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McCONNEL

AGRIBUGGY V300

Low Ground Pressure Vehicle

Operator Instruction 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; log onto <https://my.mcconnel.com> and select 'Machine Registration' which can be found in the 'Warranty' section of the site. **Confirm to the customer that the machine has been registered by completing the verification form below.**

Registration Verification	Serial No.
Dealer Name:	
Dealer Address:	
Customer Name:	
Date of Warranty Registration:/...../..... Dealer Signature:	

Note to Customer / Owner

Please ensure the section above has been completed and signed by the dealer to verify 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 machine's 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



Low Ground Pressure Vehicle

OPERATOR INSTRUCTION MANUAL



McCONNEL LIMITED

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AGRIBUGGY V300

OPERATOR INSTRUCTION MANUAL

INTRODUCTION

THIS MANUAL SHOULD BE KEPT WITH THE MACHINE AT ALL TIMES AND SHOULD BE READ BY ALL OPERATORS BEFORE USING, MAINTAINING OR REPAIRING THE MACHINE.

The **Agribuggy V300** is powered by a diesel engine with a hydrostatic variable speed transmission. As standard, it is all-wheel drive and has all wheel steer. To optimise weight distribution between all wheels it is of forward control configuration and constructed to achieve low ground pressure whilst maintaining durability.

This machine IS SOLELY INTENDED for use in agricultural or similar operations and has been designed specifically for use as a crop sprayer/fertiliser spreader and therefore does not come within the scope of the agriculture (Tractor Cabs) regulations. It should, therefore, not be used for any other purpose and should not be used for towing or be fitted with any other equipment unless approved by the manufacturer. The use of this machine in any other way is considered to be contrary to the intended use. The manufacturer accepts no liability for damage or personal injury resulting from improper use. These risks will be borne solely by the user. Improper use includes, but is not limited to, the overloading of the machine and operating at excessive speeds for the prevailing conditions and/or operations being performed. Operators are warned that improper use may lead to serious loss and injury. In the case of improper use, the warranty may be invalidated and will be at the discretion of the manufacturer.

Road Safety – When driving on public roads it is important to obey road safety regulations.

It is imperative that only correctly qualified people undertake operation, maintenance, and repair of this machine.

After reading this manual and becoming acquainted with the Agribuggy it is recommended that you fill the sprayer with water only and have a trial run in a grass or stubble field. It is important that you get used to all aspects of operating the machine before applying chemicals.

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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 24 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 McConnell Ltd cannot be held liable, and may have safety implications.*
- 1.10. *If in exceptional circumstances a non-McConnell Ltd part is used to effect a repair, warranty reimbursement will be at no more than McConnell 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

Safety Information & Precautions



THIS IS THE SAFETY ALERT SYMBOL

WHEN YOU SEE THIS SYMBOL IN THE MANUAL BE ALERT TO THE POTENTIAL FOR PERSONAL INJURY

ENSURE WHEN READING THROUGH THIS MANUAL THAT YOU OBSERVE ALL SPECIAL NOTE WARNINGS TO AVOID PERSONAL INJURY AND/OR MACHINE DAMAGE.



1. Read this manual thoroughly before operating the machine.
2. Always operate the machine in a proper and safe manner observing all safety and traffic regulations.
3. The machine should not be driven at speeds in excess of 30mph. (50kph).
4. Maximum laden weight should not exceed 10 tonnes.
5. When operating in adverse terrain be aware of machine limitations and the centre of gravity of load tyre pressures etc.
5. Never allow children or unqualified persons to operate the machine.
6. Ensure operators are fully trained in the use and approved to operate the machine before commencing operation.
7. Always wear your safety belt securely fastened.
8. Always wear all the appropriate PPE (personal protective equipment).
9. Avoid operating the machine near ditches and embankments; reduce speed when negotiating turns, slopes, and on rough and slippery surfaces.
10. Do not operate on hazardous inclines where there is a danger of overturning.
11. Do not permit other persons to ride on the machine.
12. Keep the machine in good mechanical working order. Unauthorised modifications to the machine may impair the safety and function of the machine and could invalidate warranty.
13. Replace all damaged or unreadable safety decals immediately; replacements are available from your local dealer.

**Operators Cab**

1. Jumping in and out of the cab or getting into or out of the cab without care and attention can result in injury.
2. The cab step folds away when the machine is in operation, before using the step ensure it is positioned correctly and locked in position.
3. Always use the grab handles provided as an aid to entering the cab. Before opening or closing the doors always ensure that no one is standing in the near vicinity to prevent possible injury.
4. Never attempt to start the machine from anywhere except seated in the driving seat. Never start the engine with the main gearbox or power take-off engaged. The forward/reverse lever must be in the neutral position before the starter will operate.
5. Always stop the engine before working on the machine. Ensure the ignition key is removed.
6. Adjust the seat position to suit and driver's weight setting on the seat suspension before starting the machine. Do not attempt to adjust the seat position whilst driving the vehicle.
7. Do not attempt to adjust the steering column whilst the vehicle is in motion. After adjustment, ensure the steering column is firmly tightened before driving the vehicle.
8. Always ensure the driver's door is closed when using the vehicle.
9. Do not make alterations, drill holes or weld anything on the cab.
10. The A-weighted emission sound pressure level at the driver's position has been measured typically in normal operating conditions at 70 dB(A) and a maximum of 77.5 dB(A). It is important to maintain the integrity of all sound insulation material on the machine.

