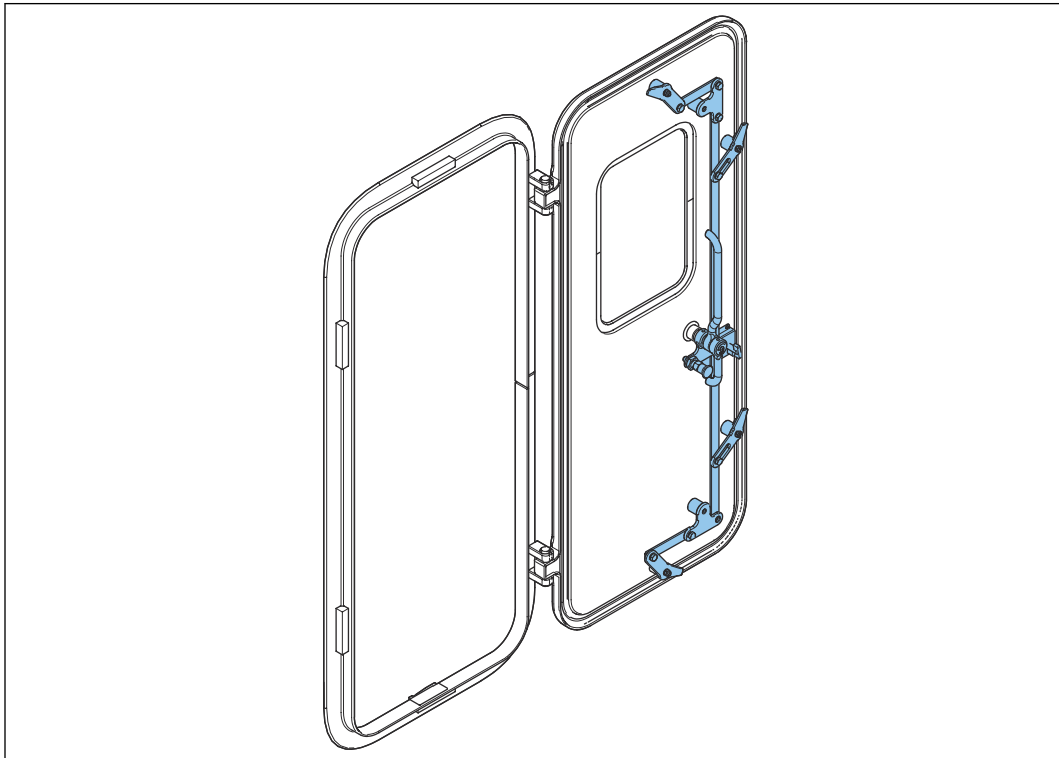




Operation & Maintenance Manual

Musketeer Door

Splash / Weathertight



Version: 4.0
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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 door. This manual often refers to the Musketeer door 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 Revision history

Version	Date	History
1.0	November, 2017	Initial version
2.0	December, 2018	First update
3.0	May, 2020	Second update
4.0	March, 2024	Handle updated, procedure to replace the rubber updated.



1.4 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.

1.5 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 Door Weather-tight	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

