

TT 1200)

EN Service Manual



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The regular maintenance of the sweeper serves to preserve the machine, its components and the sweeping result. If performed regularly, the subsequently described maintenance work can extend the lifetime of the equipment!

1.1	Safety instructions for cleaning and
	maintenance



ATTENTION - The sweeper may not be cleaned using high-pressure or water jet, as these can cause damage! There is a danger of short circuit or other serious damage!



IMPORTANT - Do not use aggressive cleaning agents!



ATTENTION - Personal protective equipment in the form of goggles, breathing protection and gloves must be worn for interior and exterior cleaning of the sweeper!

To clean the machine interior, the main cover must be opened and secured by means of the main cover holder. Use a dry cloth for cleaning and blow through the machine with compressed air. Subsequently close the main cover properly once again.

For the exterior cleaning of the sweeper, use compressed air and/or a cloth or a wash mitt moistened with warm water or a mild detergent solution.

1.2 GENERAL CLEANING AND MAINTENANCE INSTRUCTIONS



ATTENTION - For safety reasons, all cleaning and maintenance work may only be carried out when the machine is switched off! To do so, remove the key from the device! Failure to do so may result in serious injury!

For cleaning and maintenance intervals, please refer to the service indicator

(see page 37) or the maintenance manual!

All service and maintenance work must be performed by a qualified technician! If necessary, a Stolzenberg dealer can be contacted at any time! You can find the relevant dealer or service technician for your machine on the manufacturer website!

1.3 MAINTENANCE OF THE SWEEPING SYSTEM

1.3.1 Maintenance of the sweeper roller drive

To maintain functioning, the sweeper roller should be inspected regularly for wear on the drive chain and pinions. Furthermore, the chain elongation must be measured regularly. For this purpose, ten rolls are counted at an arbitrary position on the chain (ideally in the pull strand) and the inner tangential distance between them is measured with a calliper. If the value is between 79.3 mm and 81.8 mm, then the chain is still in order. A measured length of 81.9 mm or above indicates that the chain should be replaced, because the wear of the pinions will be increased as of this value!



The sweeper roller driving chain should be treated regularly with a non-adhesive, solvent-based lubricant (e.g. B. Innotech 105) to remove dirt particles and to maintain the lubricating film between the individual chain elements and between the chain and the pinions.

1.3.2 Adjusting the sweeping pattern

The sweeping pattern does not need to be set manually for this sweeper. When the main sweeper roller motor is started, the automatic lowering mechanism lowers the rear sweeper roller to the floor, until a certain contact pressure is reached. The automatic lowering mechanism can thus also ensure wear re-adjustment, so that a consistently good sweeping result is achieved. For certain applications - on carpets in particular - the pre-set pressure may, however, be too high. In this case, a depth limitation can be set for the automatic lowering mechanism.

The stop buffer required for the depth limitation is located beneath the batteries. To access it, you first have dismantle the main cover \implies see chapter 4.5.2 at the Operating Manual Subsequently, the battery plug must be removed (1-2) to break the connection between the machine and the batteries. Now the battery terminals of the batteries can be loosened (3).



ATTENTION - Do not place any tools on the batteries. This could short-circuit the batteries and lead to the explosion of the batteries! It is necessary to ensure that no connection can be established between the battery terminals. Special terminal protectors or electrical tape can be used for this purpose.

Now both batteries at the front (in driving direction) can be removed from the machine (4) to allow access to the sweeper roller's depth stop buffer (5). To be able to turn the stop buffer, it is necessary to loosen the locknut (6). To reduce the sweeping pattern, the stop buffer is rotated clockwise (7) and to enlarge the pattern, it is rotated counterclockwise (8). After the adjustment, the locknut must be tightened again (9). Now the batteries can be inserted and connected to the wiring harness (10-11). The assembly of the main cover and the connection of the battery connector (12-13) are the final steps to make the machine ready for use once again.



NOTE - Since the position of the stop buffer must be adjusted depending on the surface, it may be necessary to repeat the steps described above several times.



























1.3.3 Sweeper roller replacement

For sweeper roller replacement, start by dismounting the left side cover. For this purpose, start by removing the hopper (1). The knurled nut to fasten the side cover on the machine frame is now accessible (2) and must be removed (3). In the next step, the front fixation of the side cover must be loosened (4-5). Now the side cover can be removed (6). The lateral sweeper roller tunnel cover, which is secured with four star grip nuts, is now accessible (7). These nuts must now be loosened (8).





