

Distributed By:

HOLDER

HOLDER TRACTORS INC.

Attachment for Holder Tractor
C250 / C270
C480 / C992

Easy Clean



Art.Nr.: 10041841

Owner's Manual
And Parts List for
Model #: EC 600
EC 800
EC 1200

**EC 600, EC 800, EC1200 Series
Easy Clean**

**For HOLDER Tractor
C250, C270, C480, C992**

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UNDERSTANDING THE MANUAL

Read, understand and follow all guidelines in this manual.
Some parts & guards have been removed for picture and Instruction clarity purposes.

This product has been designed and fabricated to deliver efficient and reliable service provided it is operated safely and maintained in accordance with the instructions in this manual.

This manual is provided as a guideline to the owner and operator(s) for the operation and maintenance of this attachment. The manual is based on the attachment at the time of manufacture and does not cover any after-market modifications.

The owner and operator(s) must ensure that they have read and have a clear understanding of this manual as well as the operator's manual for the tractor to which this attachment will be mounted. The efficient and safe operation of the unit depends on this understanding. Safety guidelines and recommendations should be adhered to by all users of this attachment.

Refer to the model and serial number when requesting parts or service. Enter your serial number and date of purchase in the space provided below.

MODEL NUMBER: _____

SERIAL NUMBER: _____

DATE OF PURCHASE: _____

MATCHING ACCESSORIES

| | | | |
|--|--------------------------------------|--|---|
| Unit Designation | EC 600 | EC 800 | EC 1200 |
| Unit designation (old) (Until 2012) | EC 200 | EC 300 EC 400 | EC 9000 |
| Fits Holder Equipment Present Carrier | C 2.42 C 245 C 250 / C 270 | C 3.42 / C3.58 C 4.74 / C 4.80 C 345 C 350 / C 370 M 480 | C 9.72H / C 9.78H C 9.83H / C 9.88H S 990 |

Note: The actual model number indicates the net volume of the waste container (in liters)

UNDERSTANDING SYMBOLS IN THIS MANUAL



Danger:
Warning: (explanation of each as per our standard)
Caution.



Attention:
Owner, Operator and Maintenance personel must adhere to these statements.



Information:
Important information regarding the operation of and location of Items on equipment.



Tips:
Information for easier operation.

SAFETY INFORMATION

Read all safety information in this manual.

General safety practices are listed on the safety information pages and specific safety information is located throughout this manual.

SAFETY SYMBOL



This is the **safety alert symbol**. It is used in the manual and on safety labels to remind operators and repair personnel of important safety practices and procedures. When you see this symbol, **become alert – your safety is involved. Safety is no accident!**

HAZARD DEFINITIONS

Three classifications of hazard are listed in this manual and on safety labels. In order of seriousness from the greatest to the least, they are:



DANGER: Indicates an immediately hazardous situation which, if not avoided, will result in death or serious injury.



WARNING: Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

IMPORTANT: Indicates that equipment or property damage could result if instructions are not followed.

Owners Responsibility:



The owner must insure that only trained and qualified personnel operates the equipment. The owner must be confident that the operator and maintenance personnel have clear knowledge of the mounting, operating, controls, weight limitations and repairing of all attachments.



The owner must insure that all operators and mechanical personnel have been trained properly on this equipment.

Operators Responsibility:



The operator must insure that all equipment is in safe working order!
The equipment must not be operated if not in proper working order!



Any unauthorized persons are not to be near/around the vehicle/device area while it is in operation!



All safety instructions and hazard warnings stickers must be kept in a legible state. You can purchase replacements from your distributor.

Accidents can be avoided by following these important precautions!



If there is risk to people and equipment, the equipment must immediately be taken out of service. Notify your service department!
ENGINE MUST BE TURNED OFF AND IGNITION KEY REMOVED!



Never do Maintenance Work while machine is running.
ENGINE MUST BE TURNED OFF AND IGNITION KEY REMOVED!
Refer to your internal Lock-Out procedure.



Never work in the vicinity of the machine in loose clothing.
They can get caught in moving parts.



Ensure that all guards and safety devices are in good condition and in their proper location before using the equipment.



De-Energize all Hydraulics and Energy from the equipment before doing any maintenance.
ENGINE MUST BE TURNED OFF AND IGNITION KEY REMOVED!



Always wear proper PPE and use certified equipment to service the machine.
I.e: Ladders, Hoists, Jack Stands etc.



Never overfill containers. Please refer to the Carrier Vehicle load capacity.(Axle load, Max. Total weight, GVR) Comply with your State, Provincial, and Local weight regulations.



Remember that the weight and the center of gravity changes as hopper or tank is filled.



As the center of gravity changes, **the vehicle can possibly roll over** at high speeds or on uneven ground. Adjust your driving style according to these potential dangers.

Never overfill the hopper especially when picking up heavy material like sand, gravel etc. Vehicle can tip.

Safety rules when handling hydraulic lines, couplings and parts:



Hydraulic lines are under very high pressures. Splashing oil can lead to injuries and or fires.



Depressurize all Hydraulic lines before installing or removing any lines. Refer to the Tractor manufacture manual.



Damaged hydraulic hoses must be replaced immediately.



Only certified personel are to service the Hydraulic Systems.



Manuals must be read by, understood by, followed by, and adheared to by, ALL Operating and Maintenance personel.



The information in the manual contains important care and operating instructions for your safety, as well as how to maintain the value of your units. It also gives you valuable tips and tools to work with.



All units need regular maintenance and all work must be performed by a professional only.



If anything is modified on the equipment, then the warrenty is null and void.

Safety Guidelines:

1. Prior to operation, the equipment should be thoroughly inspected and every operator should have a clear understanding of the potential dangers inherent with the operation of this equipment.
2. Children and equipment do not mix; do not allow children to play on or around equipment and work area.
3. Use extreme care and caution when approaching areas such as blind corners, playgrounds, and other busy or sight-obstructed spots.
4. Ensure all guards and covers are securely fastened and that all safety equipment and lights are functioning properly.
5. Wear appropriate clothing that cannot become entangled in the equipment's moving parts or accidentally snag a control lever.
6. Some attachments increase the swing radius of an articulated tractor, be sure of where your machine ends.
7. Before starting tractor, ensure that hydraulic and PTO drives are disengaged.
8. Do not attempt to service, repair or adjust any attachment on a machine that is running.
9. Do not modify or alter the attachment without consulting your dealer.

Safety before Operation:

1. Read and understand manuals for the tractor and attachments to be used. Know how to operate all controls and to stop the equipment quickly.
2. Ensure that all attachments are properly installed and fastened before operation.
3. Check the fittings and fasteners on tractor and implement. Perform any repairs or adjustments before starting machine.
4. Ensure that all safety decals are clearly visible and legible.
5. Ensure that PTO and hydraulic drives are disengaged before starting engine.
6. Tractors and attachments must be properly lubricated and adjusted at the beginning of each shift and at specified intervals thereafter.

