



Operating manual



Ideal sweeping machine

Foreword

Dear customer

The Ideal sweeper you have purchased has been manufactured to the highest quality standards.

These operating instructions contain important information pertaining to the operational safety and reliability of the machine as well as maintaining its future assets.



Prior to operating the machine, please read and observe the operating manual and safety instructions.

It will help you to familiarise yourself with the use, care, and maintenance of the machine. Furthermore, understanding its content will prevent potential risks and damage.

We trust, working with the Ideal sweeper will bring you all the results you hoped for.

Tuchel Maschinenbau GmbH

The operating instructions are up-to-date as of February 2010.

NOTE

We strive to keep our Ideal sweeper at the cutting-edge of technology, which may lead to modifications of individual components without prior notice. However, such modifications do not legally bind us to updated previously delivered models in any which way, shape or form.

NOTE

Should such improvements impact minor modifications, this will not be reflected in the operating manual. Any claims based on changes introduced in the operating instructions cannot be accepted

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1 General information

1.1 Application

The Ideal sweeper is intended for the use with any forklift truck or wheeled loaders. Due to its robust design and a variety of operating widths, this sweeper is perfect for continuous use on streets and pathways, regardless of size.

The Ideal sweeper is attached to the vehicle by simply inserting the lift truck's forks into the fork recesses.

The various ancillary equipment such as water spraying unit for sweeping dust, a side broom for flush edge sweeping, or reinforced wheels, etc., allows adjusting the Ideal sweeper to the most diverse of operating conditions.

1.2 Product information

1.2.1 General information

These operating instructions apply to the Ideal sweeper series.

1.2.2 Manufacturer's address

Tuchel Maschinenbau GmbH
Holsterfeld 15
48499 Salzbergen
Tel.: +49 59 71 / 96 75 - 0
Fax: +49 59 71 / 96 75 - 30
E-mail info@tuchel.com
Spare parts: service@tuchel.com

1.2.3 Identification

The identification can be found on the type plate

Model		<input type="text"/>
Serial No.:		<input type="text"/>
Year of manufacture/Order No.:		<input type="text"/>
Max. oil flow [bar]		<input type="text"/>
Max. oil flow rate [L/min]		<input type="text"/>
Unladen weight [kg]		<input type="text"/>



Modell / TYP	<input type="text"/>	 TUCHEL <small>MASCHINENBAU GmbH</small> <small>Hoflerfeld 15 • 48459 Saltbergen</small> <small>Tel. 00 59 71196 75-0 • Fax 96 75-30</small> <small>Internet: http://www.tuchel.com</small> <small>E-Mail: info@tuchel.com</small>  <small>Made in Germany!</small>
Serien-Nr.	<input type="text"/>	
Baujahr / Auftrags-Nr.	<input type="text"/>	
max. Öldruck [bar]	<input type="text"/>	
max. Ölstrom [l/min]	<input type="text"/>	
Eigengewicht [kg]	<input type="text"/>	
Tragfähigkeit des Flurförderfahrzeugs beachten		

NOTE The entire identification (type plate, safety labels, etc.) is considered part of the certificates and must not be modified or destroyed in any way. If damaged, please replace immediately.

NOTE Enter the data of your Ideal sweeper here, so that the specifications are readily available at any time.

1.2.4 Declaration of Conformity

Compliance with the "essential health and safety requirements" of the Machinery Directive 98/37/EC authorises the use of the CE mark. Furthermore, the harmonised European standards DIN EN 292 1+2, DIN EN 982, DIN pr EN 1553, and DIN EN 474 1+2 were used during the development of the machine. These are documented in the EC declaration of conformity.

1.2.5 Inquiry and order information

When ordering spare parts or accessories, please indicate the type of machine, serial number, and the Ideal sweeper's year of manufacture.

NOTE Using original tools/original spare parts, and manufacturer's authorised accessories and/or spare parts improve the product's safety.

NOTE The use of unapproved accessories/spare parts nullifies the liability for the resulting consequences.

1.2.6 Energy requirement

Max. operating pressure during continuous loads:
175 bar

A pressure control valve is used to ensure the proper control of the max. operating pressure.

1.2.7 Connections

Ideal sweeper with hydraulic drive unit
=> dual operating drive circuit

1.2.8 Energy requirement

Type of drive:	Hydraulic
Required amount of oil:	25 - 60 l/min
Required oil pressure:	160 bar
Type of oil to be used:	Hydraulic oil according to ISO VG 46 DIN 51524 (e.g. Vitam GF 46 by Aral)

