# Technical Manual

TASKI

swingo 1255B

Diversey
for a cleaner, healthier future™

Edition: V1.00/2010

# Index

# Technical Manual


# 1 Foreword

19. April 2010 Edition: V1.00/2010

# 1 Foreword

## 1.1 Target

To serve our customers faster and more efficient it is important to achieve a general standard of technical know how with our partners in the market.

Therefore we developed a new Technical Training concept which is based on e-spares. The concept consists of a Technical Training and a Technical Manual.

These two tools will be produced for each newly launched machine with a certain complexity. The Technical Manual will be available as PDF file and can be downloaded from e-spares. The Technical Training documentation will be distributed after having attended a the technical training.



## 1.2 Technical Training

The Technical Training is addressed as reference book for the technical training sessions and will be distributed to the floor care responsible and/or to the technical training responsible after attending a training session provided by GTS (max. 2 persons per country).

The intension is, that after this session, a technical trainer is able to perform technical training for their local technical staff and in this way to transfer the knowledge to all service technicians.

The Technical Training is not intended as manual for the service technicians and will be distributed only to the training responsible of each country.

## 1.3 Technical Manual

The Technical Manual is addressed to the service technicians and should be translated and distributed after a technical training.

It contains a summary of procedures, hints and suggestions etc. which are helpful and

essential for the daily business. The Technical Manual can be downloaded from e-spares/documents.

## 1.4 Conclusion

We are convinced that the new Technical Training concept together with the Technical Manual are powerful tools, which will help our service organisations to achieve a higher level of quality in repairs and customer satisfaction.

If you have any comments or questions do not hesitate to contact your country responsible.

Sincerely yours

GTS Team

# Technical Manual


# 2 Elementary

19. April 2010 Edition: V1.00/2010

# 2 Elementary

## 2.1 Health & Safety

Scrubber dryers may be powered by mains electricity or batteries. There are risks associated with both, which call for proper precautions, such as the provision of good ventilation and the elimination of risk of ignition.

All work, implemented on such machines, should only be performed by trained personnel in accordance with local regulations.

Before working on such a machine, isolate it from any electrical source.



Always wear the required personal protective equipment (including gloves and goggles that must be worn when potentially exposed to any hazardous material and when carrying out hazardous work tasks).

Note that parts may be contaminated with chemical product. If possible flush hoses out with fresh water prior to carrying out any maintenance. For information on chemical products that are used in this machine, please carefully read the product label and Material Safety Data Sheet (MSDS).

Empty water tanks prior to carrying out any maintenance. Ensure contaminated water is emptied into an approved drain. Avoid pollution.

## 2.2 ESD

Static electricity is electricity at rest or the accumulation of electric charge, as opposed to an electric current which is the movement of electricity. The flow or movement of people and/or materials in and through the environment causes separation and therefore static electricity. A familiar example of static electricity is when a person walks across a carpeted floor. Static electricity/electrostatic charge is generated simply by the contact and separation of the soles of that individual's shoes from the carpeted floor.

Electrostatic Discharge (ESD) occurs when the electrostatic charge is transferred from a material that carries the charge to an electrostatic sensitive device. In the example above, this electrostatic discharge is the „shock" felt after walking across the carpeted

floor and then touching a door knob. It is this electrostatic discharge, which comes in varying degrees, that can be most damaging to electrical devices and other industrial, commercial and consumer products.

Static electricity, a natural phenomenon and consequently electrostatic discharge are the primary causes of countless problems affecting industry, business and personal life. These problems can be as simple as the shock resulting from walking across a carpet; as costly as the destruction of sensitive electronic components or jamming of machinery.

Almost any material can generate static electricity. The ability to store or unload the charge depends on the type of material.
Static can damage devices, which can result in immediate product failure to operate. In contrast, static damage can go undetected for a period of time and the results are product failure once the product is in service.
Electrostatic fields are associated with charged objects.
The degree of severity of ESD events is contingent upon the type of discharge which occurs. The three most common ESD charge transfers are:

- from an external object to the device
- from a device to another object
- resulting from electrostatic fields

**⚠CAUTION** *Please do not store electronics without ESD bags at any time.*

# Technical Manual


# 3 General

19. April 2010 Edition: V1.00/2010

# 3 General

## 3.1 General information

### 3.1.1 Part reference

**⚠CAUTION** *Explicitly mentioned parts are defined by references corresponding to the e-spares spare parts list.*

*E.g. Tank axle (02/118) corresponds to the parts list on e-spares, sub assembly 2, position 118.*



### 3.1.2 Consumable supplies

**⚠CAUTION** *If you have to remove cable ties then position the new ones at the original place.*

*If you have to remove self locking nuts, you should replace them by new ones.*

### 3.1.3 Direction description

**⚠CAUTION** *On the „RH" always means on the right hand side of the machine in working direction (when you are standing behind the machine).*

*On the „LH" always means on the left hand side of the machine in working direction (when you are standing behind the machine).*

### 3.1.4 Power source

*Depending on the work it might be required to remove the power source (mains/batteries) from the machine.*

*The in here mentioned sequences (mechanical and electrical) are based on the assumption that the power source (mains/batteries) were removed from the machine before.*

# 3.2 Required material

## 3.2.1 Tools

- A standard range of tools is required e.g.
  - Fork spanners
  - Allen keys
  - Torx keys

## 3.2.2 Material

- No special tools are required.

**⚠CAUTION** *The above listings are only a recommendation for the technical training.*

# Technical Manual


# 4 Technical data

19. April 2010 Edition: V1.00/2010

# 4 Technical Data

## 4.1 Machine range

| SKU | Description | Version | Series |
|---|---|---|---|
| 7516829 | TASKI swingo 1255 B Power | | 01 |
| 7516830 | TASKI swingo 1255 B Power | BMS SEV | 01 |
| 7516831 | TASKI swingo 1255 B Power | BMS EURO | 01 |
| 7517575 | TASKI swingo 1255 B Power | BMS DK | 01 |
| 7517715 | TASKI swingo 1255 B Power | BMS NA | 01 |
| 7516833 | TASKI swingo 1255 B Power | BMS UK | 01 |
| 7516832 | TASKI swingo 1255 B Power | BMS EBU SEV | 01 |
| 7516834 | TASKI swingo 1255 B Power | BMS EBU EURO | 01 |
| 7517576 | TASKI swingo 1255 B Power | BMS EBU DK | 01 |
| 7516836 | TASKI swingo 1255 B Power | EBU | 01 |

Table 1: Machine range

# 4.2 Technical Information

## 4.2.1 Machine profile

| Pos. | | Value |
|---|---|---|
| Theoretical performance (at 4.5 km/h) | (m²/h) | 2475 |
| Practical performance | (m²/h) | 1250 |
| Working width | (mm) | 550 |
| Squeegee width | (mm) | 800 |
| Solution tank | (l) | 55 |
| Recovery tank | (l) | 55 |

Table 2: Machine profile

## 4.2.2 Technical data

| Pos. | | Value |
|---|---|---|
| Noise level (ECO mode) | dB(A) | <60 |
| Vibration | (m/s2) | < 0.5 |
| Approvals | | ÖVE |
| Nominal consumption | (W) | 1000 |
| Power drive motor | (W) | 200 |
| Power suction motor | (W) | 490 |
| Voltage | (V) | 24 |
| Battery capacity max. (maintenance-free/wet) | (Ah)/C5 | 50/70 |
| Battery autonomy max.<br>(70 Ah maintenance free battery) | (h) | up to 3.0 |
| Internal charger | | only in BMS |
| Protection grade machine | | IPX3 |
| Protection class charger (BMS model) | | I |
| Protection class charger (BMS model DK) | | II |

Table 3: Technical Data

### 4.2.3 Machine speed

| Pos. | | Value |
|---|---|---|
| Transportation speed | (km/h) | 4.5 |
| Cleaning speed | (km/h) | 4.5 |
| Ramp max. | (%) | 2 |

Table 4: Machine speed

### 4.2.4 Dimensions and weights

| Pos. | | Value |
|---|---|---|
| Dimensions | L/W/H (mm) | 1420/580/1170 |
| Door pass through with squeegee | (mm) | 800 |
| Battery compartment | L/W/H (mm) | 700 x 340 x 240 |
| Net weight without batteries; empty tank | (kg) | 81 |
| Weight, ready to use | (kg) | 260 |
| Max. floor pressure | (N/mm2) | 0.39 |
| Wheel diameter front | (mm) | 200 |
| Wheel diameter - castor | (mm) | 100 |

Table 5: Dimensions and weights

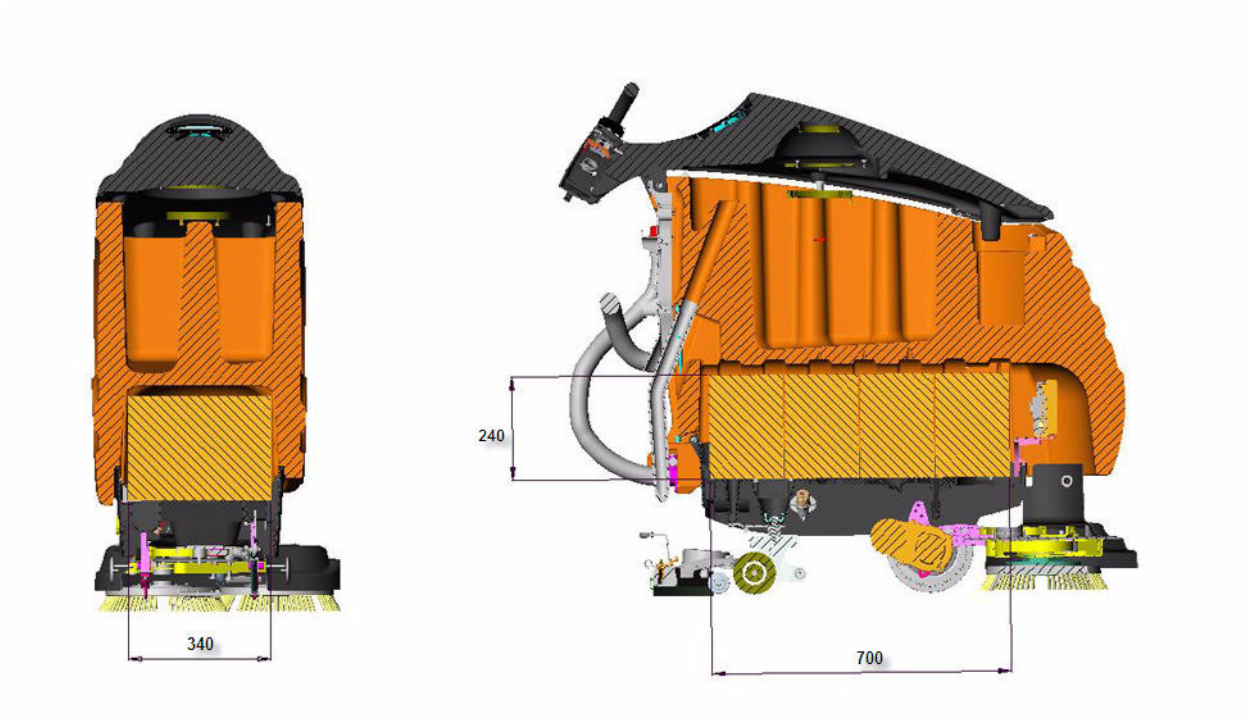

Picture 1: Dimensions

## 4.2.5 Battery

### 4.2.5.1 Battery compartment

| Pos. | | Value |
|---|---|---|
| Battery compartment | L/W/H (mm) | 700 x 340 x 240 |

Table 6: Battery compartment




Picture 2: Battery compartment



### 4.2.5.2 Battery specifications

**⚠CAUTION**

*Please use batteries from Excide/Sonnenschein, as this is our preferred partner.*

*BMS is only for dry (gel) batteries.*

*For the correct connection of the batteries, pay attention to the voltage of each battery and the correct connection. Therefore refer to e-spares.*

| Supplier | Type | Voltage | Ah | Length [mm] | Width [mm] | Height [mm] | Weight [kg] |
|---|---|---|---|---|---|---|---|
| Excide | Sonnenschein GF12050 | 12 | 50 | 278 | 175 | 190 | 20 |
| Excide | Sonnenschein GF12070 | 12 | 70 | 330 | 171 | 236 | 28 |

Table 7: Dry (gel) batteries

## 4.2.6 Charger



| Pos. | | Value |
|---|---|---|
| Primary | V | 100 - 240 |
| Primary | Hz | 50 - 60 |
| Secondary | V | 24 |
| Secondary | A | 20 |
| Secondary (DK model) | A | 25 |
| Protection class charger (BMS model) | | I |
| Protection class charger (BMS model DK) | | II |
| Approval | | CE |
| Cable length / BMS cable | (m) | 3 |

Table 8: Charger

## 4.2.7 Brush system

| Pos. | | Value |
|---|---|---|
| Brush system | (mm) | 2 x 280 |
| Brush motor | (W) | 750 |
| Brush speed | (rpm) | 195 |
| Brush pressure max. | (kg) | 48 |

Table 9: Brush system

## 4.2.8 Suction power

| Pos. | | Value |
|---|---|---|
| Vacuum motor | (W) | 490 |
| Max. air flow | (l/s) | 32 |
| Max. vacuum | (mbar) | 118 |
| Max. vacuum | (kPa) | 11.8 |

Table 10: Suction power

## 4.2.9 Additional

| Pos. | | Value |
|---|---|---|
| Cleaning Solution Dosing | | CSD system |
| Brush lifting | | mechanical or electrical (EBU) |
| Squeegee lifting | | mechanical |

Table 11: Additional

# 4.3 Accessories & Additional parts

## 4.3.1 Accessories

| SKU | Article |
|---|---|
| 7510634 | Pad drive harpoon grip 280 mm |
| 7510631 | Scrubbing brush standard 280 mm |
| 7510632 | Scrubbing brush washed concrete 280 mm |
| 7510633 | Scrubbing brush abrasive 280 mm |
| 4122535 | Blade front |
| 4122536 | Blade back |

Table 12: Accessories

## 4.3.2 Additional parts

| SKU | Article |
|---|---|
| 4127204 | Blades front Type 816 (Closed front blade) |
| 4127052 | Double back blades (56/2.5 x 858) |
| 4075260 | External hour counter for battery models |
| 4122526 | PU traction wheel (brown) |
| 4123154 | PU wheels soft |
| 4122527 | Castor wheel brown 100 |

Table 13: Additional parts

# Technical Manual


# 5 Mechanical

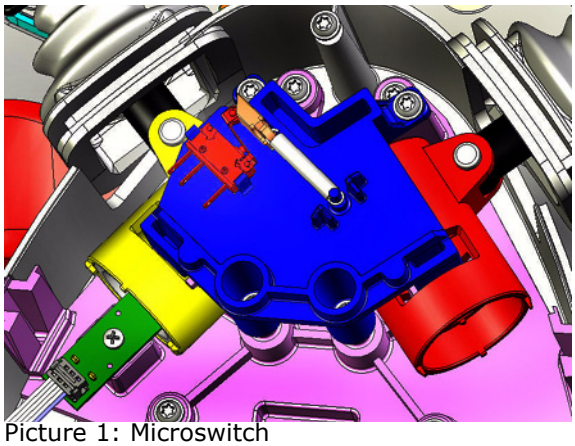
19. April 2010 Edition: V1.00/2010

# 5 Mechanical

## 5.1 Mechanical sequences

### 5.1.1 Handle/Upper part

#### 5.1.1.1 Replacing of microswitch


Picture 1: Microswitch



**Remove**

- Remove the 3 screws of the cover.
- Remove the cover.
- Unplug hour counter wires from the hour counter or the cover.
- Remove spring of the microswitch.
- Remove microswitch from fixation.
- Disconnect wires from microswitch.