Safety during Operation:

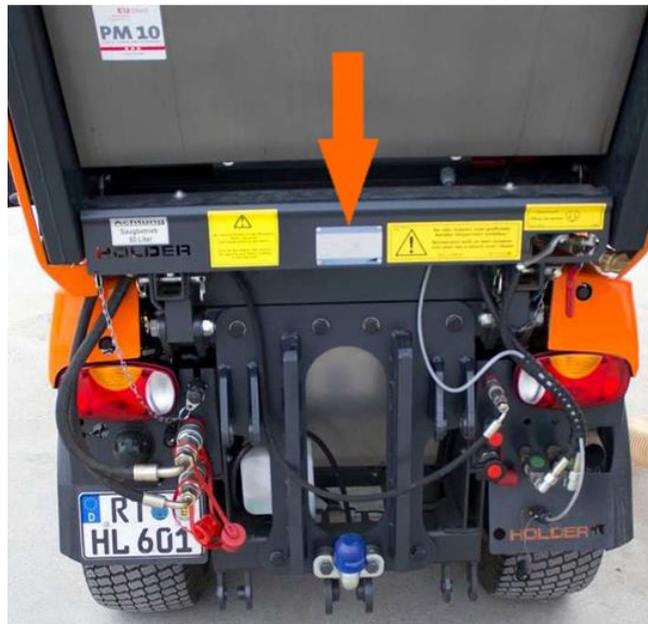
1. In order to avoid accidents, be familiar with the area of operation such as blind spots, driveway crossings, road crossings and other dangerous areas.
2. Do not carry passengers unless the machine is equipped for them.
3. Wear seat belt, eye and hearing protection while operating equipment.
4. Keep hands, feet, hair and loose clothing away from all moving parts of the engine, drive lines, chains, and other moving parts.
5. All chain covers and shields must be in place before operating equipment.
6. Always keep in mind people, pets, buildings, vehicles or other objects that can be damaged or hurt by flying debris. Always use the most effective speed for the operating conditions.
7. Yield to pedestrians in your work area, bring the tractor to a complete stop and turn off the attachment until it is safe to resume operations.
8. If you must leave the tractor during operation, disengage PTO/hydraulic drives, bring the machine to a complete stop, lower the implement, shut off the engine, set the parking brake and remove the ignition key.
9. Always operate the tractor within the manufacturer's recommended safety guidelines. Operate the tractor at speeds compatible with the working conditions.
10. Inspect the equipment after hitting a solid object to ensure that all aspects of the equipment continue to function properly.

IDENTIFICATION PLATE

| | | |
|--|----------------------|--|
| CE | | |
| Type: | <input type="text"/> | Baujahr: <input type="text" value="2010"/> |
| Fabr. Nr. <input type="text" value="101"/> | | |
| <i>Manufacturing No.</i> | | |
| www.kugelmann.com D-87675 Rettenbach a. A. Made in Germany | | Kugelmann |

The Identification Plate identifies the type of device, the year of construction, manufacturing number, and the manufacturer.

The Identification Plate is located at the tailgate of the vehicle.



SUITABILITY, APPLICATIONS and PERFORMANCE

1. This Suction Sweeper with its adjustable broom can pick up heavy grit, sand, cans, bottles, but also collects light material such as dust and leaves. It is particularly well suited for paved areas such as sidewalks, parking areas and roads.
2. The sweeper's brush area has water jets built-in that can be turned on to prevent dust clouds.
3. The brushes sweeping width of 1600 mm (63 Inches) to 1900 mm (75 Inches), coupled with an appropriate driving speed and proper positioning of the attachment will guarantee great performance.

SPECIALIZED, ADDITIONAL EQUIPMENT, and OPTIONS

1. An (optional) **Hand-Held Suction Wand** attachment easily picks up leaves, stone dust, sand & small debris etc. The suction tube's large diameter of 110 mm (4.5 inches) will help to prevent clogging. Simply moving a switch will transfer the tool's suction to the Hand-Held Suction Wand unit.
2. A light-duty **Weed Brush** is available as an optional attachment.
3. Another specialized tool is the **Storage Stand** designed to speed up and facilitate the removal of the Waste Container and the Water Tank. It assures that the tractor itself can become ready quickly for other tasks.

DESCRIPTION, SPECIAL FEATURES

1. The operation of this Kugelmann Suction Sweeper combination tool is simple yet extremely effective.
2. The articulated tractor can be transformed into a modern Suction Sweeper thanks to the adjustable sweeper unit (attached using a three-point hitch) and the waste container mounted above the engine.
3. From his seat, the driver is able to constantly monitor the transparent suction tube ("Trans-Rotation Tube") and its performance, regardless of whether the material to be swept up is sticky, wet, or bulky. A clamp ensures the tube can be quickly and easily attached to the right side of the vehicle. Additionally, the suction tube rotates 360 degrees, helping to prevent waste material from sticking or clinging to the tube.
4. The total width of the sweeper remains in full view of the driver and at all times. Two adjustable rotary brushes (available in different diameters and grades) and the suction port form the front end of the sweeper. Water nozzles with droplet stoppers, attached to the disk brooms, help to suppress dust. The rotary brushes are fitted with a bumper and bumper wheels to facilitate overcoming small obstacles. The suction mouth comes with a hydraulically operated bulk waste flap. The mouth of the suction port is equipped with a built in adjustable water nozzle for dust control.
5. The waste container with integrated water tank is optimally fitted to the tractor. They can be mounted and dismounted from the tractor very quickly thanks to a rapid change system. The 'dry-pump safe' water pump is a true high-mount discharge device (1.5 m)(4' 11") and together with the stainless waste container further attest to the advantages of this system. The powerful and silenced fan is further proof of its quality.
6. The entire front unit is controlled via  a Joy Stick.



TECHNICAL SPECIFICATIONS

| Model | Unit | EC 600 | EC 800 | EC 1200 |
|--|-----------|-------------------------|------------|------------|
| Rear Layout: | | | | |
| Waste Container-Volume, gross *2 | US GAL | 264 | 343 | 423 |
| Waste Container-Volume, net | US GAL | 145 | 212 | 317 |
| Overall Width | mm (inch) | 1225 (49") | 1375 (54") | 1375 (54") |
| Waste Container – Width | Mm (inch) | 1050 (41") | 1200 (47") | 1200 (47") |
| Overall Height (from bottom edge of Mounting rail *1 | Mm (inch) | 1170 (46") | 1170 (46") | 1170 (46") |
| Total Length | Mm (inch) | 1700 (46") | 1900 (75") | 2200 (86") |
| Dump height (from bottom edge of mounting rail *1 | Mm (inch) | 720 (28") | 720 (28") | 720 (28") |
| Water tank – volume | US GAL | 87 | 124 | 124 |
| Dead weight fan with container | Kg (lbs) | 480 (1058) | 610 (1344) | 750 (1653) |
| Fan: max power requirement (Q, max = 60 l/min | HP | 12 | 12 | 12 |
| Sound pressure level to DIN EN ISO 3744/2011 | Db (A) | 82 | 85 | 90 |
| Suction Sweeper Unit | | | | |
| Sweeping width (Broom v 800 | Mm (inch) | 1600 – 1900 (63" – 75") | | |
| Suction tube: mouth width | Mm (inch) | 450 (18") | 450 (18") | 450 (18") |
| Weight of Suction Sweeper (incl. Suction Tube) | Pound | 640 | 640 | 640 |

Information is provided without guarantee and is subject to change.