**Brakes**

1. Ensure the park brake is applied prior to leaving the vehicle.
2. Ensure that the park brake is in the park position and the operator is sitting in seat before starting the engine.
3. Excessive use of the vehicles brakes when travelling down steep gradients may cause overheating and brake fade. Use of exhaust brake at level 3 (100%) is recommended when descending steep gradients.

**Electrical**

1. Disconnect main battery leads before working on the electrical circuit, always disconnect the (-) terminal first.
2. Isolate controls to prevent actions by others that could result in dangerous movement and possible injury.
3. To avoid overloading the electrical circuits in the event of a fault, do not attempt to fit a fuse in excess of the recommended amperage. Failure to observe this warning may result in an electrical fire.
4. Persistent fuse failure is an indication of an electrical fault; do not continue to use the machine until the fault has been diagnosed and rectified by a qualified auto-electrician.



Steering

Please remember that 'Road Mode' must ALWAYS be engaged for use on the road. The rest of the steering modes are intended ONLY for fieldwork at the lower speeds.



Maintenance

1. Maintenance work should only be undertaken by a skilled vehicle mechanic fully conversant with the Agribuggy vehicle and sprayer systems.
2. Wheel chocks must be used at all times when performing maintenance and/or service duties.
3. Before carrying out any repairs or welding on the Agribuggy, the sprayer, or the spreader, remove all chemical and fertiliser residues with a pressure washer or steam cleaner together with a suitable detergent and brushing if necessary - Burning chemical fumes are extremely toxic - Ammonium Nitrate (e.g. Nitram) can be explosive. Chemical residues are extremely hazardous to anyone working on the machine. Disconnect both the positive (+) and negative (-) battery cables from the battery. Attach the welder ground cable no more than 0.61 meters [2 feet] from the part being welded. Do not connect the ground clamp of the welder to any of the sensors, wiring harness, electronic control units or the components. Direct welding of any electronic components must not be attempted. Sensors, wiring harness, and electronic control unit should be removed if nearby welding will expose these components to temperatures beyond normal operation. Additionally, all electronic control unit connectors must be disconnected.
4. When the 'STOP' warning is displayed on the Machine Control Unit (MCU), the vehicle must be stopped as soon as safety conditions permit and the fault rectified before continuing.
5. Always use the correct PPE personal protective equipment when maintaining the machine.
6. Never start or run the engine when the engine hood / panels are open.
7. Never run the engine in a closed environment. Always ensure there is sufficient ventilation to allow fumes to disperse safely.
8. Check and ensure that nobody is near power take off (PTO) shafts or any PTO driven implement before engaging the PTO valve. Never work on a machine with the PTO or engine running.
9. Before carrying out service work, stop the engine and allow it to cool. Always follow the recommended service proceedings.
10. Do not attempt to remove the radiator header tank filler whilst the engine is running or when the engine is still hot.
11. Do not attempt to fill, or top up, a hot engine with cold coolant.
12. Engine coolant/antifreeze is a toxic substance that must not be consumed or allowed to come into contact with the skin or eyes. Thoroughly rinse any affected areas with water. In the event of excessive skin or eye contact, seek medical attention immediately.
13. Avoid fluids under pressure coming into contact with the skin. Relieve system pressures first before working on high pressure pipes and/or fittings, etc., tighten all loosened connections before re-applying pressure, be aware that the machine has hydraulic accumulators in the hydraulic circuit.



14. If fluid is 'injected' into the skin due to accidental contact with high-pressure fluid, consult a doctor immediately.

Maintenance (continued)

15. Hydraulic hoses can fail if physically damaged, kinked or through age and exposure. All hoses must be inspected regularly and replaced immediately if worn or damaged, particular attention should be paid to steering and braking hoses.
16. Hydraulic fluid connections can loosen due to damage and vibration. Connections should be regularly checked, and any loose connections tightened. Pay particular attention to steering and brake hoses.
17. When checking for the source of a hydraulic oil leak use a sheet of card, keep skin protected at all times.
18. Prolonged and repeated contact with oil may cause serious skin disorders, including dermatitis and cancer. Wash thoroughly after contact. Keep oils out of reach of children.
19. Diesel exhaust fluid (DEF) contains urea. Do not get the substance in your eyes. In case of contact flush eyes immediately with large amounts of water for a minimum of 15 minutes. Do not swallow, in the event of ingestion contact a physician immediately.
20. If safety critical faults are found during the daily/weekly checks and inspections they must be rectified before using the vehicle.
21. Do not run the engine with the vehicle parked in a confined area – exhaust gases are poisonous which can be fatal if inhaled. Always use suitable extraction equipment.



22. Fuel spillages are highly inflammable; avoid naked flames and switch engine off when filling the fuel tank.
23. Care should be taken to prevent contamination of any drains and waterways; fuel spillages should be dealt with in accordance with local regulations governing the disposal of waste.



24. Keep clear of rotating components such as fans, drive shafts and drive belts.
25. Use the designated attaching points for mounting implements. Contact McConnel Limited for a copy of the body builder's instructions drawing for implements and/or attachments to be carried on the machine chassis.
26. Caution: Battery gases can explode. Keep sparks and naked flames away from batteries. Never check battery charge by placing a metal object across the posts; use a voltmeter or hydrometer. Always remove the ground (-) battery clamp first and replace it last.
27. When working in the vicinity of the machine's wheels, be aware of the danger of becoming trapped and/or crushed between the chassis and wheel, never place yourself in any position of risk.

