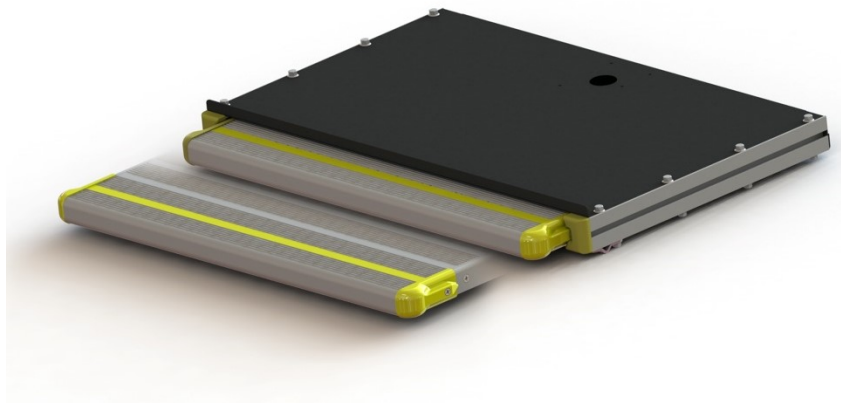


Manual



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Ver: 2

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1 Technical specifications

Product description	Foot operated step for mounting outside under the floor of a vehicle.
Installation	Under the vehicle Floor at the front- middle or rear door
Dimensions	Step depth 300 mm - width depending on model 600, or 900 mm For detailed dimensions please refer to the installation drawings in the rear of the manual.
Weight total	AXS MD 600 M = 16 Kg AXS MD 900 M = 20 Kg.
Load	Maximum load 150 Kg (1500 N) this is always labeled on the Step.
Materials	Frame; steel with EP corrosion protection and aluminum sliding profile,
Step:	Aluminum profile and plastic corner pieces.
Life cycle	Tested life cycle of the step is 100.000 cycles with a load of 100 KG.
Electrical connection	Waterproof 2 pin connector (IP65) on the step.
Legislation	The product fulfils R107 UN Bus directive and 98/37 EC Machine directive.

2 Environment

The use of energy from the step is reduced to an absolute minimum.

The AXS - Step is made of durable materials which all can be recycled. All different materials can easily be separated from each other for separate recycling.

3 Safety instructions

These Safety instructions should always be kept with the step. The operator must be made aware of these instructions before opening the step. Read and follow these safety instructions carefully.

The step is intended to be an extra step to enter a vehicle. It should be used appropriately by passenger to enter or exit a minibus, taxi, camper or other vehicles. And the maximum load should not be exceeded.

1. **Before you can operate the step, the vehicle must be stationary, and the hand brake or parking brake must be applied.**
2. **Before operating the step, ensure that there is nothing obstructing it. Look out for people moving outside the vehicle near the step.**
3. **It is recommended that the step is only operated by the driver or other qualified operators.**
4. **The driver or operator must have a clear view of the step when they are operating it.**
5. **It is recommended that the middle of the platform is used when stepping onto the step.**
6. **NEVER drive away when the RED dashboard LED light is still on. This means that the step is not properly stowed.**
7. **The step platform must be kept clean and free of oil and other greasy materials.**
8. **If there is any doubt about the safety of a passenger when using the step, ensure they are assisted.**
9. **For any questions about the safe operation of the step, directly contact the responsible persons.**
10. **Never use the step for any other use than here described.**
11. **Never overload the step.**
12. **The step should always be operated until it is fully in or out.**
13. **Repair and maintenance must be done by qualified and by trained staff only.**
14. **If any parts need replacing, ensure only original Acdeos Parts are used.**
15. **If the anti-slip profile at the step becomes worn, the step platform must be replaced.**
16. **Always use the recommended cleaning materials.**
17. **Report any unsafe aspect of the step, to the step supplier.**

4 Constraints

The step has been designed to be functional and reliable. The product is made as simple and reliable as possible. It has been taken in consideration that the step will be mounted under a vehicle in severe environmental conditions.

5 Controls

5.1 Step Control

The step control is made as easy as possible. The controls comply with European 98/37 EC machine directives. Functions and measurements are compliant with the R 107 UN Bus directive.

The Mechanic step is a push system it works when you push the step in.

5.2 Signal

The following output signals are in the AXS MD step:

- Step out

This is a red LED at the dashboard of the car to make clear to the driver that the step is not in the stowed position and that he cannot drive away safely. This signal will go off when the step is totally in.

5.3 Legal requirement according R 107 UN Bus directive:

- The horizontal movement of a step shall be interrupted when it is loaded with a mass of 15 kg.
 - Extension of the step in the horizontal direction shall be protected by a safety device. In the event of a safety devices coming into operation, the movement of the step shall immediately be stopped.
- The Step On fulfils all these requirements.

6 Operation

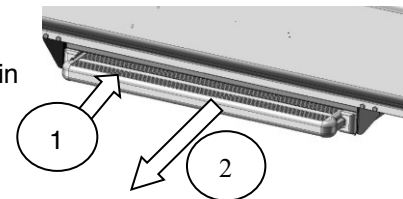
6.1 Deploy Operation procedure

First read the safety instructions carefully.

This is a mechanical semi-automatic step. That you can operate by feet

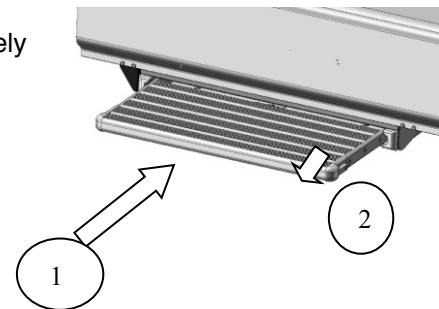
To open the step:

- 1) simply push with your feet at the Centre of the step. The step will move in a little and unlock itself. Take away your feet and the
- 2) step will come out automatically.



To close the step:

- 1) push with your feet at the centre of the step until the step is completely closed.
- 2) the step will come a little bit back and it is locked automatically.



6.2 Stow operation procedure

To stow the step the door should be closed, or the driver has to give a signal that the step should stow. The same rules apply as for moving out.

At closing a signal from the close switch will indicate that the Step is completely closed. This close signal will also give the vehicle the OK that it is safe to drive the vehicle away, the Red LED light at the dashboard will go off. If the step is not stowed properly the RED LED keeps blinking.

7 Mounting / Installation

The installation can only be done by a company that is well known with bodybuilding or modifying vehicles, which has the trained technical staff to do this job.