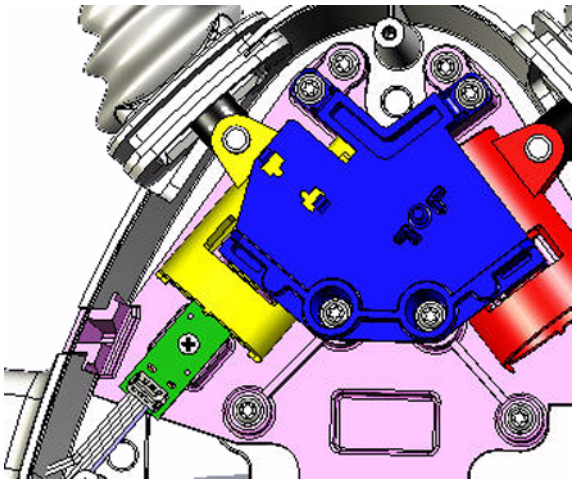
**Mount**

- Connect new microswitch to the wires.
- Position the microswitch on the fixation.

**⚠CAUTION** *Ensure that the microswitch is positioned correctly on the fixation (pins).*

- Assemble microswitch spring.
- Test if the microswitch is functional when moving the throttle levers.
- Connect the hour counter wires to the hour counter or to the cover.
- Assemble the cover.
- Tighten the cover with the 3 screws.

### 5.1.1.2 Replacing of hall sensor board



Picture 2: Throttle hall sensor



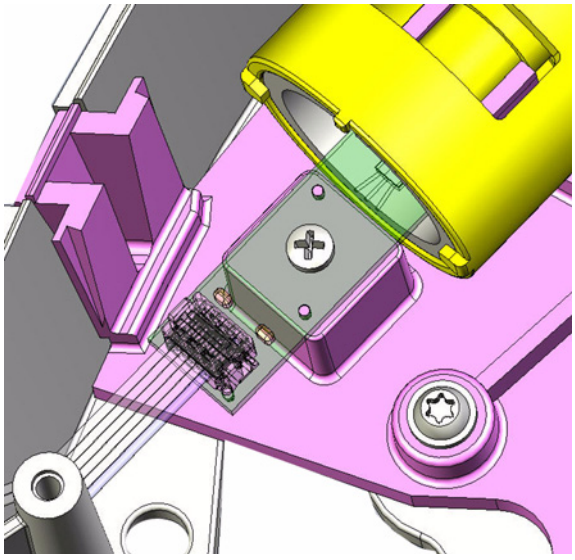
**Remove**

- Remove microswitch according to chapter REPLACING OF MICROSWITCH.
- Remove the 5 screws of the dashboard.
- Remove dashboard.
- Disconnect hall sensor compl. ribbon cable from dashboard.
- Thread out hall sensor compl. ribbon cable.
- Unscrew mechanic hall sensor compl. fixation.
- Remove mechanic hall sensor compl.

**Mount**

- Build in mechanic hall sensor compl.

**⚠CAUTION** *Make sure that the mechanic hall sensor compl. is placed correctly on the pins of the support before tightening the screw.*



Picture 3: Hall sensor positioning

- Place and tighten screw of mechanic hall sensor compl.
- Thread in the hall sensor compl. ribbon cable.
- Connect hall sensor compl. ribbon cable to the dashboard.
- Position dashboard and fix it with the 5 screws.
- Complete assembling according to the chapter REPLACING OF MICROSWITCH.

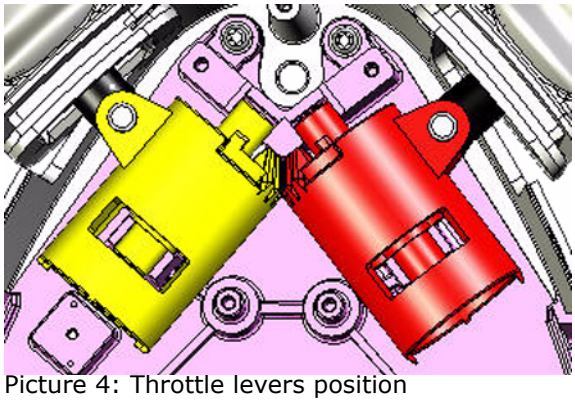
### 5.1.1.3 Replacing of throttle lever

**Remove**

- Remove microswitch according to chapter REPLACING OF MICROSWITCH.
- Unscrew mechanic hall sensor compl. fixation.
- Remove mechanic hall sensor compl.
- Unscrew the four screws of the switch holder bracket.
- Remove switch holder bracket.
- Put the locking lever to the left.
- Remove both throttle levers.

**Remarks**

*The lever parts can be replaced as single pieces according to e-spares.*



Picture 4: Throttle levers position

*Pay attention that the solenoid is placed on the left side (hall sensor side).*

*Make sure that the rubber covers are placed in the slots.*

**Mount**

- Assemble both throttle levers.

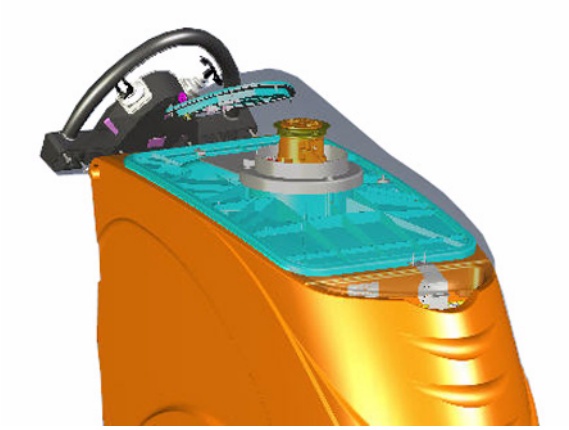
**⚠CAUTION** *Ensure that the lever toothed wheels are positioned in the center of the possible movement.*

- Mount switch holder bracket.
- Build in mechanic hall sensor compl.

**⚠CAUTION** *Make sure that the mechanic hall sensor compl. is placed correctly on the pins of the support before tightening the screw.*

- Place and tighten the screw of mechanic hall sensor compl.
- Complete assembling according to the chapter REPLACING OF MICROSWITCH.

### 5.1.1.4 Replacing of vacuum motor

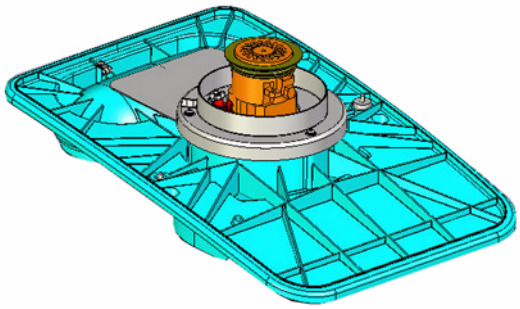


Picture 5: Vacuum motor



## Remove

- Open the tank cover.
- Loosen the screw on the tank cover on the support side (RH).
- Loosen the screw on the other side (LH).
- Close the tank cover.
- Open the tank cover without base plate.



Picture 6: Base plate

- Disconnect vacuum motor wires from connection block.
- Remove sealing of vacuum motor to tank cover.
- Remove capacitor from motor.
- Unscrew the 3 screws of the vacuum motor protection plate.
- Remove the vacuum motor protection plate.
- Remove vacuum motor fixation sealings.
- Remove the vacuum motor.
- Remove bottom sealing of the vacuum motor.

## Mount

- Position bottom sealing of the vacuum motor.
- Build in the vacuum motor.
- Position vacuum motor fixation sealings.
- Assemble vacuum motor protection plate.

**Remarks**

*Ensure that the vacuum motor sealings are properly positioned before assembling the protection plate.*

- Position and tighten the vacuum motor protection plate fixation.

**Remarks**

*Ensure that the turn protection is placed (spin protection).*

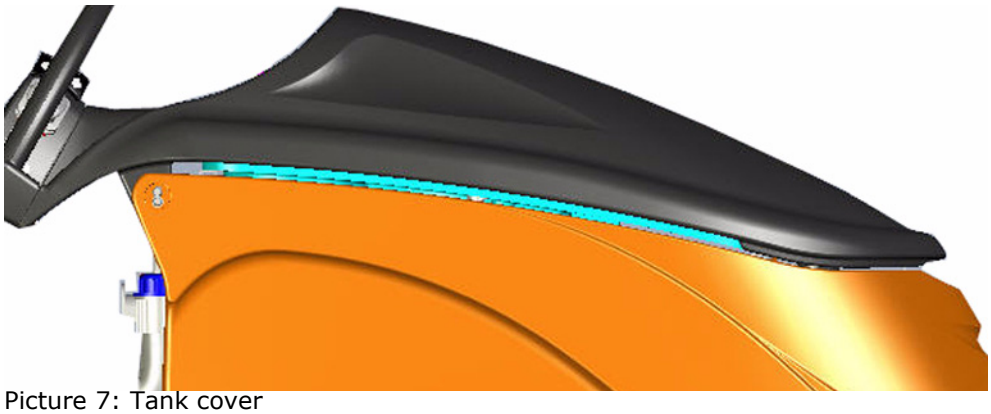
- Mount capacitor to the vacuum motor and connect wires.
- Position top sealing of vacuum motor.
- Connect vacuum motor wires to connection block.
- Close tank cover and position it on the base plate.
- Open tank cover together with base plate.
- Use the tank cover support.
- Tighten base plate fixation on the LH side.
- Tighten base plate fixation on the tank support side (RH).

**⚠CAUTION** *Tighten the fixation rubbers smoothly.*

**Remarks**

*Check at the end if the vacuum motor top sealing is positioned properly. If necessary, unscrew and remove the dashboard and check.*

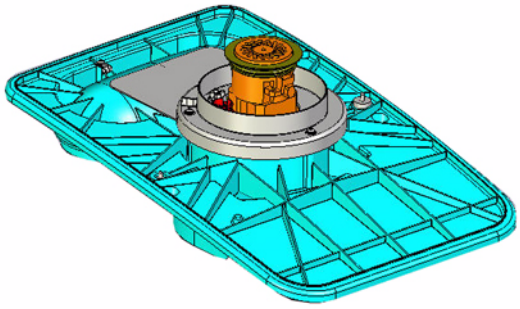
### 5.1.1.5 Replacing of tank cover



Picture 7: Tank cover

**Remove**

- Unscrew dashboard fixation.
- Remove dashboard and disconnect all cables.
- Remove the 3 screws of handle cover.
- Remove handle cover.
- Unplug hour counter wires from the hour counter or the cover.
- Remove screws (01/103) of throttle lever bracket.
- Thread out hall sensor ribbon cable and remove the complete throttle lever system.
- Unscrew handle fixation to the tank cover (01/106 and 01/107).
- Remove handle from tank cover.
- Unscrew and remove rear panel (09/103).
- Open the tank cover.
- Loosen the screw (01/107) on the tank cover on the support side (RH).
- Loosen the screw on the other side (LH).
- Close the tank cover.
- Open the tank cover without base plate.



Picture 8: Base plate

- Disconnect vacuum motor cable at connection block (cable to

power electronics).
- Remove cable fixation from base plate.
- Thread out cables from tank cover.
- Close tank cover.
- Remove fixation screw (09/123) of axle on one side.
- Push out axle (09/121).
- Remove complete cover.
- According to what you need to exchange, remove the existing parts from the tank cover and place it on the new one.

## Mount (Drilling of hole for tank cover axle)

**⚠CAUTION** *Assemble the tank cover lock at the end of this sequence.*

- Position the base plate on the new tank cover.
- Fix the base plate on the tank cover.
- Position the tank cover including base plate correctly on the tank.

**⚠CAUTION** *Make sure that the sealings are nicely positioned.*

- Drill the hole for the tank axle without pressing the tank cover down onto the tank (drill with 10 mm).
- Mount the tank cover axle.
- Fix the axle with the screws.

**Remarks**

*Ensure that the protection shield (01/108) is positioned between the tank and the base plate.*

- Open tank cover.
- Thread in cable into the tank cover.

**Remarks**

*Ensure that the cables are positioned that way, that they can not be squeezed by the tank cover.*

- Fix cable on the base plate.
- Connect vacuum motor to the connection block (cable from power electronics).
- Close tank cover and position it on the base plate.
- Open tank cover together with base plate.
- Use the tank cover support.
- Tighten base plate fixation on the LH side.
- Tighten base plate fixation on the tank support side (RH).

**Remarks**

*Check at the end if the vacuum motor top sealing is positioned properly. If necessary, unscrew and remove the dashboard and check.*

- Open tank cover.
- Assemble tank cover lock.

