



Operating Manual

Limpar 72 Sweeping Machine



Language of the original operating manual: German. Keep on hand for further use!

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Introduction

Dear reader,

This operating manual provides all information for safe operation of the Limpar 72 sweeping machine.

The Limpar 72 sweeping machine has been designed and built in accordance with the state of the art and recognised safety rules and regulations. Nevertheless dangers for personnel or objects can occur, because not all danger zones can be avoided if the functionality is to remain intact. However you can prevent accidents due to these dangers by complying with the instructions in this operating manual. Moreover you will then be able to use the sweeping machine to its full capacity and avoid unnecessary disturbances.

CAUTION!

There is danger of injury and danger of material damage when assembling, operating, and maintaining the sweeping machine.

Therefore:



- First read this operating manual carefully, prior to assembly and operation of the sweeping machine. Always comply with the instructions and information contained herein, particularly the safety instructions.
- If the operating manual is lost or in poor condition, request a new copy from the manufacturer (the same applies for parts of the operating manual).

This operating manual only applies for the sweeping machine specified on the cover sheet and at the end of every page. Compare this information with the information on the type plate of the sweeping machine.

After you have read the entire operating manual thoroughly for the first time, take good care of the operating manual over the entire service life of the sweeping machine, so that you can look up something later.

If you sell the sweeping machine, give this operating manual to the new owner.

All information, illustrations and dimensions in this operating manual are non-binding. No claims whatsoever can be derived from this information, illustrations or dimensions.

Reprinting or duplication of any type, including excerpts, requires the written permission of the manufacturer.

Conversion of, or changes to the sweeping machine are only permitted with the manufacturer's written consent. Unauthorised conversion voids any liability on the part of the manufacturer, as well as the guarantee.

Only use original spare parts and accessories that are approved by the manufacturer. Otherwise the design-specified characteristics of the sweeping machine, the functionality or the safety can be impaired. Consequently the use of other parts voids the liability for the ensuing consequences.

Contact your specialist dealer to order spare parts or accessories.

In addition comply with the instructions in the operating manual of the motor manufacturer. This is included in the sub-package for the sweeping machine.

4F Maschinentechnik GmbH assumes no liability for the content of the operating manual provided by the motor manufacturer.

Explanation of symbols, signs and direction indications

For better understanding, the following conventions are used for this operating manual:

1.

To emphasise important information, the following types of special notices are used:



DANGER!

- There is an imminent dangerous situation that results in death or serious injury if it is not avoided.
-



WARNING!

- There is a possible dangerous situation that can result in death or serious injury if it is not avoided.
-



CAUTION!

- There is a possible dangerous situation that can result in minor injury or material damage, if it is not avoided.
-



ATTENTION!

...indicates a possible dangerous situation that can result in material damage, if it is not avoided.



NOTE

...indicates useful tips and recommendations, as well as information for efficient and trouble-free operation.



...refers to important information in other sections and documents.

2.

Many texts serve a particular purpose. These texts are marked as follows:

- Listings.

⇒ Instructing text, e. g. a sequence of activities.

3.

In the text the sides of the sweeping machine are cited (left, right, front, rear). Left or right refers to the side that the operator of the machine sees viewed from the direction of travel. The sweeping brush of the machine is mounted in front, the steering arm is mounted in the rear.

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1 Safety

The basic prerequisite for safe and trouble-free operation of the sweeping machine is knowledge of the safety instructions and safety regulations.

Consequently read this chapter carefully all the way through and comply with the specified instructions and warnings. The safety instructions and warnings that you find at the appropriate point in the text of the following chapters must be complied with. The manufacturer cannot be made liable if the instructions and warnings are not complied with.

In addition to the instructions contained in this operating manual, the statutory regulations, particularly the safety and accident prevention regulations, must also be complied with.

1.1 Intended use

The Limpar 72 sweeping machine may only be used to clean paths and surfaces that are paved with concrete, asphalt, paving stones or slabs outside of closed rooms.

Intended use also includes compliance with all the instructions in the operating manual.



DANGER!

If the sweeping machine is used for a use other than the use described above, dangerous situations can occur for people or material damage can occur.

Therefore:

- Only use the sweeping machine for its intended purpose.
 - Always comply with all the instructions in this operating manual.
 - Particularly refrain from the uses of the sweeping machine listed in section 1.2. They are considered non-intended use.
-

1.2 Non-intended use

Any use that deviates from that described in section 1.1, is considered non-intended use.

For example, non-intended use of the sweeping machine occurs when

- it is used to clean unpaved surfaces e. g. gravel paths,
- it is used to clean roofs or flat roofs,
- it is used in enclosed spaces, e.g. halls, or barns,
- it is used to transport persons or objects,
- it is used to move or carry objects or vehicles,
- it is operated in faulty condition or with safety-relevant faults,
- it is used without the safety cladding elements that are installed as standard equipment,
- unsuitable personnel are assigned to operate the sweeping machine.

1.3 Product observation

Notify us without delay if faults or problems occur when operating your sweeping machine, or if accidents occur or nearly occur.

Together with you we will find a solution to the problem and allow the knowledge gained to flow into our subsequent work.

1.4 Requirements imposed on the operator or personnel

Handling the sweeping machine is only permitted for persons,

- who are at least 16 years old,
- who are physically and mentally suited to do so,
- who have read and understood this operating manual, and
- from whom it is expected that they responsibly perform the tasks assigned to them.

Commissioning, maintenance, repair and disposal of the sweeping machine may only be executed by the specialist dealer or by persons with appropriate technical training and experience.

1.5 Danger zone

The danger zone is the area in which the safety or the health of persons is jeopardised. Consequently no one should be in this area when the sweeping machine is in operation.

WARNING!