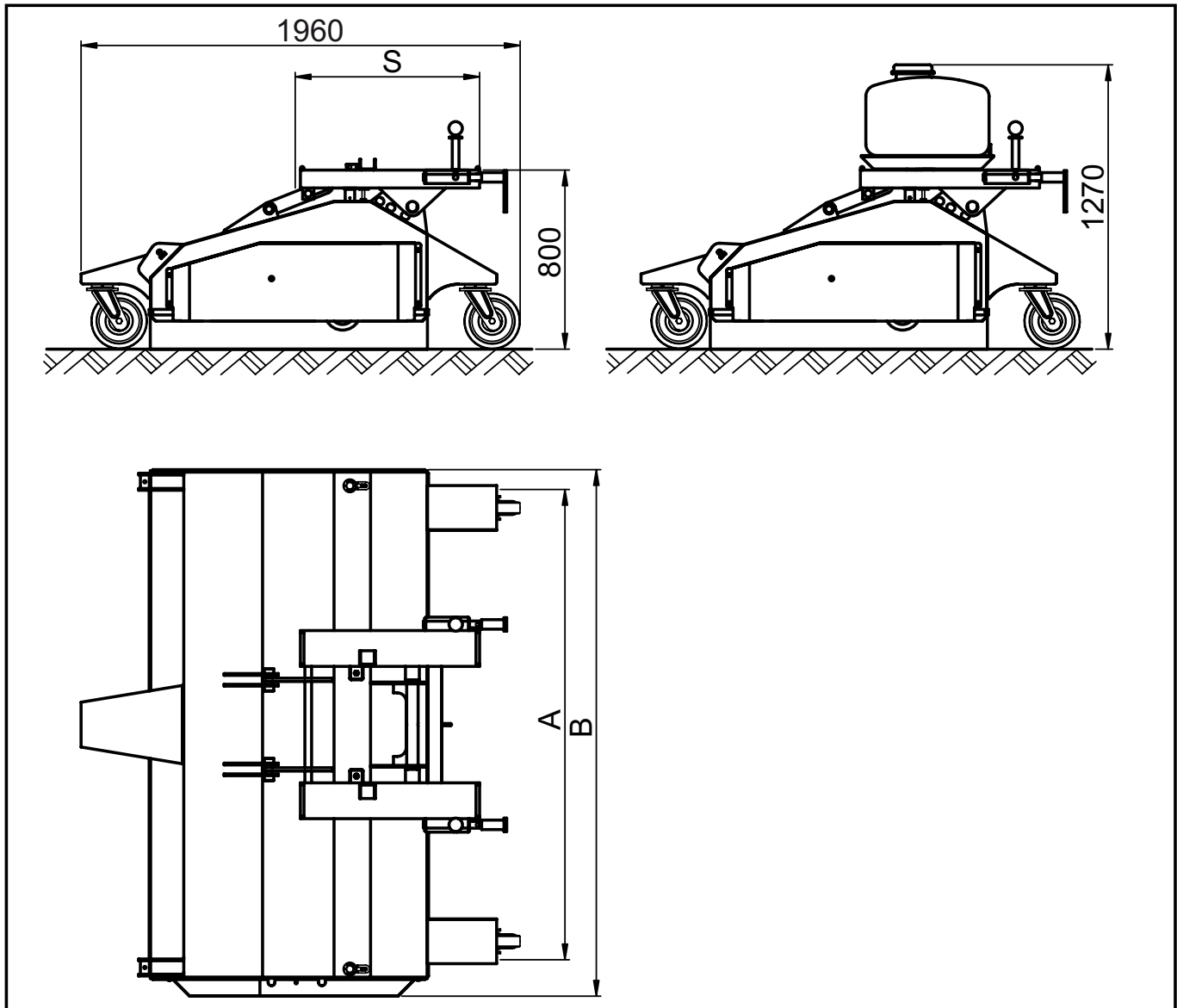
1.2.9 Intended use

The Ideal sweeper is activated via the hydraulic circuit and adapting the machine to the respective host vehicle. The machine is intended only for cleaning pavements with a "normal" accumulation of rubble/litter.

If the machine is used for any other application as mentioned above, the manufacturer cannot be held responsibility for the sweeper's safety. In this case, the sole responsibility lies with the user.

Proper use shall also means compliance with our operating instructions, described maintenance work, and services as well as all other referenced conditions.

1.2.10 Technical data sheet



A=Operating width	m	1.30	1.50	1.80	2.10	2.40
B=Total width	m	1.55	1.75	2.05	2.35	2.65
Volume of debris container	litres	210	240	290	335	380
Required amount of oil:	L/min	25	25	25	35	35
Max. operating pressure during continuous loads:	bar	160	160	160	160	160

NOTE

We reserve the right to modify dimensions and weights as necessitated by technical advancements!

2 Safety


These operating instructions contain basic information. Compliance during the installation, operation, and maintenance is mandatory. It is important that all personnel reads and understands the operating manual prior to the initial start-up. Please keep the manual in a place that is easy to access.


Not only general safety information mentioned in this main "Safety" chapter must be observed, but also all other special safety information indicated in other sections.


2.1 Informative notes in the operating instructions

The following general hazard symbols are used in these operating instructions to point out safety information, where failure to comply with the information may put persons at risk.

Safety signs and hazard pictorials

according to DIN ISO 9244 

Warning of crush hazard 

Warning of cut hazard 

Failure to comply with safety information that may lead to damage of the machine and/or malfunctions are highlighted with the word

ATTENTION.

Information is identified as such:

NOTE

Compliance with safety labels that are permanently attached to the machine is mandatory. Their legibility must be preserved at all times.

2.2 Qualification and training of personnel

Only authorised personnel who are familiar and have been informed about the inherent hazards, may be permitted to use, maintain, and repair the Ideal sweeper. It is the owner's obligation to determine the necessary personnel in areas such as authority, responsibility, monitoring tasks. If the respective personnel lacks the necessary knowledge, appropriate training must be arranged. Moreover, it is the owner's responsibility to ensure that all personnel has read and fully understood the contents of the operating instructions.

Maintenance work that is not described in these operating instructions, must only be carried out by an authorised dealership.