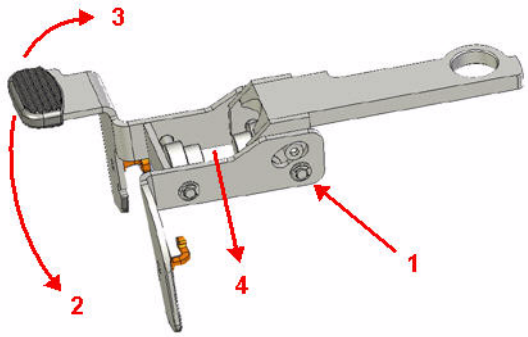
**Adjustment**

*Adjust the tank cover lock and ensure a proper opening and closing of the tank cover.*

- Mount the rear panel.
- Assemble handle on the tank cover with the 7 screws.
- Position the complete throttle lever system.
- Thread in the hall sensor cable to the dashboard.
- Fix the throttle lever bracket with the screws.
- Position wires on the external hour counter or on the handle cover, depending on the setup.
- Mount the handle cover.
- Connect wires to dashboard.
- Assemble dashboard on the tank cover.

## 5.1.2 Squeegee lowering mechanism

### 5.1.2.1 Replacing of squeegee bracket spring




Picture 9: Squeegee lowering



**Remove**

- Remove the squeegee from the fixation.

1 Remove one circlip of rear axle.

2 Press down the swinging arm (02/111) to release tension on axle and remove it.

3 Put the swinging arm in transport position (all the way up to the chassis).

4 Remove pressure spring by pulling it out.

**Mount**

- Put the swinging arm all the way up to the chassis.
- Mount the new pressure spring.

**Remarks**

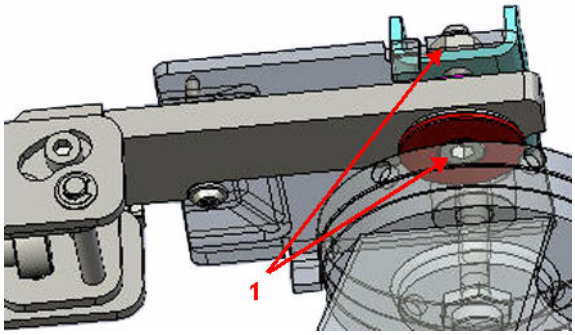
*Thread spring into the upper bolt (02/104) first and then push it all the way in.*

- Press down the swinging arm and assemble the rear axle.

**⚠CAUTION** *Ensure that the slide bearings are properly positioned.*

- Position the circlip on the rear axle.

### 5.1.2.2 Replacing of swinging arm long




Picture 10: Swinging arm long

**Remove**

- Remove castor wheel according to chapter REPLACING OF CASTOR WHEEL.

1 Loosen the fixation screw (02/107) with 8mm Allen key and 17mm fork spanner/nut.

- Remove complete swinging arm long.

**Mount**

- Assemble the complete swinging arm long.
- Tighten the fixation screw.
- Assemble the castor wheel according to chapter REPLACING OF CASTER WHEEL.

**Adjustment**

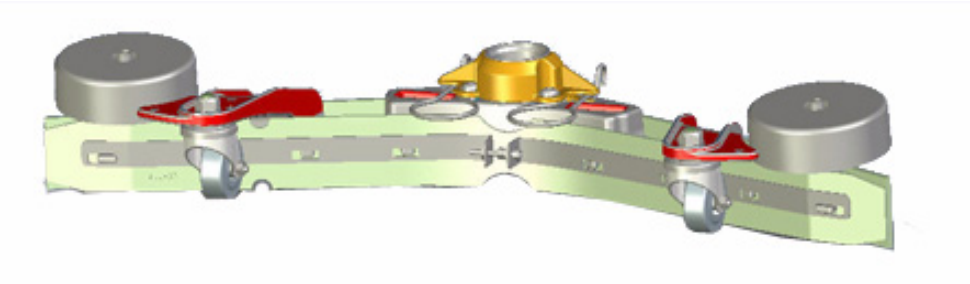
*Make sure that the reinforcement plate (04/103) is positioned correctly, so the hexagon screw (04/102) for the castor wheel fits nicely.*

*Tighten the screw with 60 Nm.*

**Service**

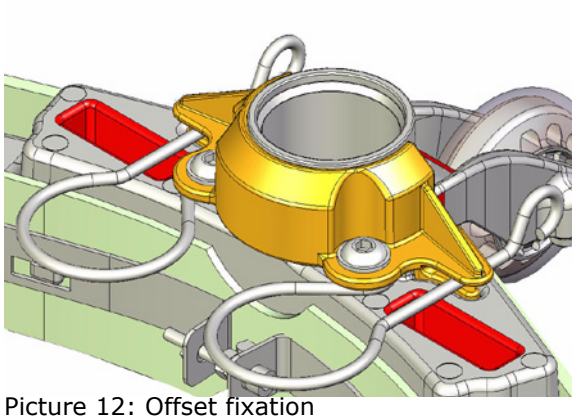
*Apply gear/bearing lubricant on the slide bearing (02/108).*

## 5.1.3 Squeegee



Picture 11: Squeegee

### 5.1.3.1 Replacing of fixation spring



Picture 12: Offset fixation



**Remove**

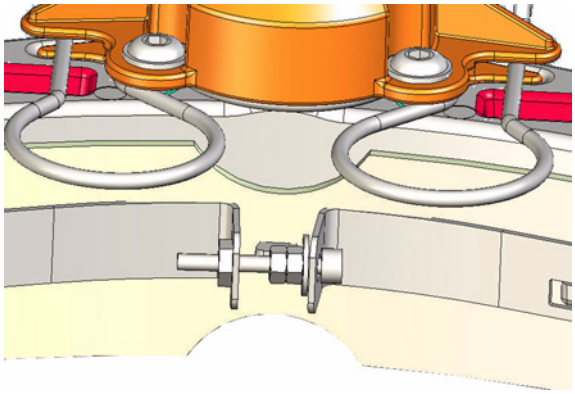
- Unscrew the 2 screws of the offset (03/113) fixation.
- Remove the offset and the spring (03/114).
- Remove the spring from the offset.

**Mount**

- Assemble the new spring on the offset.
- Assemble the offset and the spring on the squeegee.
- Mount the screws of the offset.

### 5.1.3.2 Replacing of front blade

**Remove**

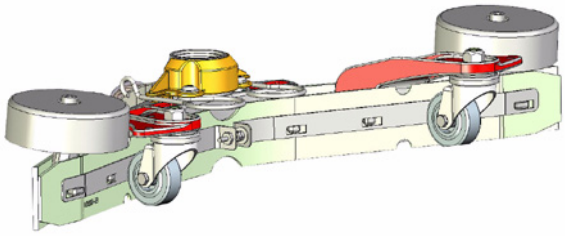


Picture 13: Front blade fixation

- Tighten fixation screw until the tightening strap can be removed (the pressure to the outer sides of the squeegee body will be reduced).
- Remove front blade.

**Mount**

- Position new front blade.



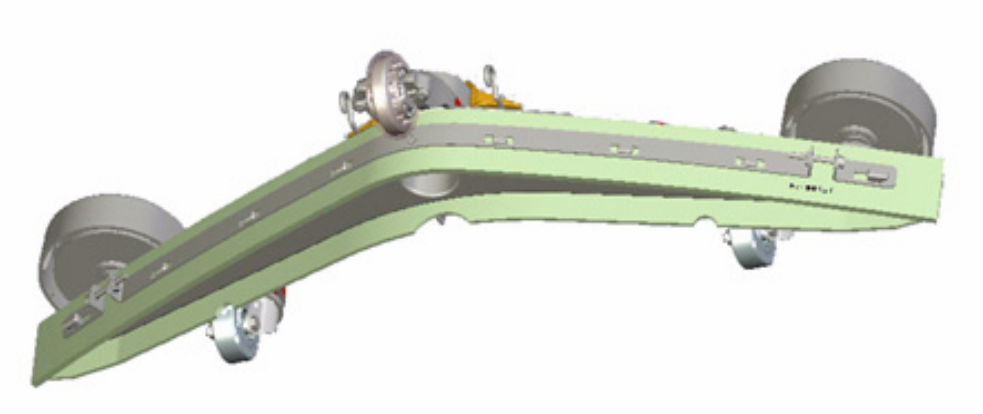
Picture 14: Tightening strap front blade

- Position tightening strap.
- Loosen fixation screw until the blade is proper fixed on the squeegee body.

**⚠CAUTION** *Ensure that the tightening strap is positioned correct (thin part to the bottom).*

*If you over tighten the tightening strap it can bulge.*

### 5.1.3.3 Replacing of back blade



Picture 15: Back blade

**Remove**

- Loosen the fixation screws on both sides to release the pressure.
- Remove the tightening strap.
- Remove the back blade.

**Mount**

- Position new back blade.
- Position tightening strap.
- Tighten fixation screws until the blade is proper fixed on the squeegee body.

**Remarks**

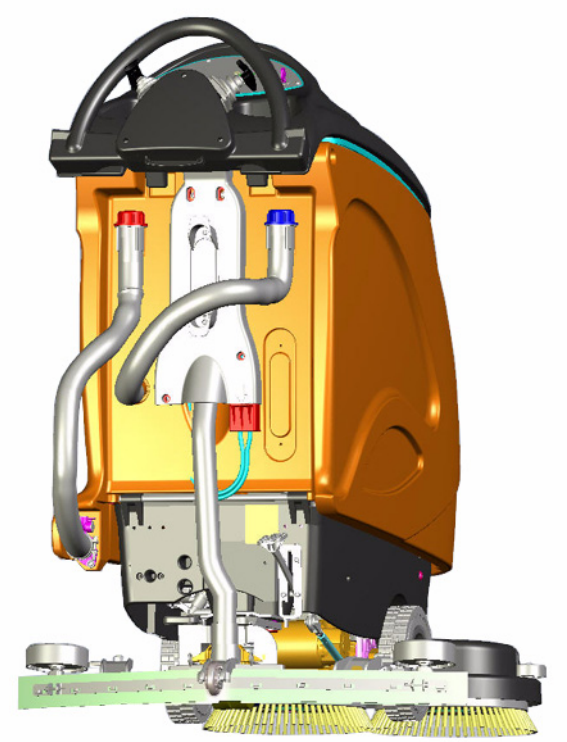
*Pay attention that the tightening strap is positioned in the center.*

**⚠CAUTION** *Ensure that the tightening strap is positioned correct (thin part to the bottom).*

*If you over tighten the tightening strap it can bulge.*

## 5.1.4 Lower part & tank

### 5.1.4.1 Replacing of tank

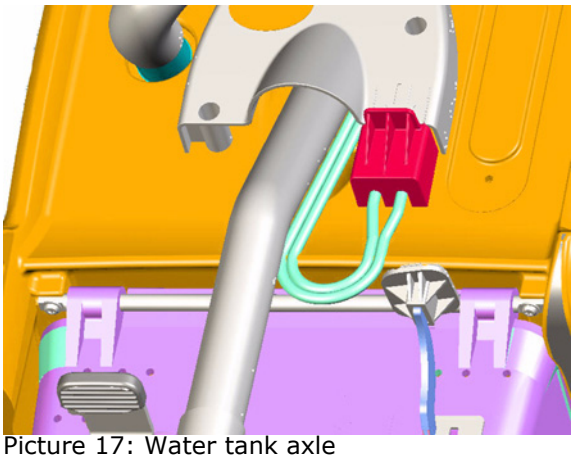


Picture 16: Tank



**Remove**

- Remove tank cover according to chapter REPLACING OF TANK COVER.
- Remove fresh water hose from valve body (08/107).
- Remove rear panel.
- Unscrew charger jack from rear panel (09/103).
- Unlock battery compartment by removing screws of locking system.
- Open the battery compartment.
- Thread out wiring and hoses to the battery compartment.
- Close battery compartment.



Picture 17: Water tank axle

- Remove water tank fixation screws (09/125).
- Remove water tank from axle.
- Remove the existing parts from the tank and place it on the new one.

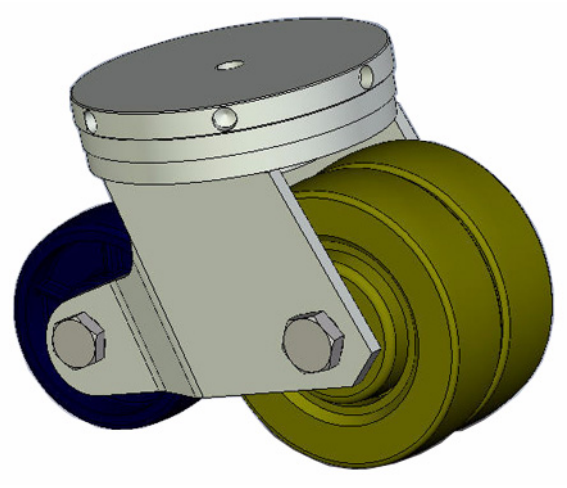
## Mount

- Position the new water tank on the axle.
- Fix the water tank onto the axle with the two screws.
- Open the battery compartment.
- Thread in cables from the battery compartment.
- Close battery compartment.
- Assemble charger jack on the rear panel.
- Connect fresh water hose to the valve body (08/107).
- Assemble tank cover according to chapter REPLACING OF TANK COVER.
- Adjust battery compartment lock.
- Lock the battery compartment on both sides with the screws of the locking system.

### Adjustment

*Ensure that the screws of the lock can be properly positioned.*

### 5.1.4.2 Replacing of castor wheel



Picture 18: Castor wheel



**Remove**

- Unlock battery compartment on the LH side by removing the screw of the locking system.
- Lay the machine on the LH side.
- Unlock battery compartment on the RH side by removing the screw of the locking system.
- Open the battery compartment.
- Loosen the fixation screw (04/102) with a 19 mm fork spanner/nut.
- Remove the complete castor wheel.

