

Publication 877
May 2017
Part No. 23671.77

WEED BRUSH

REACH ARM ATTACHMENT

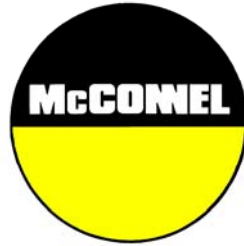


Operator Manual



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.mcconnel.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.

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



GreenTec Merkurvej 25, DK-6000 Kolding, Denmark

CE DECLARATION OF CONFORMITY

Adapted EEC directive
EG Guideline 2006/42/EF, 89/392/EEC & 98/37/EC

We, **GreenTec A/S**, Merkurvej 25, 6000 Kolding, hereby declare that in terms of its design, method of construction and our execution thereof, the item of machinery described below complies with the basic health and safety regulations of the respective EU Directives. The Machinery Directive is supported by the following harmonized standards:

Product: BR 90 Weed Clearing Brush

Product code: 9995090

Serial no:

Type: Weed Clearing Brush




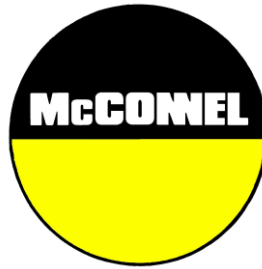
- DS/EN ISO 12100 3rd edition 2011. Safety of Machinery – General principles for design – Risk assessment and risk reduction.
- DS/EN 953+A1 4th edition 2010. Safety of Machinery – Guards-General requirements for the design and construction of fixed and movable guards.
- DS/EN ISO 4413 1th edition 2010. Hydraulic fluid power – General rules and safety requirements for systems and their components.

The EC Declaration only applies if the machine stated above is used in accordance with the operating instructions.

On behalf of GreenTec A/S

Date: 1.3.2016

Signature: 
John Christensen - Sales Executive



For Safety and Performance...

ALWAYS READ THE BOOK FIRST

McCONEL LIMITED

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Shropshire
England**

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www.mcconel.com**

▲ WARNING

Cancer and Reproductive Harm
www.P65Warnings.ca.gov

D960

Operating, servicing and maintaining this equipment can expose you to chemicals including gasoline, diesel fuel, lubricants, petroleum products, engine exhaust, carbon monoxide, and phthalates, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your vehicle. Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the state of California to cause cancer, birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov. This website, operated by California's Office of Environmental Health Hazard Assessment, provides information about these chemicals and how individuals may be exposed to them.

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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 McConnel Service Department for assistance.

Only use 'Genuine McConnel Parts' on McConnel 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:	

MACHINE DESCRIPTION

The Weed Brush is a reach arm mounted, hydraulically powered rotating heavy-duty brush attachment specifically designed for the efficient removal of weeds, moss and wild herbs on pathways, pavements, cycling paths and verges. Capable of operating at various angles and equipped with a multi-adjustable protection guard, the machine possesses the ability to work in awkward and/or confined areas.

The machine features a working width of 900mm and is equipped with 64 replaceable wire bundles. The PTO operating speed for this machine is 540RPM (Max).

These machines must only be used to perform the tasks for which they were designed; use of the machine for any other purpose is dangerous to persons and risks damaging the machine.



MACHINE IDENTIFICATION

Serial Plate

The machine is fitted with a Serial Number Plate stating machine identification, serial number and weight. When ordering parts or requesting advice please quote machine identification and serial number as stated on the plate.

TECHNICAL DATA

Working Width	90cm (35½")
Brushes	64 x Steel Bundles
Drive	Hydraulic
Oil Flow	45 l/min, max 220 bar
Weight	230kg (507 lbs)



This machine has the potential to be extremely dangerous - in the wrong hands it can kill or maim; It is therefore imperative that both owner and operator of the machine reads and understands the following section to ensure they are fully aware of the dangers that do, or may exist, and their responsibilities surrounding the use and operation of the machine.

The operator of this machine is responsible not only for their own safety but equally for the safety of others who may come into the close proximity of the machine, as the owner you are responsible for both.

When the machine is not in use it should be lowered to rest on the ground. In the event of any fault being detected with the machine's operation it must be stopped immediately and not used again until the fault has been corrected by a qualified technician.

POTENTIAL DANGERS ASSOCIATED WITH THE USE OF THIS MACHINE:

- ▲ *Being hit by debris thrown by rotating components.*
- ▲ *Being hit by machine parts ejected through damage during use.*
- ▲ *Being caught on a rotating power take-off (PTO) shaft.*
- ▲ *Being caught in other moving parts i.e.: belts, pulleys and rotating heads.*
- ▲ *Electrocution from Overhead Power Lines (by contact with or 'flashover' from).*
- ▲ *Being hit by machine attachments or machine arms as they move.*
- ▲ *Becoming trapped between tractor and machine when hitching or unhitching.*
- ▲ *Tractor overbalancing when machine arm is extended.*
- ▲ *Injection of high-pressure oil from hydraulic hoses or couplings.*
- ▲ *Machine overbalancing when freestanding (out of use).*
- ▲ *Road traffic accidents due to collision or debris on the road.*

BEFORE USING THIS MACHINE YOU MUST:

