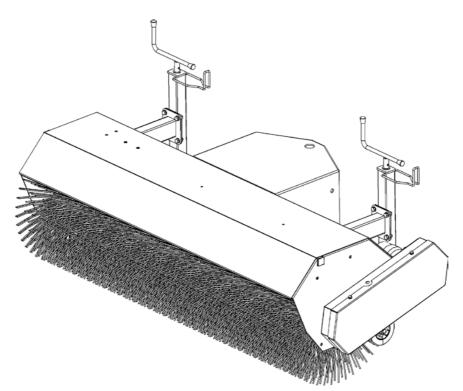


Original operating instructions

KM 45 series

KM 11545 H-ABR 45 / KM 11545 M-ABR 45 KM 13045 H-ABR 45 / KM 13045 M-ABR 45 KM 15045 H-ABR 45 / KM 15045 M-ABR 45



Order number: B00032 From machine No.: Rev.: R01 Data: 19.06.2013



Manufactures by **Kersten Arealmaschinen GmbH** Empeler Straße 95 D - 46459 Rees www.kersten-maschinen.de



Distributed in UK by

Kersten (UK) Ltd Tel. 0118 986 9253

Progress House 39 Boulton Road

Reading, RG2 0NH

www.kerstenuk.com - info@kerstenuk.com





Table of Contents

1 In	troduction	4
2 Al	bout this manual	5
2.1 2.2	BEFORE COMMISSIONING	
3 Sa	afety instructions for attachments	6
3.1 3.2 3.3	INTENDED USE	6
4 Di	isposal	10
5 W	/arranty	10
6 Re	ecommendations Error! Bookmark not d	efined.
6.1 6.2	LUBRICANTSError! Bookmark not defined. MAINTENANCE AND REPAIRError! Bookmark not defined.	
7 As	ssembly	11
7.1 7.2 7.3 7.4 7.5	CONSTRUCTION OF THE FRONT TURNING MACHINE	11 13 13
8 Se	ervice	17
8.1 8.2 8.3	OPERATING INSTRUCTIONS - SWEEPING MACHINE CONTAINER - ADJUSTMENT	17
9 Ma	aintenance	19
9.1 9.2 9.3 9.4 9.5 9.6	GENERAL MAINTENANCE INSTRUCTIONS DAILY TESTING	19 19 19 20
10 Te	echnical specifications	22
10.1 10.2 10.3	DELIVERY SERIAL	22
11 E	G – Declaration of conformity	23



1 Foreword

Dear Customer,

Thank you for choosing a quality product from Kersten.

This product has been manufactured according to the most up-to-date production methods and extensive quality assurance measures, because only when you are satisfied with your device, our goal is reached.

Before using this machine or implement for the first time, read these operating instructions completely and conscientiously.

Keep this manual handy. If necessary, you can then read important information and instructions.

Have fun with your Kersten device wishes you

Dip.-Ing. (FH) Robert Bosch

R. Bosch

Management



2 About this manual

The machine or implement is subject to technical progress. All information, illustrations and technical data are up-to-date at the time of publication. Changes in the sense of technical progress are reserved to the manufacturer at any time.

2.1 Before commissioning



As self-propelled implements and implements are subject to considerable accident or danger sources if not used properly, the first time the Kersten implement is commissioned, it must be instructed by competent and authorized persons absolutely necessary. The best way to familiarize yourself with its basic functions and its handling is to choose a free and level terrain for your first trip.

· You reduce the risk of accidents on your part or third parties!

For further information and difficulties of any kind, please contact the dealer, importer or directly to the manufacturer.

- Be sure to read the safety instructions on the following pages!
- · Read the operating instructions before commissioning!
- Pass on all safety instructions to other users!

2.2 Notes on this operating manual

Enumerations are marked with eye-catching points.

Example:

- Text
- Text

Instructions are marked according to the order in which they are to be carried out.

Example:

- 1. Text
- 2. Text



3 Safety instructions for attachments

The most important safety instructions in this manual can not cover all possibilities. It goes without saying that common sense and caution are factors that are not built into a machine but must be brought by the person who uses and maintains the machine.

In order to keep the accident risk as low as possible, please observe the following subchapters.

3.1 Intended use



- The sweeper has been developed for sweeping on paved surfaces, sidewalks and facilities for the usual or common use in the area of area care.
- Any other use is considered improper use. The manufacturer is not liable for damage resulting from this, the risk being solely borne by the operator.
- Proper use also includes compliance with the operating, maintenance and service conditions specified by the manufacturer.
- The attachment may only be used, maintained and repaired by persons who are familiar with it and have been informed of the dangers.
- The relevant accident prevention regulations as well as the other generally recognized safety and occupational health rules must be observed.
- Unauthorized modifications to the machine lead to the exclusion of liability of the manufacturer for the resulting damage.

