

3. SII-Safety equipment (yearly)

Document no.: 0093-1903 V11

Class: CONFIDENTIAL

Type: T09

Date: 2025-09-30

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Wind turbine type

Read the full document before you start to do work.

Send questions or concerns about the document to Vestas Wind Systems A/S.

Wind turbine type	Mk version
EnVentus™	Mk 0A

Change description

Description of changes
Updated section 1 Abbreviations and technical terms, page 5 , section 2.2 Reference documents , page 5 , section 5.1 Emergency rescue equipment, page 6 , and section 5.4.2 To examine the bolts on the fall protection rail, page 9 .

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1 Abbreviations and technical terms

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Table 1.1: Abbreviations

Abbreviation	Explanation
CIR	Component inspection report
LOTO	Lockout-tagout
NCR	Non-conformity report
PPE	Personal protective equipment
SDS	Safety data sheet
SPRA	Standardised procedure risk assessment

Table 1.2: Explanation of terms

Term	Explanation
None	

2 Referenced documentation

2.1 Safety documents

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Table 2.1: Safety documents

Document no.	Title
0001-0410	Personal protective equipment sheets
0004-4159	Standardised procedure risk assessment (SPRA)
0092-3874	Rotor locking system
0092-3919	Safety regulations for operators and technicians
0094-2383	Mode selector system
	Relevant SDS for the chemicals used in this document
	Appropriate LOTO document

2.2 Reference documents

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Table 2.2: Reference documents

Document no.	Title
0007-2375	Yearly inspection ED-RED pro vacuum packaging
0029-2080	Avanti fall protection system
0050-9145	Process specification for handling of swivel anchor points

Document no.	Title
0065-1119	Aguerri wire fall arrest system
0065-3482	Standard service tools
0073-3853	Placement & selection of rescue/descent kit in nacelle for 2MW, 3MW & 4MW platform
0091-8253	3M wire fall arrest system
0092-8440	Visual inspection of anchor points
0100-2047	3S wire fall arrest system
0104-1067	Hailo operation instructions
0165-0499	ResqKit_CRESTO_vacuum solutions guide
0218-0329	Yearly inspection instruction – Vacuum packaging C-Pac 9449

3 Purpose

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The purpose of this document is to give the instructions for how to do the yearly inspection of the safety equipment.

4 Note

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This document gives the description of the service inspections that must be done during the yearly inspection. Unscheduled replacement procedures are not included in the yearly inspection. If it is necessary to make an unscheduled replacement, then make a note of it in the service report.

5 Safety equipment

5.1 Emergency rescue equipment

0011431786



Risk of fall from height! SPRA ID No. 1.02

- Make sure that there are no persons in the areas where overhead work is done.
- Make sure that all platform hatches are closed when they are not in use.
- Obey the rules for work at height. Refer to local requirements.
- Use work positioning rope and fall arrest lanyard in combination to restrict movement.
- Use the necessary PPE that is given in PPE sheet 8. The PPE must be attached to approved anchor points, slides, or cables.

**Risk of falling objects! SPRA ID No. 1.06**

- Do not carry loose parts or tools in hands or in open pockets.
- Carry small parts or tools in a closed tool bag that is designed for the purpose. Carry the tool bag on your back or attach it to the personal full-body harness.
- Secure tools and parts with ropes when you do work in elevated areas.
- When tools and parts change hands, they must be secured by all parties involved.
- Make sure that there are no persons in the areas where overhead work is done.

1 Do a check of the emergency rescue equipment according to the instructions given in the documents below:

- For RedPro kits before 2019, see 'Yearly inspection ED-RED pro vacuum packaging' in section 'Reference documents'.
- For all kits (RPX) delivered after 2019, see 'ResqKit_CRESTO_vacuum solution guide' in section 'Reference documents'.
- For C-Pac 9449 kit, see 'Yearly inspection instruction – Vacuum packaging C-Pac 9449' in section 'Reference documents'.

a Press the aluminium foil bag in the red bag to do a vacuum check.

Do not pull the aluminium foil bag out of the red bag when you press.

If it feels hard, then the vacuum is OK. If it does not feel hard, then create a CIR or NCR.

2 Do a check when the rescue device was installed last time. Do a check of the model of the rescue equipment and its life span according to its manual. Replace the rescue kit if it is expired.


The rescue kit must be selected based on the hub height of the wind turbine. See 'Placement & selection of rescue/descent kit in nacelle for 2MW, 3MW & 4MW platform' in section 'Reference documents'.



The sales configuration team can order the necessary rescue kit as an optional item for each wind turbine.

