this product before you operate the product.
- Do not endanger people and the environment. Obey the safety instructions.
- The product must be operated by qualified personnel.
- Follow the maintenance instructions given by WINEL BV. This is in the interest of safety and reliability of the vessel and of its crew and passengers.
- No modification to the product is allowed without prior written approval and permission of WINEL BV and the certifying authorities.
- Disconnect all electrical wiring before welding activities near the product. The welding current can cause damage to the electrics and electronics of the product.
- If the system is not functioning properly, do not try to force the system. Never overrule or ignore safety features.
- Performing proper maintenance and service to the system will prevent most of the malfunctioning.
- Small malfunctions must be solved immediately, if not this might lead to severe damage to the system or injury to operating personnel.

2.2 Specific safety instructions

- Open the hatch carefully. Keep away from the opening area and the hinge. The hatch is spring loaded and partly opens itself.
- For maintenance: Heavy spring load. Release the tension of the spring carefully. Use a wrench with an arm of 1 meter. Pinch hazard.
- Do not use grease on the bearings of these parts:
 - Hinges
 - Handle
 - Cleats

2.3 Use of spare parts

- Only use original WINEL BV spare parts or spare parts that are recommended by WINEL BV.

The use of other parts can result in unsafe operations and severe damage to the equipment, to personnel and to the environment.
- All damage resulting from the use of non-original spare parts is beyond the responsibility of WINEL BV.
- WINEL BV only accepts warranty claims if the maintenance instructions are carefully followed and if original WINEL BV spare parts have been used.

In case of neglected maintenance procedures and mounting non-WINEL BV parts, WINEL BV will not accept any responsibility.

3 Introduction to the product

3.1 Intended use

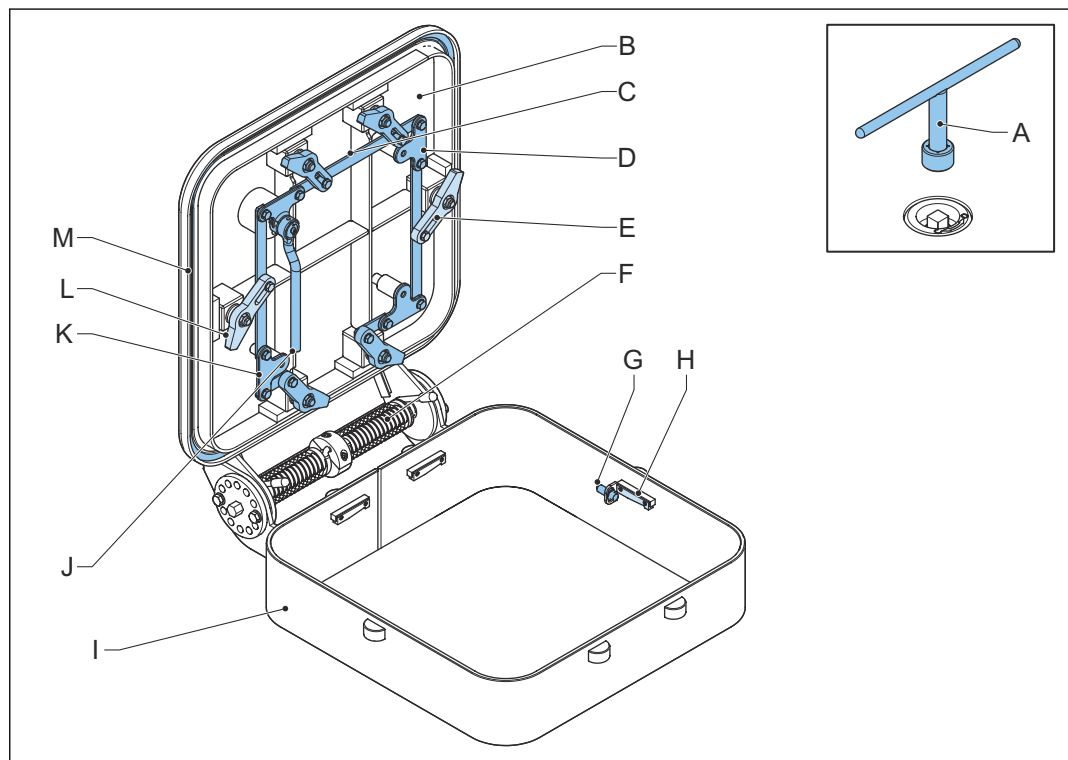
All hatches produced by Winel BV are manufactured according to special customer requirements as well as to SOLAS and IMO regulations.