3.2 General safety and accident prevention regulations

3.2.1 Basic rules



- In addition to the instructions in this operating manual, observe the general valid safety and accident prevention regulations!
- The implement must not be operated by persons under the age of 16, not even under the supervision of an adult! Children and adolescents should be instructed, not to play with it.
- Only trained personnel or persons may use this machine!
- When using public transport, observe the relevant regulations!
- The clothing of the user should be tight. Avoid loose-fitting clothing and wear sturdy shoes or safety shoes!
- Only work in good visibility and light conditions!
- The attached warning and information signs provide important information for safe operation; the attention serves your safety!
- Beware of oscillating brushes keep safety distance!
- Be careful with trailing machine parts. Wait for work on these until they are completely stopped!
- There are crushing and shearing points on driven parts!
- Driving behavior, steering and, if applicable, braking capability and tilting behavior are influenced by mounted or attached implements and load. For this reason, only implements approved by the manufacturer may be used. The working speed must be adapted to the respective conditions.
- Unauthorized conversions that endanger the operational safety of the machine are prohibited!
- Check the machine for operational safety before each use!
- · Never remove or change protective devices!
- Never go under the unsecured device for repair or inspection



3.2.2 Occupational and danger area



- The user is responsible to third parties in the work area!
- Staying in the danger area of the machine is prohibited!
- Before switching on the implement and starting, check the near area. Pay special attention to children and animals. Ensure sufficient visibility!
- Before starting work, foreign bodies should be removed from the surface to be worked. Pay attention to other foreign objects during work and eliminate them in good time.
- When working in enclosed areas, the safety distance to the border must be maintained so as not to damage the machine or brushes.
- When working in the immediate vicinity of public roads and paths, these should not be approached longitudinally if possible, but as far as possible, because this is the
- · Risk of injury to third parties by flying objects minimized.
- When working on public roads and squares or in the immediate vicinity, warning and danger signs should be set up in order to attract the attention of third parties.

3.2.3 Before starting work



 Before starting work, please familiarize yourself with all equipment and actuators and their function and make sure that all safety devices are properly grown and in protective position. During the work assignment it is too late!

3.2.4 During operation



- Never leave the control room while driving!
- Do not leave the operating station until the brushes of the attachment come to a standstill!
- During operation do not make any adjustments to the attachment risk of accident! The transportation of persons and objects is prohibited!
- If, for example, the attachment has caught a foreign object and blocked it, stop the engine and clean the attachment with a suitable tool! at
- Interventions or cleaning of the attachment always switch off the engine! You're welcome
- Observe the safety instructions of the self-propelled implement.
- If the self-propelled implement or attachment is damaged, stop the engine immediately and have the damage repaired.

3.2.5 Leaving the machine

- By using wheel chocks or, if necessary, by the parking brake, secure the machine from rolling away when leaving the vehicle.
- · Secure the device against unauthorized use!
- Never leave the appliance unattended while it is still in operation!

3.2.6 Screw connections and tires



- When working on the wheels, make sure that the device is safely parked and secured against rolling away!
- Check nuts and bolts regularly for tightness and tighten if necessary.
- Repair work on the tires may only be carried out by qualified personnel and with a suitable assembly tool!
- At too high air pressure of the tires exists
- Risk of explosion!
- Check the air pressure regularly.



3.2.7 Coupling and uncoupling attachments



- Only connect and disconnect implements with the engine switched off and the PTO switched off.
- When changing attachments and their parts, use suitable tools and wear gloves.
- When mounting and dismounting, bring the required support equipment into the respective position and ensure sufficient stability.
- Secure the self-propelled work machine and the attachment to prevent it from rolling (parking brake, wheel chocks).
- When attaching attachments, there is a risk of injury (crushing). Special care is necessary.
- Attach implements according to regulations and fix at the prescribed places.

3.2.8 Maintenance, cleaning and repair work



- Only carry out maintenance and cleaning work with the drive switched off and the motor stationary!
- If guards and working tools are subject to wear, these must be checked regularly and replaced if necessary.
- Only use original spare parts from the manufacturer, as these meet the technical requirements and thus the risk of accidents is minimized!
- Cleaning with the high-pressure cleaner should be carried out in such a way that the water jet is not directly in storage, turned parts, grease nipples, shaft seals, wheel hubs
- Etc. is held. After each cleaning with the high-pressure cleaner, the lubricating be greased. In the case of infringement, the right to guarantee expires!
- Check the moving parts for ease of movement and if necessary grease them!
- After maintenance and cleaning work, be sure to replace the guards and put them in the protective position!