2.3 Noncompliance with safety instructions and inherent risks

Noncompliance with safety instructions bears the inherent risk of placing personnel at danger and potentially causing damage to the machine and its surroundings. Noncompliance with the safety instructions will nullify all warranty claims.

Noncompliance with safety instructions may lead to the following consequences:

- Placing personnel in harm's way due to unsecured workplaces
- Machine malfunctions
- Failure of specified maintenance and repair methods
- Hazard to personnel due to mechanical or chemical effects
- Environmental hazards caused by leaking hydraulic fluids

2.4 Safety-conscious work habits

Compliance with all safety information described in these operating instructions, current national rules, and regulations for the prevention of industrial accidents is mandatory. This also applies to work instructions, operating manuals, and safety regulations provided by the owner.

The industrial safety and accident prevention regulations of the relevant Employers' Liability Insurance Association are binding.

Observation of the vehicle manufacturer's safety instructions is mandatory.

When operating the vehicle on public roads, the rules and regulations of the respective country's Highway Code must be observed. Furthermore, the axle load limits of the respective vehicle manufacturer must be observed.

2.5 Safety instructions for the owner/user

- Prior to start-up of the machine, familiarization of all equipment and controls, as well as their function must be considered. Learning while operating the machine should not be a consideration.
- Users should wear tight fitting clothing. Loose-fitting clothes are not recommended.

-
- Prior to start-up and, depending on the mounting method, check the attachment equipment, safety devices, verify their firm fit, and ensure the machine is not damaged. Furthermore, check all hydraulic hoses. If they are jammed or kinked, minor damage on the hydraulic hoses is possible.
 - During installation and removal, ensure to place the support equipment in the proper position.
 - Observe permissible axle loads, overall weight, and transport dimensions.
 - Check and install transport equipment (e.g., lighting, warning and safety equipment, if necessary).
 - If the standard lights of the host vehicle are covered while in transport position, additional lighting systems must be provided.
 - Prior to start-up and driving off, checked the surrounding area (playing children). Maintain sufficient visibility.
 - Carrying additional personnel on the equipment during work and transport is not permitted.
 - During transport, the hydraulic system necessary for the operation and lowering of the Ideal sweeper, must be secured in order to prevent accidental activation.
 - Never leave the drivers seat while the vehicle is moving.
 - The driving speed must be adjusted to the respective road conditions and moving traffic. When driving up or down a slope and while traversing along a hillside, sudden directional changes should be avoided.
 - The Ideal sweeper attachments affect significantly the driving behaviour, manoeuvrability, and breaking ability of the vehicle.
 - Only operate the Ideal sweeper if all safety equipment has been attached and placed into safe position.
 - Stay clear of the equipment's operating range.
 - Only actuate the pivoting equipment if no persons are with in the swinging range.
 - All hydraulically actuated components are potential crushing and/or cutting hazards.
 - Before leaving the host vehicle, ensure to set the Ideal sweeper onto the ground. Remove the ignition key and secure the host vehicle to prevent inadvertent start-up and rolling.

- After shutting off the work equipment, the time-delayed flywheel mass still presents a potential hazard. During this time, do not approach the machinery. Wait until the machine has come to a standstill.
- The hydraulic system may still be pressurised.
- Escaping, highly pressurised fluids (hydraulic oil) can penetrate the skin and cause severe injuries. If this happens, immediately seek medical assistance. Risk of infections!
- Hydraulic hoses must only be connected to the vehicle's hydraulic system, if the entire system has been depressurised.
- Hydraulic hoses must be replaced at least every 6 years (this includes storage time of max. 2 years).
- Hydraulic hoses must be checked regularly for damage and ageing, and must be replaced if necessary. All replacement hoses must comply with the technical requirements of the manufacturer.
- Any leakage represents an environmental risk and must be eliminated immediately.
- When searching for leaks, the risk of injuries is prevailing. Appropriate safety measures are recommended.

2.6 Safety instructions to be followed during maintenance, inspection, and repair work

It is the owner's responsibility to ensure that only authorised and qualified personnel are permitted to carry out maintenance, inspection, and repair work. All personnel must be thoroughly familiar with the appropriate operating manual.

Work must only be carried out while the machine is shut off. Procedures on how to shut off the machine is described in the operating manual. Compliance is mandatory.

During maintenance work, while the equipment is raised off the ground, appropriate supports must be installed.

When replacing the brush roller and bar, appropriate tools must be used and safety gloves must be worn.

Appropriate waste disposal of oil and grease must ensure.

Immediately after finishing maintenance/repair work, all safety equipment must be reinstalled.

When restarting the machine, all information provided in Section "Initial start-up" must be observed.

2.7 Unauthorised modifications and use of non-original spare parts

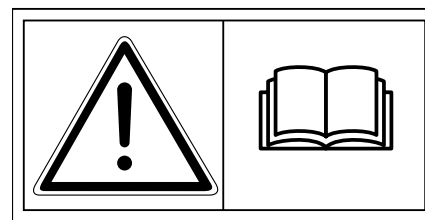
All modifications on the machine are only permitted after consultation with the manufacturer. Original spare parts and manufacturer's authorised accessories improve the product's safety. The use of unapproved accessories/ spare parts and the resulting consequences nullifies the manufacturer's liability.

2.8 Unacceptable operating modes

Operational safety of the machine can only be guaranteed if compliance with the intended use as described in the operating manual (see Chapter 1) is ensured. Compliance with all limits listed in the data sheets is mandatory and must not be exceeded.