5.2 Fire extinguishers

0011431785

1 Do a check of the inspection date on the fire extinguishers (if installed) in the nacelle.

2 Make sure that the seal on each extinguisher is not broken.

- If the seal is broken, create a work order to replace the fire extinguisher at the next site visit.
-

3 Do a visual check of the fire extinguishers.

- Make sure that the needle of the pressure gauge points to the green area.
-



If the inspection of the fire extinguishers is overdue, note the date of inspection in the service report. The fire extinguishers must remain in the wind turbine.

4 Note the date for the next inspection of the fire extinguishers.

5.3 First-aid kits

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1 Do a check of the first-aid kits according to the procedure mentioned in the manual supplied along with the first-aid kits.

2 Do a check of the first-aid kits for completeness and expiry date.

5.4 Fall arrest equipment

0020640350

5.4.1 To examine the fall protection rail

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1 Visually examine the fall protection rail and the ladder for dents, holes, and cracks.

- In case of damage in the fall protection rail, contact Vestas technical support.
-

5.4.2 To examine the bolts on the fall protection rail

0011525294



Risk of fall from height! SPRA ID No. 1.02

- Make sure that there are no persons in the areas where overhead work is done.
- Make sure that all platform hatches are closed when they are not in use.
- Obey the rules for work at height. Refer to local requirements.
- Use work positioning rope and fall arrest lanyard in combination to restrict movement.
- Use the necessary PPE that is given in PPE sheet 8. The PPE must be attached to approved anchor points, slides, or cables.



Risk of falling objects! SPRA ID No. 1.06

- Do not carry loose parts or tools in hands or in open pockets.
- Carry small parts or tools in a closed tool bag that is designed for the purpose. Carry the tool bag on your back or attach it to the personal full-body harness.
- Secure tools and parts with ropes when you do work in elevated areas.
- When tools and parts change hands, they must be secured by all parties involved.
- Make sure that there are no persons in the areas where overhead work is done.

- 1 Make sure that all bolt connections on the fall protection rail are not loose.



- 2 If the self-locking nuts are loose, torque them to 8 Nm and make sure that the markings on the bolts are positioned at a 70° angle. For more information, see 'Avanti fall protection system' in section 'Reference documents'.

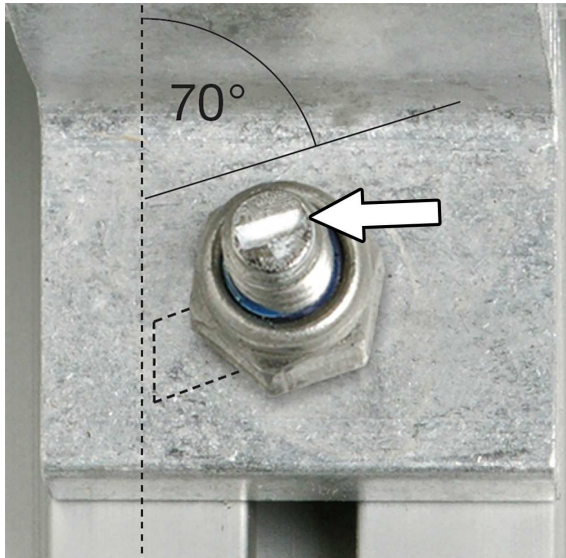


Figure 5.1: Bolt angle reference position



Figure 5.2: Bolt position is ok



Figure 5.3: Bolt position is not ok

5.4.3 To do a check of the hatch assembly in all the platforms

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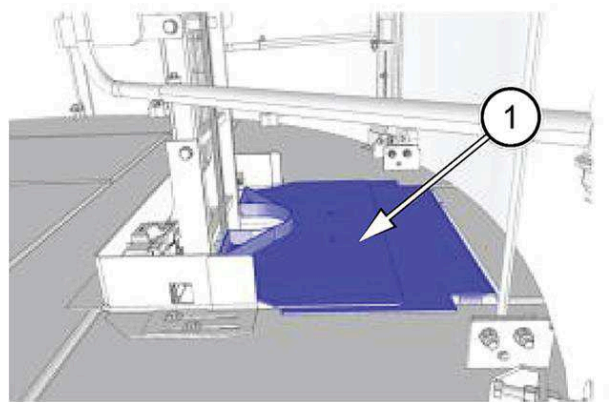


Risk of fall from height! SPRA ID No. 1.02

- Make sure that there are no persons in the areas where overhead work is done.
- Make sure that all platform hatches are closed when they are not in use.
- Obey the rules for work at height. Refer to local requirements.
- Use work positioning rope and fall arrest lanyard in combination to restrict movement.
- Use the necessary PPE that is given in PPE sheet 8. The PPE must be attached to approved anchor points, slides, or cables.