- To avoid the risk of fire, keep the machine clean!
- Check nuts and bolts regularly for tightness and tighten if necessary.
- During maintenance, cleaning and repair work on the raised device always make sure that it is protected by suitable support elements!
- Before doing any repairs, make sure the hydraulic system is depressurized, because fluids under pressure can penetrate the skin and cause serious injury
- cause! Therefore, seek medical attention immediately risk of infection!
- Repairs may only be carried out by qualified personnel.
- Check hydraulic hose lines for damage and aging at regular intervals and replace if necessary.
- When carrying out welding work on the tractor or on the mounted implement, disconnect the hattery
- Repair work such as welding, grinding, drilling, etc. must not be carried out on load-bearing and other safety-related parts such as frames, axles, etc.!



3.3 Used pictograms

Explanation of the pictograms used:



Before commissioning read and observe the operating instructions and safety instructions.



Never open or remove protective devices while the engine is running!



Follow the instructions in the technical manual. Smudge!



Touch machine parts only when they have come to a complete stop.



Danger from passing parts while the engine is running - keep safety distance!



4 Disposal

The equipment must be disposed of in accordance with local, state, or local regulations.

Depending on the material, you can dispose of the parts in the form of residual waste, special waste or recycling. The company Kersten Arealmaschinen GmbH assumes no disposal.

5 Warranty

The device is accompanied by a sales message, which among other things determines the time for the start of the warranty period. When selling the device, please complete the sales message completely and send it back to us within 14 days. If warranty claims are asserted without us having received a sales notice, no warranty service will be provided.

Warranty claims should be submitted promptly, but no later than six weeks after the occurrence of the damage, giving details of the purchase data, otherwise no warranty service will be provided. Complaints must be confirmed by the company Kersten Arealmaschinen GmbH. Wear parts are excluded from the warranty. Furthermore, the warranty expires due to improper operation, when performing no or incorrect maintenance work, when using inadmissible equipment and when using non-original spare parts.

6 Recommendations

6.1 Lubricants

For engine and gearbox, use the specified lubricants (see under "Technical data").

For "open" lubrication points or nipple points, we recommend to use bio lubricant oil or bio lubricant grease. With the use of bio lubricant you act ecologically correct, protect the environment and promote the health of people, animals and plants.

6.2 Fuels

The built-up B & S or Honda engine can be easily operated with commercial unleaded normal and premium gasoline and leaded premium gasoline.

Do not add oil to the gasoline.

If unleaded petrol is used for the environment, engines that are to be decommissioned for more than 30 days should have their fuel drained completely to avoid resin residues in the carburetor, fuel filter and tank, or to add a fuel stabilizer to the fuel.

6.3 Maintenance and repair

Your dealer has trained mechanics who perform proper maintenance and repair. You should only carry out major maintenance work and repairs yourself if you have the appropriate tools and knowledge of machines and internal combustion engines.



7 Installation

7.1 Attachment of the front sweeper

Danger!

Severe injuries to the operator or third parties may occur.

Switch off the tractor and remove the ignition key before mounting or dismounting the mounted sweeper.

Depending on the design of the front hydraulics, hook the sweeper into the tractor implement triangle or the two-point mounting, whereby the connecting parts may have to be adjusted for the sweeping machine to the desired lifting height for the first time.

For easier attachment and removal of the sweeper, we recommend the two additional side parking supports with wheels (optional).

7.2 Cultivation of a KM 11545;13045; 15045 H-ARB/ M-ARB 45

Depending on the tractor type, the delivered PTO shaft may be too long. In this case, it must be shortened according to the following steps.

Attention!

Damage to the attachment or to the tractor may occur. Use only the supplied PTO shaft.

Note!

When installing the PTO shaft, also pay attention to the original instructions supplied by the PTO shaft manufacturer.

Instructions for shortening and assembling the PTO shaft

Shortening the PTO shaft

- 1. Pull apart the cardan shaft halves.
- 2. Install one end of the PTO shaft on the tractor.
- 3. Attach the other end of the PTO shaft to the attachment.