- ▲ *Ensure you read all sections of the operator handbook for all machines being operated.*
- ▲ *Ensure the operator is, or has been, properly trained to use the machine.*
- ▲ *Ensure the operator has been issued with and reads the operator handbooks.*
- ▲ *Ensure the operator understands and follows the instructions in operator handbooks.*
- ▲ *Ensure the tractor front, rear and sides are fitted with metal mesh or polycarbonate guards of suitable size and strength to protect the operator against thrown debris or parts.*
- ▲ *Ensure tractor guards are fitted correctly, are undamaged and kept properly maintained.*
- ▲ *Ensure that all machine guards are in position, are undamaged, and are kept maintained in accordance with the manufacturer's recommendations.*
- ▲ *Ensure machine tools and fixings are of a type recommended by the manufacturer, are securely attached and that none are missing or damaged.*
- ▲ *Ensure hydraulic pipes are carefully and correctly routed to avoid damage by chaffing, stretching or pinching and that they are held in place with the correct fittings.*
- ▲ *Always follow the manufacturer's instructions for attachment and removal of the machine from the tractor.*
- ▲ *Check that the machine fittings and couplings are in good condition.*
- ▲ *Ensure the tractor meets the minimum weight recommendations of the machine's manufacturer and that ballast is used as necessary.*
- ▲ *Always inspect the work area thoroughly before starting to note obstacles and remove wire, bottles, cans and other debris.*
- ▲ *Use clear suitably sized warning signs to alert others to the nature of the machine working within that area. Signs should be placed at both ends of the work site. (It is recommended that signs used are of a size and type specified by the Department of Transport and positioned in accordance with their, and the Local Highways Authority, guidelines).*
- ▲ *Ensure the operator is protected from noise. Ear defenders should be worn and tractor cab doors and windows must be kept closed. Machine controls should be routed through proprietary openings in the cab to enable all windows to be shut fully.*
- ▲ *Always work at a safe speed taking account of the conditions i.e.: terrain, highway proximity and obstacles around and above the machine. Extra special attention should be applied to Overhead Power Lines. Some of our machines are capable of reach in excess of 8 metres (26 feet) this means they have the potential to well exceed, by possibly 3 metres (9' 9"), the lowest legal minimum height of 5.2 metres from the ground for 11,000 and 33,000 volt power lines. It cannot be stressed enough the dangers that surround this capability, it is therefore vital that the operator is fully aware of the maximum height and reach of the machine, and that they are fully conversant with all aspects regarding the safe minimum distances that apply when working with machines in close proximity to Power Lines. (Further information on this subject can be obtained from the Health & Safety Executive or your Local Power Company).*

- ▲ *Always disengage the machine, kill the tractor engine, remove and pocket the key before dismounting for any reason.*
- ▲ *Always clear up all debris left at the work area, it may cause hazard to others.*
- ▲ *Always ensure when you remove your machine from the tractor that it is left in a safe and stable position using any stands or props provided and secured if necessary.*

WHEN NOT TO USE THIS MACHINE:

- ▲ *Never attempt to use this machine if you have not been trained to do so.*
- ▲ *Never use a machine until you have read and understood the operator handbook, are familiar with it, and practiced the controls.*
- ▲ *Never use a machine that is poorly maintained.*
- ▲ *Never use a machine if guards are missing or damaged.*
- ▲ *Never use a machine on which the hydraulic system shows signs of wear or damage.*
- ▲ *Never fit, or use, a machine on a tractor that does not meet the manufacturer's minimum specification level.*
- ▲ *Never use a machine fitted to a tractor that does not have suitable front, rear and side(s) cab guarding made of metal mesh or polycarbonate.*
- ▲ *Never use the machine if the tractor cab guarding is damaged, deteriorating or badly fitted.*
- ▲ *Never turn a machine cutting head to an angle that causes debris to be ejected towards the cab.*
- ▲ *Never start or continue to work a machine if people are nearby or approaching - Stop and wait until they are at a safe distance before continuing. WARNING: Some machines may continue to 'freewheel' for up to 40 seconds after being stopped.*
- ▲ *Never attempt to use a machine on materials in excess of its capability.*
- ▲ *Never use a machine to perform a task it has not been designed to do.*
- ▲ *Never operate the tractor or machine controls from any position other than from the driving seat, especially whilst hitching or unhitching the machine.*
- ▲ *Never carry out maintenance of a machine or a tractor whilst the engine is running – the engine should be switched off, the key removed and pocketed.*
- ▲ *Never leave a machine unattended in a raised position – it should be lowered to the ground in a safe position on a level firm site.*
- ▲ *Never leave a tractor with the key in or the engine running.*
- ▲ *Never carry out maintenance on any part or component of a machine that is raised unless that part or component has been properly substantially braced or supported.*
- ▲ *Never attempt to detect a hydraulic leak with your hand – use a piece of cardboard.*
- ▲ *Never allow children near to, or play on, a tractor or machine under any circumstances.*

The safety advice stated in this manual should be used in addition to, and in conjunction with, all national safety regulations and all existing in-house safety regulations. Safety precepts must be complied with at all times. Additionally, the safety precepts of the carrying vehicles must be complied with. If the machine is used on public roads the existing laws and regulations apply.

Safety Advice for Maintenance and Inspection:

- The head of operations must ensure that all maintenance, inspections and fittings are carried out by authorized personnel who have read and understood the contents of this manual.
- Maintenance must only be performed with the machinery switched off and the starting key removed and pocketed.
- When maintaining tools and/or machines that are in a raised position, they must always be secured with suitable support units.
- When working on, or replacing, hydraulically powered components check the hydraulic system for residual pressure; always **reduce the pressure to zero**.
- Only use suitable tools and always wear work gloves, safety shoes and safety glasses.
- Dispose of oil and grease according to regulations.
- After performing servicing and/or maintenance, all safety and protection units that were removed must be re-installed immediately.
- Before using the machine, operators and fitters must have read and understood the manufacturers operating instructions for the carrying machine and the tractor.