**Mount**

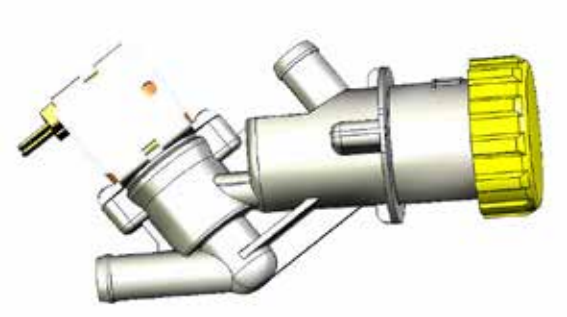
- Assemble castor wheel.
- Tighten the fixation screw with a 19 mm fork spanner/nut.

**Adjustment**

*Tighten the screw with 70 Nm.*

- Lock battery compartment on the RH side with the screw of the locking system.
- Lift up the machine.
- Lock battery compartment on the LH side with the screw of the locking system.

### 5.1.4.3 Replacing of filter 24V



Picture 19: Filter 24V

**Remove**

- Remove filter cover of filter 24V.

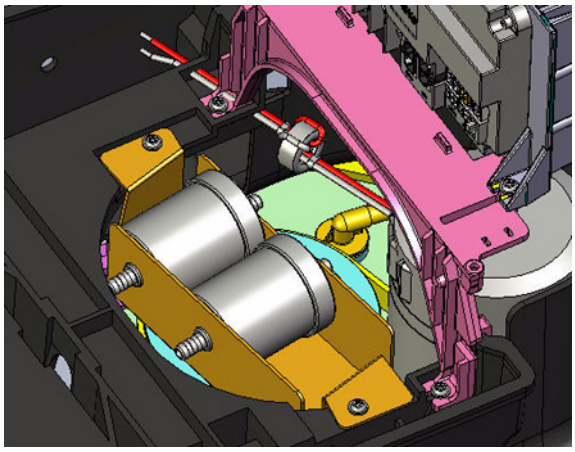
**⚠CAUTION** *Ensure that no water is in the fresh water system before you disconnect the hoses or remove the filter cover.*

- Remove fixation screws (08/124) from chassis.
- Thread out filter 24V from the chassis.
- Disconnect the fresh water connection.
- Disconnect the wires from coil.
- Remove complete filter 24V.

**Mount**

- Take new filter 24V.
- Connect wires to coil.
- Connect fresh water hoses to the filter 24V.
- Thread in the filter 24V on the chassis.
- Position fixation screws and tighten them.
- Position filter cover on the filter 24V.

### 5.1.4.4 Replacing of pump

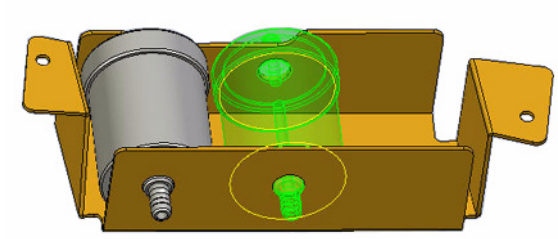


Picture 20: Pumps



**Remove**

- Unlock battery compartment by removing the screws of the locking system.
- Open the battery compartment.
- Lower the brush drive unit to cleaning position without tools underneath.
- Unscrew brush housing fixation screws.
- Remove the brush housing to get better access to the pump.
- Remove the screws (04/112) of the pump holder (04/122).
- Disconnect the pump wires.
- Loosen the hose clamps on both sides of the pump.
- Remove the fresh water hoses from the pump.



Picture 21: Pump

- Lift up pump holder and thread out pump from pump holder.

**Mount**

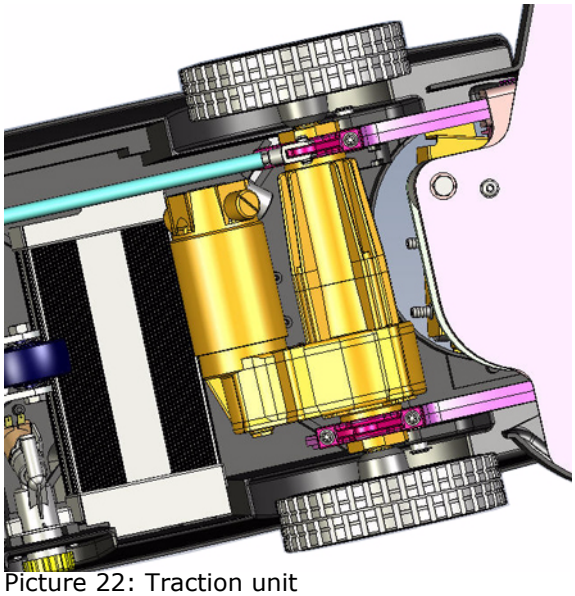
- Position new pump into pump holder.

**⚠CAUTION** *Ensure that the pump is build in according to the water flow. The arrow on the pump indicates the water flow direction.*

- Connect fresh water hoses to the pump.
- Tighten the hose clamps on both sides.
- Connect the pumps wires.
- Position and tighten the screw of the pump holder.
- Mount the brush housing.
- Position and tighten screws of brush housing.
- Close battery compartment.
- Lock battery compartment on both sides with the screws of the locking system.

## 5.1.5 Drive, Wheel group

### 5.1.5.1 Replacing of traction unit



Picture 22: Traction unit



**Remove**

- Unlock battery compartment by removing screws of locking system.
- Open battery compartment.
- Disconnect traction unit wires from power electronics.
- Thread out wires from battery compartment.
- Close battery compartment.
- Lay machine to the LH side.

**Remarks**

*For an EBU machine the next two steps are not necessary.*

- Remove retaining ring (06/120) on one side.
- Remove axle (06/119).

- Remove the screws (05/106, EBU 05/111) for the brackets.
- Remove the fixation brackets (05/105).
- Remove traction unit including traction wheels.

**Mount**

- Position new traction unit including traction wheels.
- Position and tighten fixation brackets.

**Remarks**

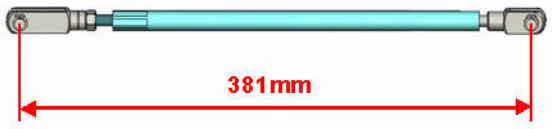
*For an EBU machine the next two steps are not necessary.*

- Position the axle.
- Mount the retaining ring.

- Lift up the machine again.
- Open battery compartment.
- Thread in wires of traction unit into the battery compartment.
- Connect traction unit wires to power electronics.
- Look the battery compartment on both sides with the screws of the locking system.

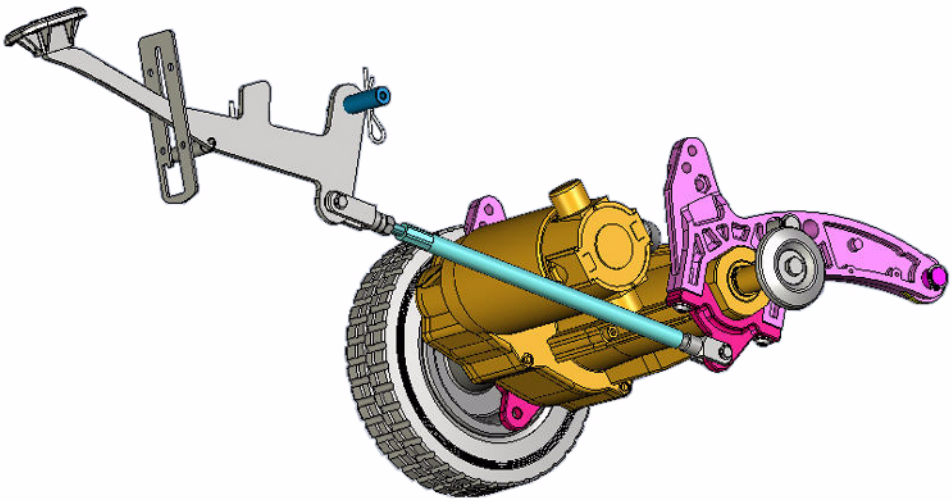
**Adjustment**

*Make sure that the pusher rack (06/106) is adjusted to the distance of 381mm.*




Picture 23: Pusher rack

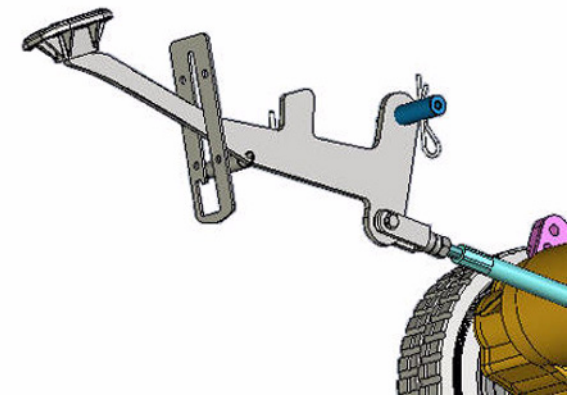
## 5.1.6 Tool lowering unit



Picture 24: Tool lowering unit



### 5.1.6.1 Replacing of foot lever



Picture 25: Foot lever

**Remove**

- Remove the pedal pad (06/101) from the foot lever (06/102).
- Lay the machine on the LH side.
- Unplug the microswitch.
- Remove the screw (06/117) for microswitch fixation.
- Remove the microswitch (06/118).
- Remove the retaining ring (06/120) on one side.
- Remove the axle (06/119) from the pusher rack (06/106).
- Pull out the stop pin (06/108).
- Remove the bolt (06/107) for the foot lever fixation.

### Remarks

*To pull out the bolt, you need to thread in a screw into the bolt. Dimensions: M6, min. length 30mm.*

- Remove the foot lever (06/102)

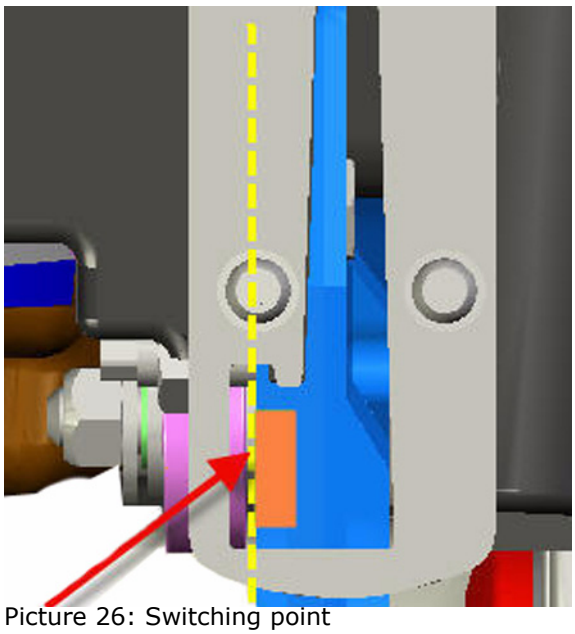
## Mount

- Build in new foot lever.
- Position the bolt for the foot lever fixation.
- Insert the stop pin.
- Position the axle into the pusher rack.
- Mount the retaining ring.
- Position the microswitch.
- Mount screw for microswitch and adjust accordingly.

### Adjustment

*The foot lever switch has to switch when the foot lever passes the center of the LH side (see line) of the stop plate squeegee (06/104)*

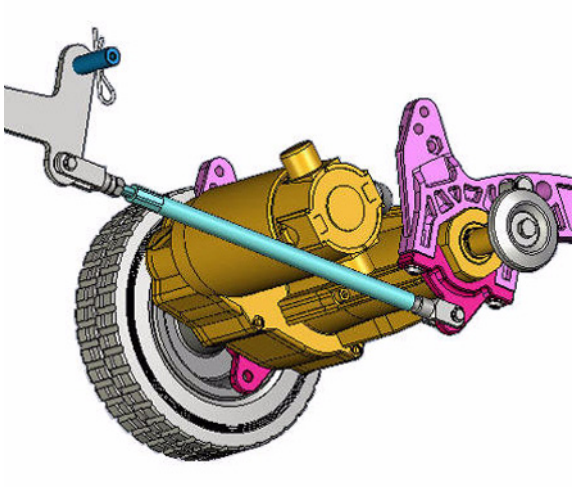




Picture 26: Switching point

- Connect the microswitch.
- Lift up the machine.
- Assemble pedal pad onto the foot lever.

### 5.1.6.2 Replacing of pusher rack



Picture 27: Pusher rack



## Remove

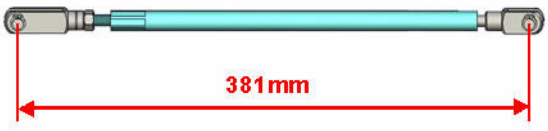
- Lay the machine on the LH side.
- Remove the retaining ring (06/120) of the axle (06/119) on the foot lever side.
- Remove the axle (06/119) on the foot lever side.
- Remove the retaining ring (06/120) of the axle (06/119) on the traction unit side.
- Remove the axle (06/119) on the traction unit side.
- Remove the pusher rack.

## Mount

- Position the pusher rack.

### Adjustment

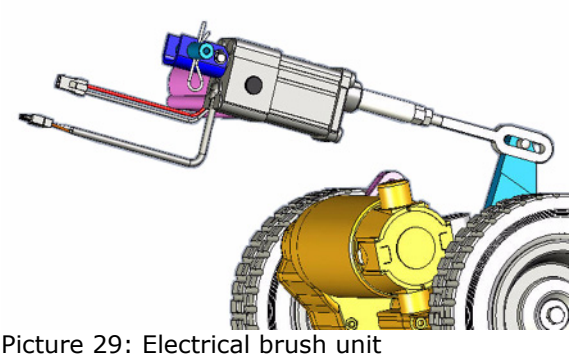
*Make sure that the pusher rack (06/106) is adjusted to the distance of 381mm.*




Picture 28: Pusher rack distance

- Position the axle into the pusher rack on the traction unit side.
- Mount the retaining ring.
- Position the axle into the pusher rack on the foot lever side.
- Mount the retaining ring.
- Lift up the machine.

### 5.1.6.3 Replacing of electrical brush unit (EBU)



Picture 29: Electrical brush unit



## Remove

- Lay machine on the LH side.
- Remove special screw (06/136) to release tie rod.
- Disconnect the linear drive wiring.
- Pull out stop pin (06/108).
- Remove bolt (06/107) for the linear drive fixation.