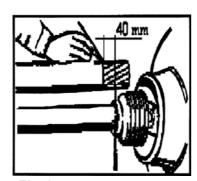


Fig.1

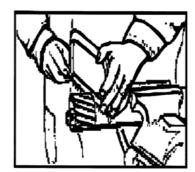
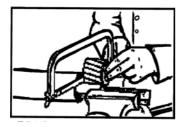


Fig.2

- 4. In the shortest working position, mark the piece to be sawn on one half of the PTO shaft. (Fig. 1)
- 5. Cut off the universal shaft guard to the mark. (Fig. 2)





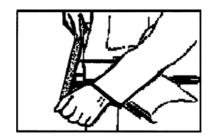


Fig.3 Fig.4

- 6. Saw off the profile tube. Attention: the profile tube must be 10 mm longer than the protection. (Fig. 3)
- 7. Repeat steps 4. 6. on the second PTO shaft half.
- 8. Deburr all cut edges. (Fig. 4)

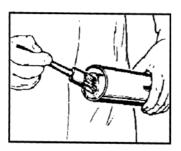


Fig.5

- 9. Grease the profile tubes (Fig.5)
- 10. Slide the profile tubes together.

Mount PTO shaft

- 1. Press and hold the locking pins on the outer forks.
- 2. Slide the outer fork onto the PTO stub shaft.
- 3. Release the locking pin.
- 4. Move the PTO shaft back and forth until the locking pin clicks into place.

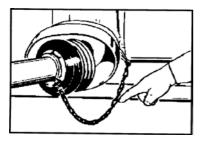


Fig. 6

5. Hook the drive shaft safety chains to a fixed part on the tractor and the implement. Fig.6)



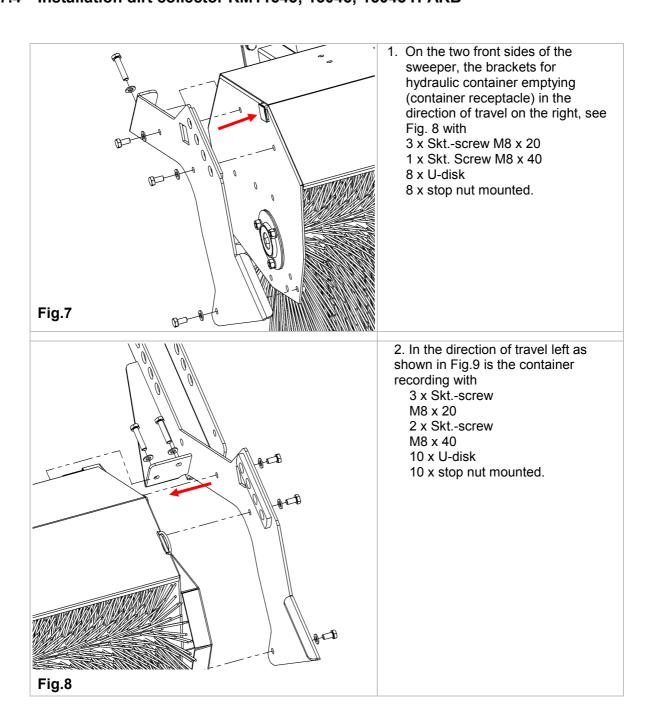
7.3 Cultivation KM11545; 13045; 15045 H-ARB/ M-ARB 45

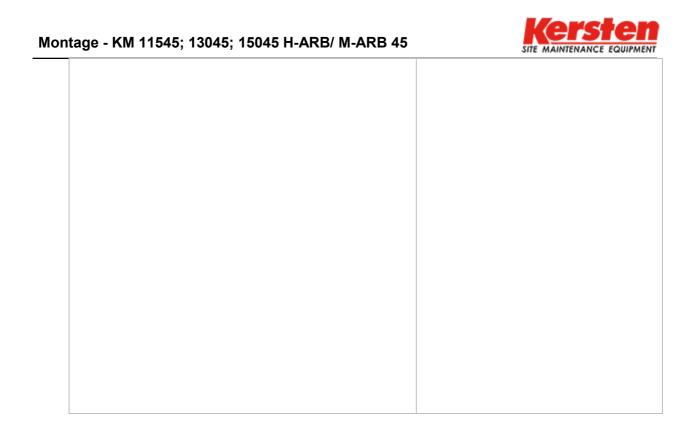
Insert the two hydraulic lines (supply and return) for the sweeper drive into the hydraulic sockets on the tractor.

For machines equipped with a hydraulic swivel device, insert the two hydraulic hoses into the hydraulic sockets provided on the tractor.