The hatches are designed to allow the passage of people and goods through a watertight or weathertight deck when opened. When closed, the hatches maintain the watertight or weathertight integrity of the deck in which the hatch is fitted.

Every hatch is factory tested and adjusted as far as possible. On site installation is therefore limited to welding of the frame into ship construction and adjustment of cleats/hinges.

3.2 Product description

3.2.1 Overview of the product



A	Key (option)	I	Wedge
B	Hatch	J	Frame
C	Latching device	K	Disc
D	Cleat	L	Shaft
E	Corner piece	M	Fasteners
F	End cleat	N	Rubber gasket
G	Spring	O	Handle
H	Sensor (option)		

For specific details about the hatch that is installed on the vessel, refer to the general arrangement drawings and the documentation enclosed.

3.2.2 Working principle

The user can open and close the hatch with the handle or hand wheel on the hatch from both sides. The handle or hand wheel operates the latching device.

When the hatch is closed and latched correctly, the compression of the gasket makes the hatch weathertight/watertight.

4 Operation

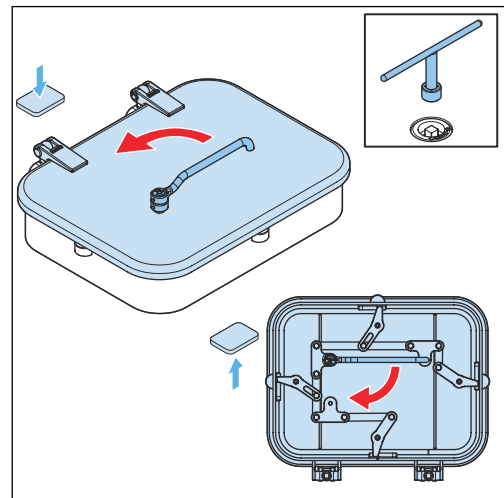
4.1 Open the hatch



Caution: Open the hatch carefully. Keep away from the opening area and the hinge. The hatch is spring loaded and partly opens itself.

Procedure

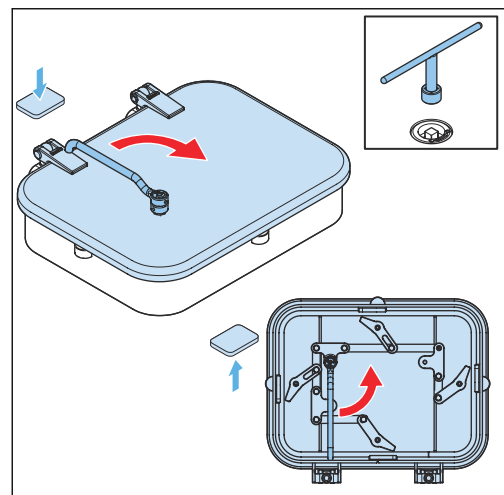
1. If applicable, use the key.
2. Set the handle or key in the open (O) position.
3. Open the hatch upwards.



4.2 Close the hatch

Procedure

1. Close the hatch, push/pull it downwards. Make sure that nothing gets trapped between the hatch and the frame.
2. Set the handle or key in the closed (C) position. If applicable, use the key.
3. Make sure that the hatch latches correctly.



5 Maintenance

Do the maintenance to keep the product safe and reliable. Refer to the maintenance schedule.



Caution:

Only use WINELOGO genuine spare parts or parts advised by WINELOGO



Note:

- All bushes used in hinges and/or cleats are maintenance-free bushes that do NOT require lubrication.
- WINELOGO BV can offer you a service contract. For example, the products can be examined and, when necessary, serviced every 3 – 5 years by a service engineer of WINELOGO BV.

5.1 Maintenance schedule

Monthly (depending on the frequency of use):

Examine the parts that follow. If any bearing bush is worn, replace it.