- 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

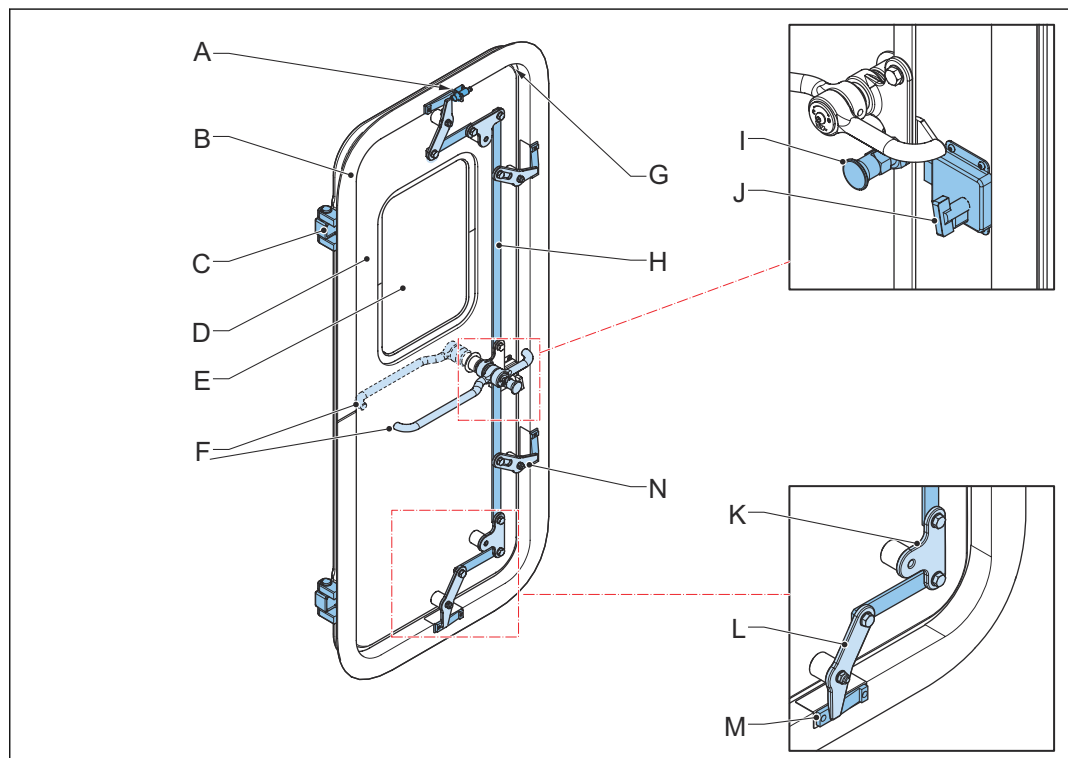
All doors produced by Winel BV are manufactured according to special customer requirements as well as to SOLAS and IMO regulations.

The doors are designed to allow the passage of people and goods through a weathertight bulkhead when opened. When closed, the doors maintain the weathertight integrity of the bulkhead in which the door is fitted.

Every door 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. Sensor (option)
- B. Frame
- C. Hinge, with maintenance-free self-greasing bushes
- D. Doorblade
- E. Window (option)
- F. Handle
- G. Rubber gasket
- H. Latching device

- I. Deadbolt lock (option)
- J. Lock pin inside only (option)
- K. Corner piece
- L. End cleat
- M. Wedge
- N. Cleat

For specific details about the door 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 door with the handle or hand wheel on the door from both sides. The handle or hand wheel operates the latching device.

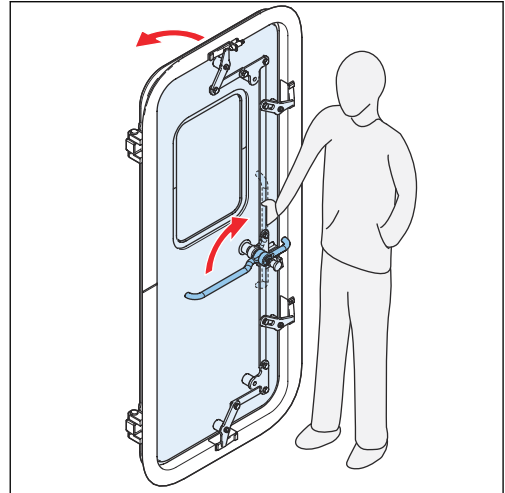
When the door is closed and latched correctly, the compression of the gasket makes the door weathertight.

4 Operation

4.1 Open the door

Procedure

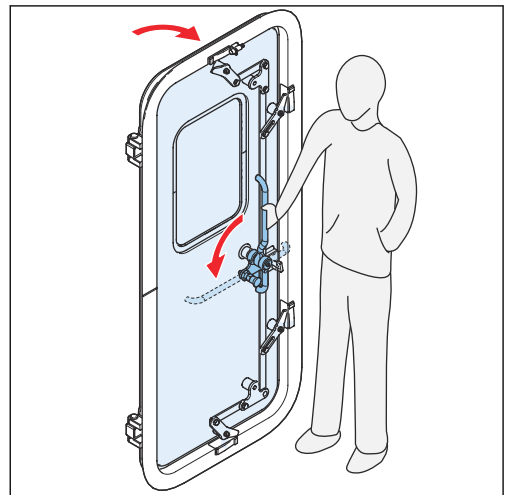
1. Set the handle in the vertical position.
2. Open the door.