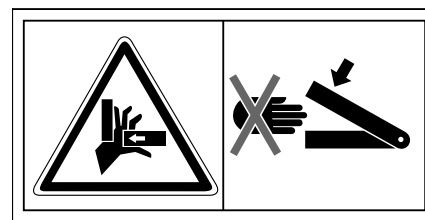
2.9 Safety signs and hazard pictorials (per ISO 11684) attached to the machine

Read and observe the operating manual and safety instructions before placing the machine into operation.



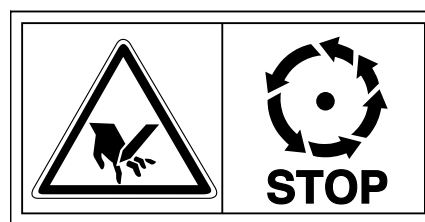
Artikel-Nr.
00.KC.00100

Crush hazard! Do not reach inside danger zone. Keep hands clear of moving parts.



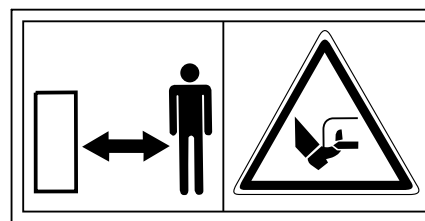
Artikel-Nr.
00.KC.00101

Never touch moving machine parts!
Wait until the parts have come to a standstill.



Artikel-Nr.
00.KC.00102

When lowering the Ideal sweeper, maintain sufficient clearance.



Artikel-Nr.
00.KC.00103

NOTE

All labels must be kept clean and legible. Missing or damaged labels must be replaced immediately.

3 Ideal sweeper

3.1 Storage

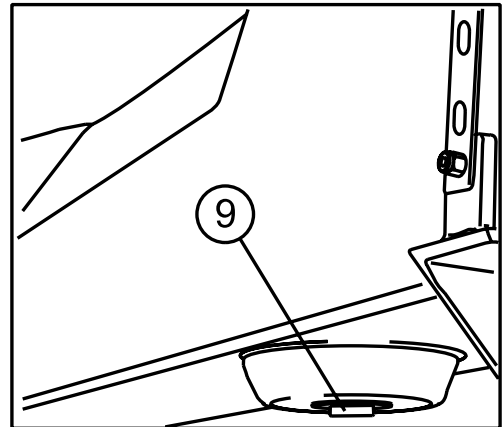


Placed the Ideal sweeper on solid level ground and store in a dry and clean place.



Risk of accident.
Ensure the Ideal sweeper is install securely.

- Support wheels must be pointing backwards.
- The shut-off valve of the side-mounted broom must be closed.
- Pivot side-mounted broom upwards, insert the lever into the appropriate borehole and secure.
- Empty water tank. Open drain bolt (9) (bottom of tank).
- During freezing temperatures, drain the pump of the water spray unit 10 to 15 seconds until all water has been drained out of the pipeline.



Risk of accident.
Hydraulic hoses and electrical cables may run along the ground. They are a trip hazard. Run the hydraulic hoses and the connection cable over the sweeper.

ATTENTION Close the hydraulic plug with dust cap.
Contamination will damage the hydraulic system.

If necessary, thoroughly clean the Ideal sweeper . Contamination attracts moisture which leads to corrosion.

Use plenty of lubrication to grease the Ideal sweeper.

If paint damage occurs, immediate repair is recommended.

3.2 Product and accessories description

The Ideal model is perfect for sweeping applications.

The frame is made of a robust and torsion-free welded construction.

The sweeper cylinder is freely suspended inside the frame, using a lever system. A crank is used to adjust the brushes. If necessary, use the crank to adjust the sweeper cylinder. This ensures a continuously clean sweeping effect.

A powerful hydraulic motor, integrated into the roller shaft, is fully protected and drives the sweeper cylinder. The speed of the sweeper cylinder is dependent on the flow of oil and on the equipment of the host vehicle.

Normally, the sweeper cylinder is equipped with mixed bristles made of 100% PPN.

Activating the hydraulic cylinder opens and closes the debris collector. All controls for the activation of the sweeper are located in the host vehicle. A Vulkollan tip is attached to the bottom edge of the debris collector, stretching across the entire length. This makes it possible to guide the lower edge of the debris collector across the pavement evenly and without causing damage.

The Ideal sweeper is equipped with suitable direct attachment options for the respective host vehicle.

Accessories

- A water spray unit for sweeping dust with optional 100 L or 200 L water tank and a 12 V (24 V) dry running pump.
- Special stabilised casters for heavy duty applications on uneven pavement.
- Hydraulically-operated, side-mounted broom for flush edge sweeping; engine speed control and adjustment of various working settings via a ratchet disc.
- Warning flags and side-marker lamps, necessary when driving on public roads.

3.3 Installation



Use the mounting variant (supplied) for attaching or coupling the Ideal sweeper to the respective host vehicle.



Do not attempt to modify or change the mounting variant.



Necessary support loads, weight transfers, axle loads, overall weight, and transport dimensions are listed in the manufacturers information of the host vehicle and must be verified prior to initial start up.



If counter weights are specified, they must be mounted to the appropriate attachment points of the host vehicle.



During the mounting of the sweeper, special care is recommended.



Maintenance, repair, and retrofit work on the Ideal sweeper is only permitted after the hydraulic drive has been shut off and all hydraulic lines have been disconnected. Remove the ignition key and secure the host vehicle to prevent inadvertent start-up and rolling.