*1 Add the distance from the floor to bottom edge of the mounting rail in order to arrive at the overall vehicle height. (Varies with type of tractor and tires).

*2 Gross volume incl. vacuum fan assembly, suction tube.

ASSEMBLY and DISASSEMBLY of the UNIT



**IMPORTANT: ALWAYS READ AND OBSERVE THE GENERAL SAFETY INSTRUCTION FIRST!
(Supplied together with this manual)**



Assembly

Slowly position the back of the tractor underneath the waste container which must be in a raised position. Turn the manual winch of the mounting stand to lower the container slowly until the two bolts at the front bottom of the container mate with the tractor's mounting frame.

Continue lowering the container, using the winch, until two bolts can be inserted and secured at the back of the bottom of the mounting frame. The cranks of the support stand can now be rewound and the support itself disassembled. Do this by removing the pins from stand's legs, then pulling out the inner legs and further disassembling the two main parts of the mainframe itself.

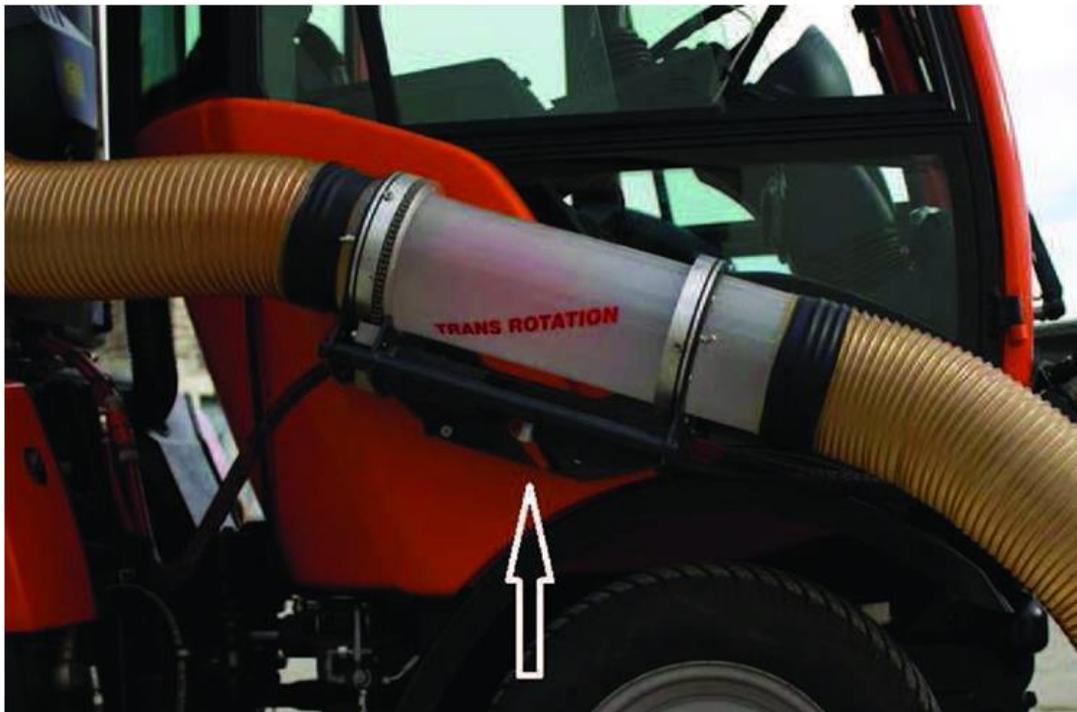
The electrical plug, the coded hydraulic connectors (max. 60 l/min) and the 5 hydraulic hoses must now be connected at their indicated location.

Important: bleed off the pressure in all hydraulic connectors first!



The maximum operating pressure for the fan must never exceed 16 US Gal per min. (60 liters per min.). **In case of doubt** check the quantity of oil.

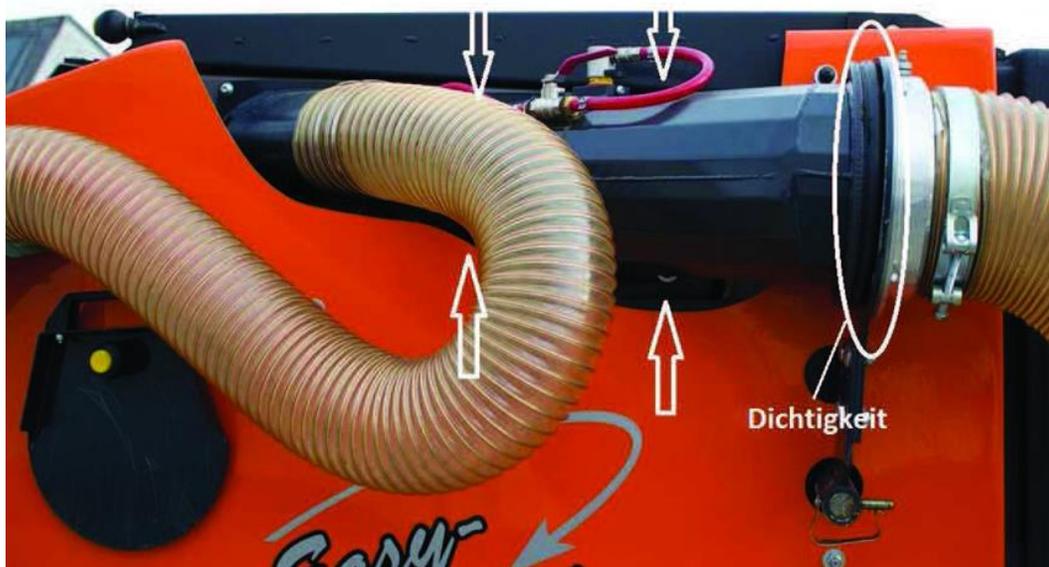
Using the front lift arms and the corresponding top link, attached the rotary sweeper unit to the front three-point hitch. Now insert the bolts and secure them with the splint. The top link toggle lever must be removed prior to the initial installation as the lever may damage the front unit when moving it up or down. Next, affix the rotary tube (the section of the vacuum hose from the suction port to the container) by means of the clamp. The clamp is fitted to the right-side door's pre-drilled holes. (See photo).