For persons in the danger zone there is danger of injury due to collision with the sweeping machine and due to thrown up sweepings.

Therefore:

- Only operate the sweeping machine if no one is in the danger zone.
- Carefully observe the danger zone and stop the sweeping machine if persons enter the danger zone.



The danger zone is shown in the sketch (see Fig. 1, on the next page):

A top view of the sweeping machine is shown. The shaded area is the danger zone.

The danger zone on the right side and left side is determined through the width of the sweeping brush. Toward the front side of the sweeping machine the length of the danger zone is 5 m in front of the sweeping brush.

**NOTE**

When swinging the sweeping brush to the right or left this change in direction also applies for the danger zone.

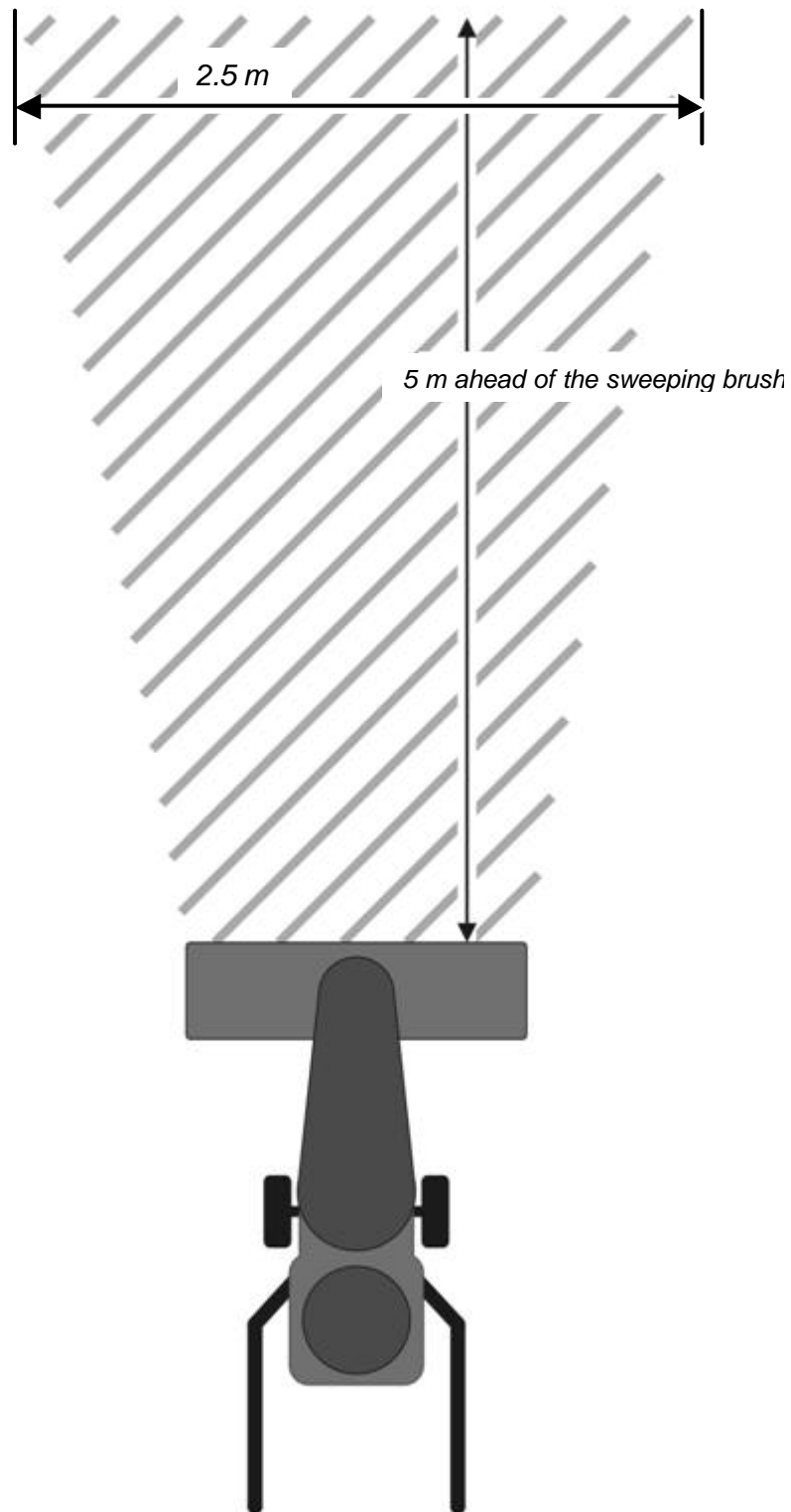


Fig. 1:

Danger zone

1.6 Work clothing



WARNING!

Unsuitable, loose work clothing, bandanas, ties, and scarves can be caught by the sweeping brush and pulled in.

Severe injuries are the result.

Therefore:

- When operating the sweeping machine, and for maintenance and repair tasks, always wear suitable tight-fitting work clothing.
-

Special protective clothing is not necessary for work with the sweeping machine. However always wear tight-fitting work clothing that cannot get caught in the sweeping brush, and that is appropriate for the respective weather, as well as sturdy shoes.

For commercial use the owner must ensure that suitable work clothing is selected and also worn.

1.7 Safety devices and protective devices

1.7.1 Safety switch

The switch levers for traction drive and rotation of the sweeping brush are designed as safety switches. By pressing down the switch levers on the steering arm handles, the traction drive and the rotation of the sweeping broom will be switched on.

To bring the sweeping machine to a standstill, it suffices to release the switch levers.

1.7.2 Sweeping brush deck

The sweeping brush deck is mounted like a protective sheet metal element above the sweeping brushes and prevents operating personnel from being hit by thrown up sweepings.