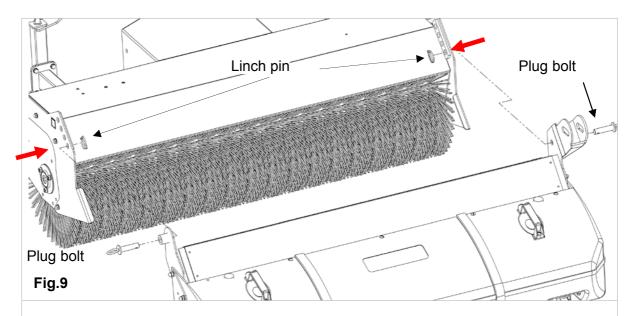
Pay attention to the cleanliness of the plug-in couplings!

7.4 Installation dirt collector KM11545; 13045; 15045 H-ARB

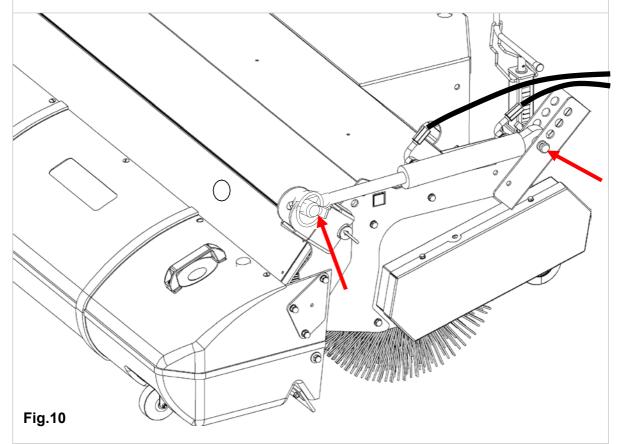








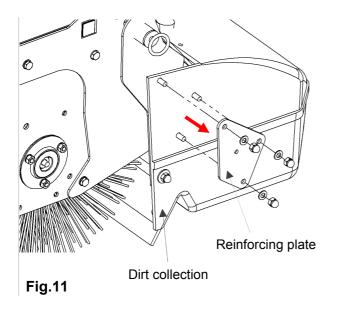
3. Hook the dirt collector (with new sweeping roller) with the two locking pins, see Fig.9 left and right into the lower bore of the container holder and secure with linch pins. Depending on the wear of the sweeping roller, use the other holes according to the operating instructions.



- 4. Install the hydraulic container emptying with the two locking pins, see Fig.10 and secure with hinged pins.
- 5. Couple the hydraulic hoses into the hydraulic sockets provided for this purpose on the tractor.



7.5 Installation side brush KM 11545; 13045; 15045 H-ARB



 Dismount the reinforcement plate, 3 cap nuts and washers from the dirt collector, see Fig.11