The length of the suction hose must be adjusted during the initial installation and again after the initial break-in period. Adjust the rear portion of the hose while the tractor's steering at its maximum left turn. With the sweeper unit lowered, stretch the front portion of the hose slightly and adjust it as necessary. Check and adjust the length of the hose periodically as prolonged use may stretch it slightly.

The RPMs (revolutions per minute) of the transparent suction tube is factory pre-set to **maximum 20 rpm**. The electrical and hydraulic lines couplings (6 lines) and the tractor's corresponding receptacles are color coded to ensure their correct pairing. Now use the dedicated control unit to lift the waste container slightly. The suction hose flap can now be hooked to the bolt on the upper right side of the container where it must be secured with a cotter pin.

Check the suction hose flap for leakage; it is adjustable (turn and push the entrance connection of the tube to the waste container, see picture).



Attach and connect water Jet hose (small red line) Connect vacuum hoses.



Please refer to and observe at all times all safety instructions contained in the separate Safety Instruction Manual.

Disassembly

- Lift the waste container slightly, using the joystick located in the cockpit.
- Shut off the engine.
- Disconnect the water hose attached to the container in the hose elbow area.
- Remove the suction hose flap located at the right side of the waste container; but first remove the cotter pin.
- Close the container, Start engine, using the joystick located in the cockpit, lower the container, and then lower the front sweeper unit.
- Shut off the engine.
- Bleed the pressure from all hydraulic couplings; now disconnect the hoses.
- Disconnect the electrical connection and cover the connector with the screw cap.
- Disconnect the rotation tube located at the ride side of the cabin by loosening the clamp, then push the center knob, unscrew, lift slightly and now remove the entire assembly.
- If you have any further questions, please consult the manufacture.
- Loosen the top link and then release the lift arms fully in order to remove the vacuum sweeper unit from the tractor
- Disconnect the electrical and the 2 hydraulic lines located at the tailgate section of the tractor / sweeper unit.
- Using the hand winch, maneuver the two legs located on each side of the storage stand into the square tubes of the waste container.
- Now insert the cross-members into the frame of the storage stand and the square tubes and then secure them with cotter pins.
- Slightly lift the waste container with a few turns of the hand winch and then remove the 2 safety pins at the back of the tilt-frame.



- Using the rear winch handles, lift the waste container even higher but in such a manner that the front legs of the storage stand share the load and are raised equally on the waste container.
- Make sure the storage stand now carries the entire weight of the storage stand and no part of the tractor touches the container or the storage stand. Winch the container high enough to clear.
- Only now start the engine and drive carefully forward, making sure the tractor touches neither the storage stand nor the container during this maneuver.



Never attempt to remove a waste container that has not been completely emptied.

UNIT OPERATION



Please refer to and observe at all times, all Safety Instructions. These can also be found in the separate Safety Instruction Manual.

Adjusting and Setting

The sweeper unit, once attached via the front three point-hitch of the tractor, must be adjusted prior to its use. (see Photo).

The cross member bolts should be positioned 12.2 inches (310 mm) above the floor. The mounting plate must be adjusted until vertical by means of the top link.

The top-link connection point on the tractor should be selected in such a way that the suction mouth floats freely above the ground. Do not allow the suction mouth bind with the under carriage of the front lift mechanism.



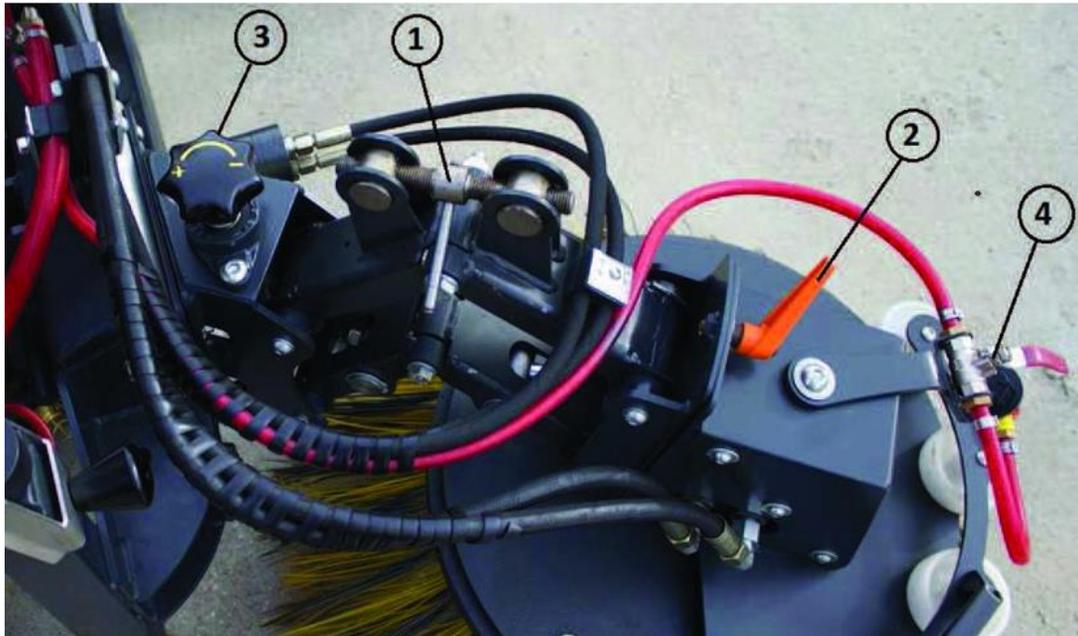
The rotary brushes must tilt forwards and outwards see photo.



The forward and outward tilt ensures that the brushes sweep dirt and debris towards the suction mouth.

Turn the spindles (1) to the desired forward tilt position of the rotary brushes. Use the vise handle with its central push-button (2) to move the brushes outwards. To achieve optimal suction and cleaning, the position of the rotary brushes must match the pattern of the model shown in above picture.

The downward pressure the brushes can be regulated by turning the adjustment knobs (3). Turning a knob towards its plus sign will increase the downward pressure; turning it towards the minus sign reduces it.

