

Publication 858
January 2017
Part No. 23671.58



McCONEl

ROBOBRUSH

ROBOCUT ACCESSORY

Operation & Parts Manual



IMPORTANT

VERIFICATION OF WARRANTY REGISTRATION



DEALER WARRANTY INFORMATION & REGISTRATION VERIFICATION

It is imperative that the selling dealer registers this machine with McConnel Limited before delivery to the end user – failure to do so may affect the validity of the machine warranty.

To register machines go to the McConnel Limited web site at www.mccommel.com, log onto 'Dealer Inside' and select the 'Machine Registration button' which can be found in the Service Section of the site. Confirm to the customer that the machine has been registered in the section below.

Should you experience any problems registering a machine in this manner please contact the McConnel Service Department on 01584 875848.

Registration Verification

Dealer Name:
Dealer Address:
Customer Name:
Date of Warranty Registration:/...../..... Dealer Signature:

NOTE TO CUSTOMER / OWNER

Please ensure that the above section above has been completed and signed by the selling dealer to verify that your machine has been registered with McConnel Limited.

IMPORTANT: During the initial 'bedding in' period of a new machine it is the customer's responsibility to regularly inspect all nuts, bolts and hose connections for tightness and re-tighten if required. New hydraulic connections occasionally weep small amounts of oil as the seals and joints settle in – where this occurs it can be cured by re-tightening the connection – *refer to torque settings chart below*. The tasks stated above should be performed on an hourly basis during the first day of work and at least daily thereafter as part of the machines general maintenance procedure.

CAUTION: DO NOT OVER TORQUE HYDRAULIC FITTINGS AND HOSES

TORQUE SETTINGS FOR HYDRAULIC FITTINGS

HYDRAULIC HOSE ENDS		
BSP	Setting	Metric
1/4"	18 Nm	19 mm
3/8"	31 Nm	22 mm
1/2"	49 Nm	27 mm
5/8"	60 Nm	30 mm
3/4"	80 Nm	32 mm
1"	125 Nm	41 mm
1.1/4"	190 Nm	50 mm
1.1/2"	250 Nm	55 mm
2"	420 Nm	70 mm

PORT ADAPTORS WITH BONDED SEALS		
BSP	Setting	Metric
1/4"	34 Nm	19 mm
3/8"	47 Nm	22 mm
1/2"	102 Nm	27 mm
5/8"	122 Nm	30 mm
3/4"	149 Nm	32 mm
1"	203 Nm	41 mm
1.1/4"	305 Nm	50 mm
1.1/2"	305 Nm	55 mm
2"	400 Nm	70 mm

WARRANTY POLICY

WARRANTY REGISTRATION

All machines must be registered, by the selling dealer with McConnel Ltd, before delivery to the end user. On receipt of the goods it is the buyer's responsibility to check that the Verification of Warranty Registration in the Operator's Manual has been completed by the selling dealer.

1. LIMITED WARRANTIES

- 1.01. *All mounted machines supplied by McConnel Ltd are warranted to be free from defects in material and workmanship from the date of sale to the original purchaser for a period of 12 months, unless a different period is specified.*
All Self Propelled Machines supplied by McConnel Ltd are warranted to be free from defects in material and workmanship from the date of sale to the original purchaser for a period of 12 months or 1500 hours. Engine warranty will be specific to the Manufacturer of that unit.
- 1.02. *All spare parts supplied by McConnel Ltd and purchased by the end user are warranted to be free from defects in material and workmanship from the date of sale to the original purchaser for a period of 6 months. All parts warranty claims must be supported by a copy of the failed part invoice to the end user. We cannot consider claims for which sales invoices are not available.*
- 1.03. *The warranty offered by McConnel Ltd is limited to the making good by repair or replacement for the purchaser any part or parts found, upon examination at its factory, to be defective under normal use and service due to defects in material or workmanship. Returned parts must be complete and unexamined. Pack the component(s) carefully so that any transit damage is avoided. All ports on hydraulic items should be drained of oil and securely plugged to prevent seepage and foreign body ingress. Certain other components, electrical items for example, may require particular care when packing to avoid damage in transit.*
- 1.04. *This warranty does not extend to any product from which McConnel Ltd's serial number plate has been removed or altered.*
- 1.05. *The warranty policy is valid for machines registered in line with the terms and conditions detailed and on the basis that the machines do not extend a period of 24 months or greater since their original purchase date, that is the original invoice date from McConnel Limited.*
Machines that are held in stock for more than 24 months cannot be registered for warranty.
- 1.06. *This warranty does not apply to any part of the goods, which has been subjected to improper or abnormal use, negligence, alteration, modification, fitment of non-genuine parts, accident damage, or damage resulting from contact with overhead power lines, damage caused by foreign objects (e.g. stones, iron, material other than vegetation), failure due to lack of maintenance, use of incorrect oil or lubricants, contamination of the oil, or which has served its normal life. This warranty does not apply to any expendable items such as blades, belts, clutch linings, filter elements, flails, flap kits, skids, soil engaging parts, shields, guards, wear pads, pneumatic tyres or tracks.*
- 1.07. *Temporary repairs and consequential loss - i.e. oil, downtime and associated parts are specifically excluded from the warranty.*
- 1.08. *Warranty on hoses is limited to 12 months and does not include hoses which have suffered external damage. Only complete hoses may be returned under warranty, any which have been cut or repaired will be rejected.*
- 1.09. *Machines must be repaired immediately a problem arises. Continued use of the machine after a problem has occurred can result in further component failures, for which McConnel Ltd cannot be held liable, and may have safety implications.*
- 1.10. *If in exceptional circumstances a non McConnel Ltd part is used to effect a repair, warranty reimbursement will be at no more than McConnel Ltd's standard dealer cost for the genuine part.*