4.2 Close the door

Procedure

1. Close the door. Make sure that nothing gets trapped between the door and the frame.
2. Set the handle in the horizontal position.
3. Make sure that the door 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

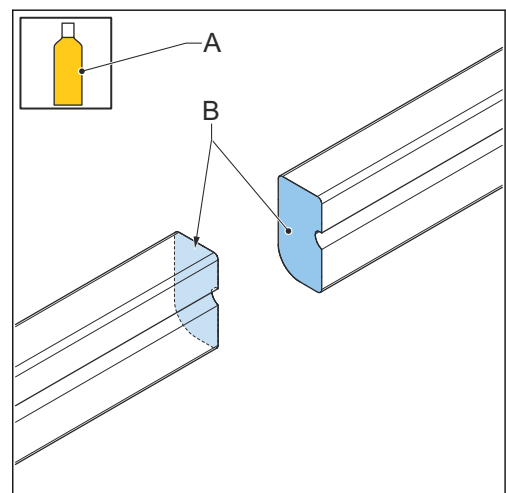
5.2.1 Replace the rubber gasket

Supplies

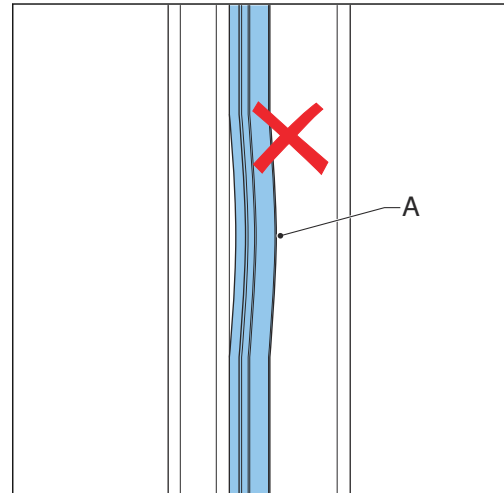
- Innotec glue

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 hinges and cleats are adjusted correctly to make sure that the door is watertight:
 1. Adjust the hinges. Refer to section *Adjust the hinges (GRP doors)* on page 11.
 2. Adjust the cleats. Refer to section *Adjust the cleats* on page 12.



5.2.2 Adjust the hinges (GRP doors)

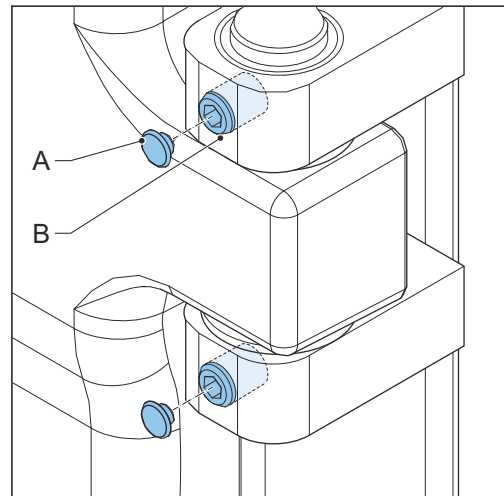


Note:

If the door has two cleats on the hinge side, do not adjust the hinges.

Procedure

1. On all hinges, remove the plastic caps (A).
2. On all hinges, turn the socket screws (B) a $\frac{1}{4}$ turn.
 - a) Clockwise to increase the hinge force.
 - b) Counterclockwise to decrease the hinge force.
3. Repeat the previous step as many times as necessary.
4. Install the plastic caps on all hinges.