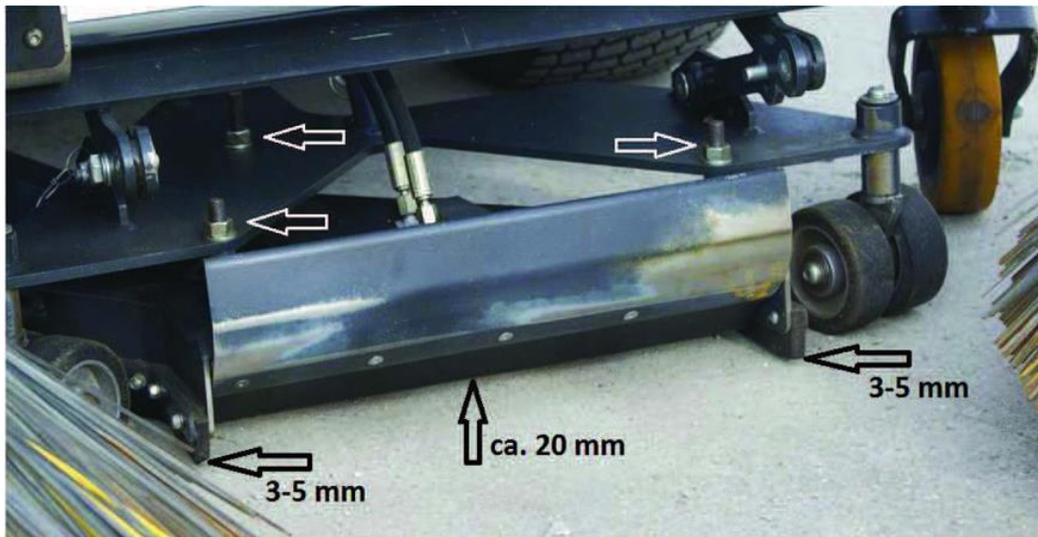


Excessive down pressure will reduce the life of the brushes; in turn, insufficient pressure will mean an unsatisfactory cleaning job!

The volume of water dispensed by the water jets (with drip-stop) attached to the rotary brushes can be fine-tuned by means of the two ball valves. These can be adjusted to prevent that the brushes from kicking up excessive dust.

The water jet flow can be started or stopped on the brushes and also at the mouth of the waste container by using the two flow dividers buttons on the joy-stick.

The distance from the suction mouth to the ground must be set correctly to ensure optimal suction and pick-up.



The clearances (see measurements as shown in the picture above) can be set using the thread spindles (see arrows in the picture). Not shown is the clearance of 3mm - 1/8" at the plastic wedge at the back of the suction mouth.

The rubber strips and the plastic wedge are subject to wear and tear that varies with the type and amount of cleaning. These must be replaced periodically.

Also, the wear and tear will reduce the clearances as stated above. Therefore, check and re-adjust these clearances periodically in order to maintain optimal suction.

Filling the water tank

The water tank must be filled using a 1-inch quick coupling located at the right side, rear, under the waste container. (For the tank volume, consult the technical data sheet).

There is a swimming ball showing water level at the front of the water container. There is also an overflow valve at the bottom, right, front. The top of the tank has a pressure lid.

Important: The water in the water tank must be prevented from freezing!
Empty the tank before it can freeze. You can do this by expelling the water via the jets or else the quick coupling. It is not advisable and is ecological unsafe to work with antifreeze!

Joy Stick Operation



It is imperative that an operator be familiar with the functioning of the Holder Tractor prior to using the suction Sweeper Combination. The Holder Tractor manual *must* be studied first before attending a driving and/or operating course given by the tractor manufacturer or authorized dealer.

The Joy-Stick contains all controls except for the rotation speed controls for the rotary brushes and the fan.



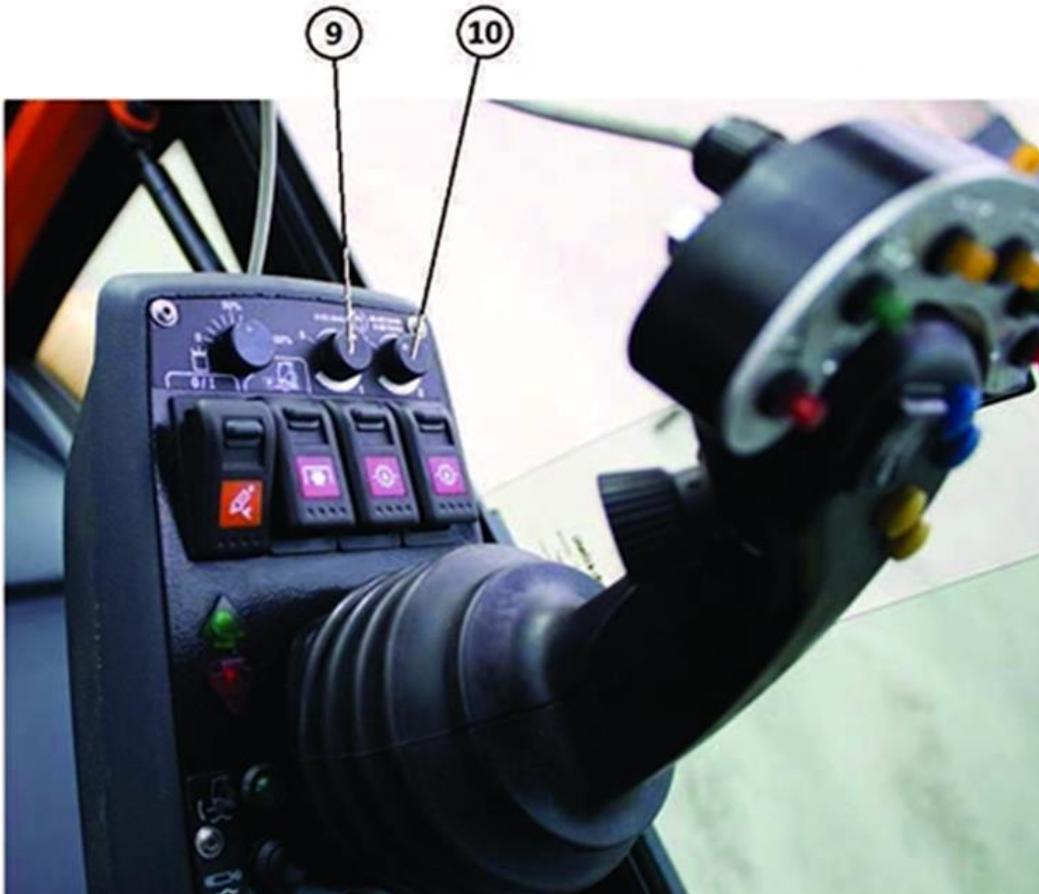
Abbildung: Holder C 250/270

| Pos No. | Function | Actuation |
|---------|---|--------------|
| 1 | Rotary brush water jets left and right | On / Off |
| 2 | Move left rotary brush | Tilt |
| 3 | Move brush in parallel | On / Off |
| 4 | Mirrored move of brushes | On / Off |
| 5 | Coarse debris flap / gate | Open / Close |
| 6 | Move rotary brush right | Tilt |
| 7 | Coarse debris flap / gate | Tilt |
| 8 | Cleaning of suction mouth / suction nozzle container entrance | |

Moving the joy stick left or right will actuate the function selected.

For mirrored brush movement push the yellow button (Pos. 4) and for parallel movement push yellow button (Pos. 3) first and then use the joy stick to execute the function.