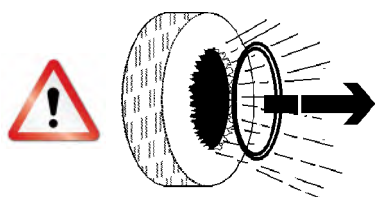
Cleaning the Machine

1. Keep the machine clean and free of corrosive substances. Do not allow dirt/fertilisers to build up on the engine, particularly ammonium nitrate; this can create a fire hazard!
2. Before cleaning the machine ensure that the engine is switched off, handbrake is on, and ignition key is removed.
3. Do not pressure wash electric controllers or sensors.
4. Keep steps, pedals, and floor clean at all times. Remove grease, oil, dust, and mud; slippery surfaces are hazardous.

IMPORTANT: If any factory or field repairs need to be performed on a contaminated machine, we reserve the right to either refuse to carry out the work, or to charge for any necessary cleaning required.

Tyres and Pressures

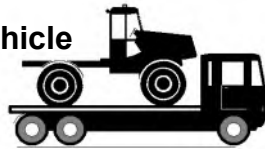
1. Always follow correct safety procedures when fitting tyres and/or inflating them. Ensure any tyres fitted are fully capable of carrying the required load. Never over inflate a tyre. Consult your tyre dealer for advice.
2. Service tyres safely, check tyres for cuts, bubbles, damaged rims, and missing wheel nuts, where necessary replace with specified parts.
Do not service tyres unless you have sufficient experience and the correct equipment.



3. Contact with air under pressure can cause personal injury. Only inflate the tyre to the recommended pressure quoted in the tyre manufacturer's handbook.
4. Failure to follow the manufacturers recommended inflation pressures may lead to distinct deterioration in performance and tyre life. Tyre condition should be checked at regular intervals to prevent potentially dangerous operation of the vehicle.
5. Do not operate the vehicle overloaded, or with under inflated tyres; tyre temperatures may rise to dangerously high levels resulting in tearing and blowouts.
6. Wheels are heavy objects; care must be exercised when removing or replacing wheels on the axle to avoid risk of injury or damage to wheel studs. Ensure that the vehicle is securely supported before attempting to remove wheel(s).
7. It is important to tighten the wheels nuts to the correct torque and in the correct tightening sequence - refer to maintenance section for details.
8. When changing wheels, you must adjust the steering stops on the front and rear axle to prevent the tyres from coming into contact with the chassis - refer to the set-up procedure for steering stops.



Towing and Recovery of Vehicle



1. Before attempting to tow the vehicle, conditions must be assessed to make sure the safest possible method is employed, and no risk is taken by ensuring suitable equipment is used. Towing of the vehicle should only be with a rigid tow bar. Towing points are located on the spring mountings on each side of the front and rear axles, these can also be used as 'tie-down' points when transporting the machine on another vehicle.
2. Towing distance should be kept to the absolute minimum; only tow to the closest safe point for an onsite repair or loading onto a recovery vehicle.
3. Towing speed must never exceed 10 km/h under any circumstances. Failure to obey these conditions will cause damage due to lack of lubrication.
4. Ensure that all wheels are chocked prior to removal of the rigid tow bar between the vehicles.



The Agribuggy is fitted with a hydraulic braking system and should not be towed when the engine is switched off; the brake system will have no assistance without the engine running. Towing of the vehicle should only be with a rigid connector.



CAUTION Spraying



1. The cab cannot fully protect against inhaling vapour, aerosol, or dust when operating in an environment where pesticides are present; wear appropriate clothing and if pesticides instructions call for it wear a respirator inside and outside the cab.
2. To prevent ingress of hazardous substances into cab: ensure doors and windows are closed, all seals on doors and windows are in good condition, grommets for cables in the cab are sealed properly, the air conditioning fan is ON, and cab air filters are of the correct type and in good condition.
3. Wear personal protective equipment as called for in the pesticide instructions when leaving the cab to enter a treated area when mixing and loading chemicals, and when working on contaminated equipment such as nozzles.
4. Before entering the cab remove any clothing soiled with pesticide and ensure footwear is free from contamination.
5. Clean hazardous pesticides of the vehicle; during application of hazardous pesticides, pesticides residue can build up on the inside and outside of the vehicle. Clean the vehicle in accordance with current legislation as per instructions for hazardous pesticides. Wash down entire exterior of vehicle disposing of any wash water with hazardous concentrations according to published regulations.



DANGER Overhead Power Lines

1. Be aware of any Overhead Power Lines in the vicinity of the machinery during the unfolding procedure and whilst working. Ensure all components of the machine are kept at a safe distance from power lines at all times; remember electrocution can occur without actually coming into contact with a power line as electricity can 'flashover' when machinery is close to it.
2. Where doubt exists, 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 any additional precautions required.

Overhead Power Lines (OHPLs)

It cannot be stressed enough the dangers involved when working in the vicinity of Overhead Power Lines (OHPLs). The lowest legal minimum height for 11,000- and 33,000-volt power lines is 5.2 metres from the ground. Agribuggy machines with standard booms mounted are capable of 3.9m vertical reach and 24m horizontal reach.

Remember electrocution can occur without actually coming into contact with a power line as electricity can 'flashover' when machinery gets close to it.