5.2.3 Adjust the hinges (steel / aluminium / stainless steel)

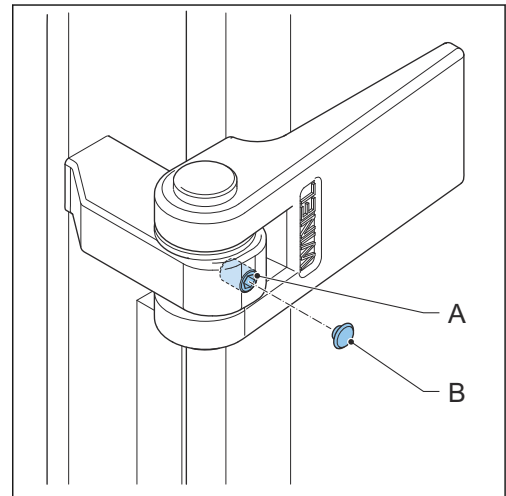


Note:

If the door has two cleats on the hinge side, do not adjust the hinges.

Procedure

1. On all hinges, remove the plastic caps (B).
2. On all hinges, turn the socket screws (A) a $\frac{1}{4}$ turn.
 - a) Clockwise to increase the hinge force.
 - b) Counterclockwise to decrease the hinge force.
3. Repeat the previous step as many times as necessary.
4. Install the plastic caps on all hinges.



5.2.4

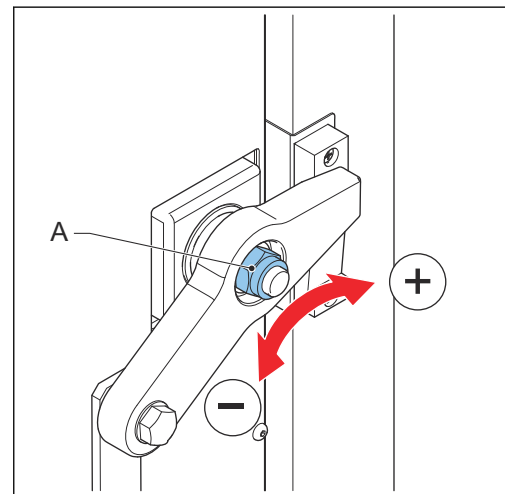
Adjust the cleats



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.



5.2.5

Replace the hinge bushes (GRP doors)

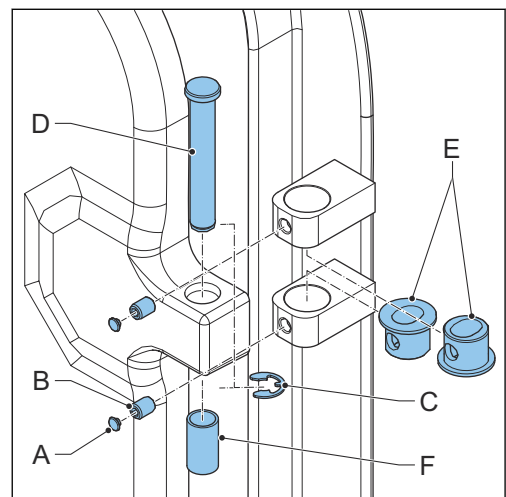
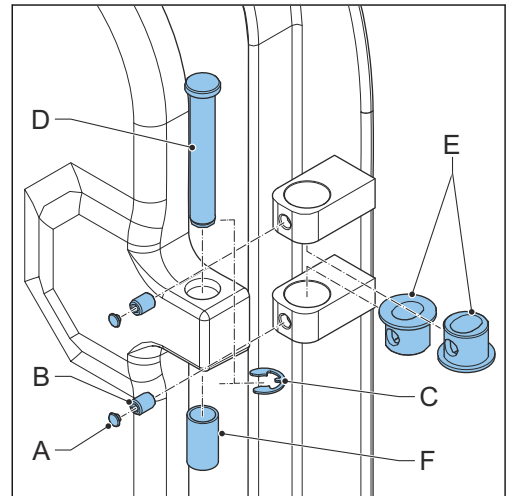
**Warning:**