Safety Advice for the Head of Operations and User:

- It is vital that the Head of Operations and the User is familiar with the equipment and the operational units before starting work with the machine; afterwards is too late.
- Work wear must be tight fitting; never wear loose clothing near machinery.
- Always inspect the work area prior to operation; check for dangers such as, rocks, glass, wire, fence posts etc. Remove all loose items from the work area that would pose a potential danger if they were to come into contact with the working machine, fixed obstacles that pose a danger should avoided or worked around with extreme care.
- Check your surroundings before starting and/or operating the machine; do not start the machine if persons or animals are within the work zone, wait until they are at a suitably safe distance from the machine.
- Never carry passengers on the machine(s).
- Never leave the driver's seat when the machine is running.
- Stop work immediately and switch off the machine if persons or animals enter the work area, restart only when they are at a safe distance.
- Take extra precautions when working underneath power lines. Always keep the machinery at a safe working distance from power lines – *be aware of all rules and regulations regarding the use of machinery in close proximity to power lines.*
- Before leaving the vehicle, always lower the machine/tool to the ground, remove the ignition key and secure the vehicle from inadvertent activation and rolling.

ADDITIONAL SAFETY ADVICE

Training

Operators need to be competent and fully capable of operating this machine in a safe and efficient way prior to attempting to use it in any public place. We advise therefore that the prospective operator make use of relevant training courses available such as those run by the Agricultural Training Board, Agricultural Colleges, Dealers and McConnell.

Working in Public Places

When working in public places such as roadsides, consideration should be paid to others in the vicinity. Stop the machine immediately when pedestrians, cyclists and horse riders etc. pass. Restart only when they are at a distance that causes no risk to their safety.

Warning Signs

It is advisable that any working area be covered by suitable warning signs and statutory in public places. Signs should be highly visible and well placed in order to give clear advanced warning of the hazard. Contact the Department of Transport or your Local Highways Authority to obtain detailed information on this subject. The latter should be contacted prior to working on the public highway advising them of the time and location of the intended work asking what is required by way of signs and procedure. – *‘Non-authorized placement of road signs may create offences under the Highways Act’*.

Suggested Warning Signs Required

‘Road works ahead’ warning sign with a supplementary ‘Hedge cutting’ plate. ‘For 1 mile’ or appropriate shorter distance may be added to the plate.

‘Road narrows’ warning signs with supplementary ‘Single file traffic’ plate.

White on blue ‘Keep right’ () arrow sign on rear of machine.*

** Note – this applies to UK Market machines where traffic passes to the right of a machine working in the same direction as the traffic flow. The direction, use and colour of the arrow sign will depend on the country of use and the Local Highway Authorities regulations in the locality.*

Use of Warning Signs

- ▲ *On two-way roads one set of signs is needed facing traffic in each direction.*
- ▲ *Work should be within 1 mile of the signs.*
- ▲ *Work only when visibility is good and at times of low risk e.g.: NOT during ‘rush-hour’.*
- ▲ *Vehicles should have an amber-flashing beacon.*
- ▲ *Ideally, vehicles should be conspicuously coloured.*
- ▲ *Debris should be removed from the road and path as soon as practicable, and at regular intervals, wearing high visibility clothing and before removing the hazard warning signs.*
- ▲ *Collect all road signs promptly when the job is completed.*

Although the information stated 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 McConnell machine.

Safety Gear: It is recommended that the following personal protective equipment is worn when operating and/or maintaining this machine; Coveralls, safety boots, safety glasses, hearing protection, safety helmet, protective gloves.



SAFETY DECALS



WARNING
Avoid fluid escaping under pressure. Consult technical manual for service procedures.



WARNING
Stop engine and remove key before performing maintenance or repair work.



WARNING
Danger – flying objects. Keep safe distance from the machine as long as the engine is running.



WARNING
Check all nuts and bolts are tight every 8 hours – retighten if required.



WARNING
Stay clear of rotating parts and components.



WARNING
Carefully read operator's manual before handling this machine. Observe instructions and safety rules when operating.



WARNING
Do not remove or open guard(s) when parts are rotating.

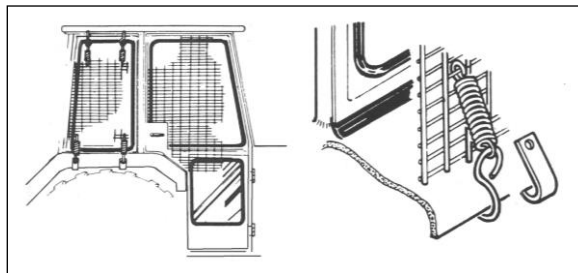


WARNING
The recommended oil flow has been adjusted by the manufacturer - never exceed this.

VEHICLE / TRACTOR PREPARATION

We recommend vehicles are fitted with cabs using 'safety glass' windows and protective guarding when used with our machines.

Fit Operator Guard (Part No. 7313324) using the hooks provided. Shape the mesh to cover all vulnerable areas. The driver must be looking through mesh and/or polycarbonate glazing when viewing the flail head in any working position -



unless the vehicle/ cab manufacturer can demonstrate that the penetration resistance is equivalent to, or higher than, that provided by mesh/polycarbonate glazing. If the tractor has a roll bar only, a frame must be made to carry both mesh and polycarbonate glazing. The operator should also use personal protective equipment to reduce the risk of serious injury such as; eye protection (*mesh visor to EN1731 or safety glasses to EN166*), hearing protection to EN352, safety helmet to EN297, gloves, filter mask and high visibility clothing.

Vehicle Ballast: It is imperative when attaching 'third-party' equipment to a vehicle that the maximum possible stability of the machine and vehicle combination is achieved – this can be accomplished by the utilization of 'ballast' in order to counter-balance the additional equipment added.

Front weights may be required for rear mounted machines to place 15% of total outfit weight on the front axle for stable transport on the road and to reduce 'crabbing' due to the drag of the cutting unit when working on the ground.