ATTENTION

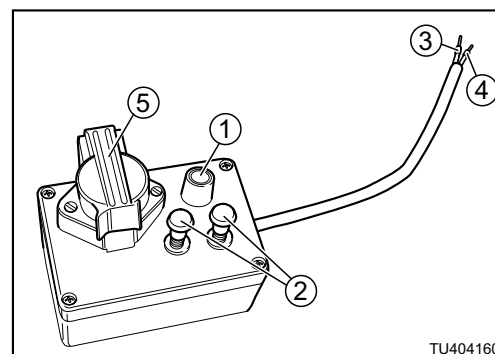
Verified the proper mounting and secure attachment of the equipment. Furthermore, check all hydraulic hoses. If they are jammed or kinked, minor damage on the hydraulic hoses is possible.

NOTE

First-time mounting

When installing the Ideal sweeper the for the first time with the water spray unit or the lighting system, the switching box must be mounted in an appropriate location in the host vehicle.

- Connect cable (3) to battery (-).
- Connect cable (4) to side marker lamp terminal.
- Power outlet (5) for Ideal sweeper's electrical connection.
- (1) Fuse
- (2) ON/OFF switch.



TU404160

Lift truck fork inserts



The safety instructions described in Chapter 3.3 apply.



Maintenance, repair, and retrofit work on the Ideal sweeper is only permitted after the hydraulic drive has been shut off and all hydraulic lines have been disconnected. Remove the ignition key and secure the host vehicle to prevent inadvertent start-up and rolling.

NOTE

During the installation, the operating instructions of the host vehicle's manufacturer must be observed!

Please refer to the respective example.

NOTE

Ensure the fork inserts and the forks themselves are clean; remove dirt if necessary.

NOTE

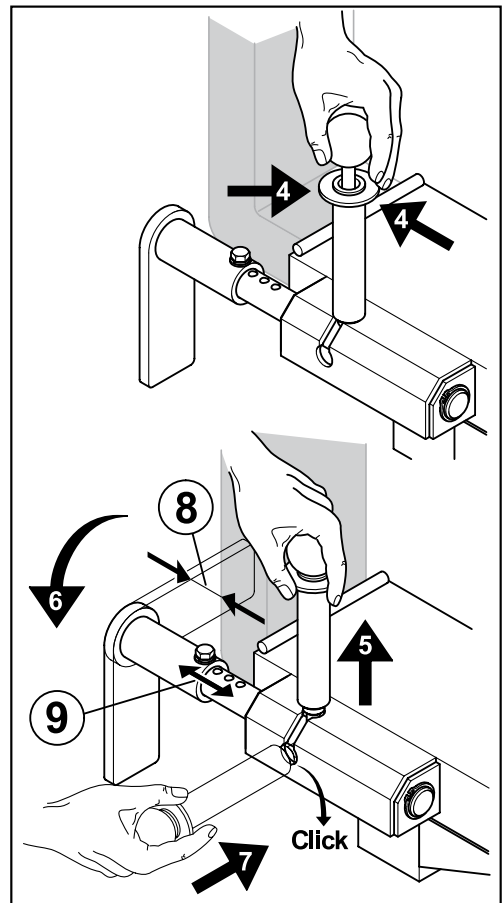
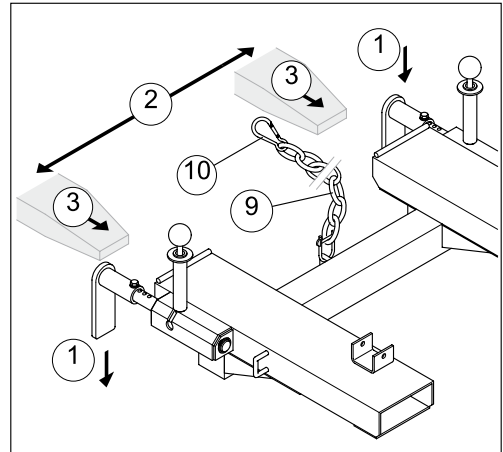
The spacing between the forks must be adjusted on the host vehicle before insertion.

- Turn the safety lever downward
- Insert the forks completely.
- Turn the safety lever upward.

ATTENTION

Ensure the safety lever behind the forks is properly locked.

- Follow the instructions of the vehicle's manufacturer when connecting the hydraulic lines.
- Connect electrical wires for the water spray unit and lighting system in the switching box of the host vehicle.



3.4 Operation

3.4.1 Transporting



The safety instructions described in Chapter 3.3 apply.



Maintenance, repair, and retrofit work on the Ideal sweeper is only permitted after the hydraulic drive has been shut off and all hydraulic lines have been disconnected. Remove the ignition key and secure the host vehicle to prevent inadvertent start-up and rolling.

- Close shut-off valve on side-mounted broom.
- Raise side-mounted broom.
- Insert lever into the appropriate borehole and secure.

ATTENTION

Raise Ideal sweeper. Secure controls of the Ideal sweeper to prevent unintentional activation.

ATTENTION

During transports the debris collector must be empty.

3.4.2 Initial start-up



The safety instructions described in Chapter 3.3 apply.



Maintenance, repair, and retrofit work on the Ideal sweeper is only permitted after the hydraulic drive has been shut off and all hydraulic lines have been disconnected. Remove the ignition key and secure the host vehicle to prevent inadvertent start-up and rolling.