RISK OF INJURY - HEAVY OBJECT

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

Procedure

1. Close the door. Make sure that the door is latched.
2. Attach hoisting slings to the door.
3. Use the hoist to slowly lift the door until the weight of the door is taken off the hinges.
4. Remove the parts that follow:
 - a) Plastic caps (A)
 - b) Socket screws (B)
 - c) Retainer ring (C). Use special pliers.
 - d) Hinge axle (D). Use a hammer with a nylon head.
5. Release the latches and lift the door out of the door frame.
6. Remove the bushes (E and F).
7. Clean the bracket and the hinge plate.
8. Install the new bushes (E) into the hinge part at the frame.
9. Place the new bushes (F) into the hinge part of the door.
10. Carefully place the door in the correct position to assemble the door and frame parts of the hinges.
11. Install the hinge axle, the retainer ring and the socket screws.
12. Adjust the hinge. Refer to section [Adjust the hinges \(GRP doors\)](#) on page 11.
13. Install the plastic caps.



5.2.6

Replace the hinge bushes (steel / aluminium / stainless steel)

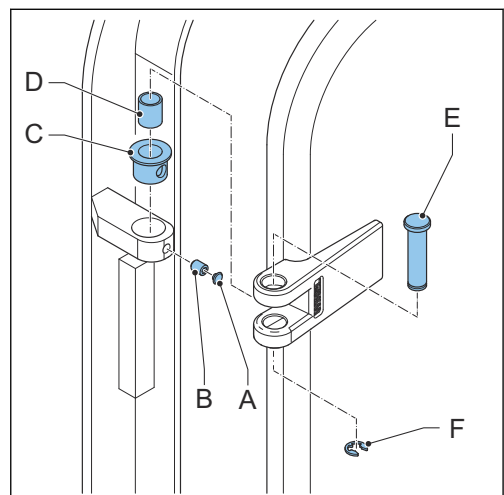
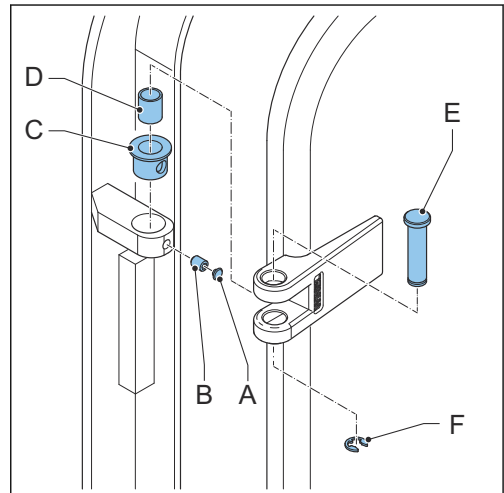

Warning:

RISK OF INJURY - HEAVY OBJECT

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

Procedure

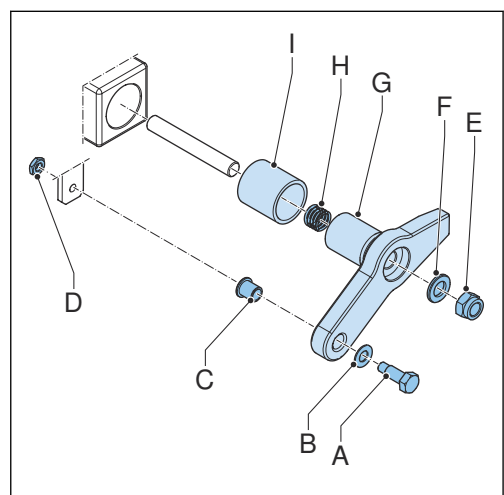
1. Close the door. Make sure that the door is latched.
2. Attach hoisting slings to the door.
3. Use the hoist to slowly lift the door until the weight of the door is taken off the hinges.
4. Remove the parts that follow:
 - a) Plastic caps (A)
 - b) Socket screws (B)
 - c) Retainer ring (F). Use special pliers.
 - d) Hinge axle (E). Use a hammer with a nylon head.
5. Release the latches and lift the door out of the door frame.
6. Remove the bush (C and D).
7. Clean the bracket and the hinge plate.
8. Install the new bush (C) into the hinge part at the frame.
9. Place the new bushes (D) into the hinge part of the door.
10. Carefully place the door in the correct position to assemble the door and frame parts of the hinges.
11. Install the hinge axle, the retainer ring and the socket screws.
12. Adjust the hinge. Refer to section [Adjust the hinges \(steel / aluminium / stainless steel\)](#) on page 11.
13. Install the plastic caps.