7.1 Mechanical Installation

Below instruction is based at mounting the step with the optional flexi fit mounting kit which is available under number S130 01 024. Ask your dealer for availability

In order to mount the step, you do not need to make any major vehicle adaptations. The step is placed under the floor in the middle of the front, middle or rear door. Chassis modifications are not needed, but you may need to remove some plastic underbody parts.

Exact measurements of the product should be taken from the official installation drawings. Ask Acdeos for the last revision and official installation drawing. Figures and drawings in this manual are only indicative.

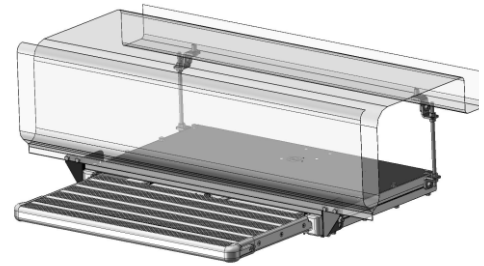
Installation:

Create a safe working environment. Raise the vehicle to the appropriate working height.

Identify the location underneath the vehicle where the step will be mounted. Ensure the cassette can be mounted in the required position without being obstructed by the chassis or other vehicle parts.

Make sure that the step is not too close to hot parts such as the exhaust system. This can damage the step.

The picture shows the basic principles for mounting the step.



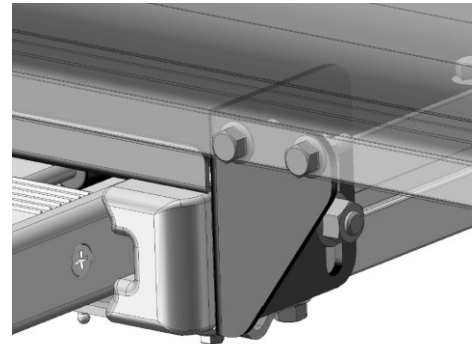
Define the place where you want to mount the step under the vehicle.

Make sure the cassette can be mounted on the required position without colliding with the chassis or other vehicle parts. **Make sure that the step is not too close to hot parts like the exhaust system. This can damage the step.**



Identify where the 4 front mounting bolts will go. The holes for this fixation should be drilled in the lower flange of the outer chassis bar of the vehicle. Drill the holes $\varnothing 6.5$ mm. Always protect all drilled holes with zinc spray. Make sure there is enough material in the flange under the hole. Place the step with two bolts at the flange and support it at the rear.

Take the flexible mounting brackets supplied with the step. These brackets can be mounted in several ways. The brackets should be used to fix the rear side of the step to the bottom of the vehicle. It is recommended that a sturdy section of the vehicle floor is used. Mount the brackets so that they bridge the gap between step and vehicle floor / chassis. The M8 studs should be placed as vertical as possible. This fixing requires some technical knowledge and own interpretation.

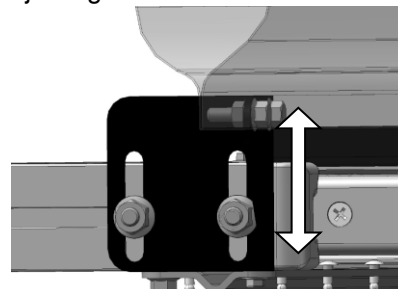


Always try to go as vertically as possible straight up from the fixing point on the rear of the step to the fixing points on the vehicles floor.

Adjust the step so that it is horizontal under the vehicle.

Finally fit all bolts and nuts to complete the mounting of the step.

You can adjust the height of the step under the vehicle by adjusting the front brackets in the slot holes.



7.2 Electrical Installation

The step comes standard **without** cable loom, only with a simple close switch. A wiring loom should be made according schedule attachment. Optional original cable loom including connector fuse and dashboard LED is available under number S130 000 ask your dealer for availability.

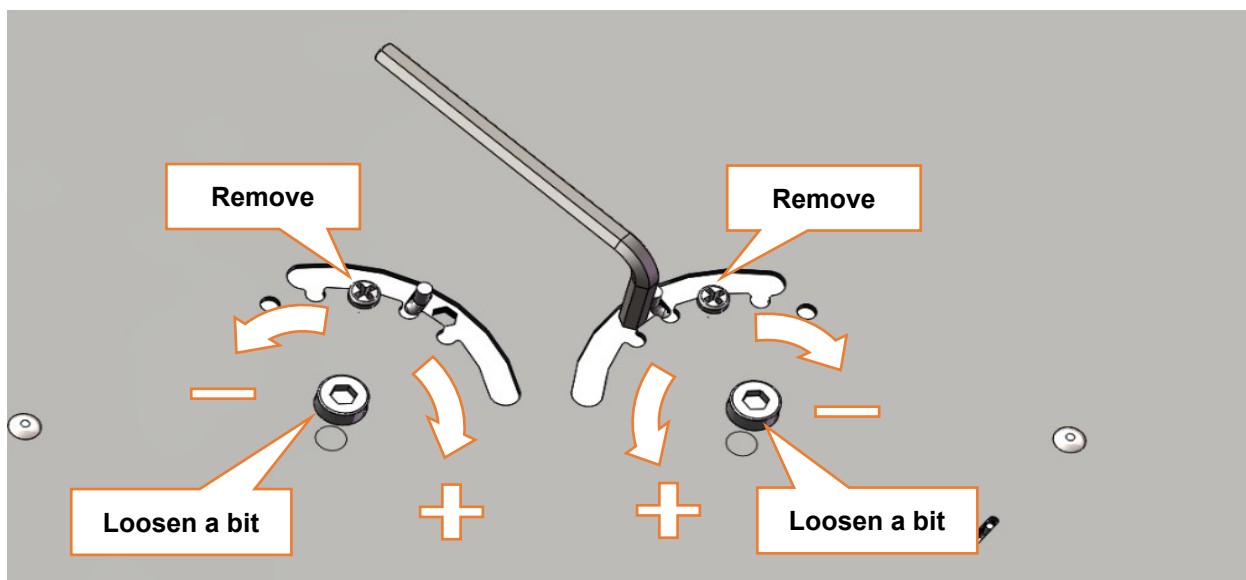
Please note that a safety light at the dashboard in sight of the driver is strongly recommended and, in some countries, legally required.

The connector used at the step is of the type AMP Super seal 2 pole male C 282080-1

The counter part is AMP SUPERSEAL 2 Way, 1 Row Female Connector Housing 282104-1.