Rear weights may be required to maintain a reasonable amount of rear axle load on the opposite wheel from the arms when in work; for normal off-ground work i.e. hedge cutting this should be 20% of rear axle weight or more for adequate control, and for ground work i.e. verge mowing with experienced operators, this can be reduced to 10%.

All factors must be addressed in order to match the type and nature of the equipment added to the circumstances under which it will be used – in the instance of Power Arm Hedgecutters it must be remembered that the machines centre of gravity during work will be constantly moving and will differ from that during transport mode, therefore balance becomes critical.

Factors that affect stability:

- *Centre of gravity of the tractor/machine combination.*
- *Geometric conditions, e.g. position of the cutting head and ballast.*
- *Weight, track width and wheelbase of the tractor.*
- *Acceleration, braking, turning and the relative position of the cutting head during these operations.*
- *Ground conditions, e.g. slope, grip, load capability of the soil/surface.*
- *Rigidity of implement mounting.*

Suggestions to increase stability:

- *Increasing rear wheel track; a vehicle with a wider wheel track is more stable.*
- *Ballasting the wheel; it is preferable to use external weights but liquid can be added to around 75% of the tyre volume – water with anti-freeze or the heavier Calcium Chloride alternative can be used.*
- *Addition of weights – care should be taken in selecting the location of the weights to ensure they are added to a position that offers the greatest advantage.*
- *Front axle locking (check with tractor manufacturer).*

NOTE: The advice above is offered as a guide for stability only and is not a guide to vehicle strength. It is recommended that you consult your vehicle manufacturer or local dealer to obtain specific advice on this subject, additionally advice should be sought from a tyre specialist with regard to tyre pressures and ratings suitable for the type and nature of the machine you intend to fit.

ATTACHING THE MACHINE

⚠ WARNING Attachment and removal of the machine must always be performed on a firm level site. Keep bystanders at a safe distance from the machine.

⚠ DANGER Do not attempt to mount and/or use the machine on an unstable or unsuitable vehicle.

⚠ WARNING Ensure no persons are located between the vehicle and the machine during the attachment procedure.

⚠ CAUTION Ensure hydraulic hoses do not risk being trapped between the machines during the attachment procedure.

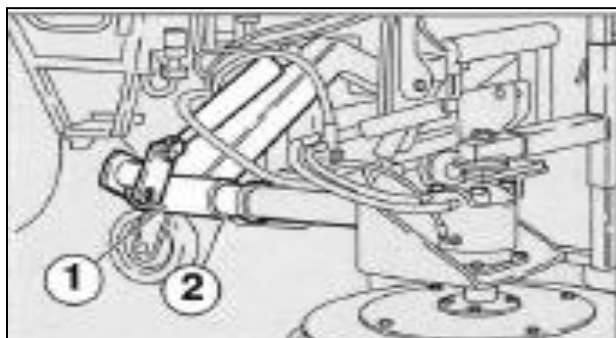
⚠ DANGER During machine fastening the vehicle must be securely parked with its engine switched off and the starting key removed.

⚠ DANGER Ensure that the hydraulic system is depressurised before performing any tasks or maintenance on the machinery.

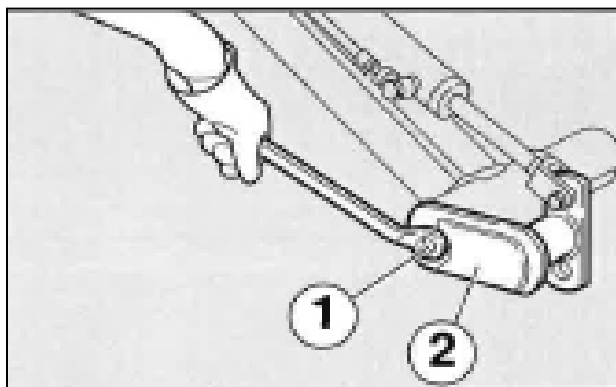
Attachment Procedure

For attachment, the Weed Brush should be located in an accessible position on a firm level site.

- Position tractor and reach arm adjacent to the Weed Brush.
- Carefully operate reach arm and angling mechanism to position and align the connection points of the reach arm (1) with the Weed Brush (2).



- Fasten the Weed Brush to the reach arm using the fixings provided.



- Connect the hydraulic hoses of the Weed Brush to the hydraulic hoses on the reach arm; *Hoses must be fitted and routed in a manner that ensures they cannot be stretched, twisted, or pinched during normal movements of the machine.*

Drain Hose (Marked Blue)

Connect to a depressurised (0 bar) return to tank connection.



Pressure Hose 'P' (Marked Red)

Connect to the pressure flail hose.



Return Hose 'T' (Marked Green)

Connect to the return flail hose.



Operate the reach arm to raise the Weed Brush clear of the ground. Run the Weed Brush for 5 minutes. Switch off all machines and check the hydraulic connections for any signs of leaks.

Before using the machine; practice operating the Weed Brush through its full range of movements to ensure all the hydraulic hoses have freedom of movement in all machine positions.

Removal and Storage

Removal of the machine must be performed on a firm level site and is basically a reversal of the attachment procedure.

For extended periods of storage it is advisable that the machine be kept in a clean dry environment protected from the elements to avoid risk of corrosion. The machine should be thoroughly cleaned and lubricated prior to storage. At this point it is good practice to check the machine for worn or damaged components - any parts that require replacing should be ordered and fitted at the earliest opportunity so the machine is fully prepared for the next seasons work.

Ensure the machine is left in a stable condition, secure with suitable supports if needed.