**Remarks**

*To pull out the bolt, you need to thread in a screw into the bolt. Dimensions: M6, length > 30mm.*

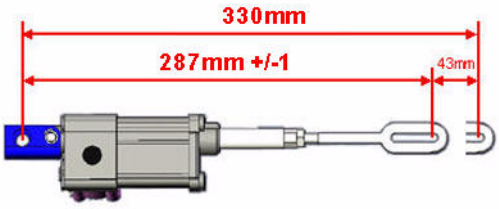
- Thread out the complete linear drive.

## Mount

- Thread in the complete linear drive.

**Adjustment**

*The distance between the linear drive fixation bracket and the outer end of the tie rod has to be as bellow.*

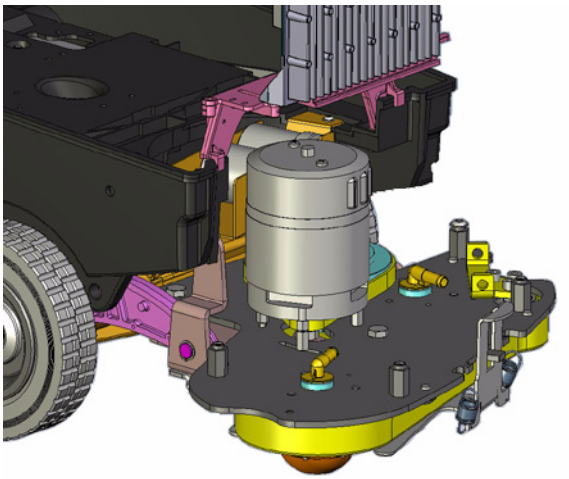



Picture 30: Linear drive fixation distance

- Mount bolt for linear drive fixation and secure with stop pin.
- Connect linear drive wiring.
- Mount special screw to fix the tie rod.
- Lift up machine again.

## 5.1.7 Brush drive unit

### 5.1.7.1 Replacing of brush drive unit

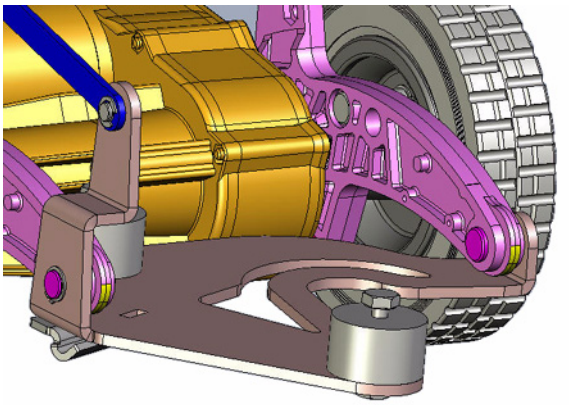


Picture 31: Brush drive replacing

**⚠CAUTION** *For easier access lower the brush unit.*

**Remove**

- Unlock battery compartment by removing screws of locking system.
- Open battery compartment.
- Unscrew brush housing fixation screws.
- Remove the brush housing from the brush drive unit.
- Disconnect the fresh water hoses from the brush unit.
- Disconnect the brush motor wires from the power electronics.
- Remove RH circlip (06/112) from the axle (06/114).
- Remove the axle.
- Remove the retaining ring (06/110) on the LH and RH side from the bolts (06/115), holding brush drive unit to the cradle.



Picture 32: Brush drive fixation

- Push bolts inwards to release the brush unit.

**⚠CAUTION** *Make sure that you hold the brush drive unit firmly.*

- Pivot the complete brush drive unit out.

**Mount**

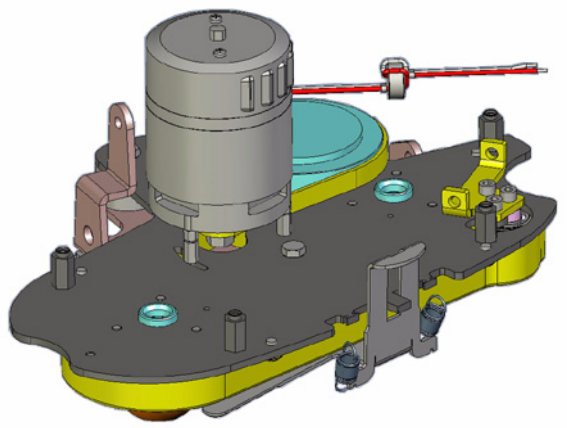
**⚠CAUTION** *On EBU models the brush unit fixation bolts are different in length. Therefore the small bolt (06/115) is mounted on the LH and the longer bolt (06/121) on the RH side.*

- Position the brush drive unit onto the cradles.
- Position the bolts and mount the retaining ring (06/110) on the LH and the RH side.
- Position the axle (06/114) and mount the circlip (06/112).
- Connect the brush motor wires to the power electronics.
- Connect the fresh water hoses to the brush drive unit.
- Position the brush housing on the brush drive unit.
- Position the brush housing fixation screws and tighten them.
- Close and lock the battery compartment on both sides with the screws of the locking system.

**Adjustment**

- M5 (04/125) with 5 Nm
  - Brush minus
- M6 (04/128) with 7 Nm
  - Brush plus

## 5.1.8 Brush drive



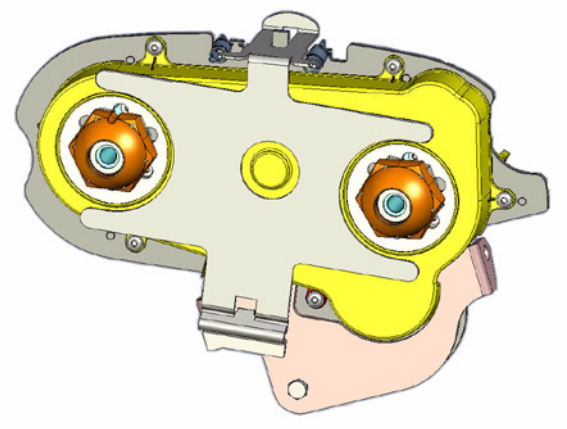
Picture 33: Brush drive



### 5.1.8.1 Replacing of brush belt

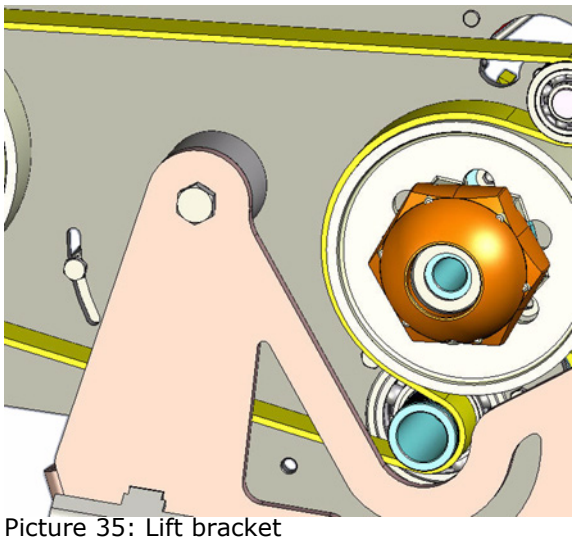
**Remove**

- Remove brush drive unit according to chapter REPLACING OF BRUSH DRIVE UNIT.
- Remove the tension springs (07/145) of decoupling bow.
- Remove the decoupling bow (07/130).



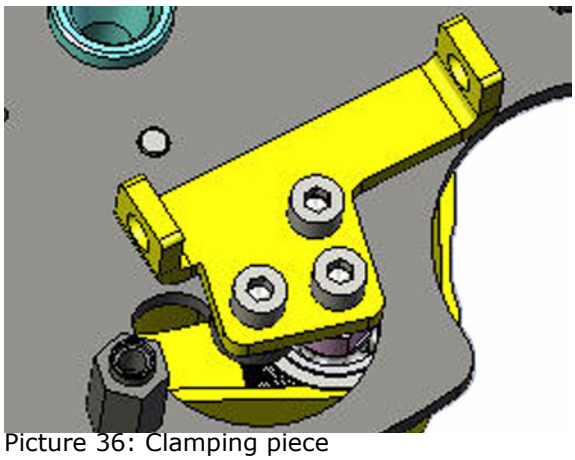
Picture 34: Decoupling bow

- Remove the five screws (07/123) of the protective cover.
- Remove the protective cover (07/142).
- Remove the screws (07/116) of the buffer (07/127)
- Remove the bracket (07/146).



Picture 35: Lift bracket

- Remove fixation screw (07/122) of the clamping piece (07/138).
- Loosen the center screw (07/122) to turn the clamping piece.
- Turn the clamping piece with a screw driver to release the tension of the brush belt.

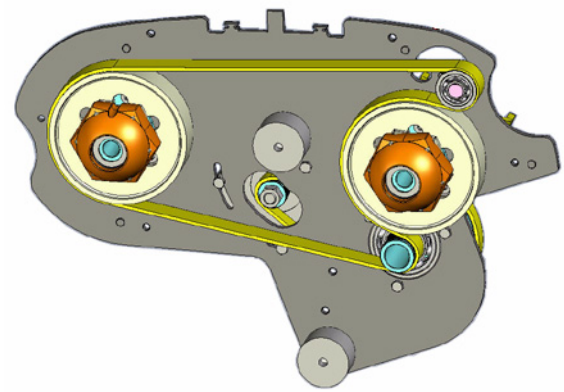


Picture 36: Clamping piece

- Remove the brush belt.

## Mount

- Position the brush belt carefully.



Picture 37: Brush belt

- Turn the clamping piece with a screw driver to tension the

brush belt.
- Position the fixation screw and tighten the center screw of the clamping piece.

**Adjustment**

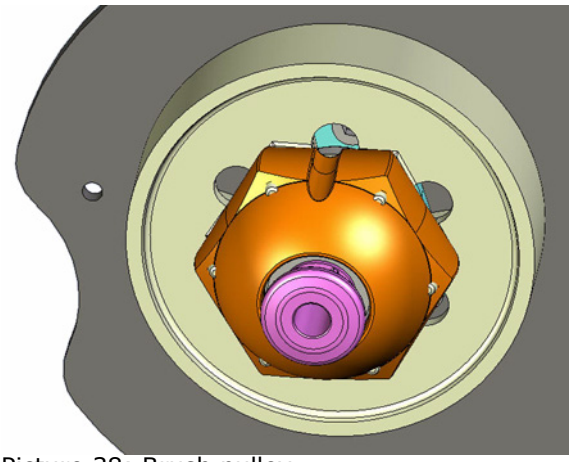
*Turn the coupling hubs (07/128) by hand in opposite direction to ensure that the belt is correctly mounted and stays in the middle of the pulley.*

- Mount the bracket (07/146), position the screws of the buffer and tighten them.
- Position the protective cover onto the brush unit.
- Position and tighten the five screws of the protective cover.

**⚠CAUTION** *Ensure that the brush belt does not touch the cover.*

- Position the decoupling bow.
- Mount the tension springs of the decoupling bow.
- Complete assembling according to chapter REPLACING OF BRUSH DRIVE UNIT.

### 5.1.8.2 Replacing of brush pulley



Picture 38: Brush pulley



**Remove**

- Remove the brush drive unit according to chapter REPLACING OF BRUSH DRIVE UNIT.
- Remove brush belt according to chapter REPLACING OF BRUSH BELT.
- Remove the coupling hub (07/128) carefully with a screw driver.
- Remove the centre plug (07/129) and the sealing ring (07/126).
- Remove the retaining ring (07/125).
- Pull off the pulley (07/124) from the axle (07/121).

**Mount**

- Mount the pulley onto the axle.

**Service**

*Apply gear/bearing lubricant on the pulley (07/124) and the axle (07/121).*

- Position the retaining ring.
- Mount the center plug and the sealing ring.

**Service**

*Apply lubricant onto the sealing ring (07/126).*

- Mount the coupling hub.

**⚠CAUTION** *The coupling hub is coded and has to match to the pulley.*

*Use a wooden piece and a hammer to mount the coupling hub onto*

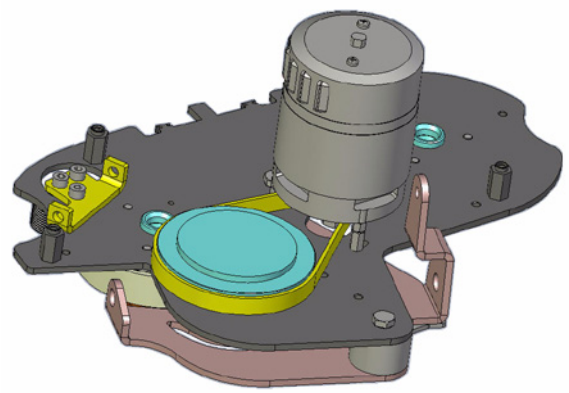
*the pulley.*

- Complete assembling according to chapter REPLACING OF BRUSH BELT.
- Complete assembling according to chapter REPLACING OF BRUSH DRIVE UNIT.

**Remarks**

*If you have to remove the complete pulley and axle together then you can remove the three screws (07/122) with an Allan key by positioning the slots of the pulley (07/124) right over the screws.*

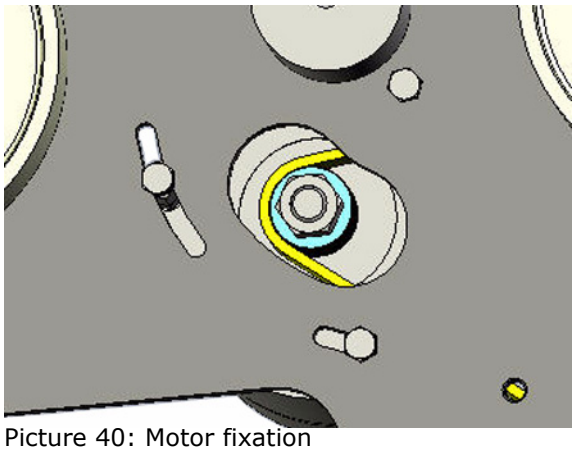
### 5.1.8.3 Replacing of motor & motor belt



Picture 39: Motor belt

**Remove**

- Remove brush drive unit according to chapter REPLACING OF BRUSH DRIVE UNIT.
- Remove brush belt according to chapter REPLACING OF BRUSH BELT.



Picture 40: Motor fixation

- Remove the three screw (08/135).

**Mount**

- Position the new motor/new belt.