- 1.11. *Except as provided herein, no employee, agent, dealer or other person is authorised to give any warranties of any nature on behalf of McConnell Ltd.*
- 1.12. *For machine warranty periods in excess of 12 months the following additional exclusions shall apply:*
 - 1.12.1. *Hoses, exposed pipes and hydraulic tank breathers.*
 - 1.12.2. *Filters.*
 - 1.12.3. *Rubber mountings.*
 - 1.12.4. *External electric wiring.*
 - 1.12.5. *Bearings and seals*
 - 1.12.6. *External Cables, Linkages*
 - 1.12.7. *Loose/Corroded Connections, Light Units, LED's*
 - 1.12.8. *Comfort items such as Operator Seat, Ventilation, Audio Equipment*
- 1.13. *All service work, particularly filter changes, must be carried out in accordance with the manufacturer's service schedule. Failure to comply will invalidate the warranty. In the event of a claim, proof of the service work being carried out may be required.*
- 1.14. *Repeat or additional repairs resulting from incorrect diagnosis or poor quality previous repair work are excluded from warranty.*

NB Warranty cover will be invalid if any non-genuine parts have been fitted or used. Use of non-genuine parts may seriously affect the machine's performance and safety. McConnell Ltd cannot be held responsible for any failures or safety implications that arise due to the use of non-genuine parts.

2. REMEDIES AND PROCEDURES

- 2.01. *The warranty is not effective unless the Selling Dealer registers the machine, via the McConnell web site and confirms the registration to the purchaser by completing the confirmation form in the operator's manual.*
- 2.02. *Any fault must be reported to an authorised McConnell Ltd dealer as soon as it occurs. Continued use of a machine, after a fault has occurred, can result in further component failure for which McConnell Ltd cannot be held liable.*
- 2.03. *Repairs should be undertaken within two days of the failure. Claims submitted for repairs undertaken more than 2 weeks after a failure has occurred, or 2 days after the parts were supplied will be rejected, unless the delay has been authorised by McConnell Ltd. Please note that failure by the customer to release the machine for repair will not be accepted as a reason for delay in repair or submitting warranty claims.*
- 2.04. *All claims must be submitted, by an authorised McConnell Ltd Service Dealer, within 30 days of the date of repair.*
- 2.05. *Following examination of the claim and parts, McConnell Ltd will pay, at their discretion, for any valid claim the invoiced cost of any parts supplied by McConnell Ltd and appropriate labour and mileage allowances if applicable.*
- 2.06. *The submission of a claim is not a guarantee of payment.*
- 2.07. *Any decision reached by McConnell Ltd. is final.*

3. LIMITATION OF LIABILITY

- 3.01. *McConnell Ltd disclaims any express (except as set forth herein) and implied warranties with respect to the goods including, but not limited to, merchantability and fitness for a particular purpose.*
- 3.02. *McConnell Ltd makes no warranty as to the design, capability, capacity or suitability for use of the goods.*
- 3.03. *Except as provided herein, McConnell Ltd shall have no liability or responsibility to the purchaser or any other person or entity with respect to any liability, loss, or damage caused or alleged to be caused directly or indirectly by the goods including, but not limited to, any indirect, special, consequential, or incidental damages resulting from the use or operation of the goods or any breach of this warranty. Notwithstanding the above limitations and warranties, the manufacturer's liability hereunder for damages incurred by the purchaser or others shall not exceed the price of the goods.*
- 3.04. *No action arising out of any claimed breach of this warranty or transactions under this warranty may be brought more than one (1) year after the cause of the action has occurred.*

4. MISCELLANEOUS

- 4.01. McConnel Ltd may waive compliance with any of the terms of this limited warranty, but no waiver of any terms shall be deemed to be a waiver of any other term.*
- 4.02. If any provision of this limited warranty shall violate any applicable law and is held to be unenforceable, then the invalidity of such provision shall not invalidate any other provisions herein.*
- 4.03. Applicable law may provide rights and benefits to the purchaser in addition to those provided herein.*

McConnel Limited



DECLARATION OF CONFORMITY

Conforming to EU Machinery Directive 2006/42/EC

We,

McCONNEL LIMITED, Temeside Works, Ludlow, Shropshire SY8 1JL, UK

Hereby declare that:

The Product; *Power Brush Attachment for Remote Controlled Tracked Vehicle*

Product Code; *RMOW*

Serial No. & Date Type

Manufactured in; *Italy*

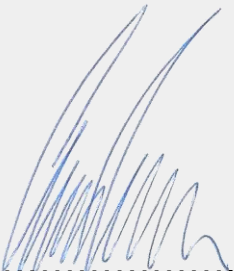
Complies with the required provisions of the Machinery Directive 2006/42/EC
The machinery directive is supported by the following harmonized standards;

- BS EN ISO 12100 (2010) Safety of machinery – General principles for design – Risk assessment and risk reduction.
- BS EN 349 (1993) + A1 (2008) Safety of machinery - Minimum distances to avoid the entrapment with human body parts.
- BS EN ISO 14120 (2015) Safety of machinery - Guards general requirements for the design and construction of fixed and movable guards.
- BS EN 4413 (2010) Hydraulic fluid power. Safety requirements for systems and their components.