7.3 Mechanical adjustment

The step is being pushed out by two helical springs. The force at the springs can be adjusted at an installed step under the vehicle. There are two preload adjusters at the bottom plate of the step. To adjust the load, bring the step "out" position. Lose the two M8 bolts a little. Remove the two locking screws. Place a 6 mm hex hole and adjust the load plus or minus. After adjusting fix, the locking screws and M8 bolts. Both sides need to be in the same position after adjustment.



7.4 Testing the Step:

You should test the step after installation:

1. **MOUNTING** – Check that all the mounting bolts are in place and tightened.
2. **MOUNTING** – Bring the step out and have 2 people (Max 200kgs) step on it. Check whether the mounting of the step is strong enough for this weight. The construction of the step means that with a weight of 200 Kg the step will give slightly - this is normal!!

8 Periodic maintenance / Inspection

8.1.1 Cleaning

The step must be cleaned in the normal cleaning schedule of the vehicle, depending on the use of the vehicle and the type of the operation. Normal non-aggressive cleaning materials, as used for cleaning the other parts of the vehicle, should be used. The use of high-pressure water cleaners to clean the inside of the step is recommended. Do not use aggressive solvents; they could affect paint, and rubber as used on the step.

8.1.2 Small maintenance

The step has an open cassette. Dirt and other particles will ingress the step. So, it will need regular cleaning. It is recommended to spray some thin oil PTFE or silicone spray on the wheels and locking mechanism and other moving parts on a regular basis.

We strongly recommend MOTIP PTFE spray at all parts in the step, DO NOT use WD40 spray other similar PTFE oil/ grease sprays can also be used.

<https://www.motip.com/products/motip/industry/professional-technical-solutions/white-grease/>

8.1.3 Yearly maintenance / normal maintenance

Major maintenance should be done once every six months or at every 30.000 cycles. If the number of cycles per year is less than 10.000 the six-monthly maintenance interval will still apply.

Following the vehicle inspection schedule, check following points:

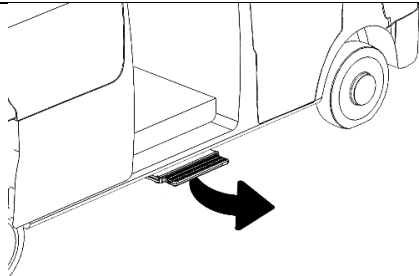
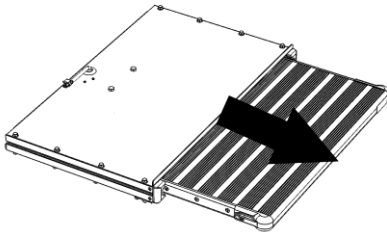
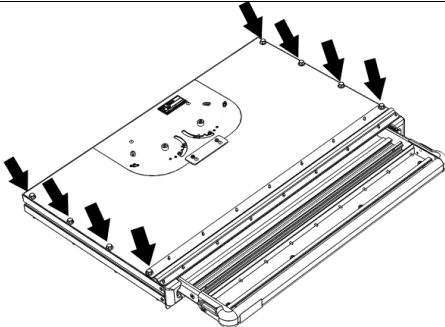
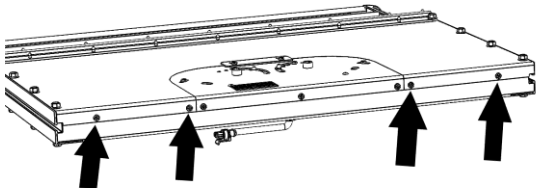
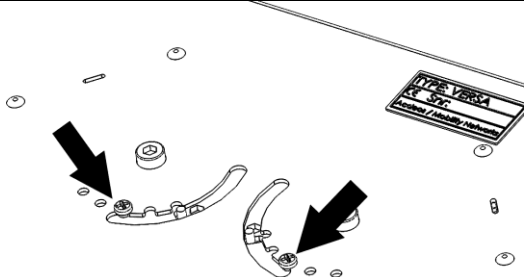
1. **MOUNTING** – Check if the all mounting bolts are in place and tightened.
2. **MOUNTING** – Bring the step out and test load Max 150 KG. Check if the mounting of the step is without deflection for this weight. The construction of the step is such that a weight of 150 KG will give a little deflection of the step. This is normal!!
3. **ELECTRICAL INSTALLATION** – Move the step out and check if the red LED on the dashboard shines red when the step is out.
4. **CHECK IF THE STEP MOVE OUT COMPLETELY.** If needed adjust the preload at the springs.

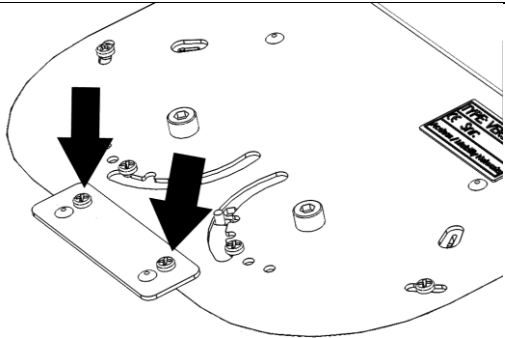
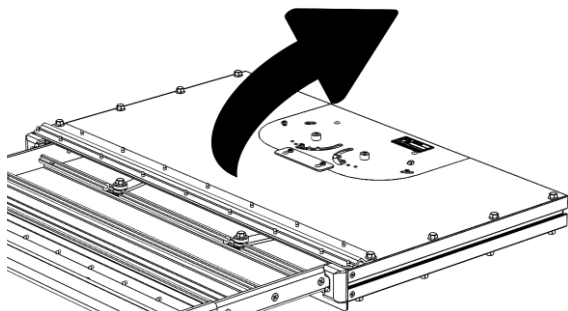
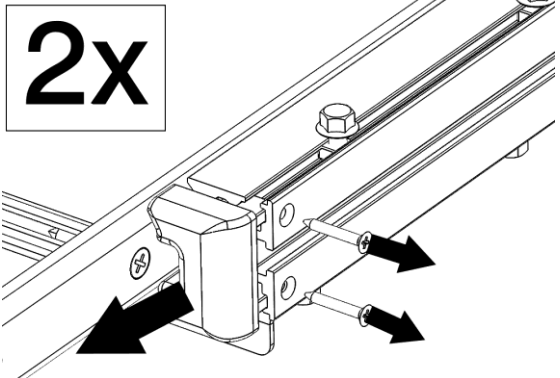
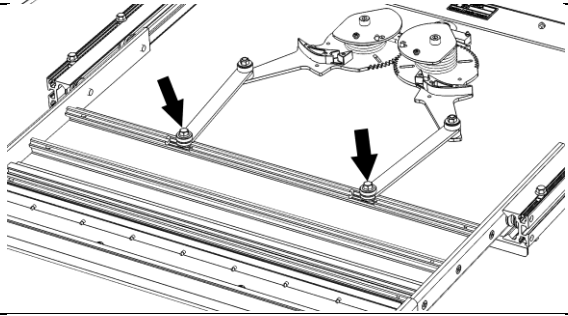
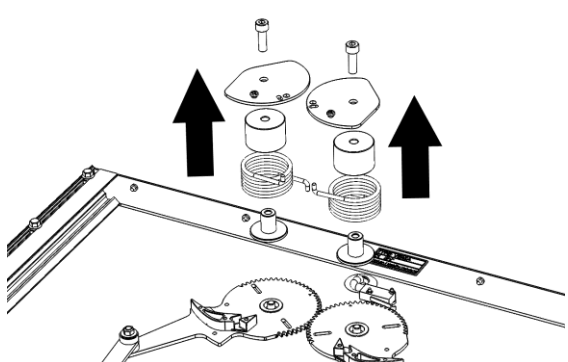
9 Repair