The coarse debris flap is controlled by 2 switches (Pos. 5 + 7), either in the momentary-tip operation (short opening of the flap) or continuous-open of the flap for extended periods.



Picture shown is of Holder C 250/C 270

| Pos No. | Function | Actuation |
|---------|-----------------------------|-----------|
| 9 | Rotary brush rotation speed | Turn |
| 10 | Fan rotation speed | Turn |

The rotation speed of the **rotary brushes** must be suited to the type of waste. Loose, lightweight waste requires slow rotations whereas wet and clinging waste is easier to sweep up with a higher rotation speed.

The suction fan **rotation speed** should be used at the lowest economical speed in order to keep noise emissions and fuel consumption at a minimum.

With the flow divider controlling the fan rotational speed on full open (Pos 10), the Holder tractor will operate at the following engine RPMs:

| Holder tractor | Operational range diesel engine |
|-------------------------|---------------------------------|
| C 250 / 270 / 350 / 370 | 1600 to 2200 RPMs |
| M480 | 1600 to 2200 RPMs |



The start and stop of the fan motor must be 'gentle'! Please increase and decrease the motor RPMs **SLOWLY** in order to prevent damage to the Axial Piston Engine. Abrupt load changes (such as when switching on or off under full load) must be absolutely avoided!

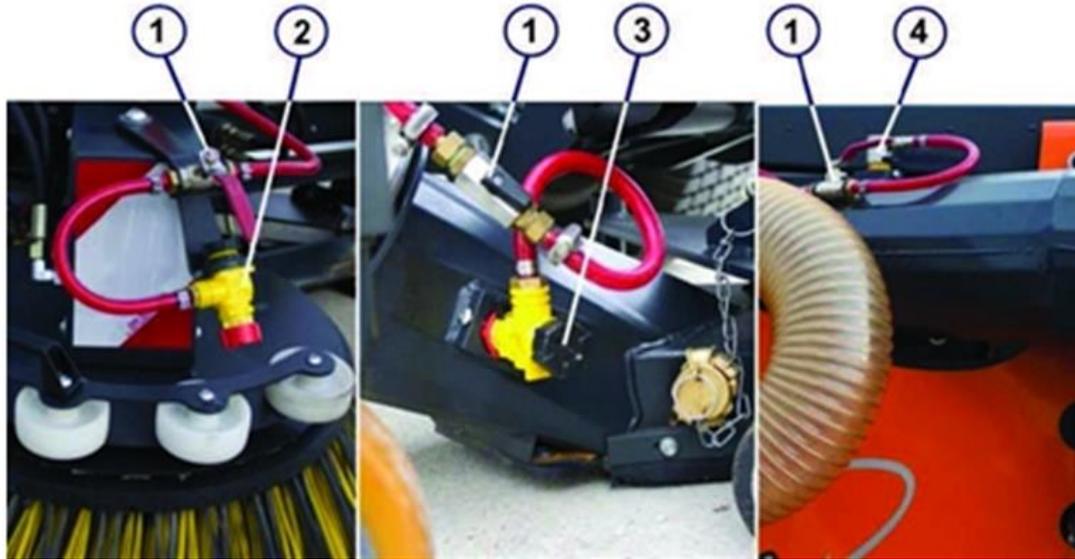
Stop and start the system of the trans-rotations tube in certain instances such as when waste gets stuck between the elbow of the rotation tube and the waste container.

Note: A short left turn of the tractor may help loosen debris stuck in the suction tube.



Make absolutely sure that the suction tube rotates only with the sweeper unit in its lowered position and only when driving straight ahead or when making a left turn!
If the suction tube is rotating during a right turn, it may be damaged at its connection points!

Dust pollution needs to be kept at a minimum, (according to government guidelines)
 Spraying water on dry fine particles during sweeping will help reduce or prevent dust buildup.
 The vacuum sweeper combination has 4 built-in water jets which can be individually adjusted to respond to your needs and help achieve better results.



| Pos No. | Function | Actuation |
|---------|--------------------------------------|--|
| 1 | Ball valve | Adjusting water volume |
| 2 | Water jet rotary brush: left & right | Water Volume |
| 3 | Water jet suction mouth | Dust moistening in the suction tube |
| 4 | Water jet in waste container | Dust moistening in the water container |

i Dust-free sweeping requires a constant water flow in the suction tube. Only when the waste being swept up is already wet, should the water jets be closed. Use caution in this operation as the suction mouth may become full of mud.

The water jets mounted on the rotary brush (see no. 2) are supplied by means of a water pump that can be switched on or off. The water jets located at the suction mouth (see no. 3) and so one in the waste container (see no. 4) have a separate but shared pump. The control is incorporated into the joy stick.

All water jets have a bayonet mount. This makes a tool-free, fine-tuning, and cleaning of the jets possible.

Sweeping Operation



Please refer to and observe at all times, all Safety Instructions.

Sweeping can start upon complete and proper assembly of the machine, and all safety and security measures have been followed, and are in place:

- Check that the waste container has been fully closed (tailgate flap).
- Gradually, slowly, rev up the suction fan until operating speed has been reached.
- Lower the combination sweeper assembly into its working position.
- Start rotary brushes and bring their rotations to operating speed.
- Start water jets in order to add water as and when needed.
- Ensure the bulk waste flap is in its closed position.
- Slowly, start moving the tractor forward.
- During the entire sweeping process continually observe the suction line and sweeping area. Engage the rotation of the suction tube. Insure that this is rotating.

Making a sharp left turn may cause a misalignment of the suction mouth and the waste not to be picked up. In this case the rotary brushes are best in their parallel position such as when making a right turn.



The best waste pick-up position for straight a ways, bicycle paths etc, is to have the rotary brushes in their mirrored position. Having the rotary brushes in their parallel position is better for frequent cornering.



Lift the front of the sweeper assembly when driving over any obstacles in excess of 40mm – 1 ½ inches such as Manhole covers etc. If this procedure is not followed, than the suction mouth / nozzles may otherwise be damaged.



Always raise the sweeper unit before driving onto a sidewalk!



The waste container must be emptied when full. A loss of suction power will occur if sweeping is continued with a full waste container. (Refer to chapter on **emptying** the waste container).



As the center of gravity changes, ***the vehicle can possibly roll over*** at high speeds or on uneven ground. Adjust your driving style according to these potential dangers.

Never overfill the hopper especialy when picking up heavy material like sand, gravel etc. Vehicle can tip.

Ending the sweeping operation

- Slow tractor to a full stop; put parking brake on.
- Shut off rotary brushes.
- Lift suction sweeper unit.
- Throttle rotation of fan until it stops and switch off device's pump.
- Shut off pumps for water jets.