McCONNEL LIMITED operates an ISO 9001:2008 quality management system, certificate number: FM25970.

This system is continually assessed by the;

British Standards Institution (BSI), Beech House, Milton Keynes, MK14 6ES, UK
BSI is accredited by UK Accreditation Service, accreditation number: UKAS 003.
The EC declaration only applies if the machine stated above is used in accordance with the operating instructions.

Signed  *Responsible Person*
CHRISTIAN DAVIES on behalf of McCONNEL LIMITED

Status: *General Manager*

Date: *January 2018*



For Safety and Performance...

ALWAYS READ THIS BOOK FIRST

McCONEL LIMITED

**Temeside Works
Ludlow
Shropshire
England**

**Telephone: 01584 873131
www.mcconnel.com**

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GENERAL INFORMATION

Read this manual before fitting or operating the machine or accessory. Whenever any doubt exists contact your local dealer or the McConnell Service Department for assistance.

Only use 'Genuine McConnell Parts' on McConnell machinery and equipment.

DEFINITIONS: *The following definitions apply throughout this manual;*

⚠ DANGER

DANGER: Alerts to a hazardous situation which will result in death or serious injury if not observed carefully.

⚠ WARNING

WARNING: Alerts to a hazardous situation which could result in death or serious injury if not observed carefully.

⚠ CAUTION

CAUTION: Alerts to a hazardous situation which could result in damage to the machine and/or equipment if not observed carefully.

NOTICE

NOTICE: Specific or general information considered important or useful to emphasise.

LEFT HAND (LH) & RIGHT HAND (RH): *These terms are applicable to the machine when fitted to the tractor and viewed from the rear; these terms also apply to tractor references.*

SERIAL PLATE

All machines are equipped with a serial number plate containing important information relating to the machine including a unique serial number used for identification purposes.

Note: Images in this manual are provided for instruction and informational purposes only and may not show components in their entirety. In certain instances images may appear different to the actual machine; where this occurs the general procedure will be basically the same. E&OE.

MACHINE & DEALER INFORMATION

Record the serial number of your machine on this page and always quote it when ordering parts. Whenever information concerning the machine is requested remember to also state the make and model of tractor to which the machine is fitted.	
Machine Serial Number:	Installation Date:
Machine Model Details:	
Dealer Name & Branch:	
Dealer Address:	
Dealer Telephone No:	
Dealer Email Address:	

INTRODUCTION

The McConnel 'Robo-Brush' is a power brush attachment for use on McConnel Robocut machines. It has been designed for use as a professional tool for use in clearing up work areas following grass-cutting duties; it is particularly useful on pathways, parks, ramps and numerous other areas especially where accessibility is difficult or limited.

This machine must only be used to perform the duties for which it was designed; use of the machine for any other tasks will risk injury to persons and/or damage to the machine.