ATTENTION - Personal protective equipment in the form of goggles, breathing protection and gloves must be worn when removing the sweeper rollers!

Then the lateral sweeper roller tunnel cover can be pulled off to the side (9). The sweeper rollers are now freely accessible (10) and can be replaced with new sweeper rollers. The correct mounting orientation must be observed when inserting the new sweeper rollers (11). The wear indicator (red bristles) must be visible on the rear sweeper roller, i.e. it should point to the left in the driving direction. For the front sweeper roller, the wear indicator must not be visible, i.e. it should point to the right in the driving direction. It is also important to ensure that the clamping pins at the engaging elements (12) correctly engage the sweeper rollers. For this purpose, the sweeper roller is inserted into the sweeper roller tunnel and pushed on to the driving element with a slight twist (13). The snapping of the sweeper roller into the clamping pin of the driving element is ensured when the sweeper roller can no longer be turned at all or only to a very limited extent. If the sweeper roller is inserted correctly, the side sweeper roller tunnel cover can be mounted again and secured with the corresponding star grip nuts (14-15). Finally, the side cover is attached (16) and fixed with the knurled nuts (17-18). After insertion and locking of the dust box (19), the machine is once again ready for use.







































1.3.4 Maintenance of the side brush unit

The side brush driver unit is a direct drive, which can be considered as free of wear. It should however be checked at regular intervals, to confirm that the swivelling mechanisms of the side brush arm is still functioning properly and smoothly. For this purpose, the side brush must first be set to the working position (arrow on the side brush adjustment lever pointing downwards (1). Now the side brush arm on the side brush cover is pressed completely towards the machine centre (2), after which the cover must be completely immersed under the machine frames (3-4). When the side brush arm is released, it must fully swivel back to its original position (5). It may happen that the complete spring-back only takes place after the side brush is switched on, because the bristles create a slight resistance on the floor.





1.3.5 Re-adjusting the side brush

To re-adjust the side brush in case of wear, it suffices to adjust a screw that is attached to the side brush adjustment unit and which forms the depth stop of the side brush. In order to access the setting screw, the side brush adjustment lever must first be moved to the upper position (with the arrow on the side brush adjustment lever pointing upwards (1). The setting screw behind the side brush adjustment lever is now accessible and visible from the footwell (2). By turning the setting screw clockwise (3), the depth stop of the side brush is lowered (4), by turning the setting screw counter-clockwise (5), the depth stop of the side brush is raised (6).













The adjustment of the correct contact zone is essential for the sweeping result. If an insufficient number of bristles touch the floor (A), then the sweepings are not directed to the machine centre, but rather thrown forward obliquely. If the bristle bed of the side brush is too large (C), then it is possible that sweepings are passed in front of the main sweeper roller and ejected laterally. The side brush is considered correctly adjusted if the bristles in line with the side brush arm touch the floor in a sickle-shape of approx. 120° (B).





1.3.6 Side brush replacement Seitenbesenwechsel

The side brush is fixed to the side brush motor with a screw. To reach this easily, the side brush should be brought to the rest position (1). The wing screw used for fixation is positioned centrally on the underside of the side brush (2) and must now be unscrewed (3) to remove the side brush from the motor (4).

When installing the new side brush, it is necessary to ensure that the lug on the side brush engaging piece (5) engages in the feather key groove of the motor shaft when mounting the side brush onto the drive motor (6). The side brush must now only be fastened with the wing screw (7) before it is ready for use.





















1.4 MAINTENANCE OF THE FILTER SYSTEM

1.4.1 Maintenance of the fan

The fan of this sweeper is a maintenance-free component. It only needs to be checked regularly to see if any foreign objects are inside the fan or whether the fan generates amplified or unusual noise.

1.4.2 Filter replacement



ATTENTION - Personal protective equipment in the form of goggles, breathing protection and gloves must be worn when removing and replacing the filter!

1.4.2.1 Removing the filter unit

In order to remove the filter unit, it is initially necessary to open the main cover and to secure it with the main cover bracket (1). In the next step, the filter chamber cover must be removed. For this purpose, the power supply of the fan is disconnected (2), the clamps of the filter chamber cover attachment are loosened (3) and the filter chamber cover is removed upwards (4). The filter unit is now freely accessible (5). In order to remove it, the power connector of the filter vibrator must be disconnected (6), the plug feedthrough must be opened (7-8) and the plug must be pushed inside the filter chamber (9). The entire filter unit can now be removed upwards from the filter chamber (10).



