**⚠CAUTION** *Take care that the belt is positioned correctly.*

- Position the screws.

**Service**

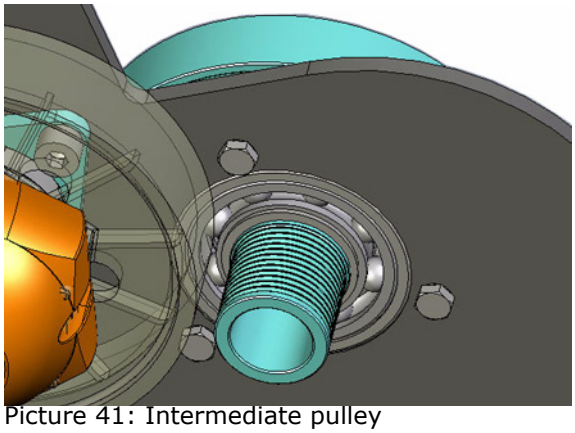
*Apply adhesive looking (08/136) on the screws (08/135).*

- To tension the belt move the motor in position.
- Tighten all screws.
- Complete assembling according to the chapter REPLACING OF

BRUSH BELT.

- Complete assembling according to the chapter REPLACING OF BRUSH DRIVE UNIT.

### 5.1.8.4 Replacing of intermediate pulley



Picture 41: Intermediate pulley

**Remove**

- Remove brush drive unit according to chapter REPLACING OF BRUSH DRIVE UNIT.
- Remove brush belt according to chapter REPLACING OF BRUSH BELT.
- Remove motor belt according to chapter REPLACING OF MOTOR & MOTOR BELT.
- Remove the three screws (07/117) for the intermediate pulley.
- Remove the complete intermediate pulley (07/113).

**Mount**

- Mount the new intermediate pulley.
- Position and tighten the screws.
- Complete assembling according to the chapter REPLACING OF MOTOR & MOTOR BELT.
- Complete assembling according to the chapter REPLACING OF BRUSH BELT.
- Complete assembling according to the chapter REPLACING OF BRUSH DRIVE UNIT.

# Technical Manual


# 6 Electrical

19. April 2010 Edition: V1.00/2010

# 6 Electrical

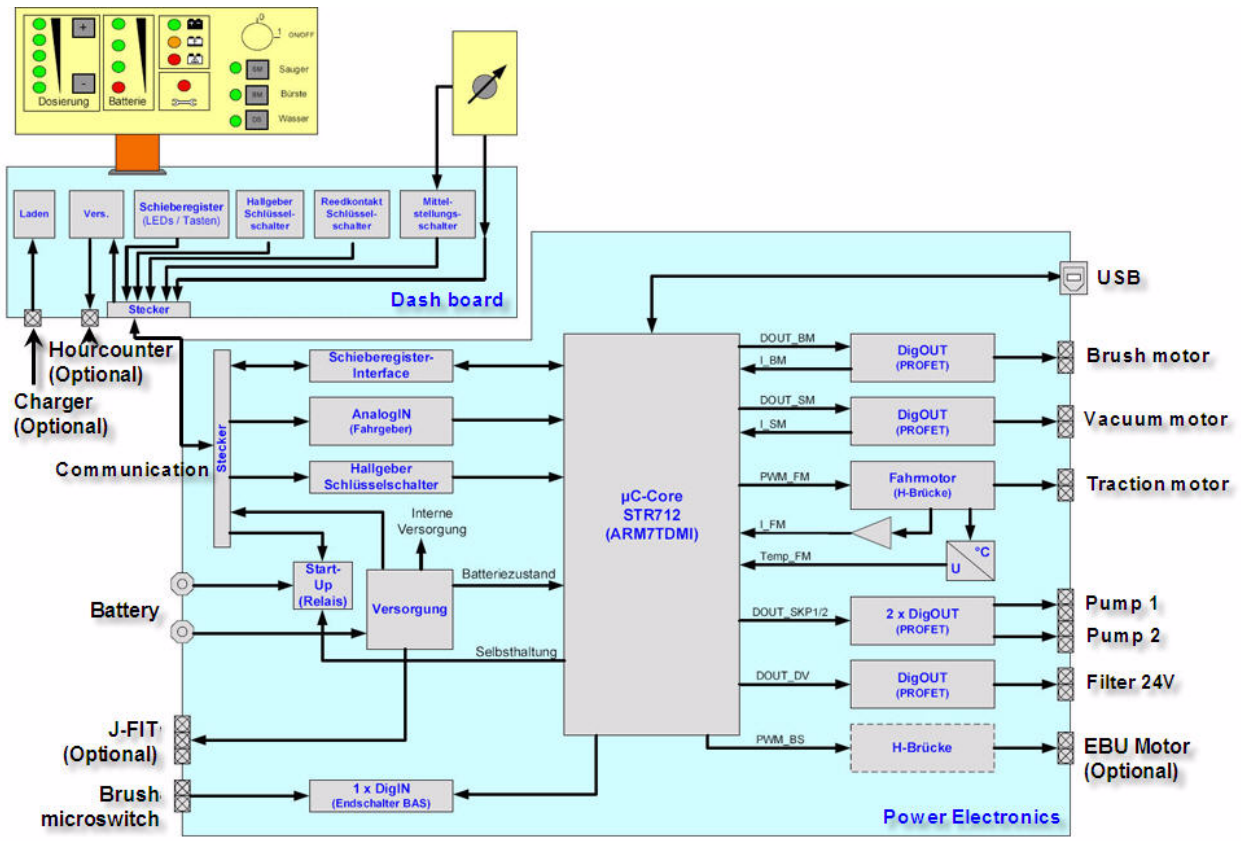
## 6.1 System architecture

### 6.1.1 General

- The firmware is memorised only on the power electronics.
- Applying the correct torque where required is essential for a safe operation of the machine.
- ESD can harm the electronic boards and therefore reduce the life time of the machine. Use always an ESD bag to protect the electronics.

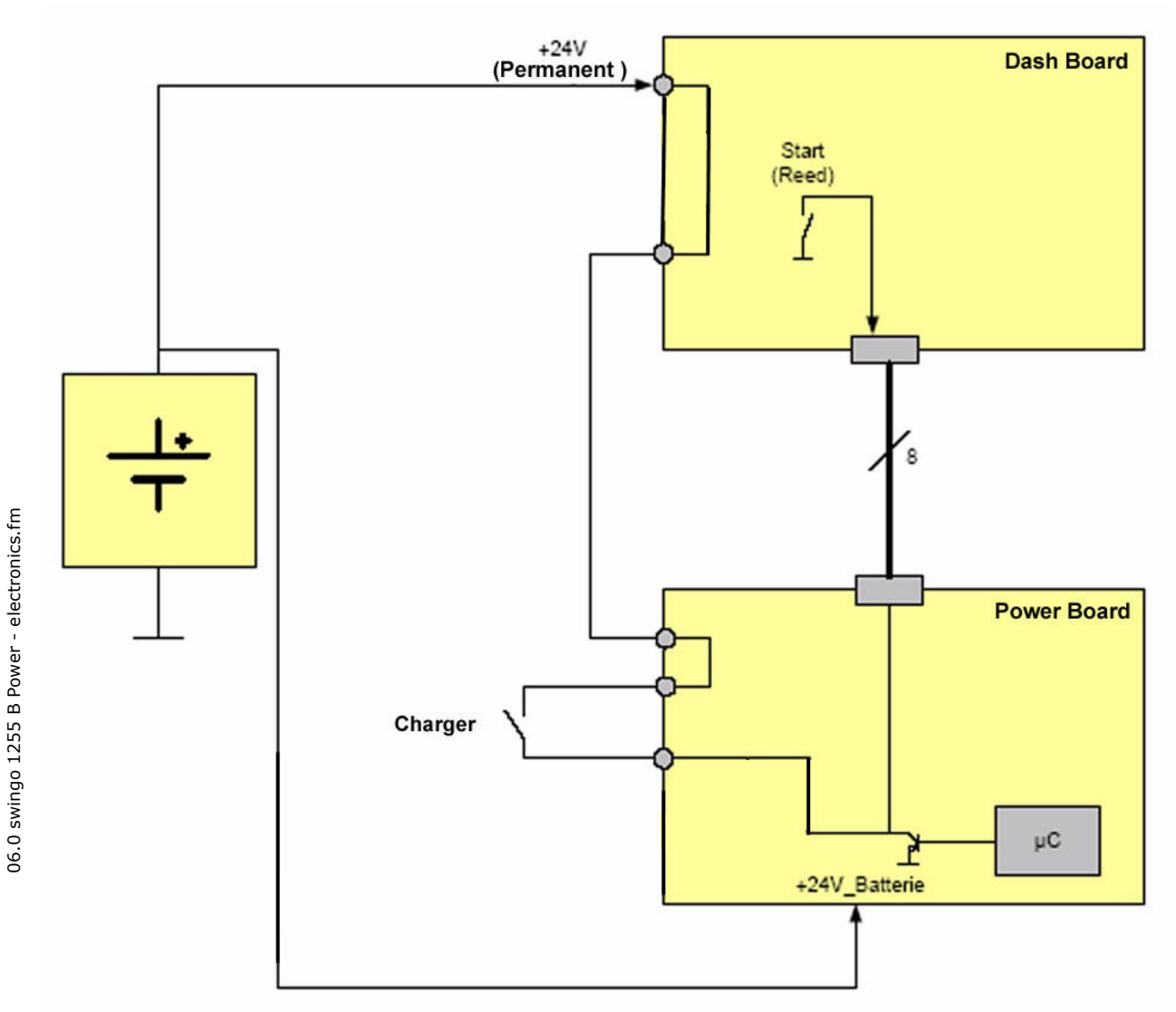


### 6.1.2 System overview




Picture 1: System overview

## 6.1.3 Emergency loop

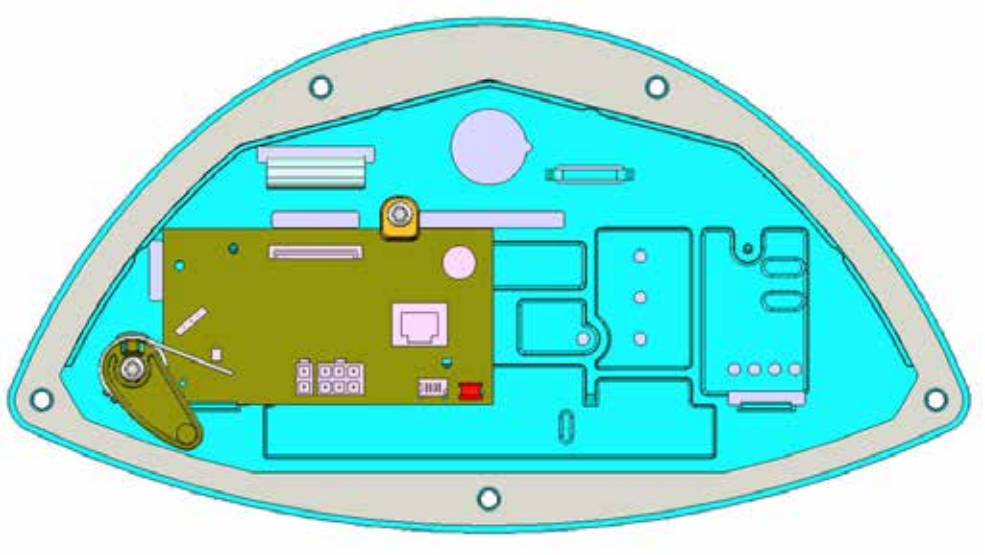



06.0 swingo 1255 B Power - electronics.fm

Picture 2: Emergency loop

# 6.2 Electrical sequences

## 6.2.1 Dashboard



Picture 3: Dashboard



### 6.2.1.1 Replacing of dashboard

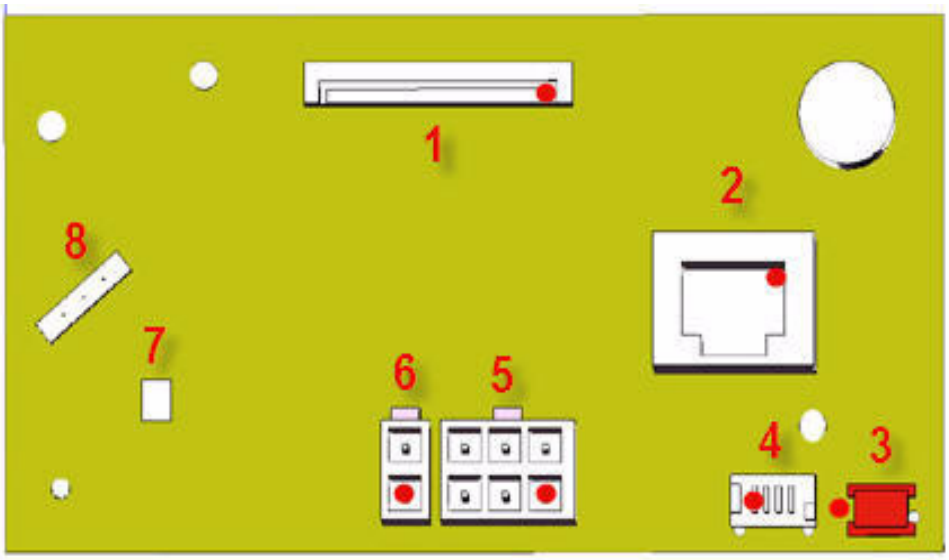
**Remove**

- Remove the 5 screws of the dashboard.
- Dismount dashboard from machine.
- Disconnect all electrical connections.

**Mount**

- Connect electrical connections to dashboard.
- Mount dashboard on machine.
- Fix the dashboard with the 5 screws to the machine.