1.7.3 Protective cover

The belt drives in the interior of the sweeping machine are considered danger zones and are protected against access by the front protective cover and the housing.

1.8 Safety regulations and accident prevention regulations



Comply with the following instructions to avoid injury and material damage. In addition, for commercial use comply with the safety and accident prevention regulations issued by the Employers Liability Insurance Associations.

- Only operate the sweeping machine with properly mounted safety devices and protective devices (see section 1.7). These devices may only be dismounted for maintenance and repair tasks. After concluding these tasks the safety devices and protective devices must be immediately remounted. Otherwise there is significant danger of injury.
- Only use the sweeping machine for its intended use, otherwise dangerous situations can occur with serious or fatal injuries as the result (intended use: see section 1.1).
- Due to poor lighting conditions during operation a number of dangers can occur. Only operate the sweeping machine if there is adequate lighting.
- For sweeping tasks along walls there is danger of hand scrape injuries. Avoid touching the walls with your hands and wear protective gloves.
- Maintenance and repair tasks may only be executed by the specialist dealer or by specialised personnel.
- High voltage on the ignition cable and spark plug connector! Always switch the sweeper off with the fuel control lever, before performing tasks on the ignition cable or spark plug connector.
- Comply with the instructions on the safety stickers that are located on the sweeping machine. Safety stickers must not be removed. If they have become illegible or have been lost, they must be replaced (meaning of the stickers: see section 1.10). Contact your specialist dealer to order new stickers.
- Wear tight-fitting clothing. Long hair must be tied back.

- Do not operate the sweeping machine in faulty condition; significant injury hazards can occur. If faults occur switch off the sweeping machine and initiate the repair.
- Execution of the specified maintenance and repair tasks is part of intended use of the sweeping machine; intended use particularly includes compliance with the maintenance intervals. If you do not execute these tasks, faultless function cannot be ensured. Dangers for personnel and objects can occur. We recommend that you keep maintenance logs.
- Switch off the sweeping machine prior to performing repair tasks, including cleaning tasks. Ensure that no other person can restart the sweeping machine (e. g. pull off the spark plug connector). Otherwise there is danger of injury.
- Only use original spare parts and accessories that are approved by the manufacturer. The use of other parts voids the liability for the ensuing consequences.

1.9 Disposal

After its service life, only have qualified specialists dispose of the sweeping machine. The manufacturer assumes no liability for damage that occurs due to improper disposal.

1.10 Safety signs on the sweeping machine

Warning!





Danger of injury due to ignorance of the danger zones.

The stickers attached on the sweeping machine contain warnings of specific dangers as well as instructions for correct operation. The stickers supplement the instructions specified in this manual.

Therefore:

- Always comply with the warnings affixed on the sweeping machine.
- Do not remove any warning stickers
- Replace warning stickers that come off of the machine or that have already been lost.



Stickers	Meaning
	Before using the sweeping machine, the operating manual must be read. All information contained in the operating manual must always be complied with. Position: On the rear of the machine in the operator's field of vision.
	Warning – general dangers. Position: On the rear of the machine in the operator's field of vision.
	Warning – hot surface. Position: On the motor.
	Warning – thrown up sweepings. Maintain distance. Position: On the rear of the brush deck.

2 Description

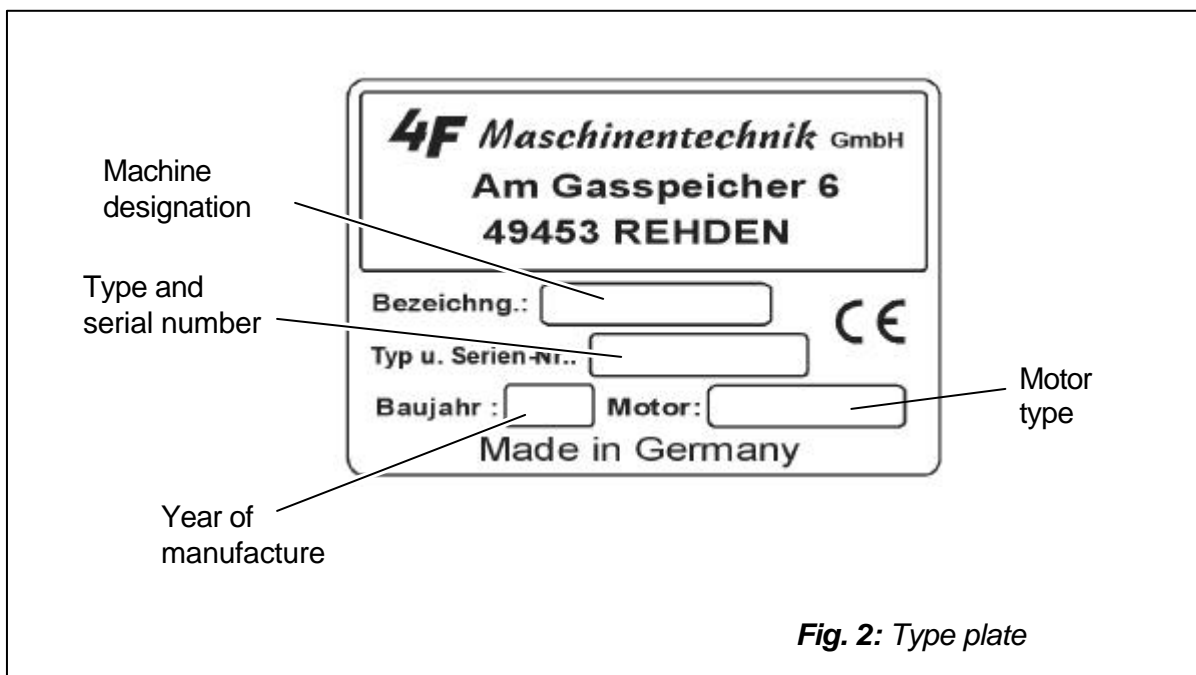
With the Limpar 72 sweeping machine, paved surfaces outside of closed rooms are cleaned with motor power.