The repair of the step is simple and can be done with the normal available workshop equipment.

The most repairs can be done under the vehicle, but this manual describes a full assembly of a step removed from the vehicle. We always recommend removing the step from the vehicle as that save time.

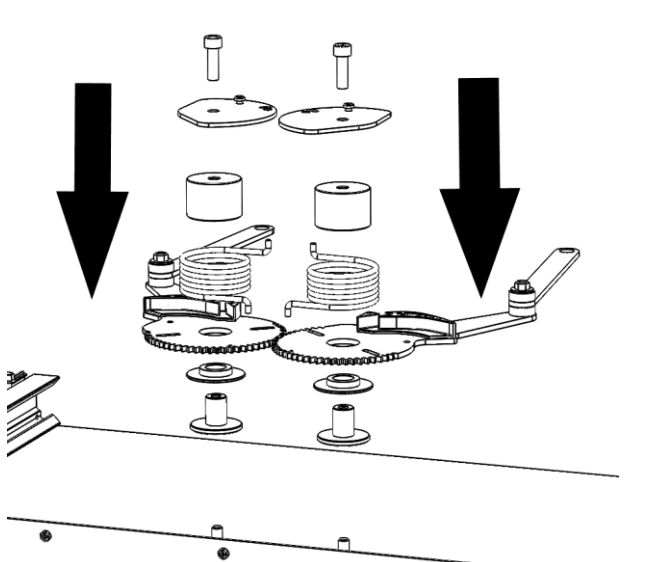
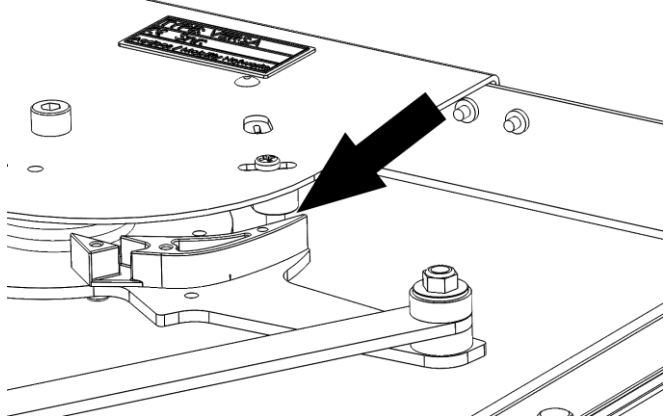
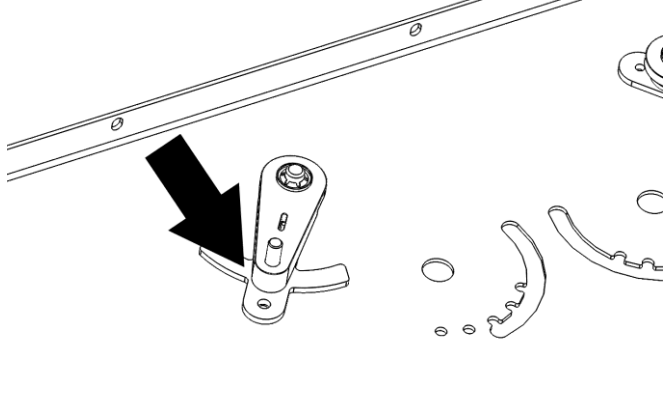
9.1 Disassembly

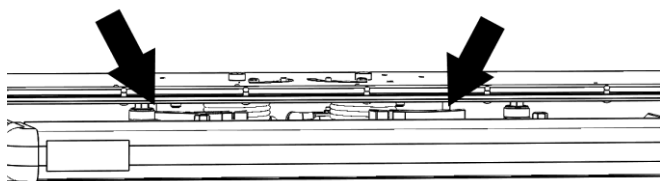
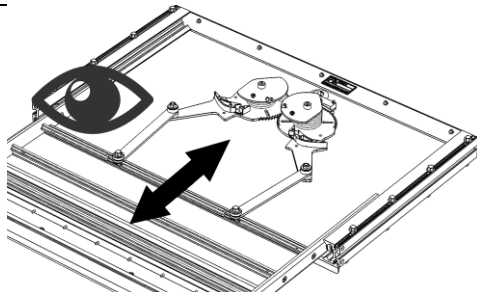
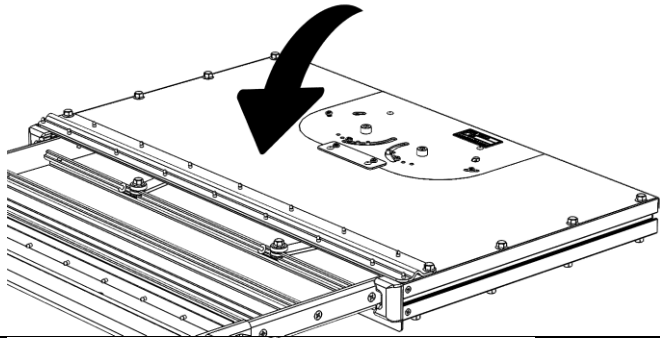
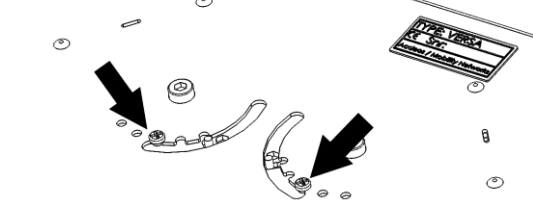
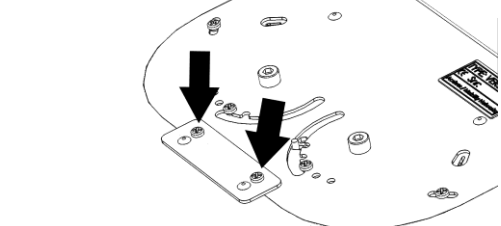
step	Description	
1	Remove the step from the vehicle.	
2	Open the step completely (This means you have to push the step to get the step out) if you don't do this step. It won't open regularly.	
3	Remove the eight bolts on the bottom plate with a socket wrench. (Size 10)	
4	Remove the 4 screws (for new models), (all 5 for older models), at the back of the step.	
5	For the older models, take out the pre tension screws. (warning, under tension!) At older models the bottom plate needs to be removed in one piece.	