- Hinges
- Handle
- Cleats
- Wedges

Examine the rubber gasket. If you see cracks or other visual damage, replace the rubber gasket.

5.2 Maintenance tasks

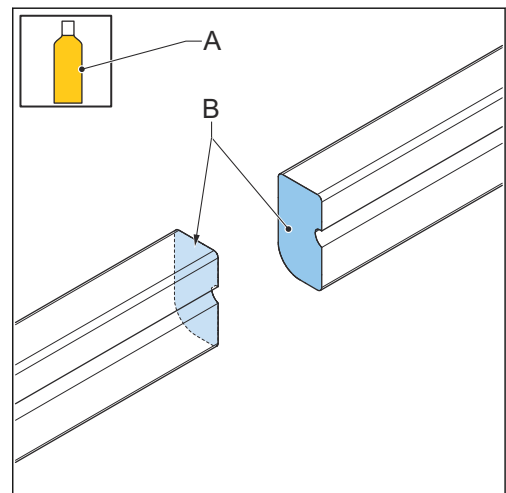
5.2.1 Replace the rubber gasket

Supplies

- Innotec glue

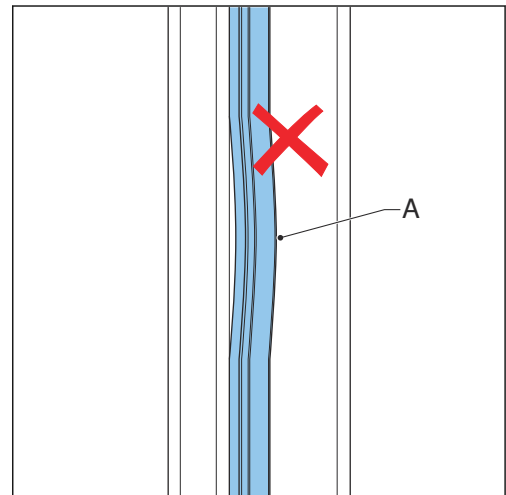
Procedure

1. Remove the old rubber gasket.
2. Remove the remainder of the glue.
3. Apply Innotec glue (A) to the two sides (B) of the rubber to create the new rubber gasket.
4. Install the new rubber gasket. If necessary, pull the rubber to make it slimmer.



5. Make sure that there are no bumps (A) in the rubber gasket. if there are any bumps, correct this.

 - Make sure that the compression of the rubber gasket is correct to make sure that the hatch is watertight: Adjust the cleats. Refer to section [Adjust the cleats](#) on page 11.



5.2.2

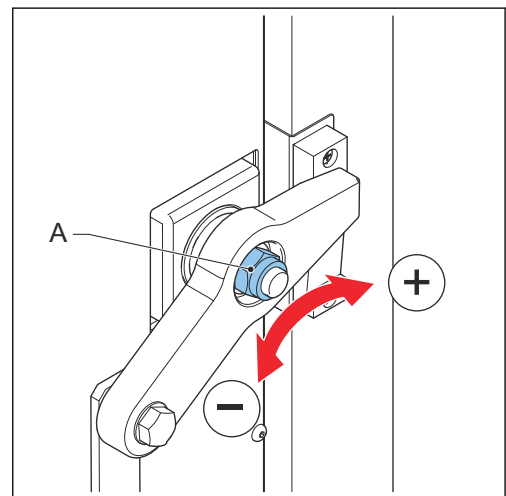
Adjust the cleats



Note: The rubber gasket must be compressed 2-3 mm to make the door or hatch watertight.

Procedure

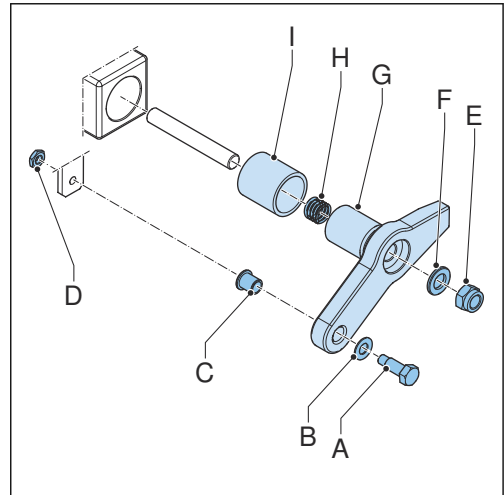
1. On all cleats, turn the hexagonal nut (A) a quarter of a turn.
 - a) Clockwise to increase the compression of the rubber gasket.
 - b) Counterclockwise to decrease the compression of the rubber gasket.
2. Repeat the previous step until the compression of the rubber gasket is correct for all cleats.