The sweeping machine consists of a sheet steel housing, on which a petrol motor is mounted. A boom carries a pivoting roller sweeping brush. The motor powers the sweeping brush and / or the drive wheels, which can be individually switched.

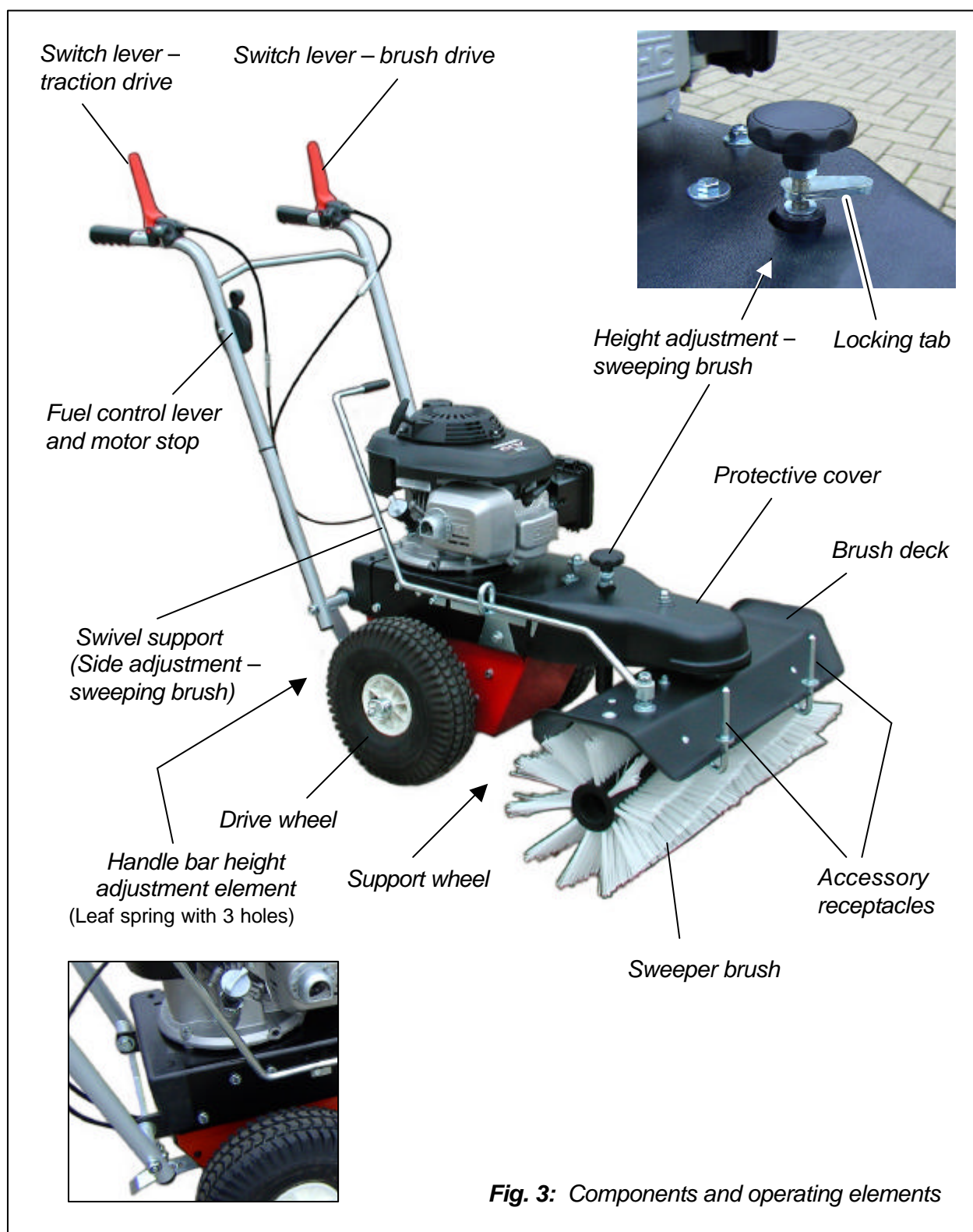
The sweeper has a steering arm with which it is guided by a pedestrian, and from which all operating elements can be reached.

2.1 Type plate

A type plate is attached on the sweeper, it contains the basic data for the sweeper (see Fig. 2). The type plate is on the left side of the sweeping machine below the motor.



2.2 Overview



2.3 Technical data

Dimensions, weight, travel speed, motors	
Work width	70 cm
Brush diameter	25 cm
Weight	45 kg
Travel speed	3.3 km/h
Motor	Honda GCV 135 or Briggs & Stratton DOV

Hand/arm vibrations on the sweeping machine	
Vibration total value (Honda motors)	$a_{hwd} = 3.5 \text{ m}^{-2}$
Vibration total value (Briggs & Stratton motor)	$a_{hwd} = 3.3 \text{ m}^{-2}$

Noise emission value of the sweeping machine	
Sound power level (Honda motor)	$L_{WA} = 95 \text{ dB(A)/1pW}$
Sound power level (Briggs & Stratton motor)	$L_{WA} = 94 \text{ dB(A)/1pW}$
Sound pressure level on the operator's ear (Honda motor)	$L_{pA} = 84.5 \text{ dB(A)/20}\mu\text{Pa}$
Sound pressure level at the operator's ear (Briggs & Stratton motor)	$L_{pA} = 84 \text{ dB(A)/20}\mu\text{Pa}$

3 Commissioning

CAUTION!