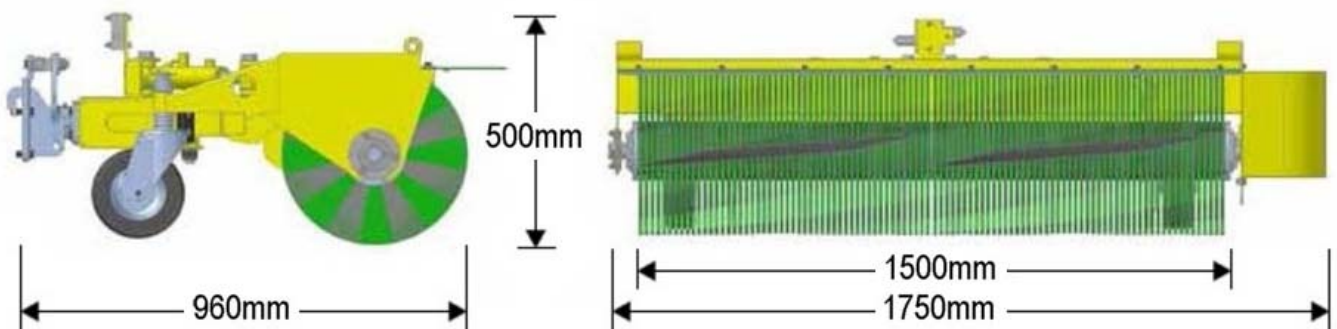


SPECIFICATIONS & DIMENSIONS

Technical Specifications

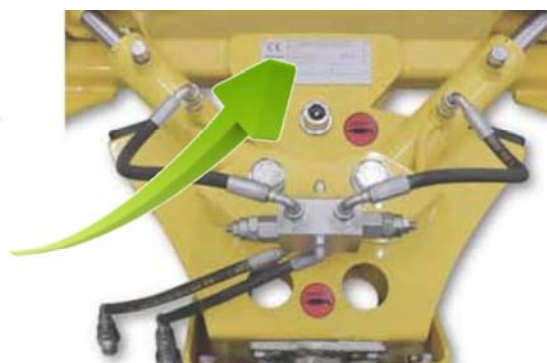
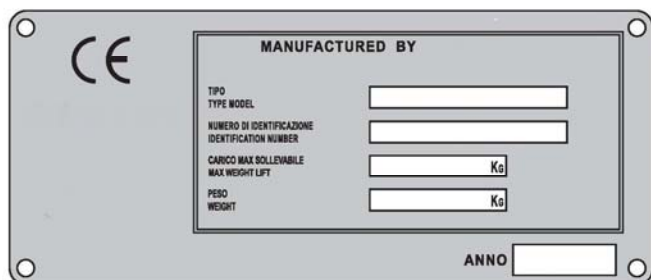
- 1.5m working width.
- Hydraulically adjustable sweeping angle.
- Hard-wearing brush.
- High-performance 400RPM motor.
- Weight: 190kg.

Dimensions



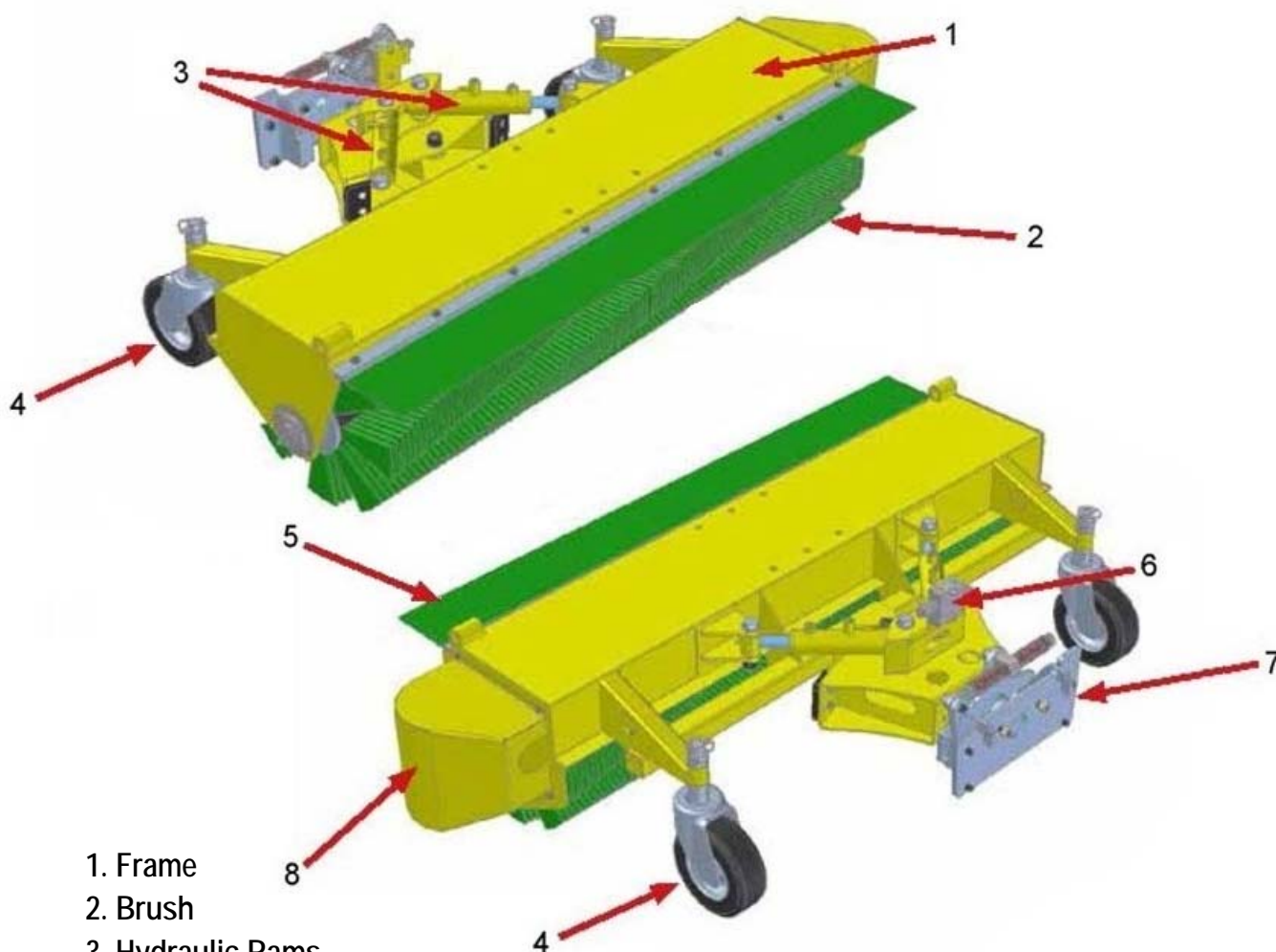
MACHINE IDENTIFICATION

A machine identification plate is fitted to the machine in the location indicated below.



