

A-TIA19_04-GB

1. Safety instructions

Pictographs:



Attention!

General hazardous area. Death or severe injury or significant property damage can occur if the corresponding precautions are not taken!

2. Inspection of the bolted connection of the worm wheel



Caution!

Installation, connection to the power supply and commissioning may only be performed by qualified service personnel! The relevant regulations must be observed!



ZAS0, ZAS1, ZAS2 and ZAS3 are elevator machines with worm gears.

This instruction manual is an amendment to the original operating instruction:

ZAS0 Part-No. 01008051-GB A-TBA11_06-GB
ZAS1 Part-No. 01009054-GB A-TBA13_02-GB
ZAS2 Part-No. 01009066-GB A-TBA13_03-GB
ZAS3 Part-No. 01009067-GB A-TBA13_04-GB

This instruction manual describes the inspection of the bolted connection of the fitting bolt and nut of the worm wheel for SWG0-, SWG1-, SWG2- and SWG3-gearboxes for ZAS0-, ZAS1-, ZAS2- and ZAS3-elevator machines.

This Inspection is not a necessary part of the regular maintenance.



Attention!

If it is possible to turn a nut on the fitting bolt or the whole connection of the nut and fitting bolt the elevator has to be shut down in order to avoid an uncontrolled movement of the elevator car!

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2.1 Requirements for the inspection:

The elevator has to be taken out of service and has to be locked for passenger or goods transport.

2.2 Required tools

SWG0-gearbox respectively ZAS0-elevator machine:

- Spanner with size of 16 respectively 17
- Work lamp

SWG1-gearbox respectively ZAS1-elevator machine:

- Spanner with size of 16 respectively 17
- Work lamp

SWG2-gearbox respectively ZAS2-elevator machine:

- Spanner with size of 16 respectively 17
- Work lamp

SWG3-gearbox respectively ZAS3-elevator machine:

- Special spanner with size of 21 respectively 22 based on a bent combination spanner (see drawing)
- Work lamp

2.3 Inspection of the bolt fitting of the worm wheel



Attention!

Tools may only be inserted into the open maintenance hole (by removing name plate) if the elevator is switched off by the main switch, the installation is protected against restart and the operating brake is closed.

It has to be taken care that no limbs, clothing or other objects can get into the maintenance hole except the tool.

While working in the maintenance hole, ensure that the operating brake is closed properly and that the manual hand release is not activated.

During positioning, the worm wheel moves. At this state it is only allowed to visually locate the position of the nut from outside with a minimum distance of 30 cm with a sufficient bright work lamp.

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Amendment of the original operating instructions



Inspection of the bolted connection of the worm wheel of the elevator machines ZAS0, ZAS1, ZAS2, ZAS3

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2.3.1 Removing the name plate / Opening the maintenance hole

Remove the name plate with the sealing, on the top of the gearbox by removing both hexagon bolts M6.



Figure 1: Name plate with removed bolts M6



Figure 2: Maintenance hole with removed name plate

2.3.2 Positioning of the worm wheel

Each nut (1) which has to be inspected should preferably be located in the center of the maintenance hole.

If this is not the case, then bring the nuts into position, one by one for the inspection, in according to point 2.3.3 – inspection of tightening.

It is recommended to mark the traction sheave with a coloured marking to avoid that the inspection of any nut is missing.

The positioning of the worm wheel should be done by using the inspection control.

It is an advantage if the inspection speed is temporarily reduced.

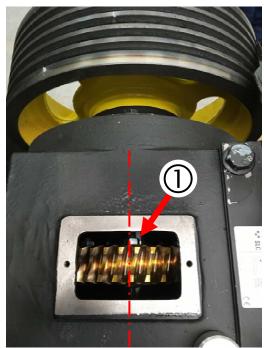


Figure 3: Target position of the bolts for inspection

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As an option, the empty elevator car can be sent to the lowest floor, by a light and controlled activation of the manual hand release, the worm wheel can be brought to the required position as well.

2.3.3 Inspection of tightening

The elevator must be switched off by the main switch and protected against restart.

Do not activate the manual hand release!

Inspection goal: Identification of loose nuts.