Danger of injury and danger of material damage due to improper assembly of the sweeping machine.



Therefore:

- The completion and all necessary adjustments, incl. trial run are included in the scope of delivery and must be executed by the specialist dealer prior to transfer to the customer!

We recommend that two people assemble the sweeping machine.

3.1 Unpacking

- ⇒ Place the packed sweeping machine on a level floor
- ⇒ Open the box on the top
- ⇒ Cut open the 4 corners of the box to the floor.
- ⇒ Mount the drive wheels (see the assembly instructions for the drive wheels included as a separate sheet in the box, or at the end of this page)
- ⇒ Set up the steering arm in accordance with section 3.2 and roll the sweeping machine out of the packaging.
- ⇒ Dispose of the packaging in accordance with the waste disposal regulations issued by your municipal administration.

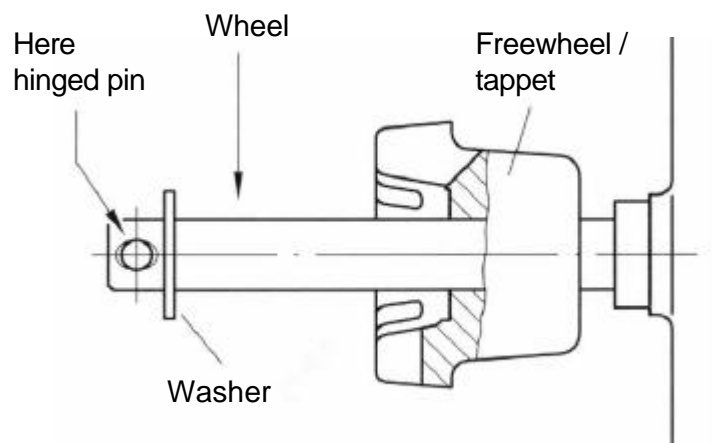


Fig. 4:
Assembly – drive wheels

3.2 Steering arm height adjustment

3.2.1 Making the steering arm height adjustment element operational

Task to be performed by the specialised workshop!

See Fig. 5 to 7 for installation of the lock finger of the steering arm height adjustment element.

CAUTION!

Danger of injury and danger of material damage when raising the steering arm.

When lifting up the steering arm there is a crush hazard between steering arm and motor.

Bowden cables can be pinched and damaged when lifting up the steering arm.

Burrs may be present on sheet metal parts, on which you can cut yourself.

Therefore:

- Carefully lift up the steering arm.
- When lifting up the steering arm pay attention to the Bowden cables.
- Wear work gloves.



At the lower end of the steering arm you will find a lock finger on the right side that can engage in one of the underlying leaf springs. To prevent the finger from piercing through the box, it has been pre-mounted in a twisted position.

Bring the lock finger into the position as shown in Fig. 5.



Fig. 5:
Alignment of the lock finger

Mount the two screws and allow the still loose lock finger to engage in the rear or middle bore of the leaf spring, while you align the steering arm. The lock finger can centre itself through the slotted holes. In this position the two M6 screws are tightened. See Fig. 6:



Fig. 6: *Correct installation of the lock finger*

The leaf spring is fastened on a bracket that can be slid back and forth slightly in slotted holes so that the lock finger can cleanly engage in all 3 holes. In Fig. 7 the screws are marked that must be unscrewed to adjust the leaf spring. The housing does not need to be opened, because the screws are fastened in a threaded plate.

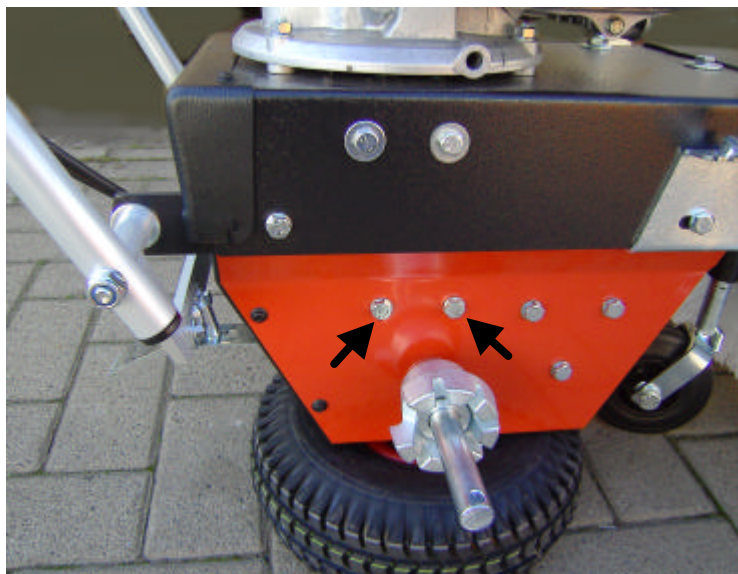


Fig. 7: *Leaf spring adjustment*

3.3 Mounting the swivel support for side adjustment of the sweeping brush

See Fig. 8, 9, and 10 for installation of the swivel support.

- ⇒ Unscrew and remove the self-locking nut and the white plastic washer from the connection of the swivel support on the brush deck.
- ⇒ Unscrew the self-locking nut from the securing screw and remove both from the locking comb of the swivel support.
- ⇒ Guide the swivel support through the support eye from the front with the operating handle in front.
- ⇒ Fit the joint of the swivel support onto the connection on the brush deck.
- ⇒ Hook the locking comb of the swivel support into the support eye.
- ⇒ Fit the white plastic washer onto the connection of the swivel support and tighten the self-locking nut to the extent that the plastic washer can still be turned by hand.
- ⇒ Re-insert the securing screw into the locking comb of the swivel support (head to the outside), screw on the self-locking nut and tighten it.