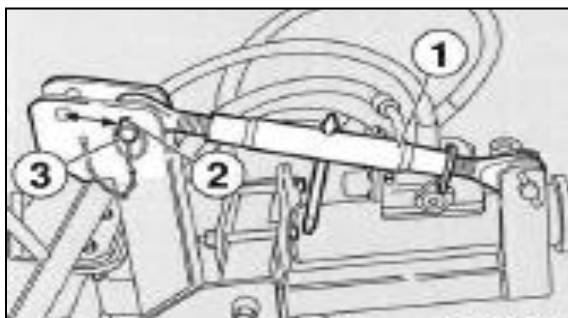
ADJUSTING THE MACHINE

⚠ WARNING Always shut off the engine and remove the starting key before performing adjustments on the machine(s).

Angle Adjustment

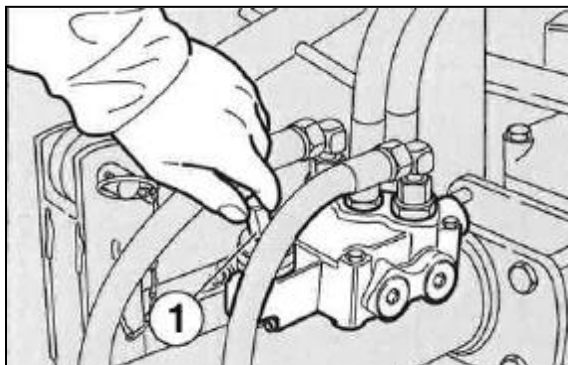
The inclination of the brush (clearance angle) is set using the top link (1).

The inclination can be approximately set by removing the split pin (3) and the bolt (2) and attaching the top link (1) to the alternative hole position.



Direction of Brush Rotation

The rotation direction of the brush can be set using the switch valve (1) located on the Weed Brush.

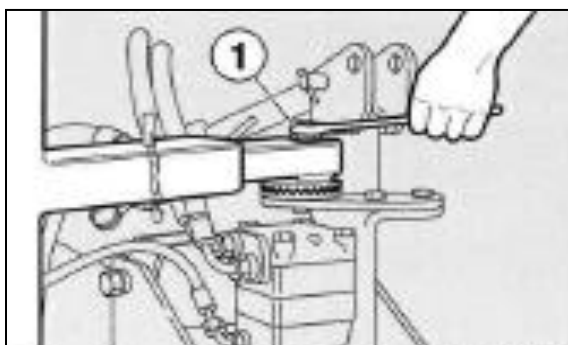


Safety Guard Positions / Adjustment

⚠ WARNING Danger of Flying Debris; the safety guard must be adjusted to avoid risk of injury to persons and/or damage to property.

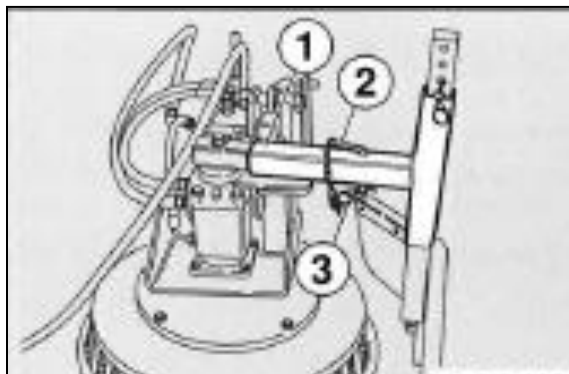
Safety Guard: Axial Adjustment

Loosen the bolt (1) and rotate the safety guard to desired position. Re-tighten the bolt (1).



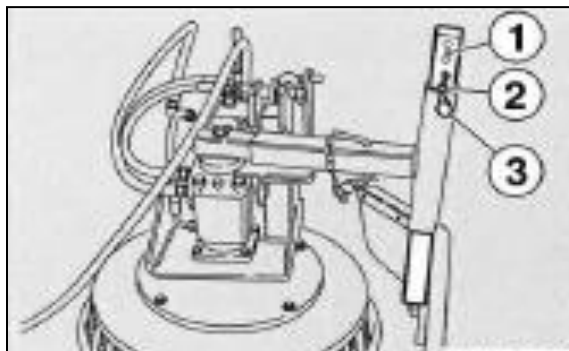
Safety Guard: Radial Adjustment

Remove split pin (3) and pin (2). Move the safety guard mount to the desired position and secure in position by replacing pin (2) and split pin (3).



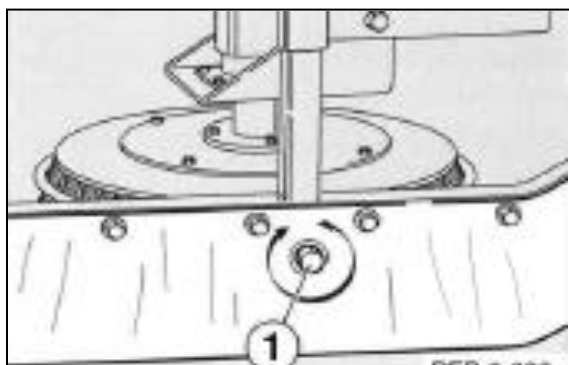
Safety Guard: Vertical Adjustment

Remove split pin (3) and pin (2). Raise or lower the safety guard to the desired position and secure in position by replacing pin (2) and split pin (3).



Safety Guard: Horizontal Adjustment

Loosen the bolt (1) and rotate the safety cover to the desired position. Re-tighten the bolt (1) to secure in position.



OPERATION

⚠ WARNING Ensure users are capable and familiar with the safe use of all the machines being used and have read the operation manual for all the machines.

⚠ WARNING Operators must abide with the safety warnings / recommendations for all machines being operated.