Always quote the machine type and serial number as stated on the identification when ordering replacement parts.

IDENTIFICATION OF COMPONENTS



1. Frame
2. Brush
3. Hydraulic Rams
4. Caster Wheel
5. Rubber Protection Guard
6. Control Valve
7. Mounting Plate
8. Motor Cover

SAFETY INFORMATION



In addition to the general advice stated below, the main safety implications surrounding the use of this machine relate to the safe use of the Robocut machine; it is therefore vital that all users have read and understood all safety information in the operation manual provided with that machine.

Ensure that all users of this machine are trained in its safe use and have read the operation manual for both this machine and the Robocut machine.

General safety rules:

- ▲ Always read and follow the instructions for the use and maintenance of the machine before carrying out any work operations or servicing tasks.
- ▲ Improper use of the machine is both highly dangerous to persons and damaging to the machine components – only use the machine for its designated task.
- ▲ Both operators and the maintenance fitters should be familiar with the machine and fully aware of dangers surrounding improper use or incorrect repairs.
- ▲ Before starting, checks to both the carrying vehicle and the machine must be carried out with regard to: functionality, safety, and accident prevention.
- ▲ Immediately replace missing or damaged safety decals.
- ▲ Inspect the work area prior to operation and remove dangerous or hazardous objects.
- ▲ Even when using the machine correctly, stones or other objects may be thrown a long distance, therefore nobody must stand within the danger area. Special attention must be paid when working near roads, vehicles and buildings.
- ▲ The condition of the chain, tools and safety guards must be checked before beginning work; they must be replaced if damaged or missing before attempting to operate the machine.
- ▲ During checks or repairs, make sure nobody could start the machine by mistake.
- ▲ Protective clothing and safety equipment appropriate for the job must always be worn.
- ▲ Only operate the machine from a safe position with a clear uninterrupted view of the immediate work area.
- ▲ Before starting the machine, check the surrounding area for the likely presence of persons and/or animals.
- ▲ Never carry passengers on the machine.
- ▲ Never leave a running machine unattended.
- ▲ Never approach the machine until the rotor has completely stopped.
- ▲ Stop operating the machine immediately and switch it off if persons or animal enter the work zone and do not re-start until they are clear of the danger area (min.100 metres).
- ▲ Do not stand ahead of the machine whilst operating.
- ▲ Take extra care when working on rough or uneven terrain.
- ▲ Do not work on slopes in excess of the machines capability.

- ▲ Only operate the machine in daylight conditions or high quality artificial lighting.
- ▲ Before leaving the machine, park it safely on firm level site and remove the carrying vehicle's starting key.

Although the information given here covers a wide range of safety subjects, it is impossible to predict every eventuality that can occur under differing circumstances whilst operating this machine. No advice given here can replace 'good common sense' and 'total awareness' at all times, but will go a long way towards the safe use of your McConnel machine.

Personal Safety Gear



Users should wear suitable personal safety gear at all times whilst operating this machine. *Suggested safety gear is as follows;*

- **Dust Mask**
- **Safety Boots**
- **Eye Protection** (*Safety Goggles, Safety Glasses with side shields or Safety Visor*).
- **Ear Defenders**
- **Safety Helmet**
- **Safety Gloves**
- **Overalls**

MACHINE SAFETY DECALS

Lift Point Locations

Handling of the machine must only be performed using suitable lifting gear attached to the lifting points indicated. Keep all persons clear of raised machine.

1. **DANGER: Rotating components.**
Keep clear, risk of injury or entrapment.
2. **DANGER: Keep clear of working machine.**
Risk of injury or damage from ejected materials.
3. **DANGER: Moving components.**
Keep clear of machine, pinch points risks.

ATTACHMENT & OPERATION

Attachment and removal of the machine must always be performed on a firm level site. Ensure bystanders are kept at a safe distance from the machines during the attachment process. The procedure for attaching the machine to a Robocut is as follows;

Align the Robocut until its mounting plate **(a)** is centred and parallel to the Robobrush mounting plate **(b)**.

Lower mounting plate **(a)** and move forwards slowly until the two plates are in contact with each other.

Raise the mounting plate **(a)** until the Robobrush mounting plate is fully connected.