The swivel support is now completely mounted.



Fig. 8: Mounting the swivel support



Fig. 9: Locking comb

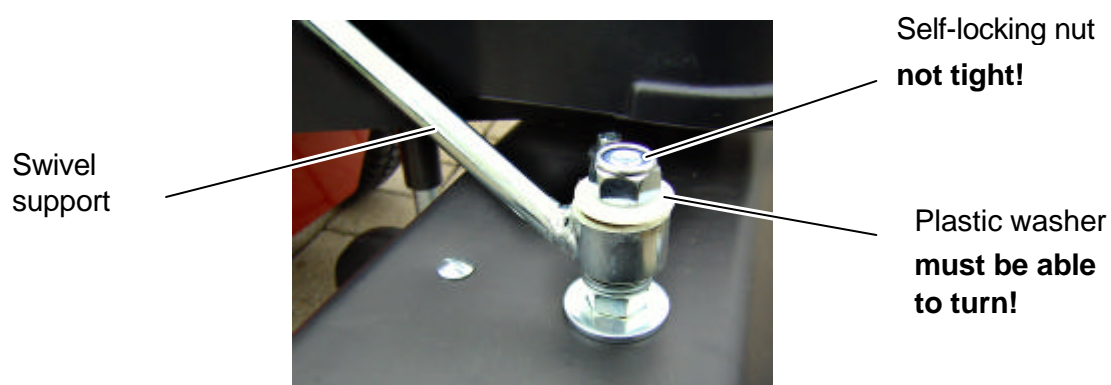


Fig. 10: Fastening of the swivel support

4 Operation



Prior to operation always read the instructions in the Safety chapter (see chapter 1)!

WARNING!

Danger of injury when operating the sweeping machine.

Thrown up sweepings can hit and injure persons in the danger zone.

Therefore:

- Ensure that no one is in the danger zone (see Fig. 1).
- Only switch on traction drive and brush rotation after this has been done.
- Always observe the danger zone during operation.
- Stop the traction drive and brush rotation if people enter the danger zone during operation.



WARNING!

Life-threatening danger due to harmful sweepings.

When dealing with harmful sweepings (e.g. due to radioactive or biological contamination) there is danger of fatal illness due to inhalation of dust.

Therefore:

- Do not use the sweeping machine for harmful sweepings.



**DANGER!**

Life-threatening danger due to movements of the sweeping machine.

When operating the sweeping machine on slopes, the sweeping machine can start moving without control, due to gravity.

Therefore:

- For sweeping tasks on sloping terrain always bear in mind that there is a possibility of the machine rolling off.
- Switch on the brush drive and use it as a brake.
- If possible, guide the sweeping machine on slopes transverse to the direction of the slope.
- Do not use the sweeping machine on terrain with a slope of more than 37% (20 degrees).

**WARNING!**

Danger of injury due to dismounted or non-functioning protective devices and safety devices.

If protection and safety devices are converted, bypassed or dismounted, they no longer fulfil their function.

Therefore:

- Do not convert or bypass protective devices and safety devices.
- Always remount protective devices and safety devices (if removed, for example, for service and maintenance purposes).

**CAUTION!**

Danger of burn injuries on the motor at operating temperature.

Therefore:

- Do not touch the motor during operation.

**CAUTION!**

Danger of injury and danger of material damage if the sweeping machine is operated in faulty condition.

Therefore:

- Perform a visual inspection prior to each start of the sweeping machine.
- Prior to each start check the operating elements for firm seat and function.

**WARNING!**

Danger of poisoning when operating the sweeping machine in closed rooms.

When operating the sweeping machine in closed rooms there is danger of poisoning due to exhaust gases and petrol fumes.

Therefore:

- Only operate the sweeping machine outside of closed rooms.

**WARNING!**

Danger of poisoning and danger of material damage when parking the hot sweeping machine in closed rooms.

When parking the hot sweeping machine in closed rooms there is danger of explosion due to petrol fumes.

Therefore:

- After operation let the sweeping machine cool down.
- Only park it in a closed room after it has cooled down.

**WARNING!**

Danger of injury and danger of material damage if the sweeping machine is operated by unauthorised persons.

Therefore:

- After operation store the sweeping machine in a closed room.

4.1 Preparatory activities

4.1.1 Adjusting the steering arm

The height of the steering arm handles is adjusted by swinging the steering arm around its lower bearing.

On the rear of the sweeping machine, on the right, the end of a leaf spring protrudes from the housing. On the lower end of the steering arm there is a lock finger (pin diameter 10 mm). In the leaf spring there are 3 holes into which the lock finger can be snapped.

- ⇒ To change the lock position, press the leaf spring downward with your foot until the pin is freed.
- ⇒ Swing the steering arm to the front or rear to change the handle height.
- ⇒ In the desired position remove your foot from the leaf spring and let the pin re-engage.

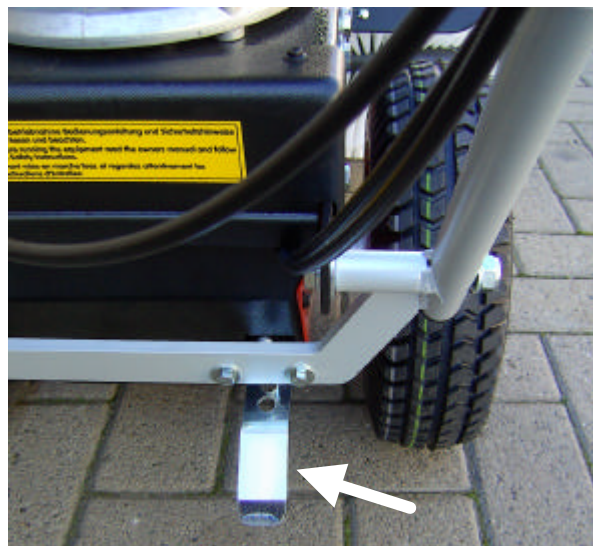


Fig. 11:
Leaf spring

4.1.2 Adjusting the height of the sweeping brush

The sweeping brush should be pressed in approx. 1.5 cm in operation.