⚠ WARNING

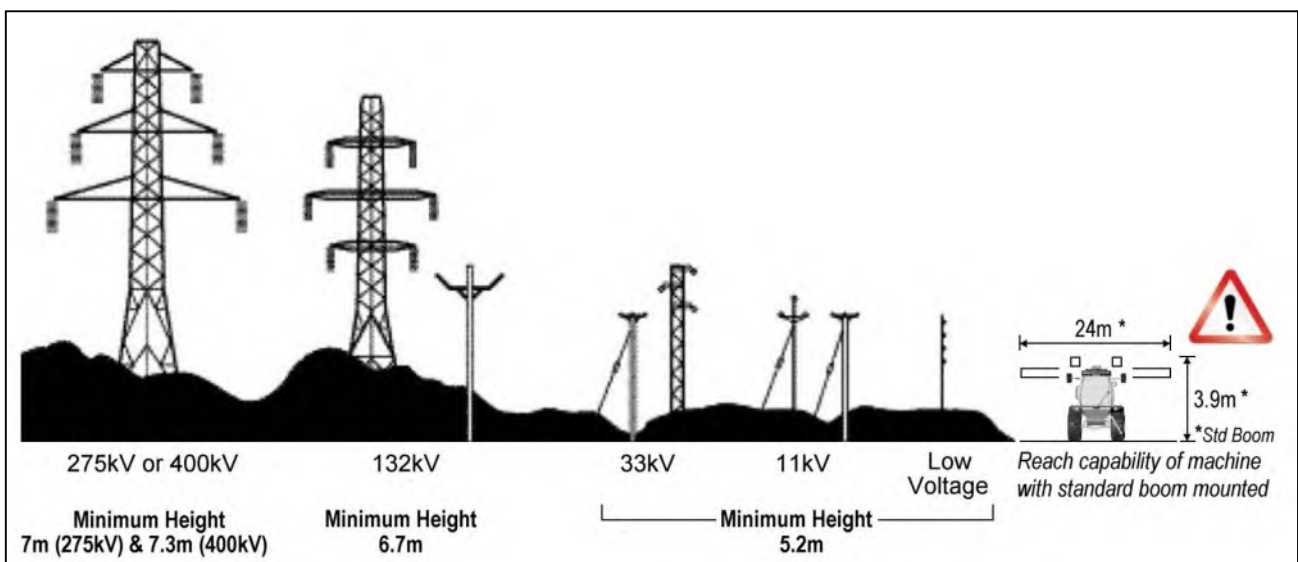
All operators must read the following information and be aware of the risks and dangers involved when working in the vicinity of Overhead Power Lines (OHPLs).

Wherever possible the safest option is always to avoid working in areas close to OHPLs.

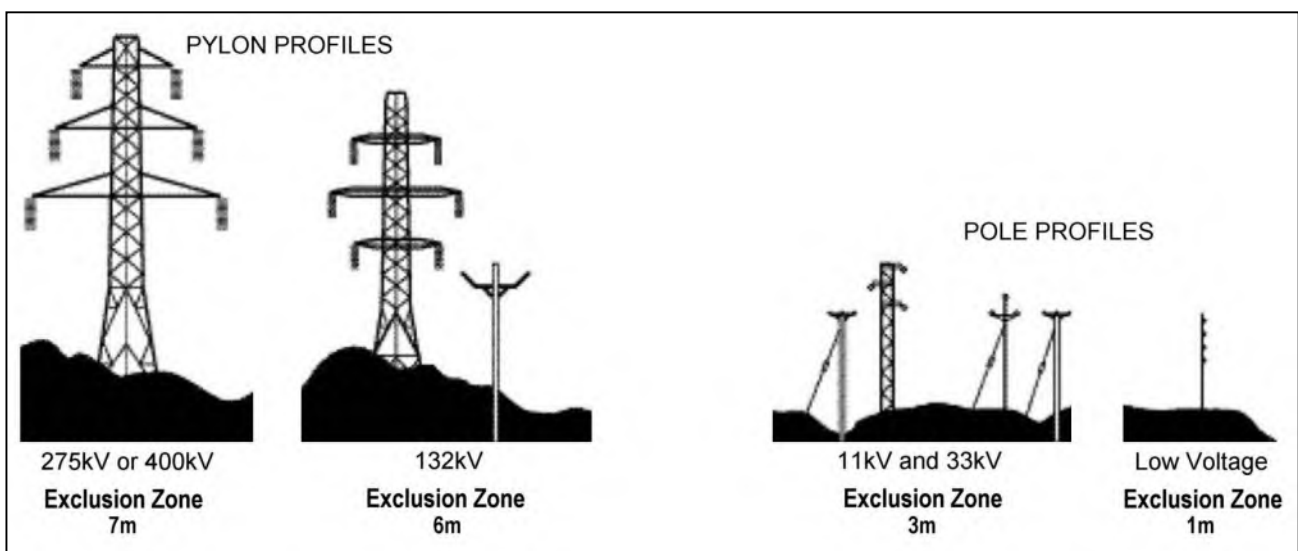
Where unavoidable, all operators must perform a risk assessment and implement a safe procedure and system of work – *see following page for details*.

All operators should perform a risk assessment before operating the machine within 10m horizontal distance of any OHPLs.