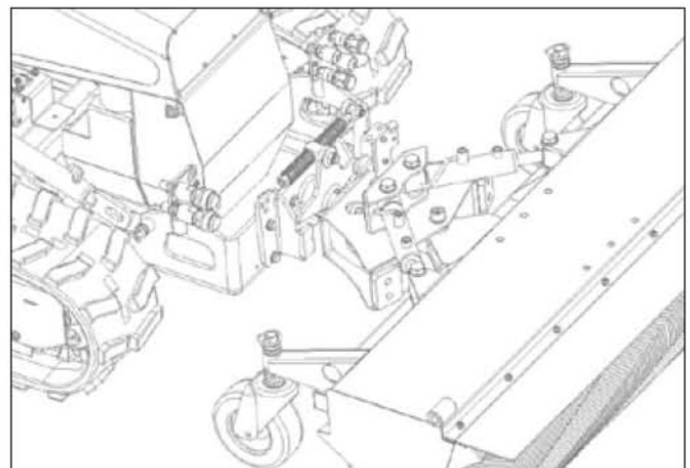
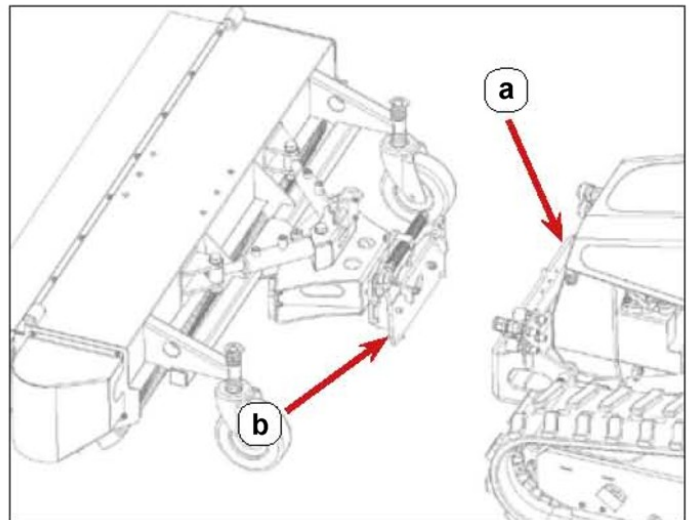
Turn off the Robocut and remove the security key from the controls.

Fix mounting plate **(a)** to mounting plate **(b)** using the 6 screws in the location holes; secure in place with self-locking nuts.

Connect the machines 'quick release' hoses to the Robocut's external connection points.

Ensure that all connections are connected correctly.

Start the Robocut and carefully operate the controls to verify they correspond to their correct functions.



Operating the Machine

Operation of the brush rotation is via the rotor controls on the Robocut's remote control unit.



◀ Angling of the machine to the left or the right is controlled by the use of switch 'f' indicated opposite.

Height Adjustment

The brush height is determined by the height position of the caster wheels **(a)**, adjustment of which is controlled by spacer washers **(d)**; washers are placed on the wheel pin either above or below the support beam **(c)** to give the desired height. The wheel units are secured in place with safety pins **(b)**. Always make sure that the washers are placed in the same positions on each of the two wheels to ensure the brush works parallel to the ground. See *illustrations below*.



⚠ WARNING

This procedure must only be performed with the machine supported and secured so that it cannot fall during adjustment operations on the wheels. Failure to observe this can result in personal injury and/or damage to the machine.

MAINTENANCE

⚠ WARNING

All maintenance, cleaning and repairing operations must be carried out when the engine is turned off and the starting key removed.

Before performing any cleaning or maintenance operations, wait for the machine and equipment to cool down.

The machine should be inspected on a daily basis prior to work to ensure it is in good working condition, the following points should be addressed during routine inspections;

- Check tightness of nuts and bolts, retighten if required.
- Check brush for signs of wear and tear, replace if excessive wear/damage is observed.
- Check hydraulic hoses and hydraulic connections for signs of damage or leakage, replace any damaged components immediately.
- Check wheels and wheel components, replaced any worn or damaged items if required.
- Lubricate machine at the required intervals.

Wheel Replacement

To replace a wheel **(a)**;

- Remove the safety pin **(b)**.
- Remove any spacer washers **(d)** from above support **(c)**.
- Remove the wheel **(a)** from support **(c)**.
- Remove any spacers **(d)** from the wheel pin.
- Replace the damaged or worn wheel with a new one.
- Repeat the operations described above in reverse order. Ensure the safety pin **(b)** has been inserted properly.



Replacing Hydraulic Hoses

Check condition of all hydraulic hoses and connections for signs of damage or leakage on a regular basis. Hydraulic hoses should be replaced periodically (every 2000 hours or on a yearly basis). Damaged hoses must be replaced immediately.

SERVICE SCHEDULE

Service	Daily	Weekly
Grease all lubrication points fully.	•	
Check tightness of nuts and bolts.	•	
Check hydraulic system for signs of damage or leakage.	•	
Inspect machine for missing, damaged or excessively worn components.		
Check condition of brush shaft; it should be free from movement or vibration.		•
Check the condition of the machine's frame.		•