- ⇒ Release the locking tab on the height adjustment element for the sweeping brush (see Fig. 3)
- ⇒ Turn the knob clockwise to lift, or counter-clockwise to lower, until you have found the right height adjustment for the sweeping brush.
- ⇒ Fix the knob in place with the locking tab.

4.1.3 Checking the motor oil level

Prior to each start of the motor, check the oil level (see the operating manual provided by the motor manufacturer in the sub-package for the sweeping machine).

4.1.4 Filling fuel

Prior to the first start of the motor, fill at least half full with fuel (see the operating manual provided by the motor manufacturer in the sub-package for the sweeping machine).

WARNING!

Danger of injury and danger of material damage if fuel is filled during operation.

When fuel runs over the hot motor and the exhaust, highly flammable gases occur.

Therefore:

- Switch off the motor (see section 4.2.2).
 - Let the motor cool.
 - Only top up with fuel after the motor has cooled.
-



4.2 Sweep operation



NOTE

We recommend that you always sweep in the wind direction. This prevents thrown up sweepings from hitting the operator or fouling the motor. For winter service in particular, the motor function can be impaired.

4.2.1 Starting the motor

- ⇒ Ensure that the spark plug connector has not been pulled off.
- ⇒ Open the fuel cock (if present, see the operating manual provided by the motor manufacturer in the sub-package for the sweeping machine).
- ⇒ Place the fuel control lever on “Max” (choke position).
- ⇒ Start the motor with a forceful pull on the starting rope.
- ⇒ After a few seconds set the fuel control lever back far enough that the motor no longer runs in choke, but in the full load range.

4.2.2 Stopping the motor

- ⇒ Slide the fuel control lever in the “Stop” direction until the motor switches off.
- ⇒ Close the fuel cock (if present).

4.2.3 Switching the traction drive on and off

CAUTION!

Danger of injury due to the machine falling when switching on traction drive.



When switching on traction drive the machine starts to move abruptly.

Therefore:

- Be aware of the abrupt start-up of the sweeping machine.
 - Comply with the requirements imposed on operating personnel (see section 1.4).
-

⇒ Press the red lever on the left steering arm handle downward (see Fig. 3)

The sweeping machine starts up.

⇒ Release the red lever on the left steering arm handle.

The lever flips upward and the sweeping machine stops moving.

4.2.4 Switching the sweeping brushes on and off

CAUTION!

Danger of injury due to the machine falling when switching on the sweeping brush drive.

When switching on the sweeping brush drive the sweeping machine moves toward the operator.

Therefore:

- Bear in mind that the sweeping machine moves toward you when switching on the brush drive!

or:

- First switch on the traction drive of the sweeping machine, and then switch on the sweeping brush drive.





- Comply with the requirements imposed on operating personnel (see section 1.4).

⇒ Press the lever on the right steering arm handle downward (see Fig. 3).

The sweeping brush starts to rotate.

⇒ Release the lever on the right steering arm handle.

The lever flips upward, the rotation of the sweeping brush stops.

4.2.5 Side adjustment of the sweeping brush

To brush the sweepings to one side, the sweeping brush can be positioned diagonally.

- ⇒ Lift the handle of the swing support for the side adjustment, so that the locking comb disengages from the support eye (see Fig. 3, page 16 and Fig. 9, page 22).
- ⇒ Pull the handle of the swivel support to the rear to sweep to the right, slide it to the front to sweep to the left.
- ⇒ Place the handle of the swivel support at the desired position so that the locking comb re-engages in the support eye.

5 Maintenance and repair



Execution of maintenance and repair tasks requires specialised skills and an equipped workshop.
As the manufacturer we prescribe that these tasks must be performed in a qualified workshop!

5.1 Safety guidelines for maintenance and repair



Prior to maintenance always comply with the instructions in the “Safety” chapter as well (see chapter 1).

WARNING!

If other persons unexpectedly start up the sweeping machine, there are a number of injury hazards.
Therefore:

- Unplug the spark plug connector for maintenance tasks.



WARNING!

Danger of injury due to dismantled protective devices and safety devices.

If protective devices and safety devices are dismantled they no longer fulfil their function.

Therefore:

- Always remount protective devices and safety devices after they have been dismantled (for example, for service and maintenance purposes).



WARNING!

The sweeping machine poses significant hazards for non-specialised persons.

Therefore:

- Only have maintenance and repair tasks executed by the specialist dealer. This particularly applies for maintenance and repair tasks on the motor and V-belt drives.



DANGER!

Use of inferior-quality spare parts can result in injury and material damage.

The use of spare parts other than original spare parts or other than spare parts and accessories approved by the manufacturer voids the liability for the ensuing consequences.

Therefore:

- Only use original spare parts and accessories that are approved by the manufacturer.
-



ATTENTION!

Improper maintenance can damage the sweeping machine.

Therefore:

- Only have maintenance and repair tasks executed by the specialist dealer.
 - This also applies for replacement of the sweeping brush.
-

5.2 Regular maintenance tasks

For maintenance tasks that affect the motor refer to the documentation provided by the motor manufacturer.

Contact your specialist dealer for maintenance tasks that must be executed by a specialist.