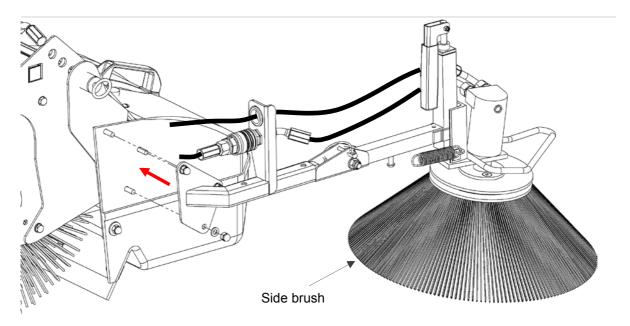


Fig.12

2. The reinforcement plate is replaced by the side brush arm and screwed on with the cap nuts and washers.



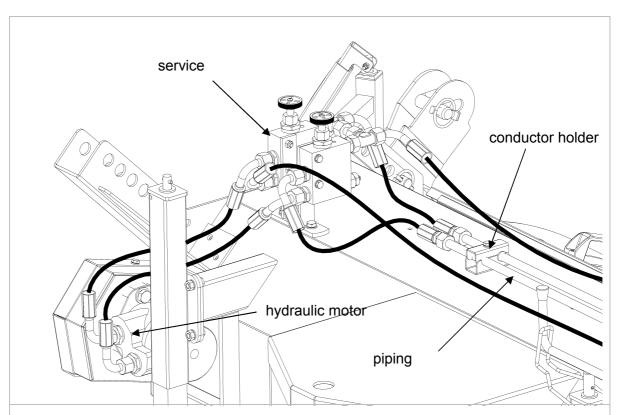


Fig.13 in the direction of travel left

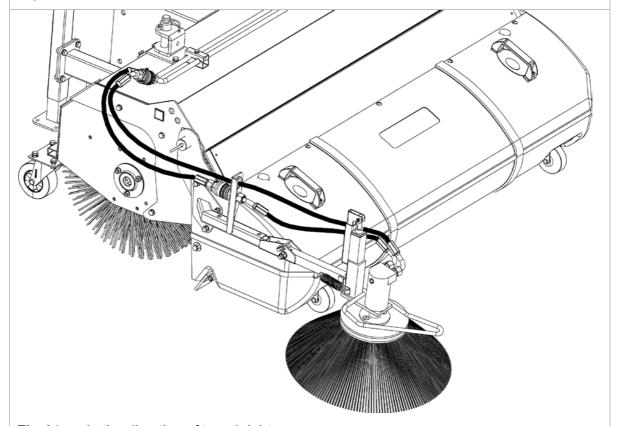


Fig.14 in the direction of travel right

- 3. Fix the line holders, piping and control valves in the holes provided.
- 4. Install the hydraulic hoses as shown.



8 Operation

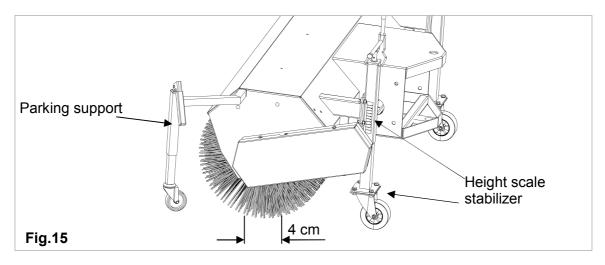
8.1 Operating instructions - Sweeper

Adjust the two support wheels by means of the turning handles in such a way that the sweeping roller pushes off a strip approx. 4 cm wide, see Fig.15 on the floor. It is important to pay attention to the same setting of the two support wheels according to the marking on the scale graduation!

Note: A sweeping roller set too tight will not produce better sweeping results.

Attention: Never store the sweeper on the broom.

For easier storage and installation of the sweeper, we recommend the additional two support wheels, which are available as special accessories.



If the sweeper is equipped with bin and side brush, but is used without this accessory, put the side brush drive in circulation.

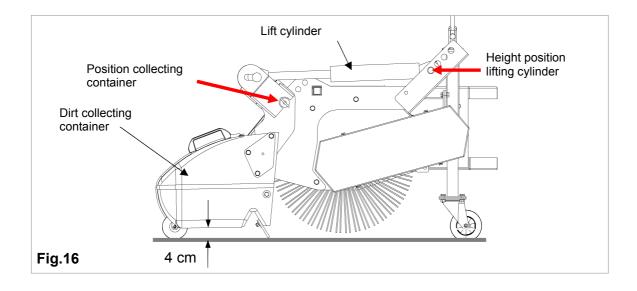
Attention: Otherwise the hydraulic oil may overheat.

8.2 Tank setting

Adjust the dirt collector so that the bottom edge is at least one Ground clearance of 4 cm has.

Attention

Carefully adjust in very uneven ground conditions! Better too high than too deep.



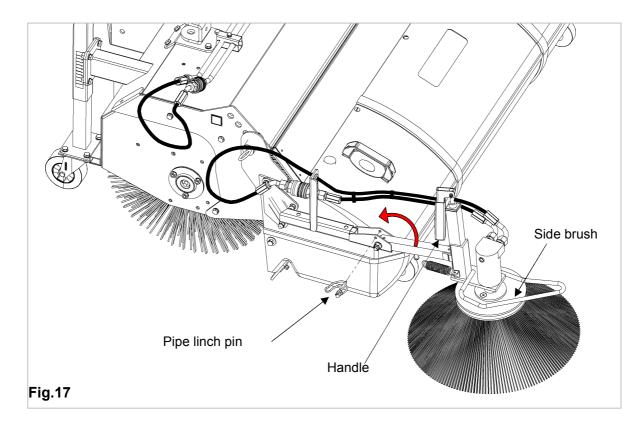


8.3 Side brush - setting KM 11545; 13045; 15045 H-ARB H

Please do not adjust the side broom until the main broom and the dirt collector are set. Set the side brush over the handle so that it completely sweeps out the corners to be cleaned. If the side broom is not in use, fold it up and secure it with a tube clip, see Fig.17 (storage position at the same time).

Place the hydraulic hoses on the side brush and on the control valve in circulation, see Fig.17.