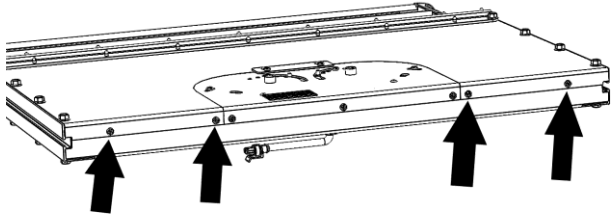
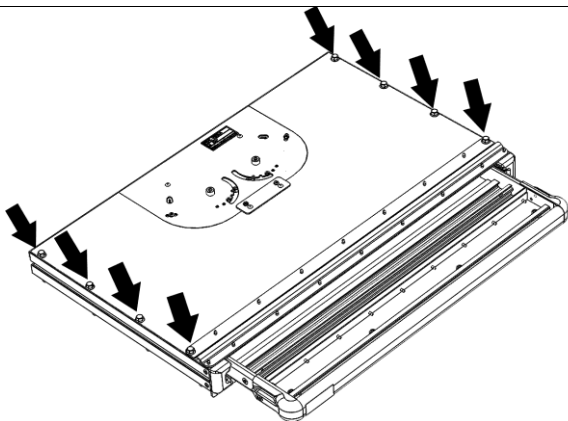
5a	In case of the newest model (shown in this manual) also remove the screws connecting the two plates	
6	Remove the (large) bottom plate with a flat screwdriver. If you have to put too much force. Stop and look what why it won't open.	
7	Remove the end caps of the rails.	
8	Remove the bolts to remove the platform	
9	Remove the two bolts to take apart the spring assembly	

9.2 Assembly

Most of the assembly is just the reverse version of the disassembly described above, however there are some points to note, these are described below.

Assembly of the Step		
1	<p>It's important that you assembly the step properly and correctly. check before you screw anything first of all this.</p> <p>Warning, there is a left and right spring and Gear arm. Make sure you fit them according the picture.</p>	
2a	<p>New Version</p> <p>Check the lock arm position. The lock arm should hit the locking part on the inside when closing the step. See picture. If needed adjust with small screw in slotted hole.</p>	
2b	<p>Older versions</p> <p>On the bottom plate there are 2 white lock arms with a small spring. they need to be exactly in the centre of the backing plate. If they are not in the middle, you should force the spring in the right direction by pushing it over the max stroke.</p>	

2c	Older versions Check with closed bottom plate as described in 2a looking in the step from the front.	
2	Before closing the step first check if everything works. So, push the step a couple of times in and out and check if everything works properly. Do this Before you close the bottom plate.	
3	Check that the square nuts in the side profile are in the right position so that the bolts fit. The way to do this is to have the top plate next to the line were the nuts are, then you can see were the nuts need to be. If you have done step 1 properly you can now put the plate on the step. You have to put a bit of force to do it that it is in the right position. (If it won't fit you have to look at the springs if they are pointing the right direction, if they are not right you can change the position of the spring by hand)	
4	Screw in the two pre-tension screws on the bottom of the step.	
4a	For newer versions put in the screws for the connecting plate, If these don't fit don't force them to fit. Rather; check what causes the obstruction.	

5	Fix the 4 (or 5 with older models) screws at the back of the step.	
6	Fix the eight bolts on the bottom of the step to close the step.	
7	Attach the step back to the vehicle, while using the mounting kit.	

10 Failure search

Failure	Problem	Solution
The step can move in and out at the end of the stroke on its own accord.	The spring is weak.	Adjust the spring to be set stronger.
At the end of the movement, the step start moving in and out.	The locks don't work.	Make sure the 2-white block at the step top are in the middle.
Stop moves out but stops during the stroke	Main spring setting to low	Raise preload at springs
Step does not move out.	The 2 gears don't move properly.	Check the gear arms and grease them.
Step does not move out.	The step is dirty.	Clean the step.
Step does not move out.	Not properly greased.	Clean the step and adjust new grease when necessary.
Lights in the car doesn't work.	The switch or LED is broken.	Check the LED and microswitch.
When the step come out you hear a strange noise.	Dirt in the step.	Clean the step.
The step doesn't lock when it is closed.	The lock is not properly adjusted.	Adjust the lock as shown in the assembly part of this manual

11 Certification

Certification

Product
Type

Product description

AXS STEP
Electrical Sliding step
AXS MD 600 A
AXS MD 900 A

Company
Address
City
Country
Website
Legal represented by

Production under responsibility of

Acdeos BV
Touwbaan 1A
2352 CZ Leiderdorp
Netherlands
WWW.ACDEOS.COM
Mr. A de Moes

Conformity

Product is designed, tested and produced confirm:
The loading recommendations in the Machine directive 98/37/EG
Step is tested for a maximum weight of 200 Kg

On behalf of producer:

Name / Function

A de Moes / Engineering

Date

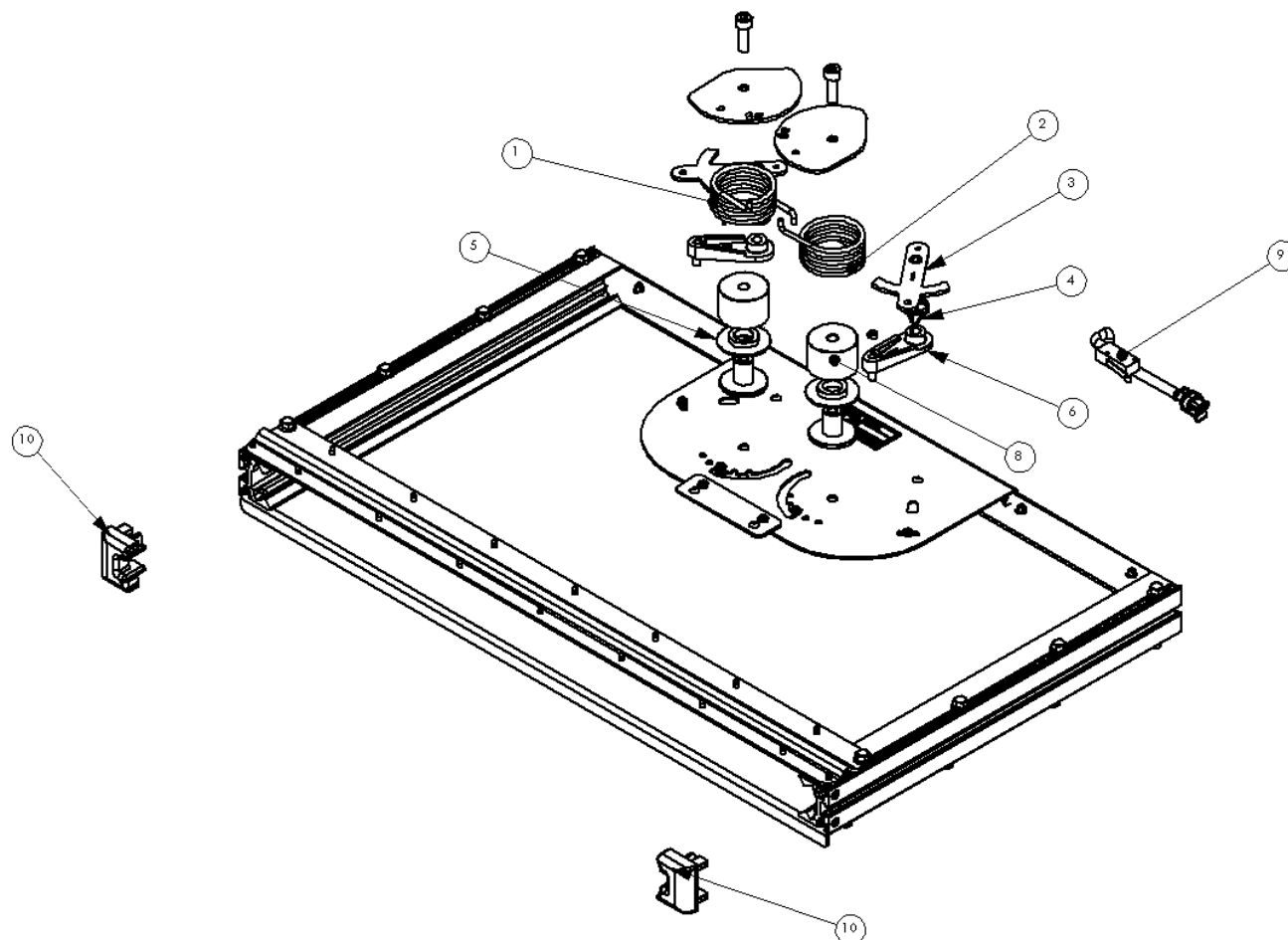
15 September 2009

Place

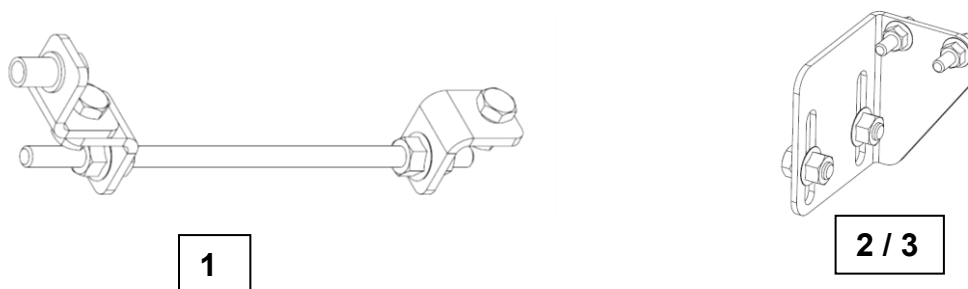
Leiderdorp, Netherlands

12 Spare parts

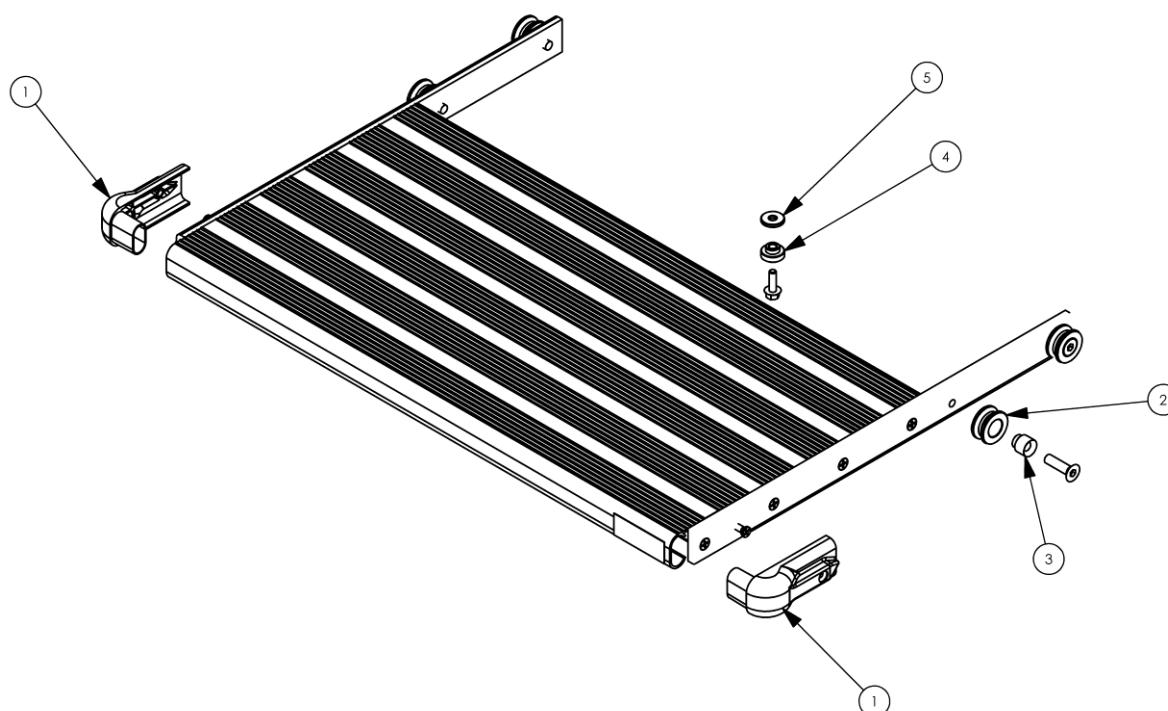
Chassis



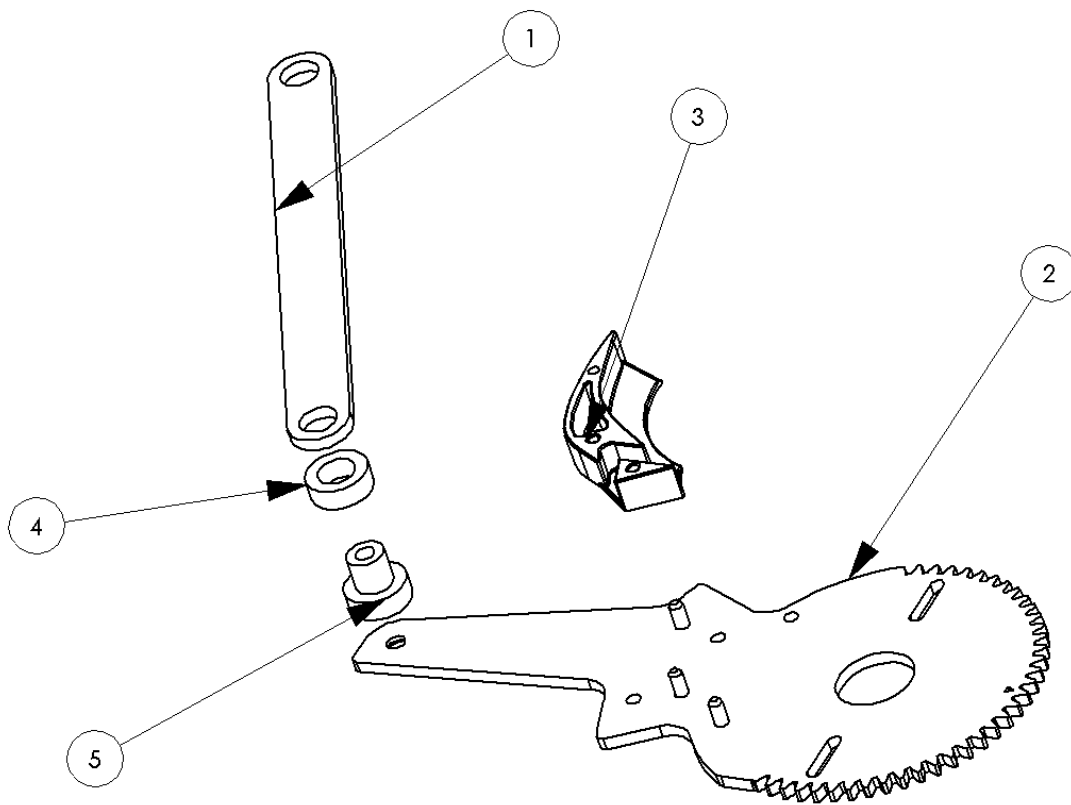
item	Part	Part number
1	Power Spring Right	S130 044
2	Power Spring Left	S130 053
3	Arm holder	S130 01 022
4	Lock Spring	S130 046
5	Plastic washer	S150 039