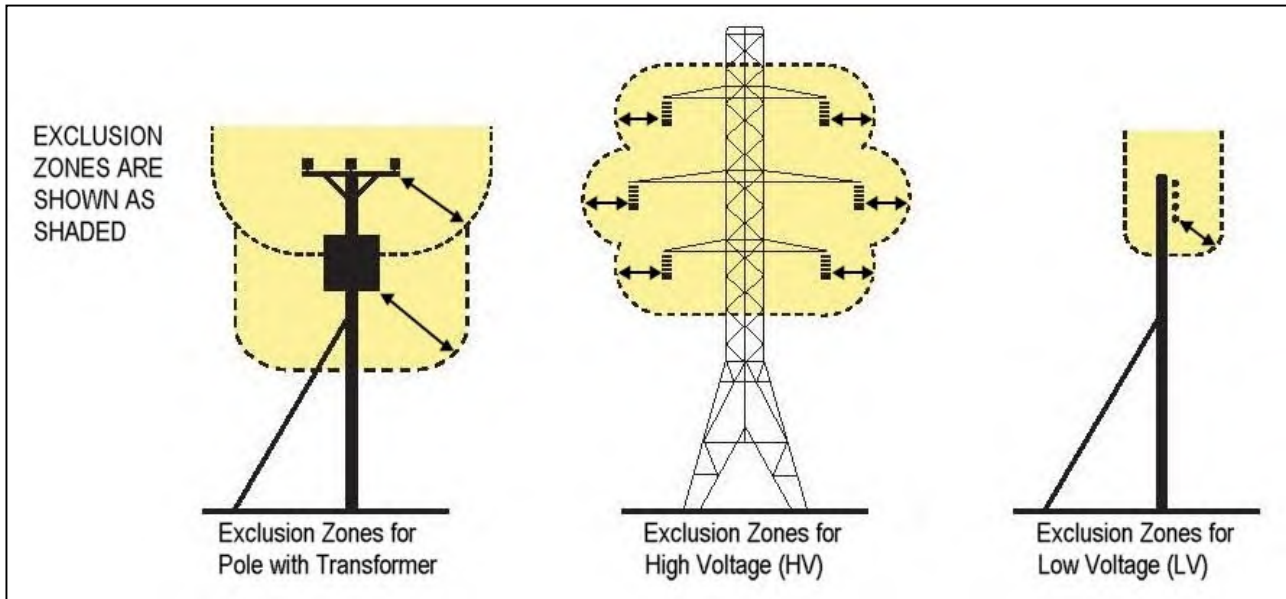
Minimum Heights for Overhead Power Lines



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

Safety Decals

⚠ WARNING

To alert the operator to potential hazards several safety decals are affixed to the vehicle. These warnings should be considered so that the risk of personal injury is minimised.

If the decals become worn or defaced they should be replaced with identical items available from your dealer.



Mounted on the right-hand B post inside the cab. Warnings regarding:

4 Wheel Steer.

Do not exceed 50 KPH (subject to local road legislation).

Read the Instruction manual before using the machine.

Chock wheels before performing maintenance.

Beware of overhead cables.

'Power Cut' contact telephone number **CALL 105**



Hand wash tap: located on left-hand engine cover.



Sprayer filter, located on both the primary and secondary filters; **Flush Filters Daily**



Crush Zone; located on both chassis' rails forward of rear axle.



Caution Chemicals: Located on chemical induction hopper.

Maintenance Caution; Located on side of chemical inductor.



Stop engine before accessing engine compartment; located on engine covers.

Read the Book First



POWER CUT? CALL 105

105 is the national emergency number for Distribution Network Operators (DNO's); ringing this number automatically connects to the local DNO who can locate an incident and disconnect the power as soon as possible.

Operation - Driving Controls

‘Running-In’ and first 100 hours of operation

There are no strict ‘running-in’ rules for the Cummins diesel engine; however, do not treat it harshly during the first fifty-hours running. Avoid consistently high speeds, but do not let the engine labour. There should always be a positive response from the throttle. Select the right gear for the job. Be prepared to reduce your working speed if necessary. Check the Machine Control Unit (MCU) frequently and keep the coolant and oil filled to their recommended levels on a daily basis.

Be aware that the engine operates with a Diesel Particulate Filter (DPF) and Selective Catalytic Reduction (SCR) system and requires Diesel Exhaust Fluid (DEF).

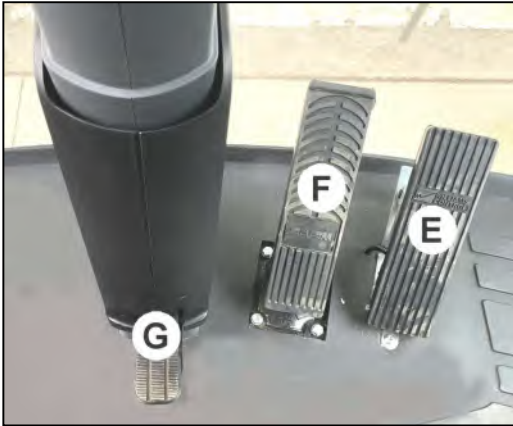
DEF is injected into the exhaust system to convert the nitrogen oxide (NOx) produced by the engine into nitrogen and water. When it is cold and very dry water vapor may be seen coming from the exhaust, this is normal.

Attempting to run the vehicle without DEF will result in a drastic reduction in vehicle speed or potential ‘no start’ situation.