⚠ WARNING Always inspect machinery prior to use; check for component damage, tightness of fasteners / connections and signs of oil leaks.

⚠ WARNING Ensure all safety devices on machines being used are intact and correctly fitted. Never use a machine if safety guards are damaged or missing.

⚠ WARNING Ensure all persons are at a safe distance from the machine before attempting to start operations or when performing a functionality test.

⚠ CAUTION PTO SPEED: 540RPM MAXIMUM. Never attempt to operate the machine above the maximum recommended PTO speed.

Transportation

For transportation to and from the work site the machines should be folded into a compact position within the confines of the tractor's width – refer to the reach arm operation manual for transport information on that machine. PTO shaft must be disengaged for transport.

Weed Brush Operation

Set the brush rotation to the desired direction; the direction selected will depend on individual preference or what is demanded to efficiently perform the particular task. The default rotation direction is set via the switch valve located on the Weed Brush; starting and stopping the brush for work will then be controlled using the rotor control function on the reach arms control unit.

Work Position

For work, the positioning of the machine in relation to the vehicle will primarily depend on the demands of the job, but should ideally be in a position that offers the operator maximum visibility of the working machine and any obstacles it may encounter.

The machine should be operated using the minimum downward brush pressure required for the task. The working angle of the brush can be adjusted to suit the user's preference.

Safety Guard

For work, the safety guard should be placed and secured in a position that offers maximum protection from any debris thrown from the machine during use.

Raising and Lowering

The control valve for 'raising and lowering' the Weed Brush must be in 'float' position or controlled manually. If an obstacle is encountered, the machine should be raised and/or manoeuvred around it to avoid contact.

Travel Speed

The forward travel speed for operation should be a speed that offers the operator maximum stopping and/or avoidance ability and maximum brushing efficiency.

⚠ WARNING If passers-by approach whilst operating the machine, work should be halted immediately. Re-start only when they are clear of the danger area.

HAZARDS & DANGERS - OVERHEAD POWER LINES (OHPLs)

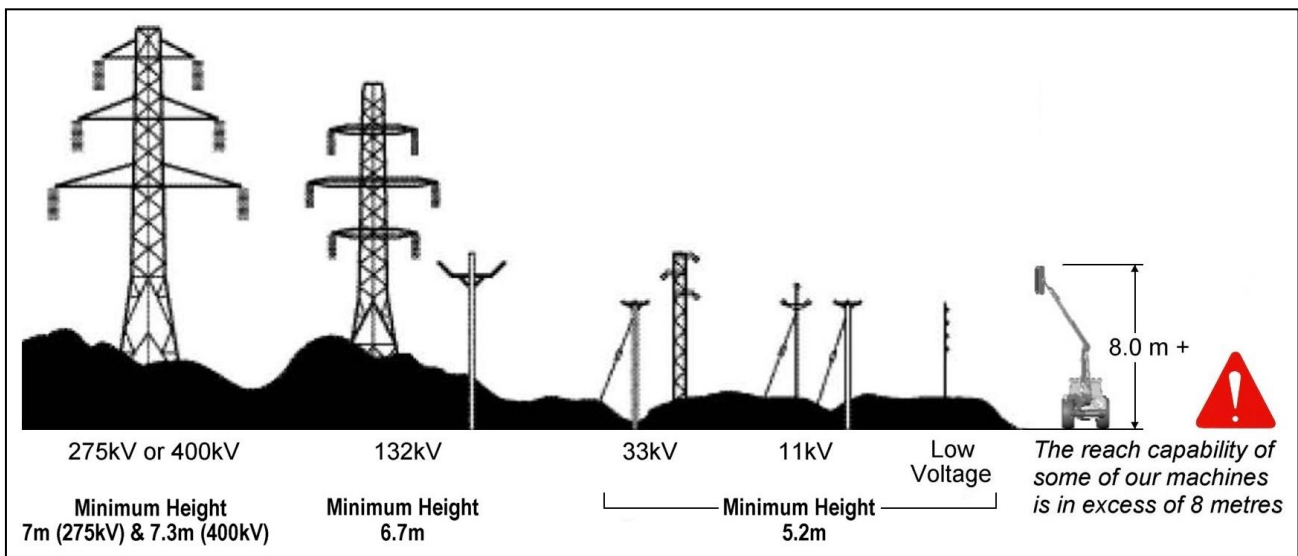
It cannot be stressed enough the dangers involved when working in the vicinity of Overhead Power Lines (OHPLs). Some of our machines are capable of reach in excess of 8 metres (26'); they have the potential to well exceed, by possibly 3 metres (9' 9"), the lowest legal minimum height of 5.2 metres from the ground for 11,000 and 33,000 volt power lines. Remember electrocution can occur without actually coming into contact with a power line as electricity can 'flashover' when machinery gets close to it.