### 6.2.1.2 Connections




Picture 4: Dashboard connectors

| Pos. | Plug | Description [plug] | Pin | Description [pin] |
|---|---|---|---|---|
| 1 | X8 | Membrane keypad | 1 | +5V |
| 1 | X8 | Membrane keypad | 2 | +5V |
| 1 | X8 | Membrane keypad | 3 | Dosing plus (+) |
| 1 | X8 | Membrane keypad | 4 | Dosing minus (-) |
| 1 | X8 | Membrane keypad | 5 | Dosing ON/OFF |
| 1 | X8 | Membrane keypad | 6 | Dosing ON/OFF |
| 1 | X8 | Membrane keypad | 7 | LED vacuum motor |
| 1 | X8 | Membrane keypad | 8 | LED Dosing level 5 |
| 1 | X8 | Membrane keypad | 9 | LED Dosing level 4 |
| 1 | X8 | Membrane keypad | 10 | LED Dosing level 3 |
| 1 | X8 | Membrane keypad | 11 | LED Dosing level 2 |
| 1 | X8 | Membrane keypad | 12 | LED Dosing level 1 |
| 1 | X8 | Membrane keypad | 13 | LED Battery capacity level 4 - green |
| 1 | X8 | Membrane keypad | 14 | LED Battery capacity level 3 - green |
| 1 | X8 | Membrane keypad | 15 | LED Battery capacity level 2 - green |
| 1 | X8 | Membrane keypad | 16 | LED Battery capacity level 1 - green |
| 1 | X8 | Membrane keypad | 17 | LED Battery capacity level 1 - red |
| 1 | X8 | Membrane keypad | 18 | LED Service |
| 1 | X8 | Membrane keypad | 19 | LED charger - charged - green |

Table 1: Dashboard connector description

| Pos. | Plug | Description [plug] | Pin | Description [pin] |
|---|---|---|---|---|
| 1 | X8 | Membrane keypad | 20 | LED charger - charge - yellow |
| 1 | X8 | Membrane keypad | 21 | LED charger - charge failed - red |
| 1 | X8 | Membrane keypad | 22 | GND |
| 2 | X1 | Communication | 1 | Throttle signal |
| 2 | X1 | Communication | 2 | Serial - OUT |
| 2 | X1 | Communication | 3 | Serial - CLK |
| 2 | X1 | Communication | 4 | Serial - LATCH |
| 2 | X1 | Communication | 5 | Serial - IN |
| 2 | X1 | Communication | 6 | Start signal |
| 2 | X1 | Communication | 7 | +5V |
| 2 | X1 | Communication | 8 | GND |
| 2 | X1 | Communication | 9 (Housing) | GND |
| 2 | X1 | Communication | 10 (Housing) | GND |
| 3 | X7 | Throttle hall sensor<br>(option for old hall sensor ribbon cable) | 1 | Microswitch (parking = open) |
| 3 | X7 | Throttle hall sensor<br>(option for old hall sensor ribbon cable) | 2 | +5V |
| 3 | X7 | Throttle hall sensor<br>(option for old hall sensor ribbon cable) | 3 | GND |
| 3 | X7 | Throttle hall sensor<br>(option for old hall sensor ribbon cable) | 4 | Throttle (blue wire) |
| 4 | X9 | Throttle hall sensor | 1 | Throttle (blue wire) |

Table 1: Dashboard connector description

| Pos. | Plug | Description [plug] | Pin | Description [pin] |
|---|---|---|---|---|
| 4 | X9 | Throttle hall sensor | 2 | GND |
| 4 | X9 | Throttle hall sensor | 3 | +5V |
| 4 | X9 | Throttle hall sensor | 4 | Microswitch (parking = open) |
| 5 | X6 | Charger communication | 1 | Information charge - yellow |
| 5 | X6 | Charger communication | 2 | Information charged - green |
| 5 | X6 | Charger communication | 3 | Information charge failed - red |
| 5 | X6 | Charger communication | 4 | Emergency loop IN (Jumper for NON BMS) |
| 5 | X6 | Charger communication | 5 | Emergency loop OUT (Jumper for NON BMS) |
| 5 | X6 | Charger communication | 6 | GND |
| 6 | X5 | Emergency loop | 1 | 24V Permanent |
| 6 | X5 | Emergency loop | 2 | Emergency loop |
| 7 | B1 | Hall sensor | 1 | Power hold |
| 8 | S1 | Reed contact | 1 | Machine start |

Table 1: Dashboard connector description

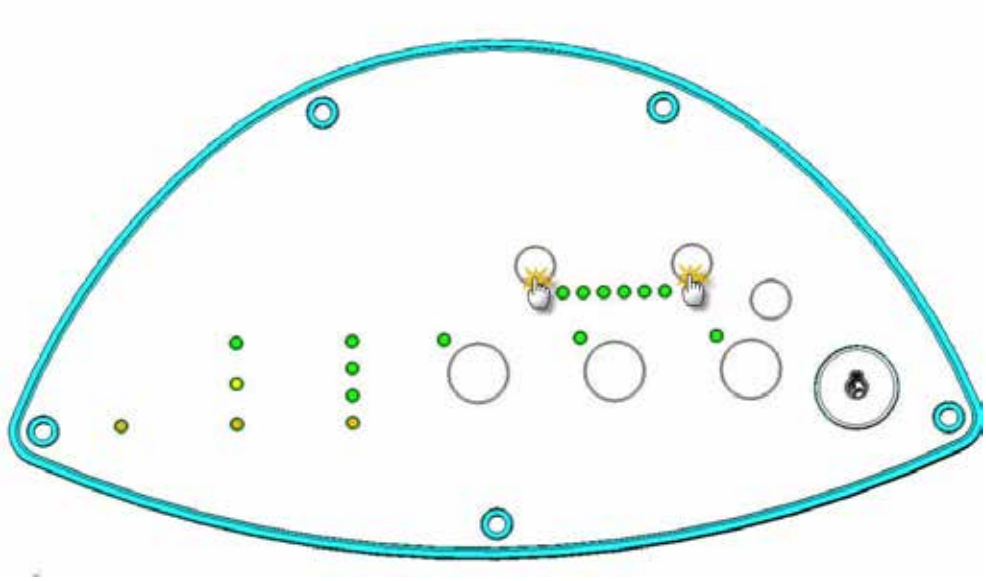
## 6.2.2 Dashboard service menu

The swingo 1255B has no dashboard service functionality except the reset of the service hour counter.

### 6.2.2.1 Reset service LED

To reset the service hour counter LED you have to perform following steps:





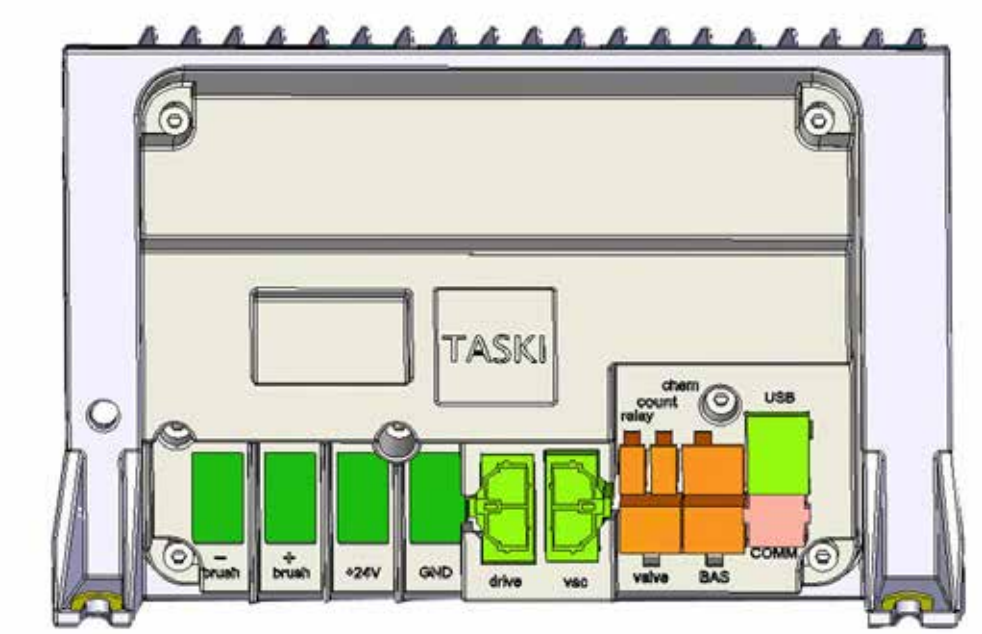
Picture 5: Reset service hour LED

- Switch ON the machine.
- Service hour counter LED has to be ON.
- Press the buttons dosing (+) and dosing (-) until the service LED switches OFF.
  - After approximately 3 seconds it starts flashing.
  - Flashing stops after approximately 2 seconds.
  - Service hour counter is reset.

**Remarks**

*You also can reset the service hour counter with the Service Tool online. Please refer to the Service Tool Manual for this and additional explanations.*

## 6.2.3 Power electronics




Picture 6: Power electronics



### 6.2.3.1 Replacing of power electronics

**Remove**

- Unlock battery compartment by removing screws of locking system.
- Open the battery compartment.
- Loosen the two screws that fix the power electronics to the support.
- Move out the power electronics.
- Disconnect wires and connectors.
- Remove power electronics.

**Mount**

- Take new power electronics.
- Connect wires and connectors to power electronics.
- Position power electronics on the support.
- Tighten the two screws.

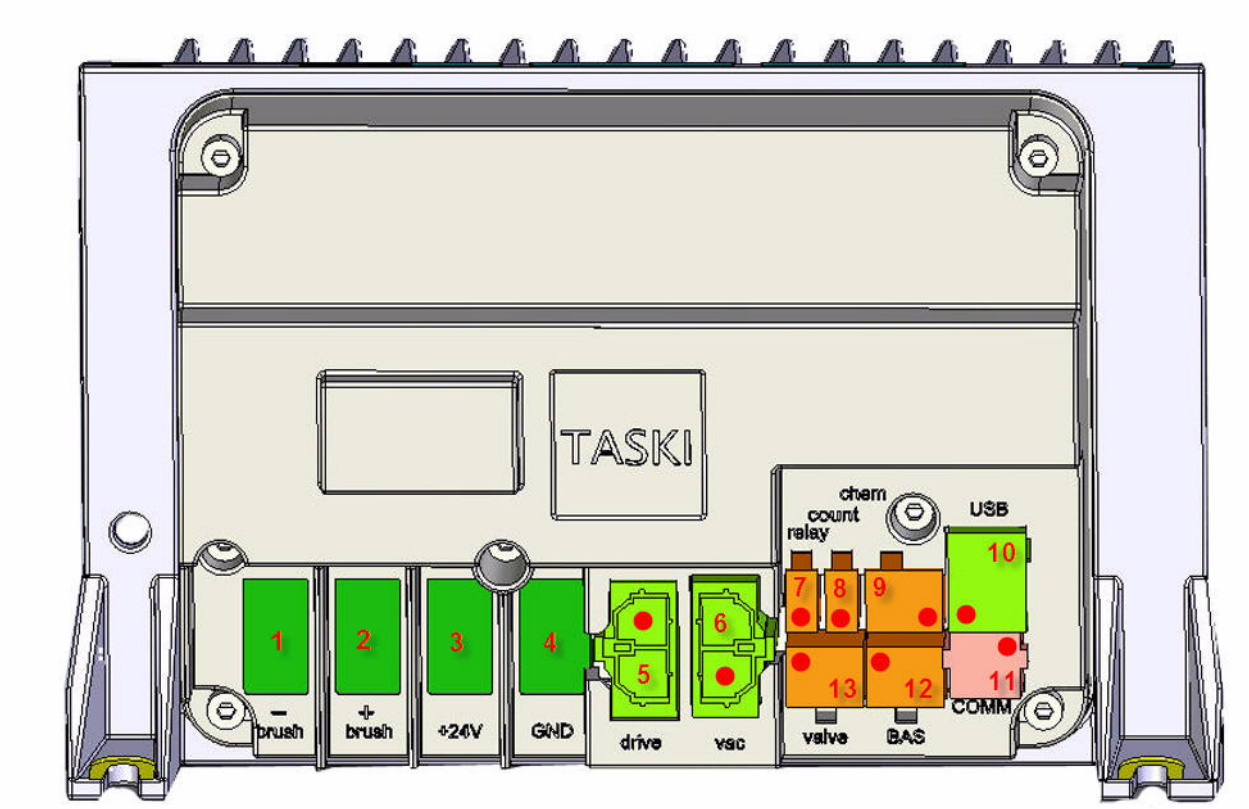
**⚠CAUTION** *Tighten the connectors with the correct torque. Refer to Adjustment or spare parts list.*

- Close and lock the battery compartment on both sides with the screws of the locking system.