Attention! Do not let the side brushes run when folded up! Risk of accident!





9 Maintenance

9.1 General maintenance instructions



- Failure to do so may result in injury to persons or damage to the machine. Before each use
 of the machine check all
- safety-relevant parts.
- The machine must be regularly serviced.
- Repairs, maintenance and cleaning work as well as the elimination of malfunctions must only be carried out with the implement disconnected.
- During all work, the machine must be secured against rolling or tipping by taking suitable measures.
- Regularly check nuts and bolts for tightness and retighten if necessary.
- Only use original spare parts from the manufacturer!
- Check all bolt and bolt connections after the first 5 hours of operation.
- Once all work has been completed, all disassembled protective devices must be properly replaced.
- Lubricate or lubricate all moving parts. *

9.2 Daily exam

- · Check the tools for tightness.
- Check the safety elements and moving parts for wear before each use.
- Perform a test run before each use.
- · Clean the device after each use.

9.3 Maintenance after 20 operating hours or longer downtime

- At regular intervals and always at the beginning and end of the season, the moving parts of the unit must be greased or oiled.
- Lubricating nipples are located in the wheel receivers and in the bearing pin of the connection mount, these lubricate regularly.
- Lubricate the attachment of the attachment regularly.
- When changing the transmission oil, replace the first oil after 50 operating hours.
- Further oil change maintenance after approx. 500 operating hours or once a year

9.4 Storage

If the machine is not used for a long time, the following measures are recommended:

- 1. Carry out cleaning
- 2. Check the function of all parts
- 3. Check all screws and bolts for tightness and retighten them if necessary.
- 4. Replace worn or damaged components, only use original Kersten spare parts!
- 5. Regrease lubrication points (=> grease nipple)
- 6. Subordinate machine
 - To prevent corrosion, protect the machine from weathering. Do not place the machine in damp rooms, stables or artificial fertilizer warehouses.
- 7. Cover the machine with a cloth or similar.



9.5 Faults and their rectification



This chapter describes in more detail the most important faults that can occur during operation on the sweeper. Faults which require major intervention must always be rectified by your specialist workshop.

Malfunction:	Possible causes:	Remedy:	
Hydraulic motor does not turn	Internal combustion engine is not running.	Start combustion engine.	
	Hydraulic PTO not switched On.	Switch on hydraulic auxiliary drive.	
	Hydraulic hoses not connected.	Connect hydraulic hoses.	
	Hydraulic connector not engaged.	Check hydraulic connector, insert if necessary unit it clicks into place.	
	No Hydraulic fluid in the Hydraulic tank.	Add hydraulic fluid to the hydraulic tank.	
Brushes do not not come on tours	Speed set too low.	Increase speed.	
	Hydraulic fluid too low.	Hydraulic fluid in the hydraulic tank Refill.	
	Leakage on the hydraulic hoses.	Replace hydraulic hoses.	
	Leakage at the hydraulic connectors hydraulic connectors.	Release hydraulic connector and insert again until it clicks into place. Should leakage continue; Check hydraulic connector and replace if necessary.	
	Leakage at the hydraulic screw connection.	Slightly loosen the hydraulic screw connection, move the hose slightly and tighten the hydraulic screw connection again.	
	Contract pressure on the work surface too large	Align the machine higher so that the brushes are relieved.	
Height adjustment stiff	Threaded spindle dirty.	Release lever unscrew jockey wheel. Clean spindle and jockey wheel and grease	
	Pickup dirty, adjusting screw screwed in too far.	Remove dirt from the receiving socket and the pick-up tube and then grease them fresh.	
Debris remains lying/ does not sweep clean	Driving speed too high Broom speed too high/too low	Adjust sweeping roller height	



9.6 Installing the sweeping roller

(Fig.18)

- In the direction of travel on the right, remove the tension rod (D) with the K-washer (E) from the sweeper's basic housing.
- Loosen the three nuts (A) with the respective spring ring (B) and pull out the drive stub (C) with bearing shells.
- Take out the drive tube (F), insert the broom brush [two-part] (G) into the machine.
- Then reassemble the drive tube in reverse order with the drive stub and the tension rod.