5.2.1 Maintenance schedule

Interval	Activity	see
Before each use	Check the motor oil level	Operating manual provided by the motor manufacturer
	Check the Bowden cables for ease of movement	5.2.3
	Visual inspection of the sweeping machine for damage, particularly ignition cable and spark plug connector	
	Check tyre pressure	5.2.4
as needed	Clean the sweeping machine	5.2.5
	Check and clean the air filter	5.2.6

5.2.2 Maintenance records

Enter the executed maintenance tasks in the table provided for this purpose. (See section 5.3, page 36). This makes the maintenance history traceable.

For more extensive records concerning tasks performed on the sweeping machine we recommend that you keep a separate list.

5.2.3 Checking the Bowden cables for ease of movement

WARNING!

Bowden cables that do not move easily can cause uncontrolled movements of the sweeping machine, severe injury and material damage.

Therefore:

- If the Bowden cables do not move easily, do not place the sweeping machine in service.
 - Contact your specialist dealer and have the sweeping machine repaired.
-



Bowden cables for traction drive and brush drive

- ⇒ Press down the switch lever for traction drive.
You must be able to push down the switch lever to the steering arm handle with light resistance.
- ⇒ Release the switch lever for the traction drive.
The switch lever must spring back into its original position.
- ⇒ Repeat the procedure with the switch lever for the brush drive.
- ⇒ Have the repair performed by your specialist dealer if one or both switch levers are hard to move or do not spring back into their original position.

Bowden cable of the fuel control lever

- ⇒ Place the fuel control lever on "Max".
- ⇒ Place the fuel control lever on "Min" and in this process observe the counter lever on the carburettor (see the operating manual provided by the motor manufacturer in the sub-package of the sweeping machine).

You must be able to move the fuel control lever with light resistance. The counter lever on the carburettor must follow the executed movement.

- ⇒ Have the repair performed by your specialist dealer if the Bowden cable does not function as described above.

5.2.4 Checking the tyre pressure

The inflatable tyres of the sweeping machine have conventional automobile valves.

⇒ Set the tyre presser of the drive wheels to 1.8 bar.

5.2.5 Clean the sweeping machine

ATTENTION!



Cleaning the sweeping machine with a high-pressure cleaner can damage the seals, bearings, and joints of the sweeping machine.

Therefore:

- Do not clean the sweeping machine with a high-pressure cleaner
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Clean the sweeping machine as needed with a soft water spray and auto care agents.

After snow removal tasks the sweeping machine must be cleaned of adhering snow and road salt.

5.2.6 Checking and cleaning the air filter

If you use the sweeping machine in a dusty environment, have your specialist dealer show you how to check the air filter.

5.3 Maintenance and repair verifications

[illegible]

6 Decommissioning and preservation

Contact your dealer if you have questions concerning decommissioning and preservation.

7 Faults and fault correction



WARNING!

Danger of severe injury due to improper execution of repair tasks.

Therefore:

- Only have repair tasks performed by your specialist dealer.

If there are faults in the operation of the sweeping machine, proceed on the basis as specified in the fault table below. If there are faults that cannot be corrected based on the instructions and measures cited for fault correction, contact your specialist dealer.

Fault	Possible cause	Measures
The sweeping machine does not start up.	Fuel control lever is not in "Max" (choke) position.	Place the fuel control lever in the "Max" position.
	Spark plug connector is pulled off.	Fit on the spark plug connector.
	No fuel in the tank.	Fill with fuel.
	Gas cock is closed.	Open gas cock.
Often the sweeping roller sticks.	Bowden cable is not correctly adjusted.	Contact the specialist dealer.
The sweeping machine does not move straight ahead.	Air pressure varies in the tyres.	Correct the air pressure in the tyres.
	Freewheel units of the wheel drive do not work synchronously.	Synchronise the wheel drive through a short, forceful pull on the steering arm.
Snow has settled between sweeping brush and machine axle.	The snow is too deep.	Do preliminary work with the clearing blade or sweep a second time.
	The snow is wet and has clogged the brush.	Use 8x2 poly brushes.

8. Accessories

8.1 Sweepings collection bin

An optionally available plastic sweepings collection bin is mounted by fitting it on the pin on the sweeping brush deck (see Fig. 3).

8.2 Snow chains and clearing blade

For winter service the sweeping machine can be equipped with snow chains and clearing blade.

8.3 Sweeping brushes for winter service

Sweeping brushes with 8x2 poly bristles are particularly well-suited for winter service, because they do not absorb water and the bristles of the double brush rows support each other. Thus additionally a good "throw effect" is produced.

9 Specialist dealer

Your specialist dealer is available for the ordering of spare parts, for maintenance and repair tasks, as well as for problems and questions.

Telephone:

10 Declaration of Conformity

EC Declaration of Conformity

in accordance with Machinery Directive 2006/42/EC Annex II A

As the manufacturer, we hereby declare that the machine designated below, in its concept and design, and in the version that we have placed on the market, complies with the essential health and safety requirements of EC Directive 2006/42/EC. If the machine is changed without our approval this declaration loses its validity.

Designation: **Limpar 72 sweeping machine**

Types: **FKV-G3; FKV-G5** (different motors)

Manufacturer:

Company: **4F Maschinentechnik GmbH**

Address: **Am Gasspeicher 6
49453 Rehden**

Agreement is declared with the following additional directives that apply for the machine:

Electromagnetic Compatibility (2004/108/EC)

Harmonised standards applied:

DIN EN 12100-1, DIN EN 12100-2, DIN EN ISO 13849-1, DIN EN ISO 14121-1

Other national technical standards and specifications applied:

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Person authorised to compile the technical documentation:

Wolfgang Freer (address: see the address of the manufacturer)

Wolfgang Freer, Managing Director