**Adjustment**

- M5 (04/125) with 5 Nm
  - Battery minus
  - Brush minus
- M6 (04/128) with 7 Nm
  - Brush plus
- M4 (04/131) with 2.5 Nm
  - Battery plus

### 6.2.3.2 Connections




Picture 7: Power electronics connector

06.0 swingo 1255 B Power - electronics.fm

| Pos. | Plug | Description [plug] | Pin | Description [pin] |
|---|---|---|---|---|
| 1 | X15 | Brush motor - Minus (-) | 1 | Minus (-) |
| 2 | X13 | Brush motor - Plus (+) | 1 | Plus (+) |
| 3 | X14 | Battery - 24V | 1 | 24V |
| 4 | X16 | Battery - GND | 1 | GND |
| 5 | X1 | Drive motor | 1 | Minus (-) |
| 5 | X1 | Drive motor | 2 | Plus (+) |
| 6 | X2 | Vacuum motor | 1 | Plus (+) |
| 6 | X2 | Vacuum motor | 2 | Minus (-) |
| 7 | X8 | Emergency loop | 1 | Emergency loop - IN |
| 7 | X8 | Emergency loop | 2 | Emergency loop - OUT |
| 8 | X12 | External hour counter (Optional) | 1 | Plus (+) |
| 8 | X12 | External hour counter (Optional) | 2 | Minus (-) |
| 9 | X17 | TASKI J-FIT (Optional) | 1 | Power On |
| 9 | X17 | TASKI J-FIT (Optional) | 2 | Power On |
| 9 | X17 | TASKI J-FIT (Optional) | 3 | PWM J-FIT OUT |
| 9 | X17 | TASKI J-FIT (Optional) | 4 | GND |
| 10 | X9 | USB port | 1 | VCC USB |
| 10 | X9 | USB port | 2 | Minus (-) |
| 10 | X9 | USB port | 3 | Plus (+) |
| 10 | X9 | USB port | 4 | GND |

Table 2: Power electronics connector description

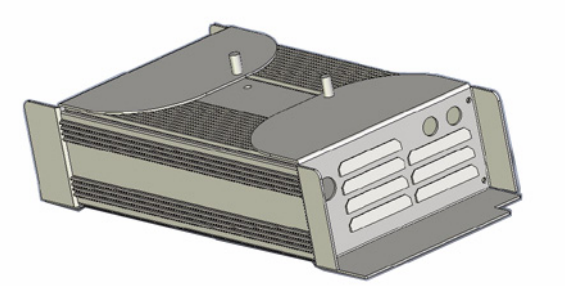
| Pos. | Plug | Description [plug] | Pin | Description [pin] |
|---|---|---|---|---|
| 10 | X9 | USB port | 5 (Housing) | GND |
| 11 | X7 | Communication | 1 | Throttle |
| 11 | X7 | Communication | 2 | Serial - OUT |
| 11 | X7 | Communication | 3 | Serial - CLK |
| 11 | X7 | Communication | 4 | Serial - LATCH |
| 11 | X7 | Communication | 5 | Serial - IN |
| 11 | X7 | Communication | 6 | Start signal |
| 11 | X7 | Communication | 7 | +5V |
| 11 | X7 | Communication | 8 | GND |
| 11 | X7 | Communication | 9 (Housing) | GND |
| 11 | X7 | Communication | 10 (Housing) | GND |
| 12 | X18 | Electrical brush drive unit | 1 | Motor Plus (+) |
| 12 | X18 | Electrical brush drive unit | 2 | Motor Minus (-) |
| 12 | X18 | Electrical brush drive unit | 3 | EBU internal switch (not connected) |
| 12 | X18 | Electrical brush drive unit | 4 | EBU internal switch |
| 12 | X18 | Electrical brush drive unit | 5 | Brush position switch (Transport = Closed) |
| 12 | X18 | Electrical brush drive unit | 6 | Minus (-) |
| 13 | X4 | Pump 1 | 1 | Duty cycle Pump 1 (1255) |
| 13 | X4 | Pump 2 | 2 | Duty cycle Pump 2 (755/855 and 1255) |
| 13 | X4 | Filter 24V | 3 | Plus (+) |

Table 2: Power electronics connector description

| Pos. | Plug | Description [plug] | Pin | Description [pin] |
|---|---|---|---|---|
| 13 | X4 | Pumps/Filter 24V | 4 | GND (1255) |
| 13 | X4 | Pumps/Filter 24V | 5 | GND (755/855 and 1255) |
| 13 | X4 | Pumps/Filter 24V | 6 | GND (Valve) |

Table 2: Power electronics connector description

## 6.2.4 Charger



Picture 8: Charger

**⚠CAUTION** *The DK charger model corresponds to the protection class II and is therefore slightly different constructed.*



### 6.2.4.1 Replacing of charger

**Remove**

- Unlock battery compartment by removing screws of locking system.
- Open the battery compartment.
- Disconnect the wires for mains at the connection block on the chassis.
- Disconnect the plug for communication.
- Remove the two nuts (04/104)
- Remove charger.

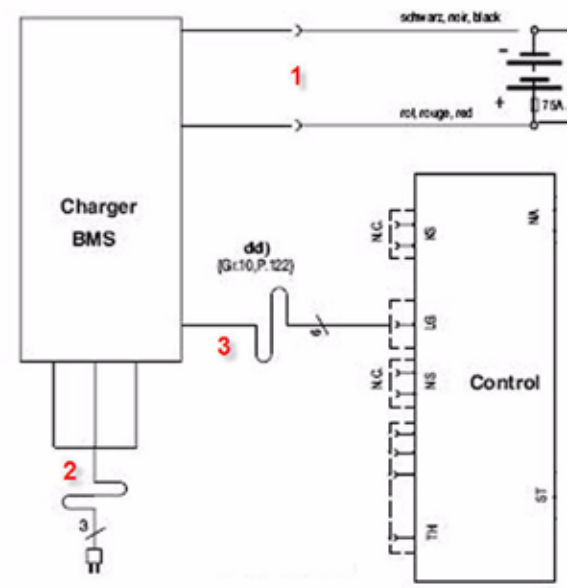
**⚠CAUTION** *Make sure that you hold the charger when loosening the nuts.*

**Mount**

- Position the new charger.
- Mount the two nuts.
- Connect the plug for communication.
- Connect the wires for the mains.
- Close and lock the battery compartment on both sides with the screws of the locking system.

### 6.2.4.2 Connectors

On the charger itself there are no connectors. The following list describes the connections after the charger. These connections you find placed on the chassis.




Picture 9: Charger wiring

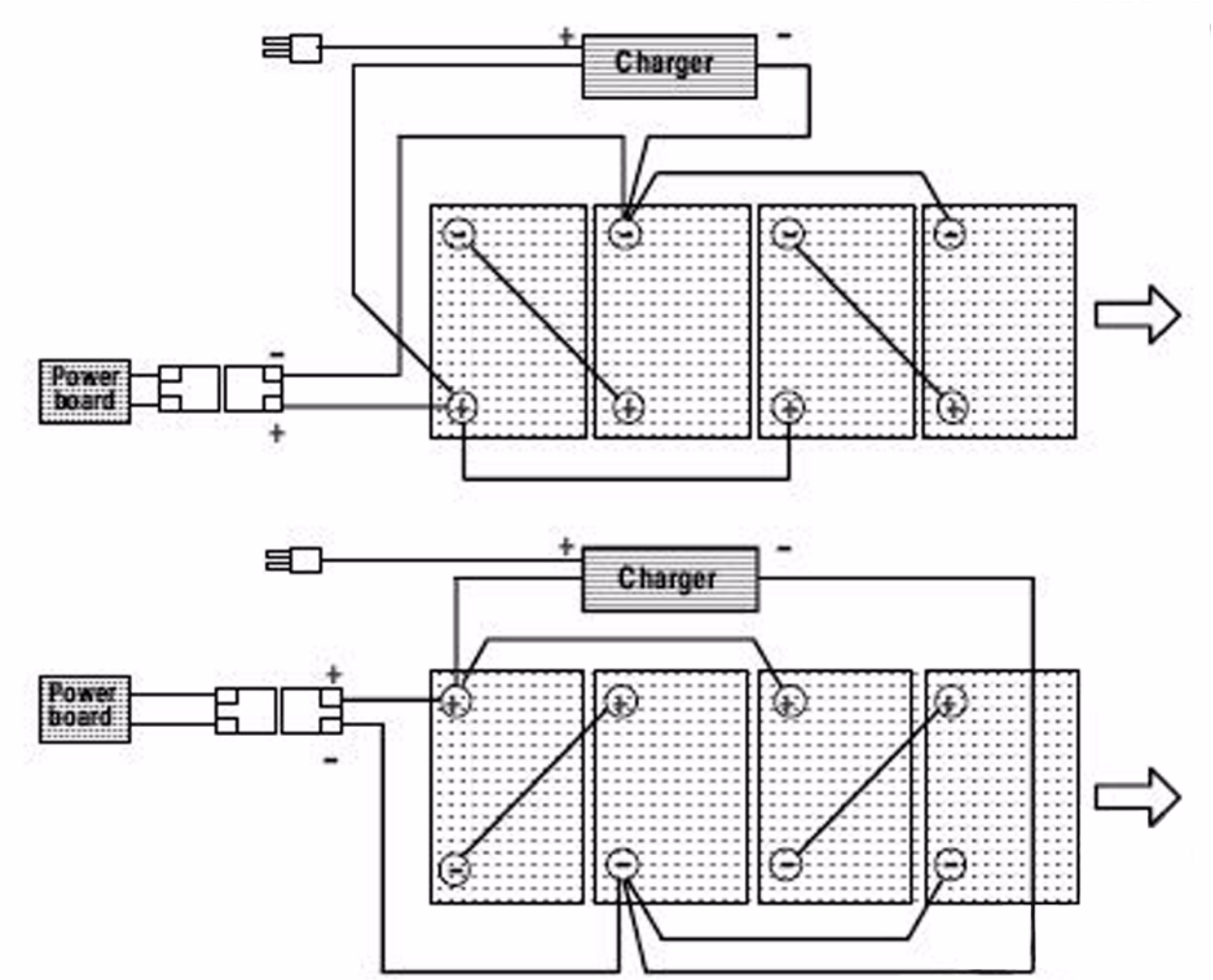
1 Wires directly to the batteries.
2 Connection block mounted on the chassis.
3 8 pole connector placed in the chassis.

| Pos. | Plug | Description [plug] | Pin | Description [pin] |
|---|---|---|---|---|
| 1 | B1 | Battery charge (red) | 1 | Battery charge - Plus (+) |
| 1 | B1 | Battery charge (black) | 2 | Battery charge - Minus (-) |
| 2 | S3 | Power main cord | 1 | Phase |
| 2 | S3 | Power main cord | 2 | Neutral |
| 2 | S3 | Power main cord | 3 | GND |
| 3 | X7 | Charger communication | 1 | Not connected |
| 3 | X7 | Charger communication | 2 | Not connected |
| 3 | X7 | Charger communication | 3 | Emergency loop IN |
| 3 | X7 | Charger communication | 4 | Emergency loop OUT |
| 3 | X7 | Charger communication | 5 | GND |
| 3 | X7 | Charger communication | 6 | Information charge failed |
| 3 | X7 | Charger communication | 7 | Information charge |
| 3 | X7 | Charger communication | 8 | Information charged |

Table 3: Charger connector description

# 6.3 Schematics/System

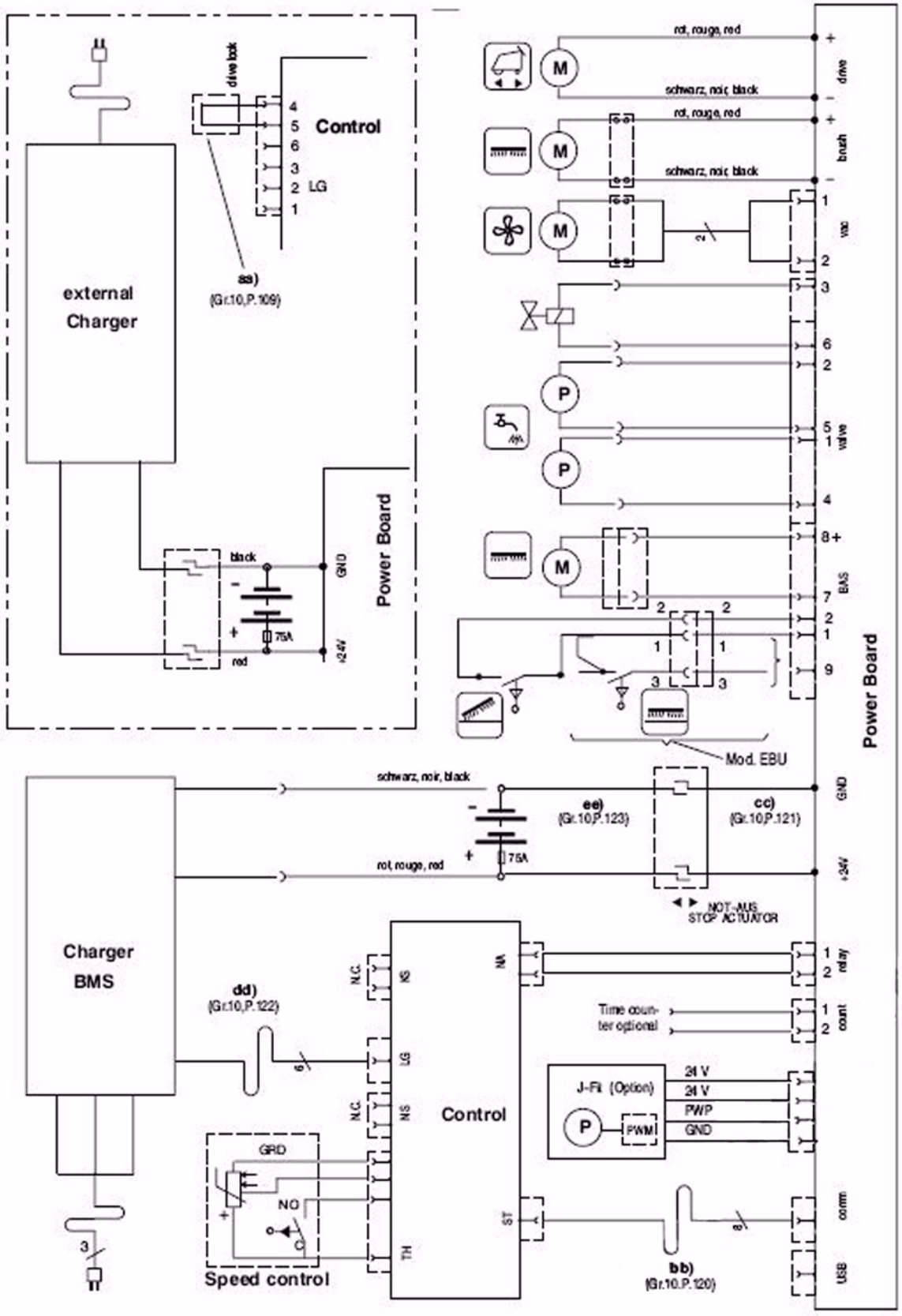
## 6.3.1 Battery connection




06.0 swingo 1255 B Power - electronics.fm

Picture 10: Battery connection

## 6.3.2 Electrical schematic




Picture 11: Electrical schematic

06.0 swingo 1255 B Power - electronics.fm

# Technical Manual


# 7 Additional information

19. April 2010 Edition: V1.00/2010

# 7 Additional information

## 7.1 Available GTS Newsletter/Instructions

| Newsletter | Date of issue | Topic/Modification | Machine version | Serial number | Tool | SKU tool |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Table 1: Newsletters/Instructions

# Technical Manual


# 8 Revision

19. April 2010 Edition: V1.00/2010

# 8 Revision

| Date | Chapter | Content | Description | Revision |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Table 1: Revision

# Technical Manual


# 9 Appendix

19. April 2010 Edition: V1.00/2010

# Glossar

# Technical Manual


# 10 Notes

19. April 2010 Edition: V1.00/2010