5.2.3 Replace the cleat bearing

Procedure

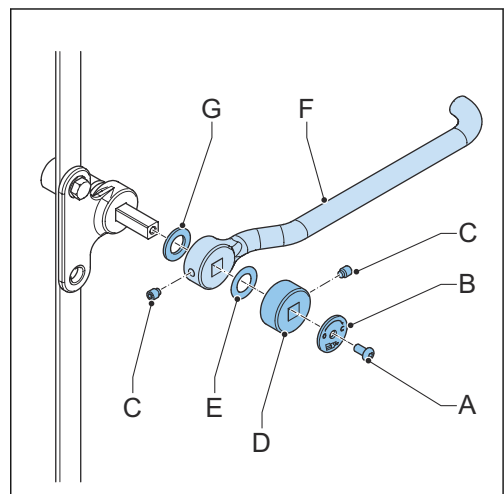
1. Secure the door or hatch in the open position.
2. Remove these parts:
 - a) Pillar bolt (A)
 - b) Nylon washer (B)
 - c) Nylon bush (C)
 - d) Hexagon nut (D)
3. Remove these parts:
 - a) Hexagon nut (A)
 - b) Washer (B)
 - c) Cleat (C)
 - d) Spring (D)
 - e) Cleat bearing (E)
4. Install these parts:
 - a) New cleat bearing
 - b) Cleat
 - c) Spring
 - d) Washer
 - e) Hexagon nut
5. Install these parts:
 - a) Hexagon nut
 - b) Nylon bush
 - c) Nylon washer
 - d) Pillar bolt
6. Adjust the cleats. Refer to section [Adjust the cleats](#) on page 11.



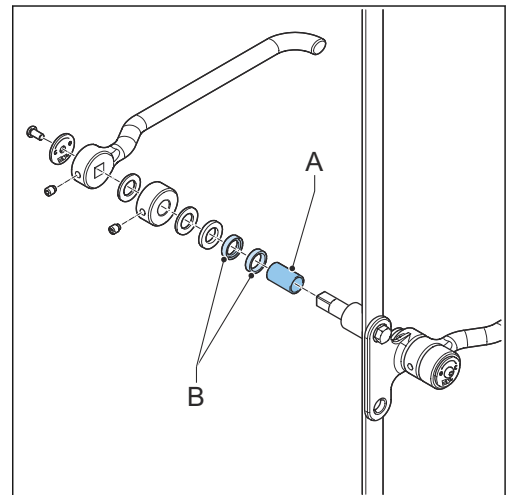
5.2.4 Replace the handle bearing

Procedure

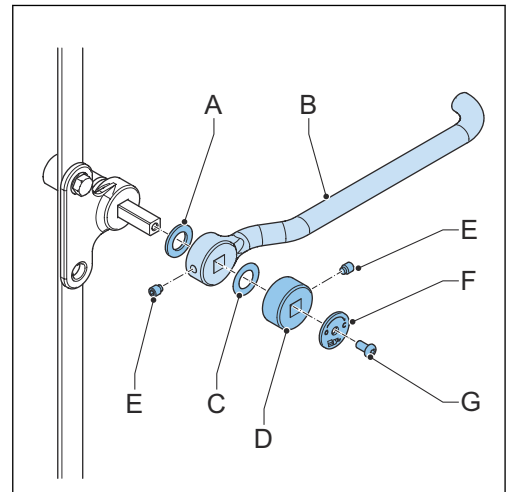
1. Secure the door or hatch in the open position.
2. Remove these parts:
 - a) Allen bolt (A)
 - b) Open/close indication plate (B)
 - c) Set screw (C)
 - d) Spacer (square hole) (D)
 - e) Nylon washer (E)
 - f) Handle (F)
 - g) Nylon washer (G)



3. Remove the internal mechanism.
4. Replace the bearing bush (A) and the seals (2x) (B).
5. Install the internal mechanism.