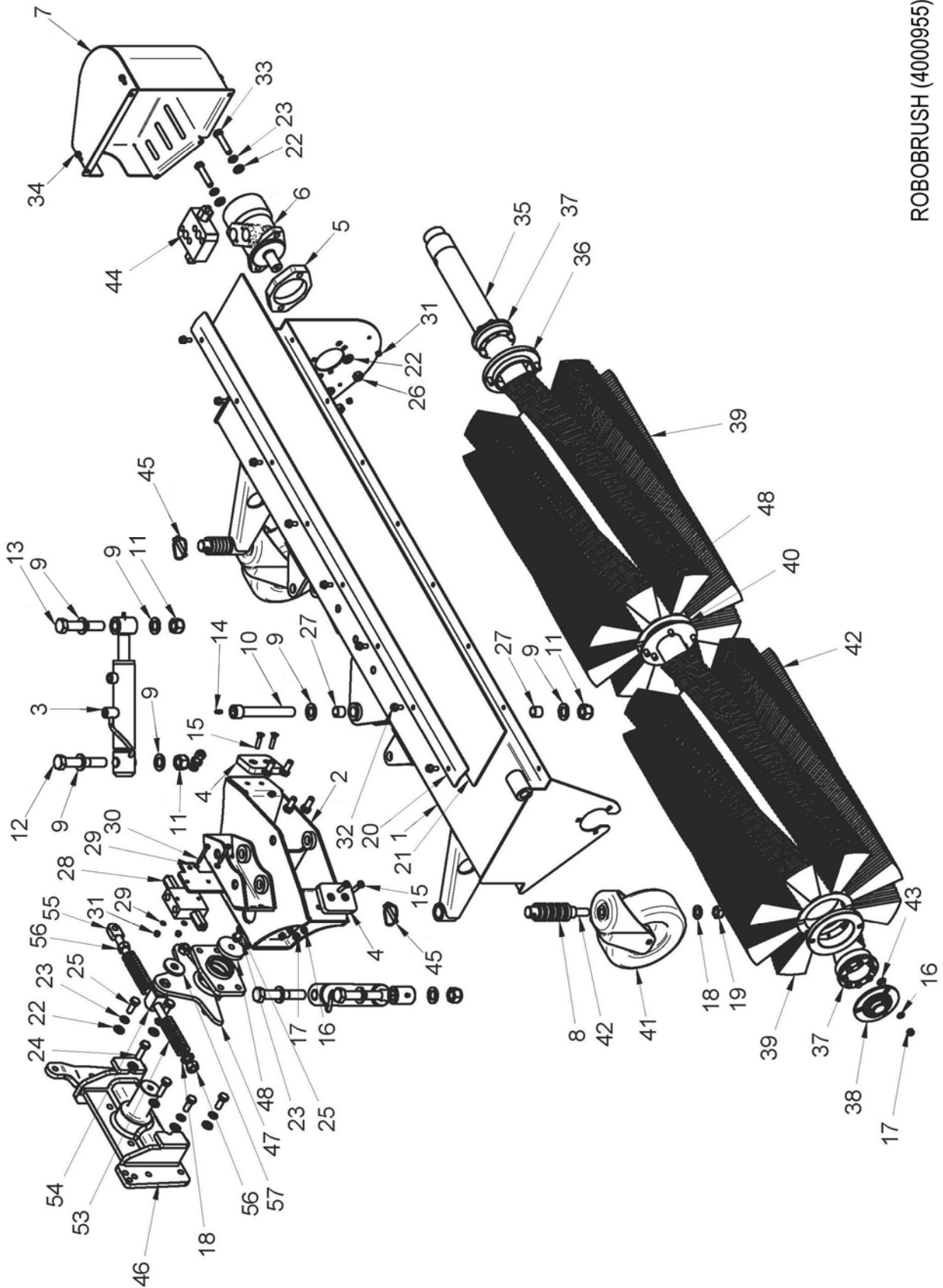


ROBOBRUSH
(WGC: 4000955)
- Parts Manual -

ROBOBRUSH ASSEMBLY

Module(s): 4000955

McCONEL



ROBOBRUSH (4000955)