1 Examine the soft-close function of the hatch assembly at all the platform levels as follows:

a Open the hatch (1) to 90°.



b Slowly push the hatch (1) to close it.

c Do a check to make sure that the hatch (1) does not slam on the platform but closes softly.

5.4.4 To do a check of the swing gate assembly at each platform

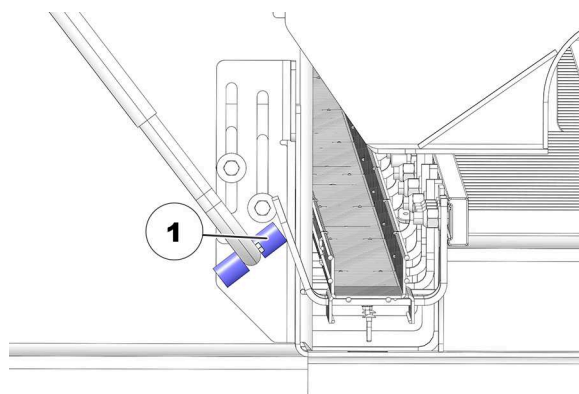
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1 Open the swing gate fully and allow it to close automatically.

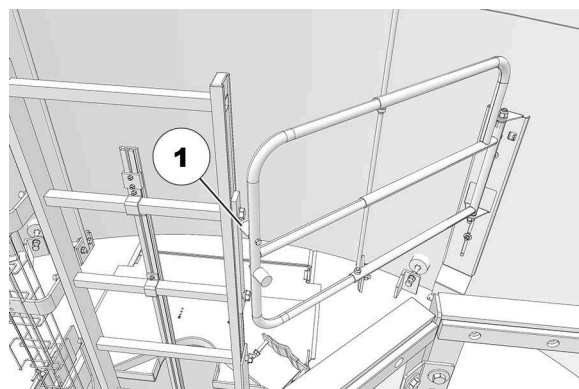
2 Do a check if the swing gate closes completely.

- a** The swing gate must close until it hits the bracket or the ladder.
- b** The swing gate must not stop in-between, forming a gap between the swing gate and the bracket or the ladder.

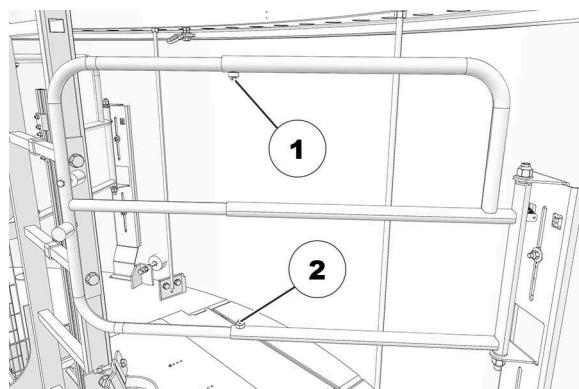
- 3** In the closed position, the rubber bush (1) in the swing gate must touch the LV bracket at least 20 mm from the starting edge of the LV bracket, as shown in the figure.



- 4** If the rubber bush (1) hits the ladder stile, then the rubber bush must touch at the centre of the ladder stile, as shown in the figure.



- 5** Do a visual check for the loose bolts on the top (1) and the bottom (2) rails of the swing gate.



5.4.5 To examine the wire fall arrest equipment

0029088697

- 1 Examine the wire fall arrest equipment according to '3M wire fall arrest system' and '3S wire fall arrest system' in section 'Reference documents'.

5.5 To do a check of the anchor points

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Risk of fall from height! SPRA ID No. 1.04

- Set up a perimeter and signs to make sure that there are no persons in the areas where overhead work is done.
- Make sure that the applicable LOTO procedures are obeyed before you do work on the nacelle roof.
- Obey the rules for work at height and local requirements.
- Do not do work in extreme weather conditions.
- Always close the skylight when you do work on the nacelle roof to make sure that you do not fall through the skylight.
- Use the work positioning rope and the fall-arrest lanyard in combination with restricted movement.
- Use the necessary PPE that is given in PPE sheet 8. The PPE must be attached to the approved anchor points.



Risk related to rotating parts! SPRA ID No. 5.09

- Do not enter the hub and do not do any procedures on the hub or nose cone unless you have done the applicable LOTO and made sure that the pitch system is in a safe condition.
- Do not enter and exit the hub without headlights or portable lights with enough batteries.
- Obey the rules for work at height.

- 1 Do a check of the anchor points (without tags) in the tower, the nacelle, and the hub. See 'Visual inspection of anchor points' in section 'Reference documents'.

► If the anchor points need to be replaced or torqued, see 'Process specification for handling of swivel anchor points' in section 'Reference documents'.