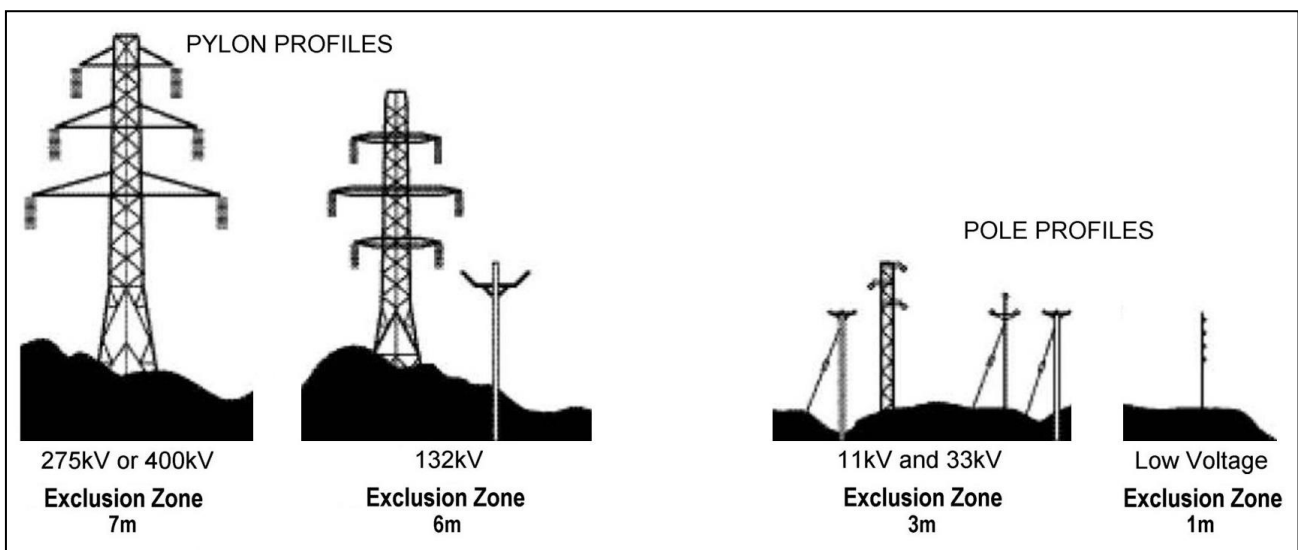
WARNING: All operators must read the following information and be aware of the risks and dangers involved when working in the vicinity of Overhead Power Lines (OHPLs).

Wherever possible the safest option is always to avoid working in areas close to OHPLs. Where unavoidable, all operators must perform a risk assessment and implement a safe procedure and system of work – see *following page for details*. All operators should perform a risk assessment before operating the machine within 10m horizontal distance of any OHPLs.

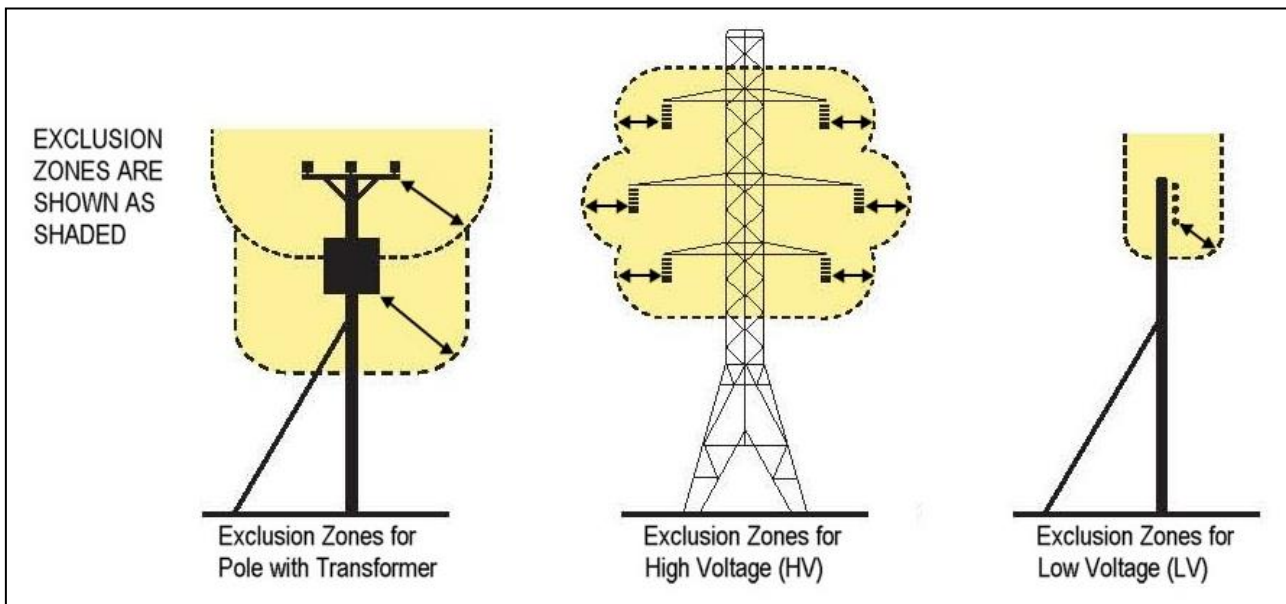
Minimum Heights for Overhead Power Lines



Absolute Minimum Exclusion Zones for Specific Overhead Power Lines



Definitions of Exclusion Zones



Risk Assessment

Before starting to work near OHPLs you should always assess the risks. The following points should be observed;

- **Know** the risks of contacting OHPLs and the risk of flashover.
- **Find out** the maximum height and maximum vertical reach of your machine.
- **Find out** the location and route of all Power Lines within the work area.
- **Find out** the operating voltage of all Power Lines within the work area.
- **Contact** the local Distribution Network Operator (DNO) who will be able to advise you on the operating voltage, safe minimum clearance distance for working, and additional precautions required.
- **Never** attempt to operate the machine in exclusion zones.
- **Always** work with extreme caution and plan your work ahead to avoid high risk areas.
- **If doubt exists** do not work in the area – never risk the safety of yourself or others.

Emergency Action for Accidents Involving Electricity

- Never touch an overhead line - even if it has been brought down by machinery, or has fallen. Never assume lines are dead.
- When a machine is in contact with an overhead line, electrocution is possible if anyone touches both the machine and the ground. Stay in the machine and lower any raised parts in contact or drive the machine out of the lines if you can.
- If you need to get out to summon help or because of fire, jump out as far as you can without touching any wires or the machine - keep upright and away.
- Get the electricity company to disconnect the supply. Even if the line appears dead, do not touch it - automatic switching may reconnect the power.