- Open shut-off valve on side-mounted broom.
- The maximum speed of the sweeper must not exceed 6 km/h.
- Kinks in hydraulic hoses and electrical cables must be prevented.
- Lower the Ideal sweeper until all casters contact the ground.



Pivoting the side broom into its working position.

- Lower the side-mounted broom.
- Move the ball valve lever in order to add the side broom circuitry to the hydraulic system (the ball valve lever points in the direction of the debris collector, the side broom will start rotating).

3.4.3 Setting/adjusting the side-mounted broom

The side-mounted broom must still contact the pavement if the sweeper is hovering 6 - 10 cm above the ground. Align machine parallel to the ground; now the pin should be contact the stopper. When using the side broom, it must sweep the corner area clockwise, in a range between 12 and 3 o'clock.

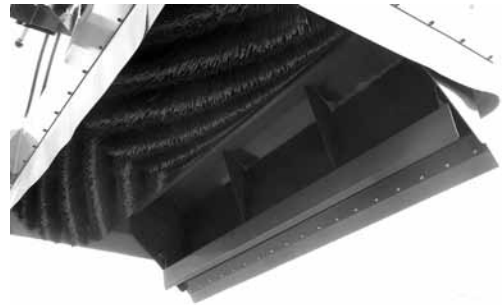
3.4.4 Emptying the debris collector

Use the hydraulic cylinder to open the debris collector.

- Raise the Ideal sweeper.
- Activate the respective control valve in the host vehicle to retract the hydraulic cylinder.
- An excess volume flap is freely suspended inside the collector. This flap is used to increase the volume of sweepings and accumulating the sweepings inside the debris collector. When emptying the debris collector, this excess volume flap pivots away from the filling area.

NOTE

No person is permitted in the working range while emptying the debris collector.



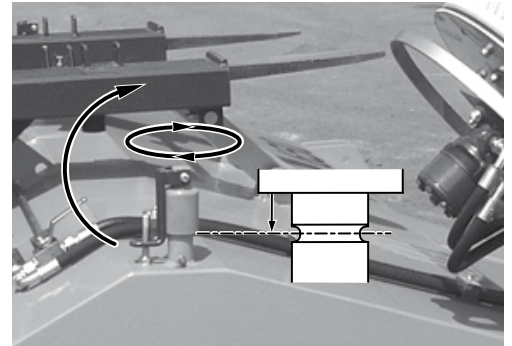
3.4.5 Adjusting the sweeping profile

ATTENTION When operating the Ideal sweeper, the sweeping profile should be a = 6 - 10 cm (e.g., when lifting the sweeper, the width of the cleaned area should be 6 - 10 cm wide).

If the width is insufficient or the floor pressure is marginal, the suspension of the sweeper cylinder must be adjusted accordingly.

ATTENTION Twisted or kinked hydraulic lines must be avoided.

- Park the sweeper as described in the start-up instructions. Rotate the crank of the sweeper cylinder and set sweeper down simultaneously on both sides.



3.5 Removal



The safety instructions described in Chapter 3.3 apply.



Maintenance, repair, and retrofit work on the Ideal sweeper is only permitted after the hydraulic drive has been shut off and all hydraulic lines have been disconnected. Remove the ignition key and secure the host vehicle to prevent inadvertent start-up and rolling.



Place the Ideal sweeper on solid level ground, store in a dry and clean place, and secure to prevent rolling.

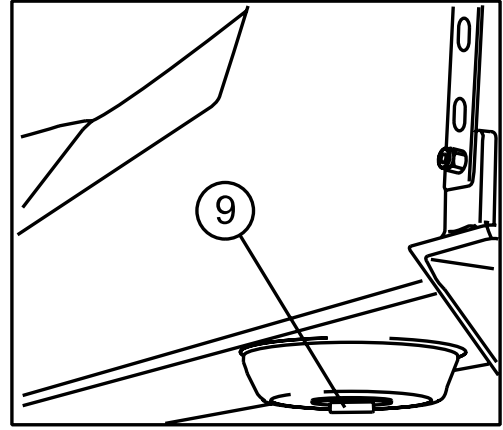


Risk of accident. Ensure the Ideal sweeper is secured.

- The shut-off valve of the side-mounted broom must be closed.
- Place the Ideal sweeper on the ground. Ensure the debris collector is closed and the associated hydraulic circuit is shut off. Support wheels must be pointing backwards.
- Raise and secure side broom..

Ideal sweeping machine

- Empty water tank. Open drain bolt (9) (bottom of tank).
- During freezing temperatures, drain the pump of the water spray unit 10 to -15 seconds until all water has been drained out of the pipeline.



Lift truck fork inserts

- Disconnect hydraulic hoses and electrical cables from vehicle.



Risk of accident.

Do not place hydraulic hoses and electrical cables on the floor. They present a trip hazard.