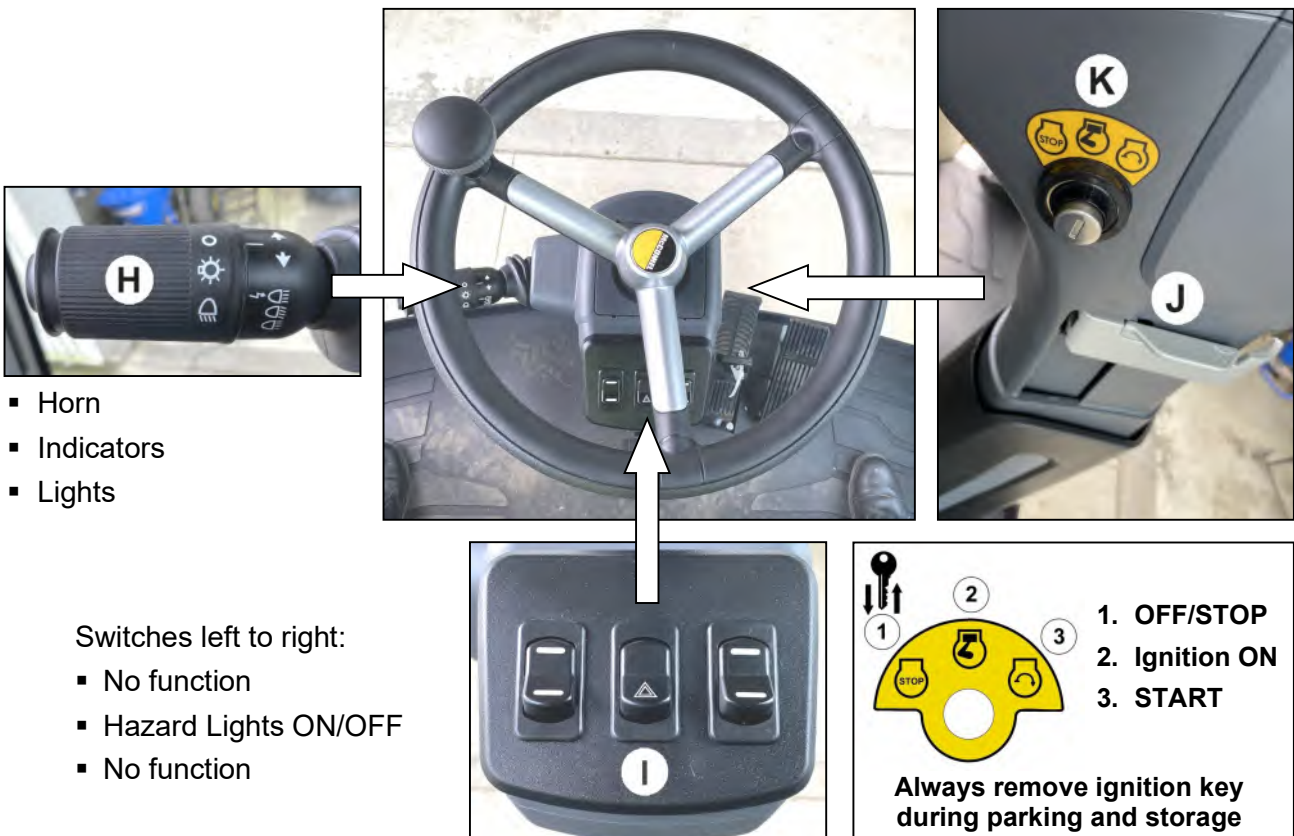
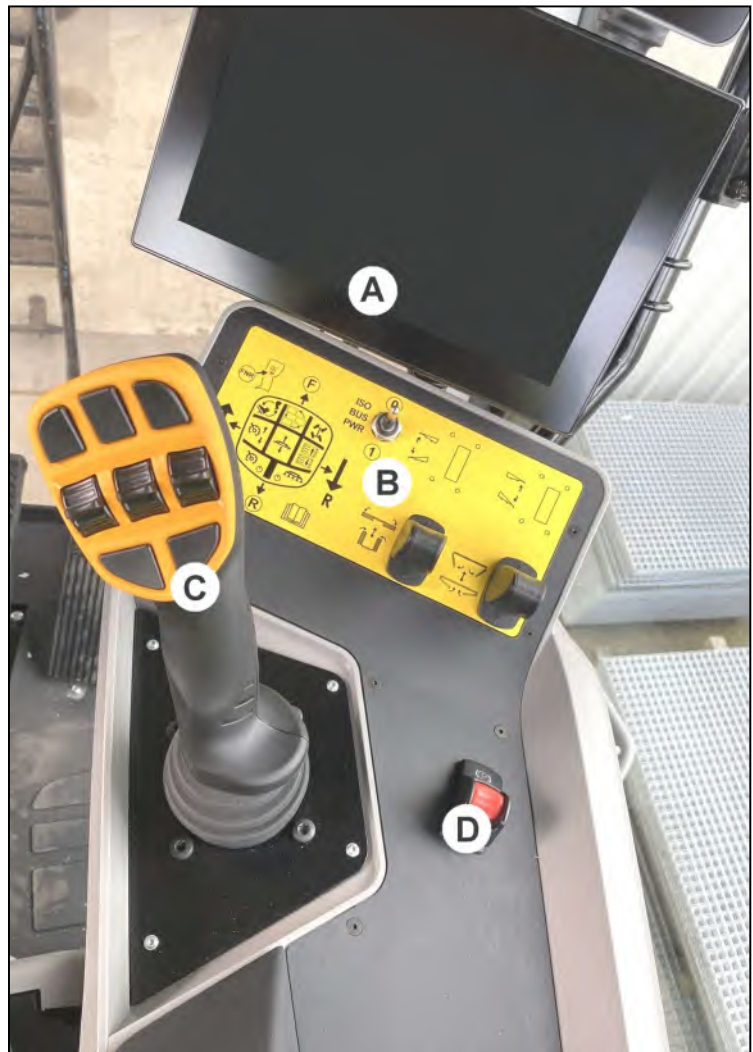
On completion of the first 100 hours running, carry out the maintenance instructions summarised in the maintenance section of this manual.

Cab Interior and Main Controls

- A) Machine Control Unit (MCU)
- B) Boom Control Paddle Switches
- C) Joystick Control
- D) Parking Brake Control Switch



- E) Speed Control Pedal
- F) Foot Brake Pedal
- G) Steering Column Release Pedal
- H) Multifunction Control Switch
- I) Driving Lights & Hazard Warning
- J) Steering Column Height/Tilt Lever
- K) Ignition Switch



Overhead Controls



Radio

Mirrors / Wipers / Work Lights

Blanking Panel

Radio

A radio is fitted in the roof panel above the windscreen on the left hand side of the cab. The radio is Bluetooth enabled and has a microphone mounted in the roof on the right hand side of the cab.