6. Install these parts:
 - a) Nylon washer (A)
 - b) Handle (B)
 - c) Nylon washer (C)
 - d) Spacer (square hole) (D)
 - e) Set screw (E)
 - f) Open/close indication plate (F)
 - g) Allen bolt (G)
7. Close the door or hatch.



5.2.5

Replace the hinge bushes



Warning:

RISK OF INJURY - HEAVY OBJECT

- Use correct and certified lifting materials.
- Do this task with two persons



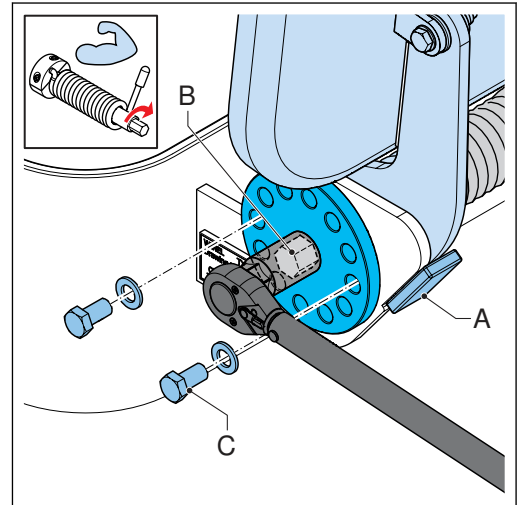
Warning:

RISK OF INJURY - HEAVY SPRING LOAD

Release the tension of the spring carefully. Use a wrench with an arm of 1 meter. Pinch hazard.

Procedure

1. Release the tension from the spring:
 - a) Secure the hatch in open position. Make sure that the hatch is caught by the bracket (A).
 - b) Hold the shaft end (B) and remove the fasteners (C). Use a wrench with an arm of 1 meter to hold the shaft end.
 - c) Carefully release the shaft end. The tension is released from the spring.
2. Release the tension from the second spring.
3. Carefully close the hatch.



Warning: The hatch is heavy. The hatch is not held by the spring.



4. Remove these parts:
 - a) Disc
 - b) Shaft
 - c) Bushes
5. Install these parts:
 - a) New bushes
 - b) Shaft
 - c) Disc
6. Apply tension to the spring and install the fasteners (C). Adjust the spring load. Refer to section [Adjust the spring load](#) on page 14.

5.2.6

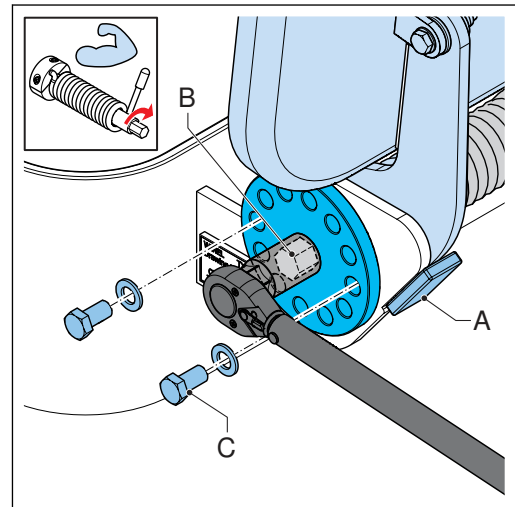
Adjust the spring load

Warning:

- Heavy spring load. Release the tension of the spring carefully. Use a wrench with an arm of 1 meter. Pinch hazard.
- Secure the hatch in open position. Make sure that the hatch cannot close accidentally. Pinch hazard.

Procedure

1. Secure the hatch in open position. Make sure that the hatch is caught by the bracket (A).
2. Hold the shaft end (B) and remove the fasteners (C). Use a wrench with an arm of 1 meter to hold the shaft end. Push the shaft end clockwise.
3. To apply more spring load: Turn the disc with the shaft end (B) clockwise until the next holes align. Hold the shaft end and install the fasteners (C).
4. To apply less spring load: Turn the disc with the shaft end (B) and the disc counterclockwise until the next holes align. Hold the shaft end and install the fasteners (C).