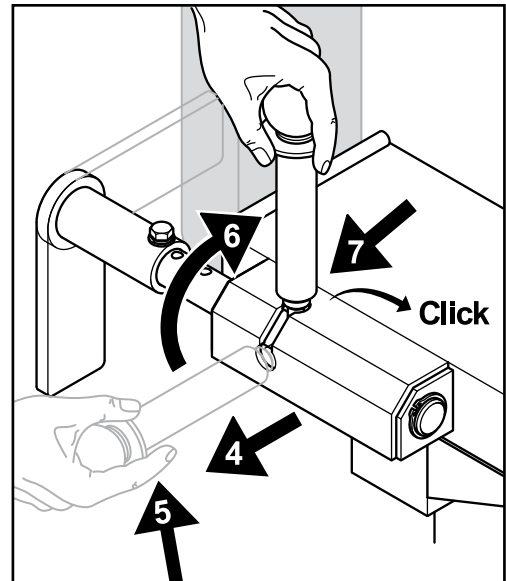


Run the hydraulic hoses and the connection cable over the sweeper.

ATTENTION Close the hydraulic plug with dust cap. Contamination will damage the hydraulic system.

ATTENTION During the installation, the operating instructions of the host vehicle's manufacturer must be observed! Please refer to the respective example.

- Lower the Ideal sweeper until all casters contact the ground.
- Turn the safety lever downward
- Remove forks of the lift truck from the fork inserts.
- Back up vehicle.



4 Maintenance and servicing

4.1 General information

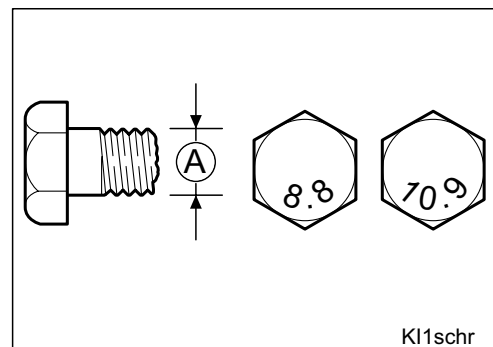


Maintenance, repair, and retrofit work on the Ideal sweeper is only permitted after the hydraulic drive has been shut off and all hydraulic lines have been disconnected.

Remove the ignition key and secure the host vehicle to prevent inadvertent start-up and rolling.

Check all nuts and bolts for firm fit after the first five operating hours, followed by regular intervals (approximately every 50 operating hours). If necessary, tighten fasteners.

A = thread size (strength category stamped on bolt head)



A ø	3.6	5.6	6.8	8.8	10.9	12.9
	M _A (Nm)					
M 6	3.43	4.51	8.73	10.3	14.71	17.65
M 7	5.59	7.45	14.22	17.16	24.52	28.44
M 8	8.24	10.79	21.57	25.50	35.30	42.17
M 10	16.67	21.57	42.17	50.01	70.61	85.32
M 12	28.44	38.25	73.55	87.28	122.58	147.10
M 14	45.11	60.8	116.7	135.27	194.17	235.36
M 16	69.63	93.16	178.46	210.84	299.1	357.94
M 18	95.13	127.40	245.17	289.3	411.88	490.34
M 20	135.33	180.44	348.14	411.88	576.50	669.26
M 22	162.4	245.17	470.72	558.98	784.45	941.44
M 24	230.46	308.91	598.21	710.99	1000.28	1196.42

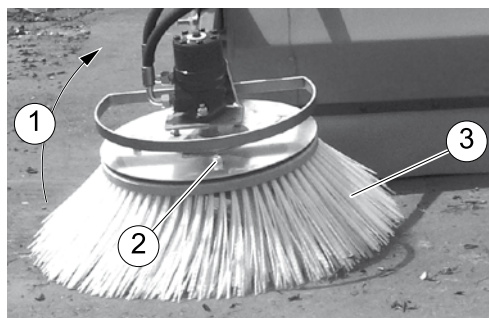
All torques M_A are suggested values for standard metric threads according to DIN 13. Friction value 0.14 (new fastener, no lubrication). The values above are manufacturer's recommended guidelines. However, we cannot be held liable for the use of such recommendations.

After disassembly, all self-locking nuts must be replaced.

- Hydraulic lines must be checked on a regular basis.
- Hydraulic hoses must be replaced at least every 6 years (this includes storage time of max. 2 years).
- Damaged or aged hydraulic lines must be replaced immediately.
- All replacement hoses must comply with the technical requirements of the manufacturer.

4.2 Replacing the circular brush

- Raise and secure the side-mounted broom (1).
- Remove 3 hexagon nuts (2).
- Remove used circular brush (3).
- Line up through hole with flange and insert new circular brush.
- Use new self-locking nuts to fasten the new circular broom.
- Move side broom (1) into working position and readjust settings.



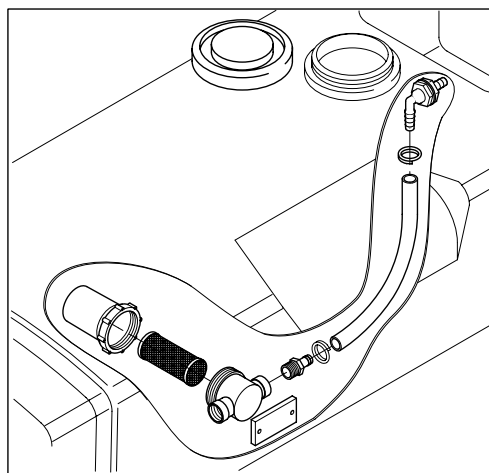
4.3 Water spraying unit

The water filter is located in the intake hose of the water pump.

NOTE

The condition of the filter element must be checked every 50 operating hours and cleaned, if necessary .

- Remove the cover of the water tank.
- Remove intake hose from water tank.
- Remove housing cover.
- Clean the filter element under running water.
- Reinstall housing cover and filter element.