Switch Panel

1. Electric Mirrors Control
2. N/A
3. Left Side Work Lights
4. Front Work Lights
5. Rear Work Lights
6. Windscreen Wiper (*)
7. Windscreen Washer
8. N/A
9. Heated Mirrors
10. Beacon Light
11. N/A
12. N/A
13. Right Side Work Lights



Front Work Lights Operation (Button 4)

Press button once: Inner work lights ON	(●●☀) (☀●●)
Press button again: Inner & Middle work lights ON	(●☀☀) (☀☀●)
Press button again: Inner, Middle & Outer work lights ON	(☀☀☀) (☀☀☀)
Press button again: All sets of front work lights OFF	(●●●) (●●●)

(*) **NOTE:** Windscreen Wiper* button toggles between: ● OFF / ○ Intermittent / ○○ Slow Speed / ○○○ Normal Speed

Climate Control Unit

The climate control unit is located in the roof panel above the cab door. All climate controls are performed via a single button on the unit.

Press and hold button to turn climate control ON.

When the unit is on, subsequent pressing of the button will toggle between the following modes;

● **FAN SPEED** ● **TEMPERATURE** ● **AIR CON ON/OFF** ●

Rotating the button in each mode controls that particular function. Press and hold the button to switch the climate control unit **OFF**.



Cab Interior Light

The interior cab light unit is located in the roof panel directly above the driving seat.

The unit contains a dome light and a directional spotlight for illumination of the door area; the rocker switch on the unit switches the lights ON and OFF.



Charging Sockets

The cab is equipped with two charging sockets; one on the right-hand side of the cab to the rear of the armrest, and one on the left-hand side of the cab at the rear of the storage tray under the passenger seat.



Sun Visor

A sun visor is provided to reduce glare.
To operate the sun visor, pull the central tab downwards.
To retract, pull the cord on the right-hand side of the visor.



Emergency Exit

In the case of an emergency where the door cannot be opened an emergency hammer is provided; this is located on the door pillar in the rear left-hand side of the cab.

In an emergency situation, remove the hammer and strike the glass of a window that can offer a safe escape route.

SMASH the window by swinging the hammer overhand, like a household hammer. One or two strikes should shatter the glass.

SHEILD your eyes and face from the glass and instruct others to do the same. Still using the hammer, scrape the remaining glass from the window edges and exit the cab.

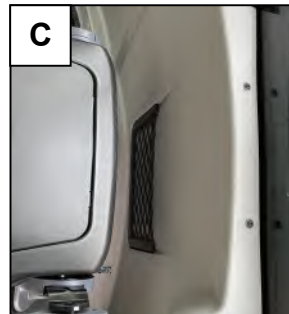
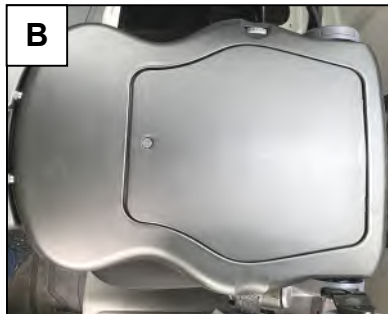
The hammer also features an emergency seat belt cutter on the base of the handle.



Emergency Hammer / Belt Cutter

Storage Compartments

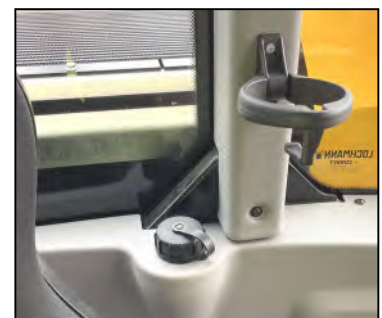
Numerous storage compartments are provided in the cab for storing documents and various items; the storage compartments are in the locations shown below.



- A) Storage drawer beneath driver's seat
- B) Lockable document compartment in backrest of driver's seat
- C) Stowage net behind driver's seat
- D) Storage tray beneath passenger seat

Cup Holder

A cup holder is located on the rear pillar of the cab to the left-hand side of the driver's seat; this can be folded upwards when not in use.



Screen Wash Filler

The screen wash filler point is located on the rear bulkhead of the cab to the left-hand side of the driver's seat.



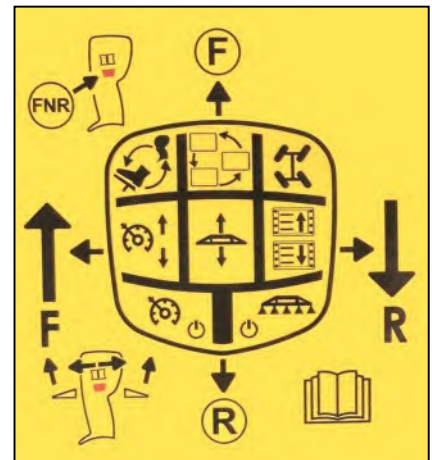
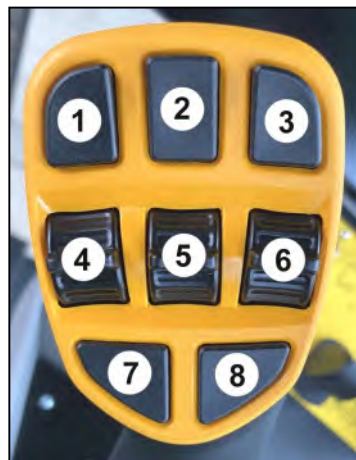
Console Controls