6	Lock arm	S130 01 022
7	Roll	S130 041
8	Gear Arm sup ring	S132 008
9	Micro switch	S130 01 023
10	End cover	S130 010



item	Part	Part number
1	Mounting parts	S150 01 001
2	Mounting bracket right	S130 01 004
3	Mounting bracket left	S130 01 005



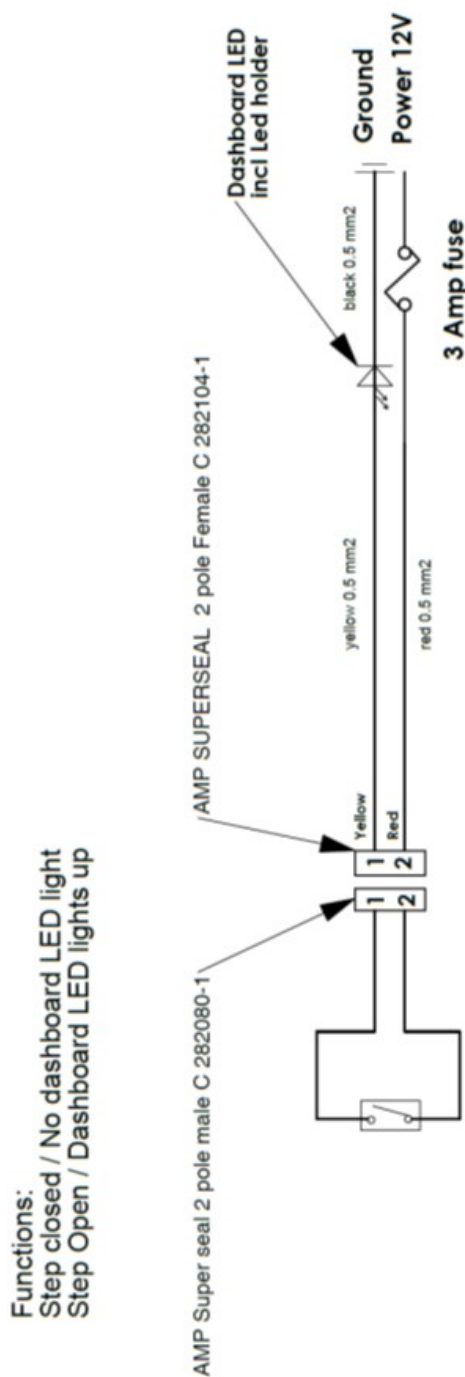
item	Part	Part number
1	Step corner	S130 009
2	Wheel	S130 004
3	Wheel holder	S130 005
4	Bearing part	S130 039
5	Bearing Ring	S130 038