5.2.7

Remove the hatch



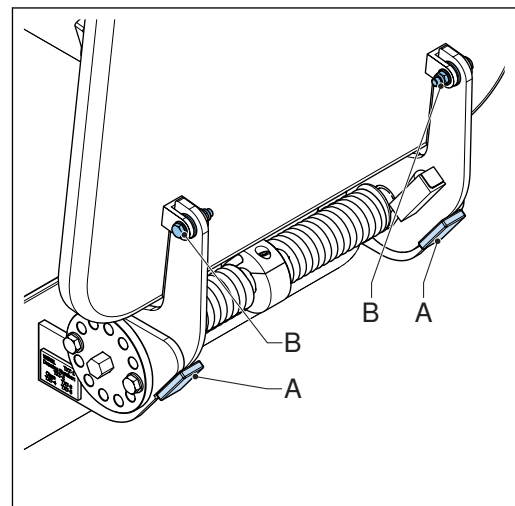
Warning: Secure the hatch in open position. Make sure that the hatch cannot close accidentally. Pinch hazard.

Procedure

1. Secure the hatch in open position. Make sure that the hatch is caught by the bracket (A).
2. Remove the fasterers (B).



Warning: The hatch is heavy. The hatch is not held by the spring.



5.2.8

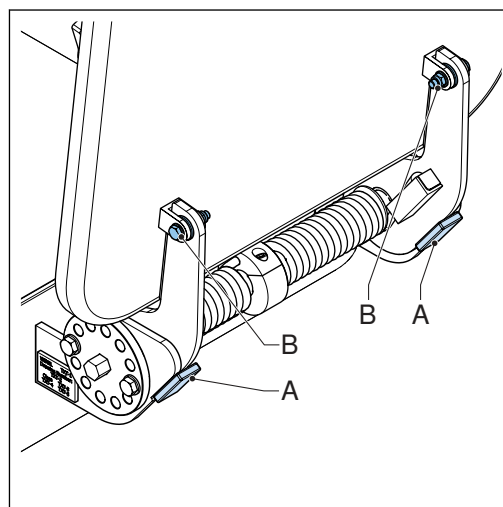
Install the hatch



Warning: Make sure that the hatch cannot close accidentally. Pinch hazard.

Procedure

1. Engage the hatch with the hinge.
2. Install the fasteners (B).



6 Troubleshooting



Warning:

Always read the safety instructions in section *Safety and warranty* on page 6 before trouble shooting.

Do not endanger people and the environment. Obey the safety instructions.

Fault	Possible cause	Check	Remedy
Hatch cannot be opened or closed with handle	Bolts in cleating system come loose	Cleating system	Place new bolts/nuts (apply locking fluid)
	Safety bolt of handle is broken	Safety bolt operating handle	Place new bolt (apply locking fluid)
Hatch does not close well	Damage on frame, hatch, rubber gasket, musketeer system, frame is bent	Complete system, hatch, rubber gasket and frame	Repair and/or replace damaged pieces and/or parts. Then adjust cleating system and hinges
Hatch is leaking	Rubber gasket is compressed too little	Rubber gasket, cleating and hinges	Replace rubber gasket and/or adjust cleating system and hinges
	Damage on frame, hatch, rubber gasket, musketeer system, frame is bent	Complete system, hatch, rubber gasket and frame	Repair and/or replace damaged pieces and/or parts. Then adjust cleating system and hinges
Handle not operating correct and/or too heavy	Rubber gasket is compressed too much	Compression of the rubber gasket when the hatch is closed and latched	Adjust cleating system and hinges
	No grease on wedges	Wedges	Apply grease to wedges
	Sticking of handle in bush	Handle	Disassemble handle and clean or replace handle and/or bushes
	Cleating rod is bended	Cleating system	Repair or replace damaged parts
	Damage on frame, hatch, rubber gasket, musketeer system, frame is bent	Complete system, hatch, rubber gasket and frame	Repair and/or replace damaged pieces and/or parts. Then adjust cleating system and hinges
	Paint on system parts	Parts that should not be painted for paint	Remove the paint

If the problems cannot be solved using the instructions in the manual, contact WINEL After-sales department.