5.2.7 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)

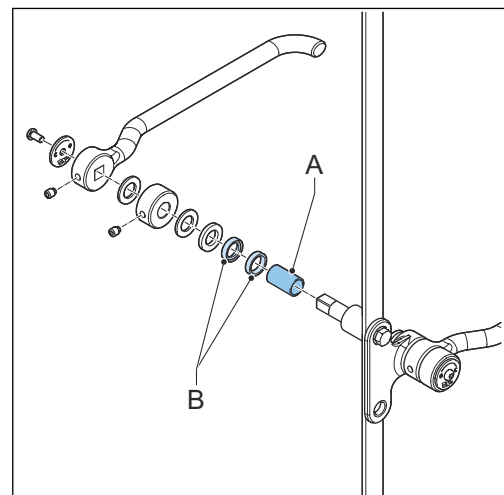
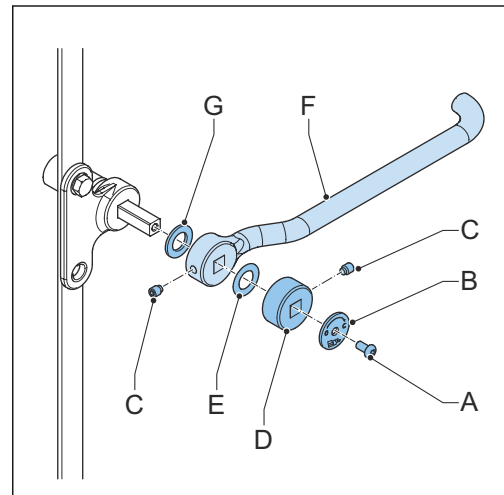


4. Install these parts:
 - a) New cleat bearing
 - b) Cleat
 - c) Spring
 - d) Washer
 - e) Hexagon nut
5. Install these parts:
 - a) Hexagon nut
 - b) Nylon bush
 - c) Nylon washer
 - d) Pillar bolt
6. Adjust the cleats. Refer to section *Adjust the cleats* on page 12.

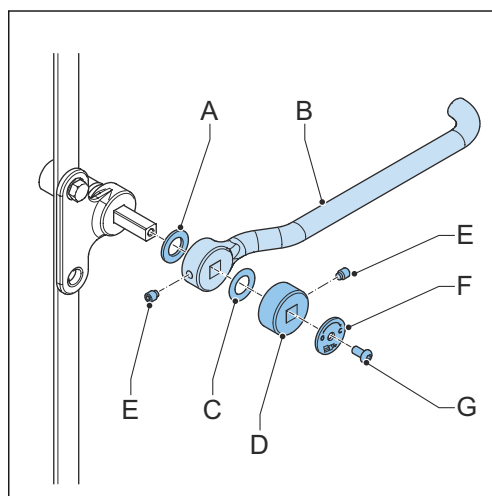
5.2.8 Replace the handle bearing

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.



6 Trouble shooting



Warning:

Always read the safety instructions §2 of the manual before trouble shooting.

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

Fault	Possible cause	Check	Remedy
Door 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)
Door does not close well	Damage on frame, door, rubber gasket, musketeer system, door frame is bent	Complete system, door, rubber gasket and frame	Repair and/or replace damaged pieces and/or parts. Then adjust cleating system and hinges
Door 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, door, rubber gasket, musketeer system, door frame is bent	Complete system, door, rubber gasket and frame	Repair and/or replace damaged pieces and/or parts. Then adjust cleating system and hinges
Door not operating correct and/or too heavy	Rubber gasket is compressed too much	compression of the rubber gasket when door 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, door, rubber gasket, musketeer system, door frame is bent	Complete system, door, 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.