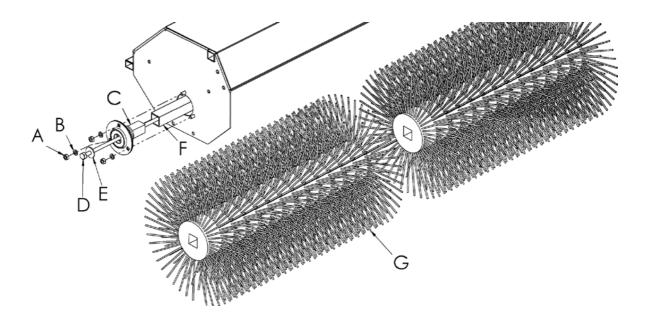


Fig.18

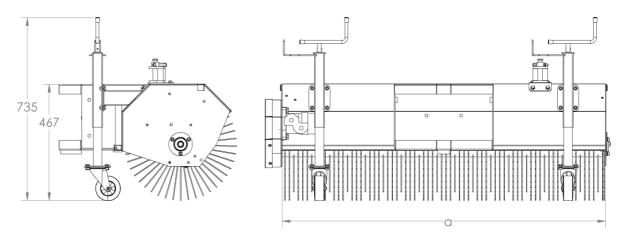


10 Technical specifications

Туре	KM 11545 H-ARB 45	KM 13045 H-ARB 45	KM 15045 H-ARB 45
Working with a	115 cm	130 cm	150 cm
Sweeping roller diameter	45 cm	45 cm	45 cm
Drive	hydraulic	hydraulic	hydraulic
Mass	91 kg	114 kg	115 kg
Hydraulic oil	Avia N 46	Avia N 46	Avia N 46
Amount of oil	ca. 11.5 Liter	ca. 11.5 Liter	ca. 11.5 Liter

10.1 Dimension sheet

For dimensions for working with a, refer to table, chapter 10.



10.2 Scope of delivery as standard

- Combined rotary roller with poly-twist trim, five-row
- KM 13045: infinitely variable hydraulic drive

10.3 Additional equipment

- · height-adjustable double-sided support wheels
- · hydraulic pivoting device
- Rubber splash flap
- · Water sprinkler with 100 liters or 200 liter container
- Dirt collecting container with hydraulic container emptying
- Surface-mounted side brush 40 cm Ø mechanically driven
- Surface-mounted side brush 40 cm Ø hydraulically driven
- further sweeping rollers on request
- Sprocket for speed increase (snow sweeping)



11 EG – Konformitätserklärung CE Déclaration de conformité

CE Déclaration de conformité EC Declaration Conformity EG conformiteitsverklaring,0

D	F	GB	NL					
Wir	Nous	We	Wij					
Kersten Arealmaschinen GmbH Empeler Straße 95 D- 46459 Rees								
erklären, dass das Produkt	déclarons que le produit	herewith declare that the product	verklaren dat het produkt					
Frontkehrmaschine	Balayeuse de front	Front sweeper machine	Frontveegmachine					
KM 11545; 13045; 15045 H-ARB/ M-ARB 45								
mit allen einschlägigen Bestimmungen der EG-Maschinenricht- linie 2006/42/EG in Übereinstimmung ist.	satisfait à l'ensemble de la directive machines 2006/42/CE.	fulfiles all relevant provisions of Directive 2006/42/EC.	voldoet aan alle toepasselijke be- palingen van EG- Machinerichtlijn 2006/42/EG.					
Die Maschine ist auch in Übereinstimmung mit allen einschlägigen Bestimmungen der fol- genden EG-Richtlinien:	Cette machine satisfait également à toutes les dispositions pertinentes des directives CE suivantes:	The machinery is also in compliance with all relevant provisions of the following EC directives:	De machine is ook in overeenstemming met alle toepasselijke bepaligen van de vol- gende EG- richtlijnen:					
Weiterhin wurden folgende Normen angewendet:	En outre, les normes et spécifications techniques suivantes ont été utilisées:	The following harmonised standards apply:	Volgende geharmoni- seerde normen warden gehanteerd:					
	EN ISO 12	100:2010						
Herr	Monsieur	Mr.	De heer					
Dipl. Ing. (FH) Robert Bosch Empeler Straße 95 D- 46459 Rees								
ist bevollmächtigt die technischen Unter- lagen zusammen zu- stellen.	est autorisé à constituer la documentation Technique conformément à l'annexe VII A.	is authorised to compile the technical file according to Annex VII A.	is gemachtigd het technische dossier samen te stellen.					
Rees, 16.04.2014 R. Bosch Geschäftsführer	Directeur	Managing Director	Bedrijfsleider					



Distributed in UK by Kersten (UK) Ltd Tel. 0118 986 9253

Progress House
39 Boulton Road Reading, RG2 0NH
www.kerstenuk.com - info@kerstenuk.com