1.4.2.2 Disassembling the filter unit

Place the filter unit upside down on a workbench/table for disassembly (1). Then start by unscrewing the three screws of the clamping plate (2). Remove the clamping plate (3) and laterally pull out the seven vibrating rods from the filter bags (4). The entire filter unit is now disassembled (5).











1.4.2.3 Mounting the filter unit

To assemble the filter unit, the filter bags must first be threaded through the filter grid. It is important to make sure that the folds of the filter grid point downward (2) in the installed state (inside the machine)! In the next step the vibrating rods are threaded through the filter loops laterally until the mark (3). The vibrator motor is now positioned centrally on the pre-assembled filter unit (4). Now the vibrating rods are pushed through the filter loops completely (5). The vibrating rods are now placed on the rubber at the filter vibrator (6), the clamping plate is mounted (7) and fixed with the nuts (8). The filter unit is now ready for installation in the sweeper (9).

















1.4.2.4 Installing the filter unit

The pre-assembled filter unit is inserted into the filter chamber from above (1) and the filter vibrator cable is pushed through the cable feedthrough from the inside (2). It is important that the cable grommet is mounted correctly on the filter vibrator cable at the designated position on the cable feedthrough (3). Then close and fasten the cable feedthrough (4) and restore the power connection to the filter vibrator (5). Before the filter chamber cover is put back in place, it must be ensured that the filter rests properly and smoothly on the filter grid (6-7). If this is not the case, dust can be suctioned past the filter, which has a strong negative effect on the filtration result! If it is ensured, place the filter chamber lid with the ventilation openings facing backwards in the driving direction onto the filter from above (8), lock it with the side-mounted turnbuckles (9). The turnbuckles are mounted asymmetrically to prevent incorrect installation of the filter chamber lid. Finally, the power supply of the fan needs to be restored (10).



















ATTENTION! RISK OF INJURY! - Always wear your personal protective equipment in the form of protective goggles, gloves and breathing protection when cleaning the filter!



NOTE! Never clean the filter with water or other (chemical-containing) liquids. This would damage the filter beyond repair!

To clean the filter, it should be removed from the machine as described in section (1). Filter carrier, vibrating rods and vibrator motor must not be disassembled for cleaning.

The filter can now be cleaned, ideally by means of compressed air from the clean side (2). Never clean the filter from the dust side (3), since the dust present on the filter would be pressed into the filter pores and the filter performance would be fundamentally reduced! Now mount the filter unit once again into the sweeper as described in section.

The cleaning interval to be observed is strongly dependent on the environment to be swept. For moderate dust concentrations, cleaning with compressed air is recommended every 10 hours.















1.5 BATTERY SETTING & MAINTENANCE

1.5.1 Setting the battery type

A distinction is made essentially between gel and acid batteries, which have different discharge curves and shutdown thresholds. To ensure proper battery indication and proper discharge protection, it is thus necessary to select the right type of battery in the settings menu of the control system. To do this, select the menu item "Settings" in the main menu of the control system (1) and sign-in with your access code (2). You have now entered the settings menu (3). Now switch to the menu item "Battery type" (4) and select the installed battery type from the sub-menu (5-6). After selecting the battery type, you switch to the menu item "Exit settings" (7). Now select "Save and Exit" (8). You have now returned to the main menu of the control system.















1.5.2 Checking the battery status



ATTENTION! - Only use the chargers recommended by the manufacturer of this sweeper to charge this machine! Using the wrong charger or the wrong setting can damage the batteries!

The best way to determine the battery state is by measuring the battery voltage in the charged state. For this purpose, the batteries must first be fully charged (1-2). Subsequently, a voltmeter is connected (3-4) between the positive pole of the first battery and the negative pole of the last battery. For identification: The poles to be measured are those that are connected to the main cable strand of the machine (3). If the voltmeter displays a voltage between 25.5 V and 24.5 V, the battery is still in good condition. If the indicated voltage lies between 24.5 V and 23.5 V, the battery is in a sufficient condition, however, the machine running time is already reduced. For a reading below 23.5 V, new batteries should be inserted!











NOTE! - A certain steering clearance is common. A too high chain tension can cause steering noise and increase wear on the chain and the pinions!