Apply the suitable tool (2) onto the nut (1) of the bolted connection and turn clockwise with moderate force according to the following table without any jerk.

On the side of the fitting bolt no spanner is applied for counterholding.

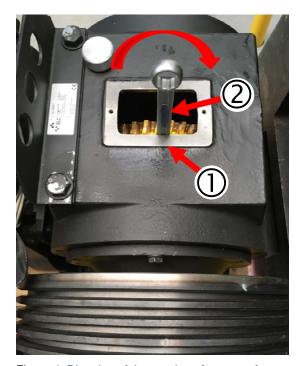


Figure 4: Direction of the rotation of spanner for inspection of tightening the nuts

Gearbox	SW Nut	Inspection torque approx	Lever length approx	Force approx	Force approx
		Nm	mm	N	kg
SWG0	16 / 17	20	200	100	10,0
SWG1	18 / 19	35	220	150	15,0
SWG2	18 / 19	35	220	150	15,0
SWG3	21 / 22	55	180	300	30,0

Table 1: Overview gearboxes – spanner sizes – test forces

After the evaluation of the tightening, according to 2.3.4, the next nut has to be brought into position according to 2.3.2.

The inspection of the bolt connection of the worm wheel of the gearbox, is completed when all 6 nuts of the worm wheel have been inspected according to the described method above.

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Information:

A precise inspection with the correct tightening torque of the nuts is only possible with a disassembled gearbox.

2.3.4 Evaluation of the tightening of the nut

If it is possible to turn a nut on the fitting bolt, or the whole connection of the nut and the fitting bolt, the screw connection has to be considered as inadequately.

If just one of 6 connections is considered as inadequately, the elevator machine has to be taken out of order immediately and permanently. The elevator has to be secured against restart.



Attention!

If it is possible to turn a nut on the fitting bolt or the whole connection of the nut and fitting bolt the elevator has to be shut down in order to avoid an uncontrolled movement of the elevator car!

2.3.5 Documentation of the inspection results

It is recommended that the documenting of the inspection in the attached inspection protocol (see chapter 3) is done by the inspection personnel.

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3. Test report

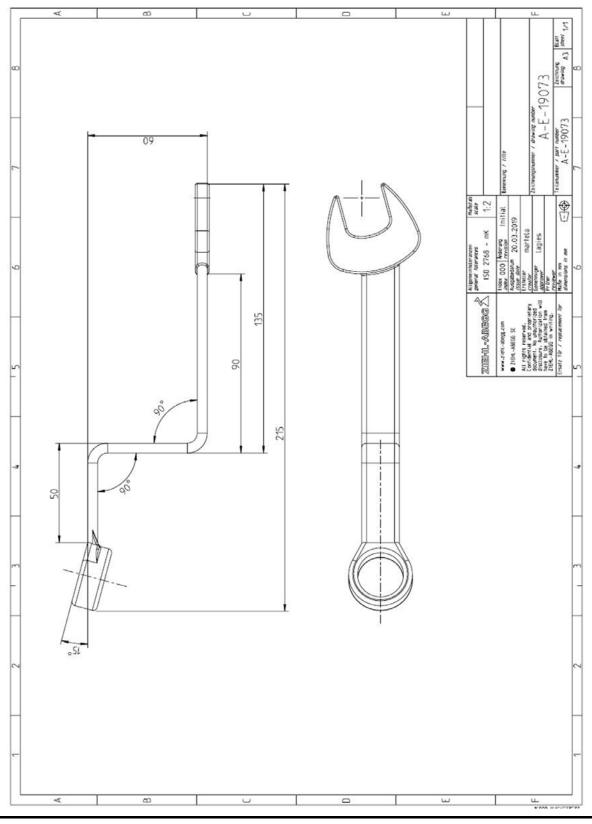
Plant location	
Elevator:	
Gearbox type:	
Serial number gearbox:	
Year of manufacture:	
Ratio:	
Number of travels:	
Secialist company responsable for the	
inspection:	
Date of the inspection	
Result of the inspection	Bolt connection worm wheel
	Number of lose nuts
	Bolt connection worm wheel
	Number of tightened nuts:
Inspector's name:	
Inspector's signature:	
	!

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4. Drawing of special spanner for ZAS3/SWG3



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