Further information and leaflets on this and other agricultural safety subjects are available on the 'Health & Safety Executive' website at the following address: www.hse.gov.uk/pubns/agindex.htm

SERVICE & MAINTENANCE

⚠ DANGER Before carrying out any service or maintenance work always shut off the engine and ensure that the hydraulic unit is depressurized. Remove the vehicles start key and ensure that machinery is stable and cannot be used inadvertently.

Regular Maintenance

The machine features a low maintenance requirement which basically consist of regular checks of component parts, inspection and replacement of wearing parts, and general cleaning of the machine.

Maintenance Tasks

After first 2 hours of work - New Machine

- Check all nuts, bolts and fittings for tightness – *retighten if required*.
- Inspect hoses for damage or leaks; *damage and/or leaks must be rectified immediately*.

After every 8 hours of work

- Check all nuts, bolts and fittings for tightness – *retighten if required*.
- Inspect hoses for damage or leaks; *damage and/or leaks must be rectified immediately*.
- Check condition of safety guard.
- Check wear state of wire brushes – *replace if excessively worn*.
- Check machine for signs of general wear and tear.

⚠ WARNING

Excessively worn or damaged components should be replaced immediately; never continue to use a machine if any components are dangerously damaged or show signs of excessive wear.

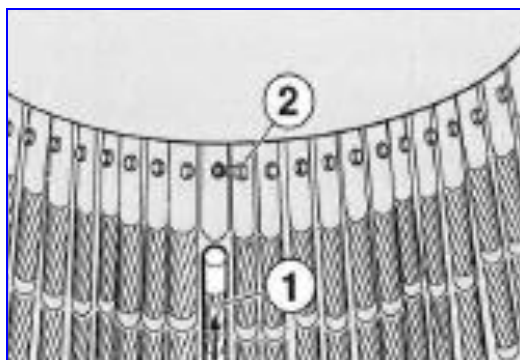
⚠ CAUTION

Ensure all inspections, checks, and maintenance of the reach arm and carrying vehicle are performed as per the manufacturer's recommendations for the machines.

Wire Bundle Replacement

Care must be taken when removing and handling used bundles as the worn ends may be jagged or sharp. The procedure for replacing the wire bundles is as stated below;

Loosen the securing bolt (2) and withdraw the wire bundle (1). Insert replacement wire bundle and re-tighten securing bolt (2).



Pump & Motor Failure

There are various reasons for pump and motor failure, which can include; cavitation, excessive oil pressure and contamination. In order to ensure that hydraulic components are kept in good working order the following advice is provided;

- Keep the hydraulic system topped up with oil - never allow the system to 'run out' or fall below the recommended level.
- Never run a cold machine up to speed straight away.
- Allow vehicle engine to run at idle before the tool motor is connected/disconnected.
- The speed of the vehicle engine must never be rapidly increased or decreased.
- Suction hose and pump fittings must be checked and tightened on a regular basis.
- Never start or stop a rotor at maximum rpm.
- Avoid making sudden machine movements with the controls and beware of terrain irregularities; changes in pressure are directed back to the pump and may result in malfunction.
- Avoid letting a rotor hit objects such as a rock, as this will cause pressure changes.
- Never transport a machine with its motor running.
- Never operate the machine at a higher than recommended PTO rpm / oil flow.

NOTICE

The motor guarantee is limited to replacement due to defective materials or manufacture. Cavitation, contamination and excessive pressure can easily be detected by examination. The guarantee will also be void if the defect is due to misuse.

Hydraulic Hoses

Inspect hydraulic hoses before and after use of the machine; check for any signs of wear, damage and/or leaks and always replace defective hoses immediately. When replacing hoses avoid twisting fittings; use two spanners for slackening and tightening.

NOTICE

Hose warranty is limited to replacement of hoses due to defective materials or manufacture. Warranty will not be considered for hoses that suffer damage by chaffing, abrasion, cuts or pinched while in work, or damaged threads due to over-tightening.

Recommended Torque settings for nut security		
BSP	Torque setting	
1/4"	24 Nm	18 lbs/ft
3/8"	33 Nm	24 lbs/ft
1/2"	44 Nm	35 lbs/ft
3/4"	84 Nm	62 lbs/ft
1"	115 Nm	85 lbs/ft

Torque settings for hose unions fitted in conjunction with bonded seals		
BSP	Torque setting	
1/4"	34 Nm	25 lbs/ft
3/8"	75 Nm	55 lbs/ft
1/2"	102 Nm	75 lbs/ft
3/4"	183 Nm	135 lbs/ft
1"	203 Nm	150 lbs/ft

Oil Supply

- Check oil level in the reservoir tank prior to start up.
- It is a good practice to constantly keep an eye on the tank level gauge, which is often visible from the tractor seat, as a burst pipe can empty the tank within minutes.
- A pump or motor starved of oil will be damaged beyond repair.
- Replace oil immediately if signs of contamination are detected (discolouration of oil).
- Always use hydraulic oil that is recommended by the machinery manufacturer.
- Contamination can be drastically reduced by:
 - *Thoroughly cleaning around reservoir cap before removal.*
 - *Using clean containers when replenishing the system.*
 - *Regularly servicing the filtration system.*
 - *Never allowing oil level to fall below the level shown on the sight gauge.*
- Inspect all hydraulic connections and fittings to ensure they are in good order. Any damage or leaks must be rectified immediately; this is part of the daily maintenance and it is your responsibility in order to ensure a long working life of the machine and its components.
- When tightening fittings always use two spanners and avoid over-tighten. If a fitting leaks it will need to be replaced.



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