Discharging

The waste container can be lifted by up to 59 inches by using the corresponding control unit located in the tractor's cabin. Thus, the waste container can be tilted allowing its content to be emptied onto another vehicle. When lowering the container, ensure that it closes fully. The container's flap will close slowly, for this reason make sure to continue pushing the close valve lever until completely closed. A partially closed flap will affect the loss of suction where it is needed.



Any unauthorized persons are not to be near / around the vehicle / device area while it is in operation!

Waste disposal

The collected waste, thanks to the high-mount discharge, can be removed on another truck or be tilt-dumped into another transport container. Be aware that the collected waste material may contain hazardous waste material which must be disposed of appropriately.

Improper Operating Conditions

Make sure the suction sweeper combination is used as intended by the manufacturer. The sweeper can pick up stone dust, sand, cans, bottles, as well as lightweight material (dust, leaves and other waste). The sweeping process can only take place while driving forward, never backwards. The fan motor must never be operated with a quantity of oil that exceeds 16 US Gal per min.

CLEANING of the APPLIANCE

The vacuum sweeper combination must be cleaned after each use. Dirt greatly reduces the sweeping and suction power. Use a 1 inch quick coupling connector to connect to a low water pressure supply.



Please refer to and observe at all times, all Safety Instructions.



Close the ball valve at the back on the right side before working on an open waste container.



GUIDE for an EFFICIENT CLEANING PROCESS

- Empty waste container.
- Cleaning of suction hose assembly:
 - Connect the water hose to the cleaning hose port located at the suction mouth.
 - Start the fan and turn the on water.
 - Also rotate the **rotary tube** until the suction hose section is clean.
 - Shut off water and fan.



- Cleaning of the vacuum sweeper and the suction mouth:
 - Lift the vacuum sweeper assembly and clean the brushes by mechanic using the water hose.

NOTE: The suction mouth must be flushed out from bottom and also clean the inside of the coarse dirt flap. **(Make sure the tractor's ignition is off)**

- Cleaning of the suction fan assembly:
 - Connect the water hose to the fan assembly's cleaning hose connector, open and leave the bottom drainage-hole open.
 - Now start both the fan and the water flow. This will clean the inside of the suction fan assembly.



- Cleaning of waste container:
 - Lift the waste container completely (be careful of any excess water) and secure the container by shutting off the ball valve. Also remove and clean the exhausts filter (see photo).
 - Rinse the container and filter frame with the water hose.



- Cleaning of the exhaust filter:
 - Rinse the exhaust filter while it is removed from its frame. Even a completely blocked filter can be fully cleaned with some effort.

- Cleaning of the support frame:
 - Use the water hose to rinse the inside of the support frame.



- Rinsing of water jets:
 - Operate the water pumps to force clean water through the water jets thus ensuring no debris remains in them, which could possibly dry up and clog the jets.
- Emptying of water tank:
 - Always empty the water tank when the unit is not being used for a prolonged period of time.

ELIMINATION of PROBLEMS


IMPORTANT:
ALWAYS READ AND OBSERVE THE GENERAL SAFETY INSTRUCTIONS FIRST!

| Problem | Probable reason | Probable solution |
|---|---|---|
| Waste container will not open or close | <ul style="list-style-type: none"> • Safety ball valve closed | <ul style="list-style-type: none"> • Open the valve |
| Loss of or reduced suction power | <ul style="list-style-type: none"> • Waste container full • Leak in Vacuum tract • Container not fully closed • Coarse waste flap open | <ul style="list-style-type: none"> • Empty the container • Check for leaks, clean and re-adjust seals • Close tailgate flap fully • Close coarse waste flap |
| Sweeping capacity reduced | <ul style="list-style-type: none"> • Rotary brushes used up • Position of rotary brushes incorrectly set | <ul style="list-style-type: none"> • Replace them • Refer to chapter on 'Adjusting & Setting' |
| Unusual noises at the front of the sweeper unit | <ul style="list-style-type: none"> • Large debris at the suction mouth. | <ul style="list-style-type: none"> • Lift the sweeper assembly and drive backwards. • Momentarily open the coarse waste flap |
| Rotary brushes do not turn | <ul style="list-style-type: none"> • No oil pressure | <ul style="list-style-type: none"> • Turn on the hydraulic pumps located in the cabin |
| Vacuum sweeper unit does not move | <ul style="list-style-type: none"> • No oil pressure • No response to joy stick actuation | <ul style="list-style-type: none"> • Turn on the hydraulic pumps located in the cabin • Check the front electrical connection |
| Water jets constantly clogged | <ul style="list-style-type: none"> • Water container dirty • Dirty cleaning water | <ul style="list-style-type: none"> • Clean it and also check that top cap is on • Replace with clean water |
| Exhaust air filled with dust | <ul style="list-style-type: none"> • No dust deadening water is added • Filter is dirty • Waste container leaks | <ul style="list-style-type: none"> • Turn on water jests, check their function • Rinse and clean it • Check for defective gaskets • Check tailgate flap is fully closed |
| Noise | <ul style="list-style-type: none"> • Excessive rotation of the fan • Noise in the suction section caused by waste clogging up • Seals defective • Clanking body parts | <ul style="list-style-type: none"> • Max. oil quantity of 18 US Gal per minute is exceeded • Free up and clean • Check and repair/replace • Re-fasten properly |
| O-rings inside the rotation tube defective | <ul style="list-style-type: none"> • Used to much grease | <ul style="list-style-type: none"> • Excessive grease amount and pressure applied |
| Suction hose torn off | <ul style="list-style-type: none"> • Excessive of grease in suction tube bearings • Incorrect suction tube length | <ul style="list-style-type: none"> • Caused excessive resistance to rotation when cold • Refer to chapter on 'Adjusting & Setting' |

MAINTENANCE CARE and WEAR PARTS



All units need regular maintenance and all work must be performed by a professional only



Never do Maintenance Work while machine is running.
ENGINE MUST BE TURNED OFF AND IGNITION KEY REMOVED!
Refer to your internal Lock-Out procedure.



If there is risk to people and equipment, the equipment must immediately be taken out of service. Notify your service department!
ENGINE MUST BE TURNED OFF AND IGNITION KEY REMOVED!



Never work in the vicinity of the machine in loose clothing.
They can get caught in moving parts.



Ensure that all guards and safety devices are in good condition and in their proper location before using the equipment.



De-Energize all Hydraulics and Energy from the equipment before doing any maintenance.



ENGINE MUST BE TURNED OFF AND IGNITION KEY REMOVED!



Always wear proper PPE and use certified equipment to service the machine.
Ie: Ladders, Hoists, Jack Stands etc.