Module(s): 4000955

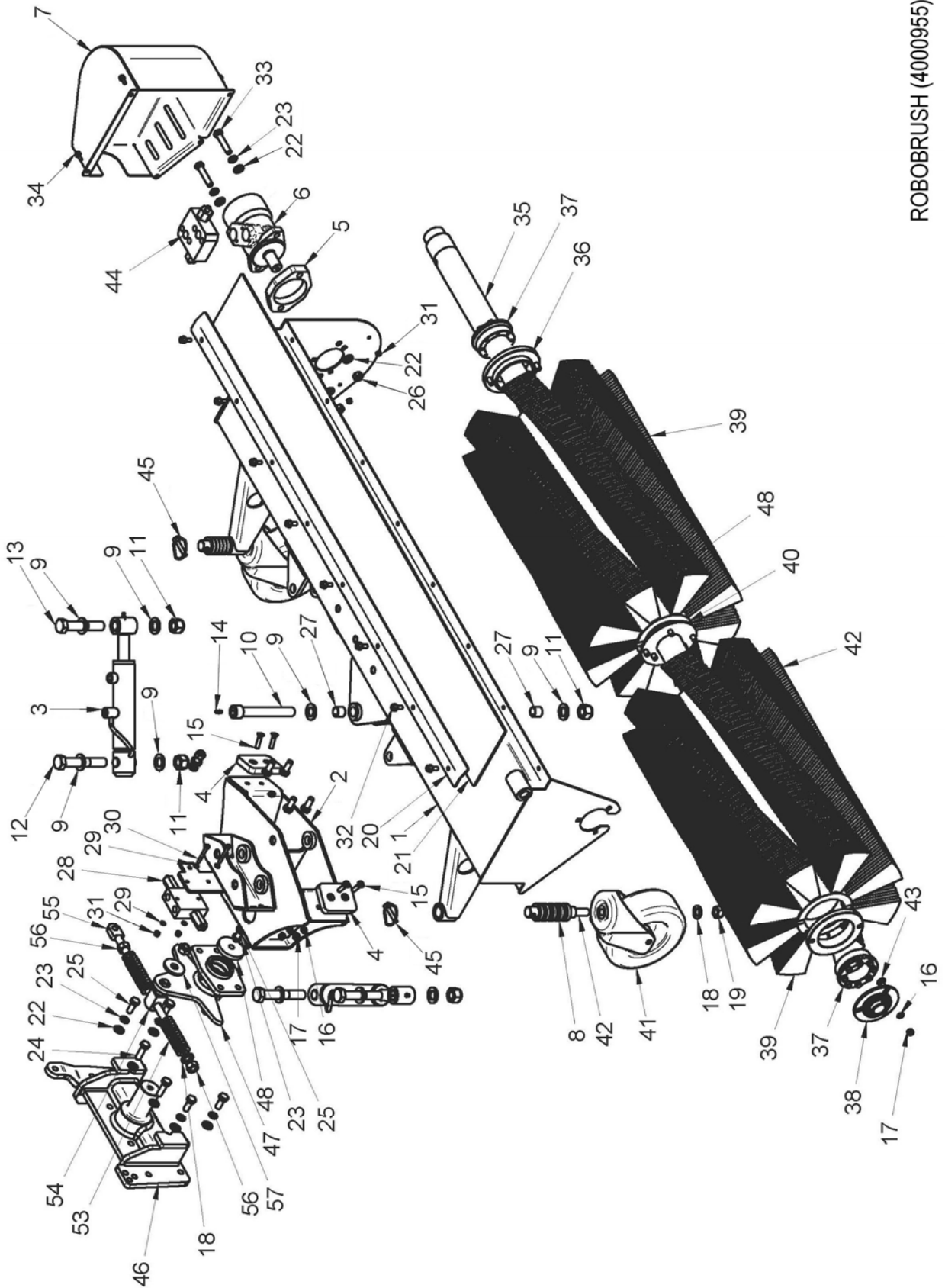
REF.	QTY.	PART No.	DESCRIPTION
		4000955	ROBOBRUSH
1	1	4001634	BRUSH FRAME
2	1	4000675	BLADE CONNECTION
3	2	4000672	HYDRAULIC RAM
4	2	4000671	PLATE
5	1	4001635	MOTOR SPACER
6	1	4001636	ORBITAL MOTOR
7	1	4001637	MOTOR COVER
8	20	4000679	SHIMS
9	10	4001638	WASHER
10	1	7315648	PIVOT
11	5	7316011	LOCK NUT
12	2	4000683	SCREW
13	2	4001639	SCREW
14	1	4000368	GREASE NIPPLE
15	4	4000685	C/SUNK HEAD SCREW
16	7	4000078	WASHER
17	7	4000865	LOCK NUT
18	6	4000253	WASHER
19	5	4000221	LOCK NUT
20	1	4001640	RUBBER SUPPORT
21	1	4001641	RUBBER PROTECTION
22	12	4000759	WASHER
23	7	4000760	WASHER
24	2	4000681	SCREW
25	9	4000212	HEX HEAD SCREW
26	4	4000077	LOCKNUT
27	2	4000690	BEARING
28	1	4000691	CONTROL VALVE
29	4	4000789	WASHER
30	2	4000580	SCREW
31	7	4000791	LOCKNUT
32	8	4000380	FLANGED HEAD SCREW
33	2	4001642	HEX HEAD SCREW
34	5	4000316	FLANGED HEAD SCREW
35	1	4001643	SHAFT ASSEMBLY
36	2	4001644	BRUSH HOLDER
37	2	4001645	LOCKING DEVICE
38	1	4001646	BEARING
39	2	4001647	BUSH
40	1	4001648	BUSH HOLDER (INNER)
41	2	4000676	CASTER WHEEL
42	2	4000677	WHEEL PIN
43	3	4001649	SCREW

continued...

ROBOBRUSH ASSEMBLY

Module(s): 4000955

McCONEL



ROBOBRUSH (4000955)

ROBOBRUSH ASSEMBLY**McCONNEL**

Module(s): 4000955

REF.	QTY.	PART No.	DESCRIPTION
		4000955	ROBOBRUSH
44	1	4000658	VALVE
45	2	7316012	PIN
46	1	4001540	MOUNTING BRACKET
47	1	4001519	MOUNTING FLANGE
48	1	4000238	WASHER
49	1	4000224	GREASER
50	4	4000357	KNURLED WASHER
51	1	7315611	HEX HEAD SCREW
52	1	4000751	LOCKNUT
53	2	4001534	SPRING
54	1	4001518	SPRING BRACKET
55	1	4001517	SPRING ROD
56	2	4001650	NUT
57	1	4001541	WASHER



McConnel Limited, Temeside Works, Ludlow, Shropshire SY8 1JL. England.
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