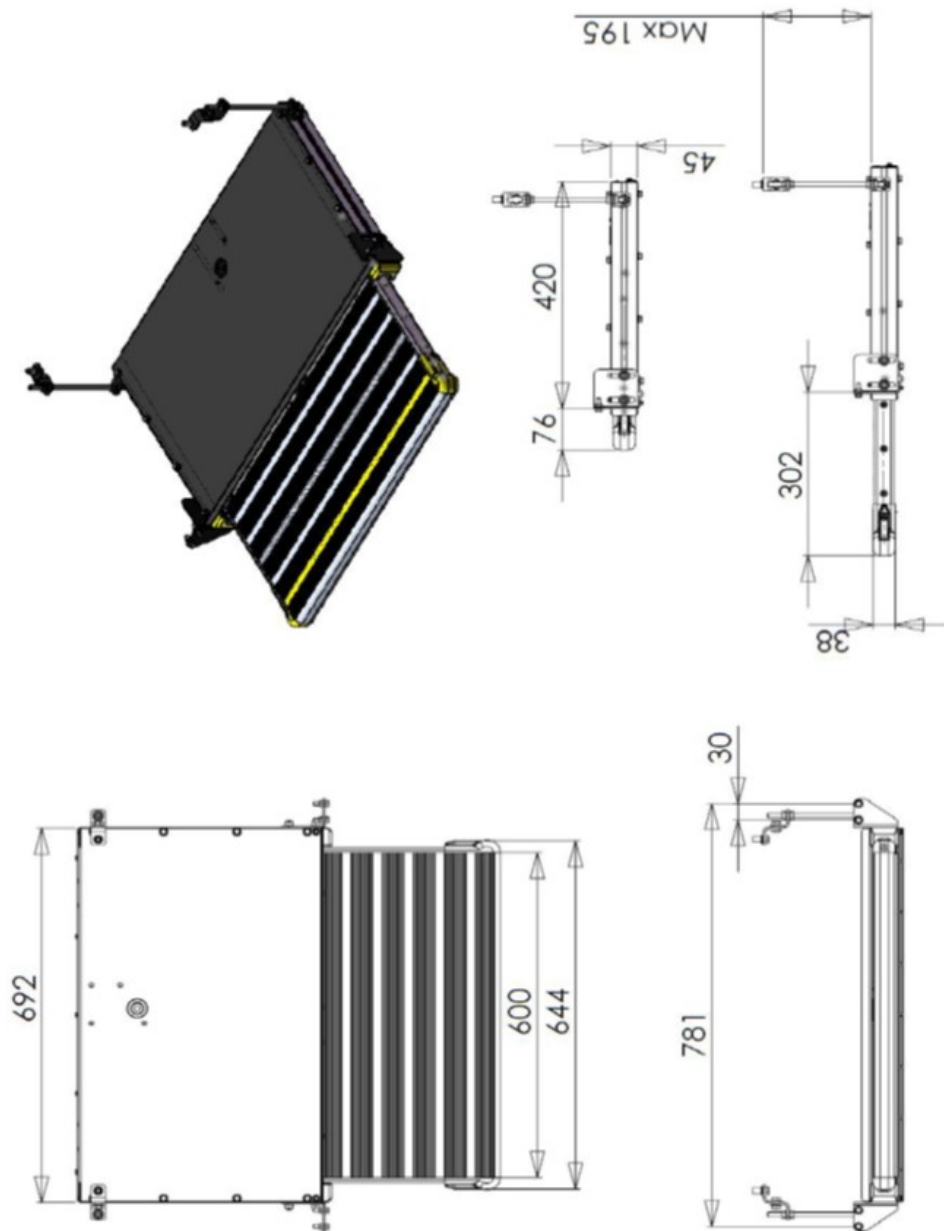
item	Part	Part number
1	Push rod	S130 037
2	gear	S130 056
3	Lock part right	S130 057
3a	Lock part left	S130 058
4	Turning point ring	S159 403
5	Turning point bushing	S159 404

13 Attachments

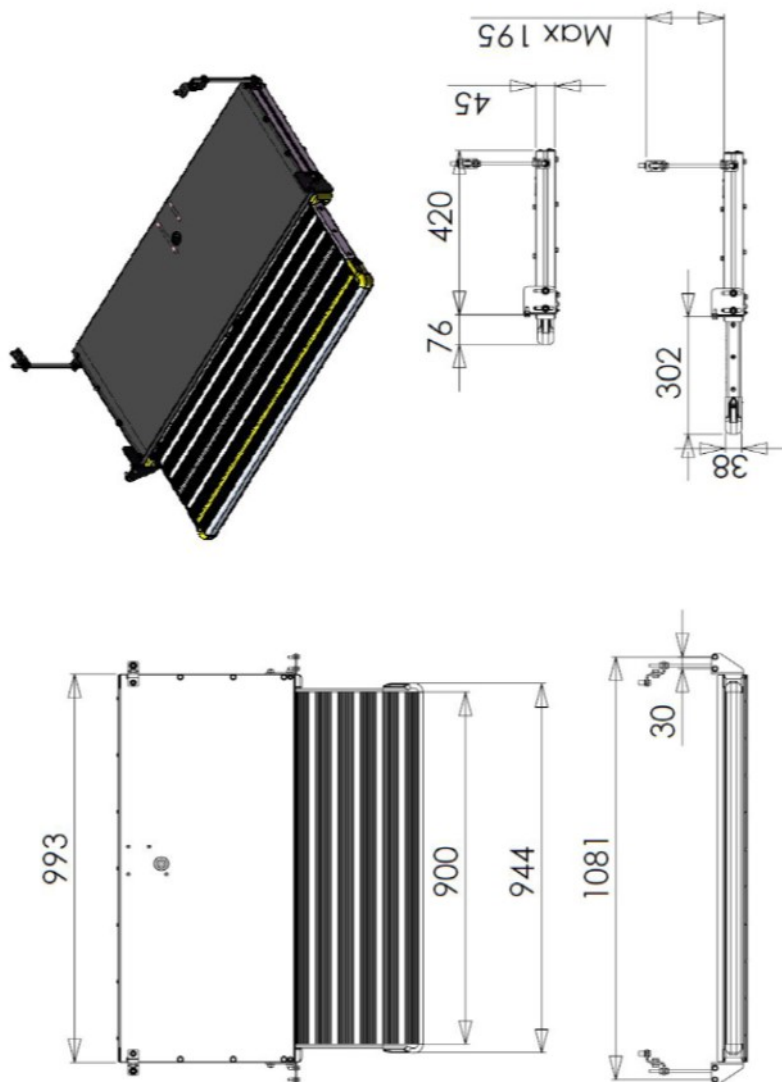
13.1 Electric schedule



13.2 Installation drawings AXS MD 600 M



13.3 Installation drawings AXS MD 900 M



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