SCHEDULE

| PROCEDURE Interval | SCHEDULE | | | | |
|--|-----------------|----------------|------------|-------------|-------------|
| | Before each use | After each use | Every week | Every month | Once a year |
| <ul style="list-style-type: none"> • Check tractor's hydraulic oil level • Check tractor's radiator for dirt | √ | | | | |
| <ul style="list-style-type: none"> • Clean tractor and vacuum sweeper combination (refer to section on cleaning) • Grease all pivot points, bearings and spindles (Do not apply grease on exposed areas of parts) • Apply little grease only to the rotary tube drive • Check parts subject to wear and tear and replace if necessary. | | √ | | | |
| <ul style="list-style-type: none"> • Check/clean tractor's return oil filter (excessive pressure damages the fan motor) | | | √ | | |
| <ul style="list-style-type: none"> • Make sure screw connections are tight • Check hydraulic connections for leaks • Check hydraulic hoses for chafing damage | | | | √ | |
| <ul style="list-style-type: none"> • Check structural, weight bearing parts (frame, storage stand, incl. cross members) | | | | | √ |

TRACTOR MAINTENANCE



Maintain the Tractor in accordance with the Holder Tractor Manual.



All Hydraulic functions are controlled by the Hydraulic system of the Tractor.

Hydraulic oil changes (all oil changes) need to be respected. Please refer to the Tractor Manufactures Manual Guide Lines.

IMPERIAL to METRIC - METRIC to IMPERIAL CONVERSION

Imperial to Metric

| To change..... | To..... | Multiply By |
|------------------------------|--------------------------|-------------|
| Inches | Centimeters | 2.540 |
| Feet | Meters..... | 0.305 |
| Yards | Meters..... | 0.914 |
| Miles | Kilometers..... | 1.609 |
| Square Inches | Square Centimeters..... | 6.451 |
| Square Feet..... | Square Meters | 0.093 |
| Square yards | square Meters..... | 0.836 |
| Cubic Feet | Cubic Meters..... | 0.028 |
| Cubic Yards | Cubic Meters..... | 0.765 |
| Fluid Ounces | Milliliters | 29.573 |
| Pints..... | Liters | 0.473 |
| Quarts..... | Liters | 0.946 |
| Gallons | Liters | 3.785 |
| Pounds | Kilograms..... | 0.454 |
| Pound-Feet..... | Newton-Meters | 1.3356 |
| Pounds per square Inch | Bar | 0.070 |
| Miles per Hour | Kilometers per Hour..... | 1.609 |

Metric to Imperial

| To change | To..... | Multiply By |
|--------------------------|-----------------------------|-------------|
| Centimeters | Inches | 0.394 |
| Meters..... | Feet..... | 3.280 |
| Meters..... | Yards | 1.094 |
| Kilometers..... | Miles | 0.621 |
| Square Centimeters..... | Square Inches..... | 0.155 |
| Square Meters | Square Feet..... | 10.764 |
| Square Meters | Square Yards..... | 1.196 |
| Cubic Meters | Cubic Feet | 35.315 |
| Cubic Meters | Cubic Yards | 1.308 |
| Milliliters | Fluid Ounces..... | 0.034 |
| Liters..... | Pints..... | 2.113 |
| Liters..... | Quarts..... | 1.057 |
| Liters..... | Gallons..... | 0.264 |
| Kilograms..... | Pounds | 2.205 |
| Newton-Meters | Pound-feet | 0.738 |
| Bar | Pounds per Square Inch..... | 14.50 |
| Kilometers per Hour..... | Miles per Hour | 0.621 |

BOLT TORQUE SPECIFICATIONS

| Bolt Size | Coarse Thread* | Grade 5  | Grade 8  |
|-----------|----------------|--|---|
| Inches | per Inch | Torque in foot pounds | |
| 1/4 | 20 | 10 | 14 |
| 5/16 | 18 | 19 | 29 |
| 3/8 | 16 | 33 | 47 |
| 7/16 | 14 | 54 | 78 |
| 1/2 | 13 | 78 | 119 |
| 9/16 | 12 | 114 | 169 |
| 5/8 | 11 | 154 | 230 |
| 3/4 | 10 | 257 | 380 |
| 7/8 | 9 | 382 | 600 |
| 1 | 8 | 587 | 700 |
| 1-1/8 | 7 | 794 | 1430 |
| 1-1/4 | 7 | 1105 | 1975 |
| 1-3/8 | 6 | 1500 | 2650 |
| 1-1/2 | 6 | 1775 | 3200 |

To determine the torque for a fine-thread bolt, increase rating by 9%.

All torques are measured on dry standard bolts.

QUICK REFERENCE

ASSEMBLY

- 3-Point Top Link**
(Affected by type of tires)
- Pump-Calibration**
(max. 16 US-Gal/min)
- Container & Filters: leakproof**
- Suction Tract Leak Proof**
- Suction Hose front & rear of vehicle adjust (daily)**
- Rotary Tube Rotation (throttle) adjust**
Max. 20 RPMs
- High-Flow Pump**

SETTINGS

- Catch-Hook height approx. ca. 12 in.**
- Front Plate Vertical**
- Sweeping Pattern**
- Clearance Suction Mouth 1/8" 3.5mm**
(Use supplied wrench)
- Clearance Suction Mouth Wedge 1/8" 3mm**

SWEEPING

- Engine-Rotation optimal
C250/270 1600-2200 RPMs
M480 1600-2000 RPMs
- Rotary Sweeper RPM**
- Water Quantity Brush***
- Water Quantity Suction Tube***
- Sweeping Pattern**
- Sweeping Speed**
- Water Jet Nozzles control**

*use water also for leaves

CLEANING

- Empty Container
- Suction Mouth, Suction Tract & Rotary Suction Tube
- Suction Fan Assembly**
- Waste Container**
- Filter (removed from Frame)**
- Frame Support Stand**
- WFlush Water Jets**
- Empty Water Tank**
-  **Pressure Washer: NEVER**

MAINTENANCE



Maintain Joints, Bearings and spindles with spray grease

- Use spray grease sparingly on Rotation Tube Drive.
- Check Wear & Tear Parts and replace as needed:

Brushes

Bump & Support-wheels

Suction Mouth Seals

Suction Mouth / Nozzle Wedge



Suction Tube

Container Seals

Filter (rinse until clean)

Always keep Equipment clean

PRODUCT WARRANTY REGISTRATION CARD

Please detach along the dotted line and mail and keep Warranty for your records

Product:

- PTO Sweeper
 Folding V Plow
 Angle Plough
 Box Blower
 Hydro Sweeper
 Ribbon Snow Blower

Model number _____ Serial Number _____

Name: _____

Address: _____

City: _____ Province/State _____ Postal/zip code _____

Tel No: _____ Email: _____

Date of Purchase _____ New Replacement

.....

Warranty:

This product is warranted against defect of material and workmanship for the period of 12 months, against any and all part on this attachment.

The procedure to obtain repair under the warranty is to contact the Distributor: (Holder Tractor Inc.).

The warranty is void if any part of the equipment is altered or modified in any way.

Some photos might be slightly different then your equipment.

Any changes made will be done without notification.

November 2013

This sheet for your notes:

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