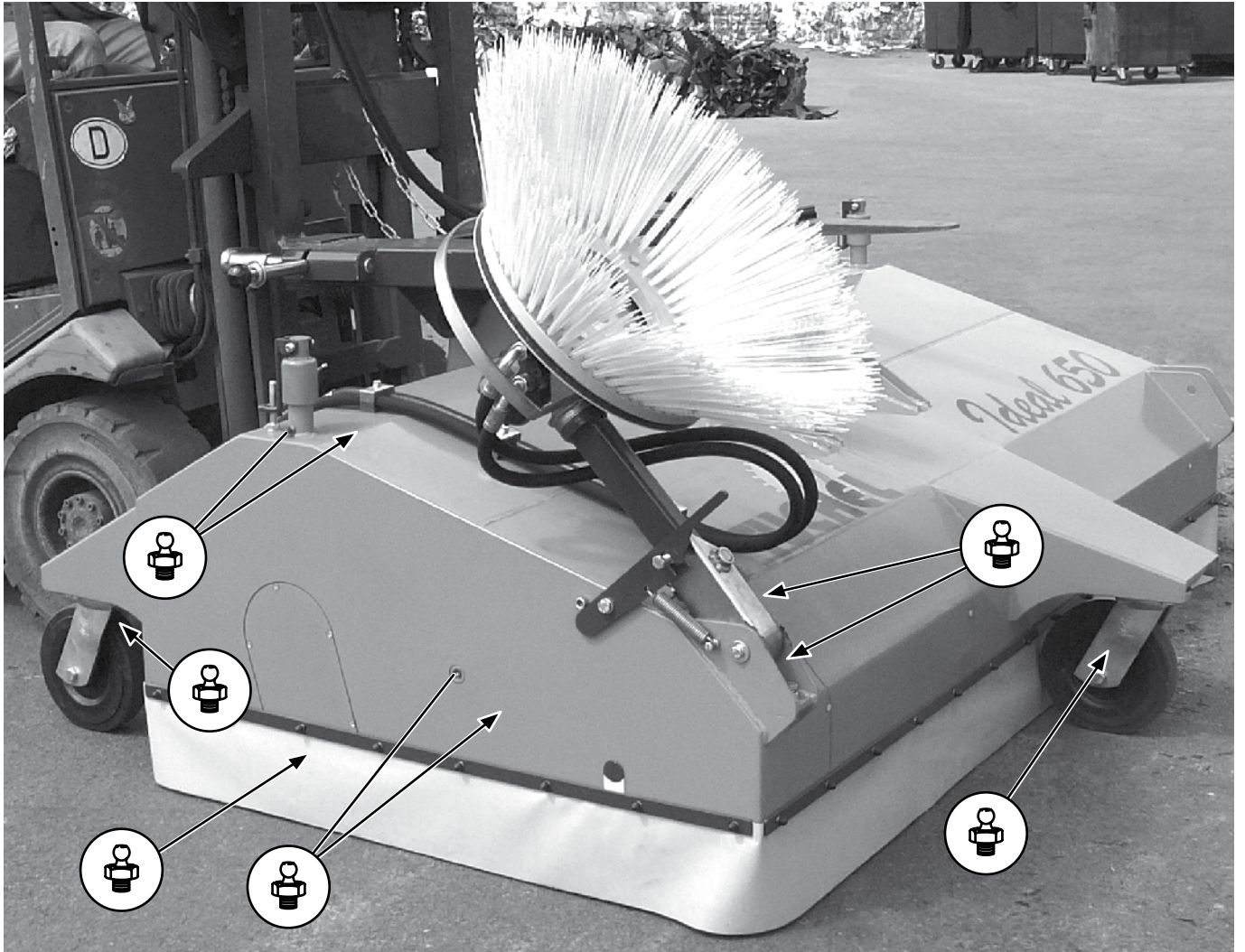
4.4 Lubrication schedule

NOTE

Lubricate bearings once a week. Use grease compliant with DIN 51502 (e.g., Gresalit 2 by Westfalen company).



Lubricate once a week!



4.5 Malfunctions; Causes and rectification

Malfunction	Cause	Remedy
1. Sweeper cylinder does not turn.	<ul style="list-style-type: none"> - Improper connection of hydraulic lines - insufficient pressure/volume flow - Hydraulic motor defective - Setting of flow control valve 	<ul style="list-style-type: none"> - Check connections - Contact dealer - Contact dealer - Check valve settings
2. Debris collector unit cannot be raised.	<ul style="list-style-type: none"> - Improper connection of hydraulic lines - Hydraulic cylinder defective 	<ul style="list-style-type: none"> - Check connections - Contact dealer
3. Water spray unit not functioning	<ul style="list-style-type: none"> - Water tank empty - Fuse in switching box defective. - Water filter clogged - Nozzle(s) clogged 	<ul style="list-style-type: none"> - Fill with water - Replace fuse - Clean water filter - Clean nozzle(s)
4. Side broom stopped	<ul style="list-style-type: none"> - Supply line closed - Improper connection of hydraulic lines - Hydraulic motor defective 	<ul style="list-style-type: none"> - Activate 2-way valve - Check connections - Contact dealer
5. Sweeping results poor.	<ul style="list-style-type: none"> - Sweeper settings - Sweeper speed too fast/too slow 	<ul style="list-style-type: none"> - Use ratchet lever system to control broom - Adjust broom's motor speed



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