The chain tension is being increased by adjusting the sprocket. Therefore the screws of the adjustment plate and excenter plate will be loosened. Then the adjuster plate can be moved backwards by turning the excenter plate. Move the adjuster bracket as long as the chain is tensioned properly and fasten the screws.



1.6 STEERING MAINTENANCE

1.6.1 Control and readjustment of the chain tension

If the steering clearance on the steering wheel is too large, then this indicates that the chain tension is too low. Typically, a steering clearance up to 1 cm is acceptable in each direction. Greater steering clearance must be reduced by adjusting the chain tension.













































1.6.2 Control of slide bearings

The clearance of the sliding bearings needs to be checked frequently. There should not be any clearance on the steering shaft. In the case of recognizable clearance, the sliding bearings need to be replaced.



1.7 MAINTENANCE OF WHEELS



ATTENTION! RISK OF INJURY! - Turn off the machine before jacking it up, pull out the key switch and disconnect the battery connector!



ATTENTION! RISK OF INJURY! - Only use a jack to jack up the machine! It must be attached to the designated locations and be placed on solid ground! Failure to do so can cause bodily injury and damage to the machine!

1.7.1 Rear wheel replacement

Only suitable locations may be used to jack up the machine, otherwise there is an increased risk of tipping, damage and injury! To reach the rear jacking points for the rear wheel replacement, the side covers and the hopper must first be removed (1-2). The jack can now be positioned on the frame directly behind the rear wheel strut (in the driving direction, 3). Only raise the machine so far that the wheel turns freely (4)! Loosen the wheel nut (5) and pull off the wheel (6). Now dismount the old tyre by separating the rim (7). Replace the old tyre with a new tyre (8). To avoid corrosion and for easy installation, the axle is now lubricated with copper paste (9). Now mount the new wheel (10) and tighten the nut with a torque of 15 Nm (11).



















1.7.2 Front wheel replacement

To access the front jacking point for a front wheel change, it is initially necessary to disassemble the lower front cover (1-2). Now the jack can be positioned directly to the left (in the driving direction) of the longitudinal beam of the frame (3). Only raise the machine so far that the wheel turns freely (4)! Now loosen the break Bowden cable (5) and the wheel bolts (6). It is now possible to remove the wheel, together with the drum brake, from the wheel fork by pulling it in the downward direction (7). Now dismount the old tyre by separating the rim (8). Replace the old tyre with a new tyre (9) and place the wheel bolts (10). Tighten the wheel bolts to a torque of 50 Nm. Finish by fixating the brake Bowden cable.

































1.8 MAINTENANCE OF THE BRAKE

1.8.1 Inspection of brake pads For the case that the pedal travel becomes too high or the breaking performance is decreasing, the brake pads need to be checked. Therefore the front wheel including the brake has to be disassembled to make the brake pads visible. The brake pad need to have a minimum thickness of 3 mm. Otherwise the brake pads need to be replaced.





















1.8.2 Readjustment of the brake

To readjust the brake, the bowden cable has to be loosening on the fixing screw of the brake lever. By retightening the bowden cable the length of the bowden cable is reduced. This way the brake becomes readjusted. For fine tuning the adjustment screw above has to be turned.



NOTE! - It has to be take care about a free running wheel while the brake pedal is not operated!





NOTE! - A modified or incorrect adjustment of the control system software may have a negative effect on the sweeping result!

1.9.1 Setting options for end users

The modification of machine settings can be performed on two different levels. Firstly, modifications can be made by the end user and secondly by the service technician. These modification possibilities for end users are limited to the main sweeping functions and are reset when the machine is switched off again.



1.9.2 Setting options for service technicians

A more profound modification of the machine settings can have a negative impact on the sweeping result and the lifetime of the sweeper. Therefore, the "Settings" menu is password protected in order to only allow access to authorized service technicians with appropriate training.

To change machine settings, switch to the menu item "Settings" in the control system menu. Login with the personal password you received from the machine manufacturer. It is then possible to modify the standard settings (functions when operating the PASS), the shutdown and warning limits and the filter vibrator function. This menu also allows a machine reset to the factory condition, a modification of the menu language and the definition of a new password.



To exit the settings menu, switch to the menu item "Exit settings" using the rotary selector. You can now decide whether the changes should be saved or discarded.



1.10 RESETTING THE SERVICE COUNTER

Resetting the service counter/the service note is only possible in the password protected settings menu of the machine control system and can thus only be performed by an authorized service technician. This serves to ensure that all relevant maintenance procedures are performed and that the sweeper works flawlessly.

To reset the counter, switch to the menu item "Settings" of the control system menu. Login with the personal password you received from the machine manufacturer. Now switch to the "Service counter reset" menu and confirm with "OK". Exit the settings menu as how described as the picture above.



WIRING DIAGRAMS

2.1 WIRING DIAGRAM BASIC VERSION

















ATTENTION! - Use manufactory's original spare parts for service and reparation only! All spare parts are listed in the spare parts list coming with your machine. Contact your retailer for further information.

Accessories and spare parts must comply with the requirements of the manufacturer. This is only guaranteed by original spare parts. The most important spare parts are listed below. For a full list of spare parts, please refer to the enclosed spare parts list.

Main Brooms		112811	Main Broom D285 L700 PP0,7/0,4 V 2-row VI BG
		112662	Main Broom D285 L700 PP+Fillam. 1-row VI BG
		112660	Main Broom D285 L700 AS-MIX 2-rhg VI BG
rooms		106304	Side Broom D400 H120 PP 0,7 BG
Side Bı		106306	Side Broom D400 H120 PP+Fillam. 0,6 BG
Filter		112334	Bag filter
eries		104025	Battery GF 06 180 V Gel
Batte	-davasti and and a transfer	104023	Battery 240Ah K20 180Ah K5 6V (GiS)



WARRANTY

Information on the guarantee and warranty claims can be found in the General Terms and Conditions (GTC) on the manufacturer's website. For transport, screw the fastening eyes supplied along with the machine into the threads provided in the frame.



ATTENTION! - The eyes are designated for transport safety only! They must not be misused as lifting points! Serious injuries and damage to the machine may result if this is not observed!





MAINTENANCE PLANS

6.1 MAINTENANCE WORK FOR MACHINE OWNERS

The following maintenance work needs to be proceeded by the machine owner in the predefined intervals.

Activity	Interval		
	daily	weekly	
check machine for damages; repair machine if necessary			
check battery charge; recharge if necessary	•		
empty the dust container			
empty the dust container			
check side brush; clean if necessary			
check wheels for damages; replace if necessary			
check air-pressure of wheels; adjust if necessary			
check safety elements(seat & cover switch)			
check sealings around main brush; replace if necessary		•	
check dust filter for damages; replace if necessary		•	
function test of entire machine		•	



ATTENTION! - In case of detecting damages it is not allowed to use the machine until the damage is fixed by authorised service personnel!

6.2 MAINTENANCE WORK FOR SERVICE CENTER

6.2.1 Service I

Activity	Interval
	every 50 hours
all daily and weekly maintenance work	•
check battery conditions; replace if necessary	•
check main broom for damages and wear; replace if necessary	•
check free movement of main brushes	•
check main broom driver and bearings for damages	•
check side broom for damages and wear; replace if necessary	•
check side broom adjustment; readjust / replace side broom if necessary	•
check function of operating and fixing brake, adjust if necessary	•

6.2.2 Service II

Activity	Interval
	every 100 hours
all maintenance work of "Service I"	•
check function of charger	•
check function of operating panel	•
check free movement of wheels	•
check dust container lock	•

6.2.3 Service III

Activity	Interval
	every 200 hours
all maintenance work of "Service II"	
check condition of electric motors	•
check condition of wire harness	•
check screws and fasteners	•
check tight fit of all covers and metal parts	•
check wear and tension of main broom drive chain	•

Service I	<u>×</u>	า	Service II	8	_h
Workshop Stamp:			Workshop Stamp:		
Date:	 		Date:	 	
Service I	<u> </u>	า	Service III	8	_h
Workshop Stamp:			Workshop Stamp:		
Date:	 		Date:	 	
Service I	<u>×</u>	ו	Service II	8	_h
Workshop Stamp:			Workshop Stamp:		
Date:	 		Date:	 	
Service I	<u>×</u>	า	Service III	8	_h
Workshop Stamp:			Workshop Stamp:		
Date:	 		Date:	 	
Service I	<u>×</u>	า	Service II	8	_h
Workshop Stamp:			Workshop Stamp:		
Date:					
	 		Date:	 	

7 MAINTENANCE PROOF

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