- A) ISOBUS Power ON/OFF Switch
- B) Inner Boom (12M) Control Switch
- C) Outer Boom (24M) Control Switch
- D) Location for LH Boom Variable Geometry Control Switch (optional feature)
- E) Location for RH Boom Variable Geometry Control Switch (optional feature)

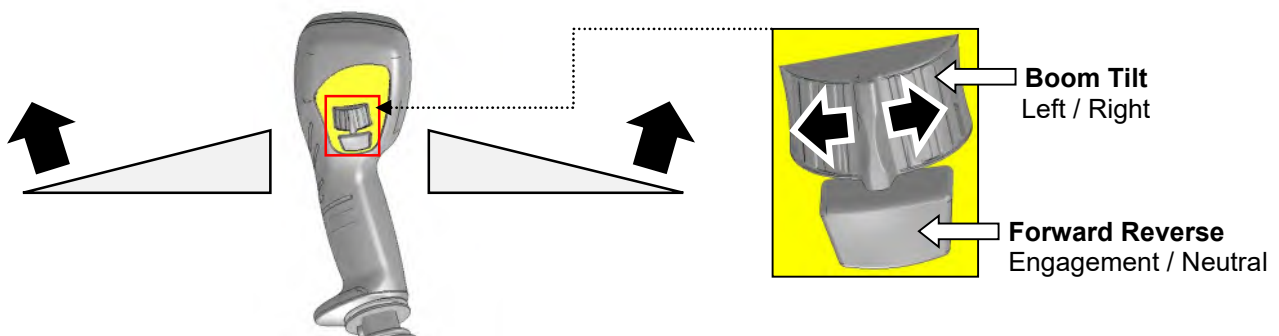
Joystick Controls

- 1) Pedal ◀▶ Joystick Drive Swap
- 2) 4WS & Cruise Control Menu
- 3) 2WS ◀▶ 4WS Option Select
- 4) Cruise Speed +/-
- 5) Boom Raise/Lower
- 6) Menu Option Select
- 7) Cruise Control SET/CANCEL
- 8) Spray ON/OFF (Master)



The multifunction joystick has five function buttons and three rollers on the face, with one button and one roller on the reverse. For transmission control the stick has movements fore and aft and side to side (see transmission control section). The functions are indicated on the decal located immediately in front of the joystick.

The button and roller on the rear of the joystick control the functions shown below.



Multifunction Column Switch



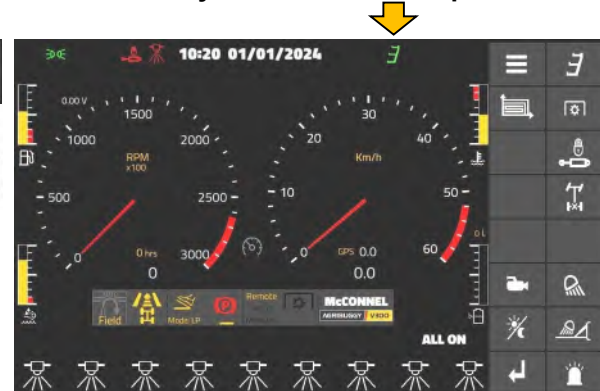
Cab Steps

The cab access steps are raised and lowered hydraulically via a control icon on the MCU screen. Touch the steps icon onscreen to raise or lower the steps; the colour of the steps symbol on the information bar at the top of the screen will indicate their status.

Symbol RED = Steps are DOWN

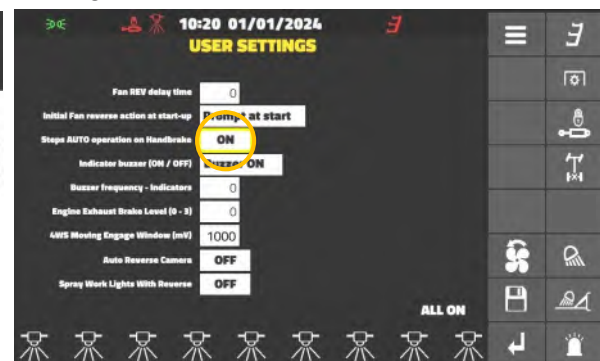
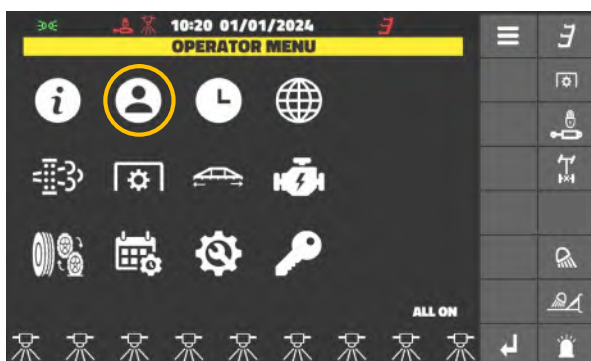


Symbol GREEN = Steps are UP



Automatic Steps Operation

If required, the steps can be configured to automatically raise and lower with release and activation of the park brake; this feature is selected on the 'user settings' screen - see below.



To activate the automatic steps feature, touch the 'Steps AUTO operation on Handbrake' settings box to change the setting to 'ON'; steps will now automatically be controlled by the park brake. To disable the feature, change the setting to 'OFF'.

CAUTION

When step operation is set to manual mode, ensure the steps are raised before attempting to move or drive the machine; failure to observe this can result in damage to the machine.

A light located above the steps automatically comes on when the steps are down and the side lights are on; this light will remain on for 3 minutes after the ignition has been switched off.

Machine Control Unit (MCU)

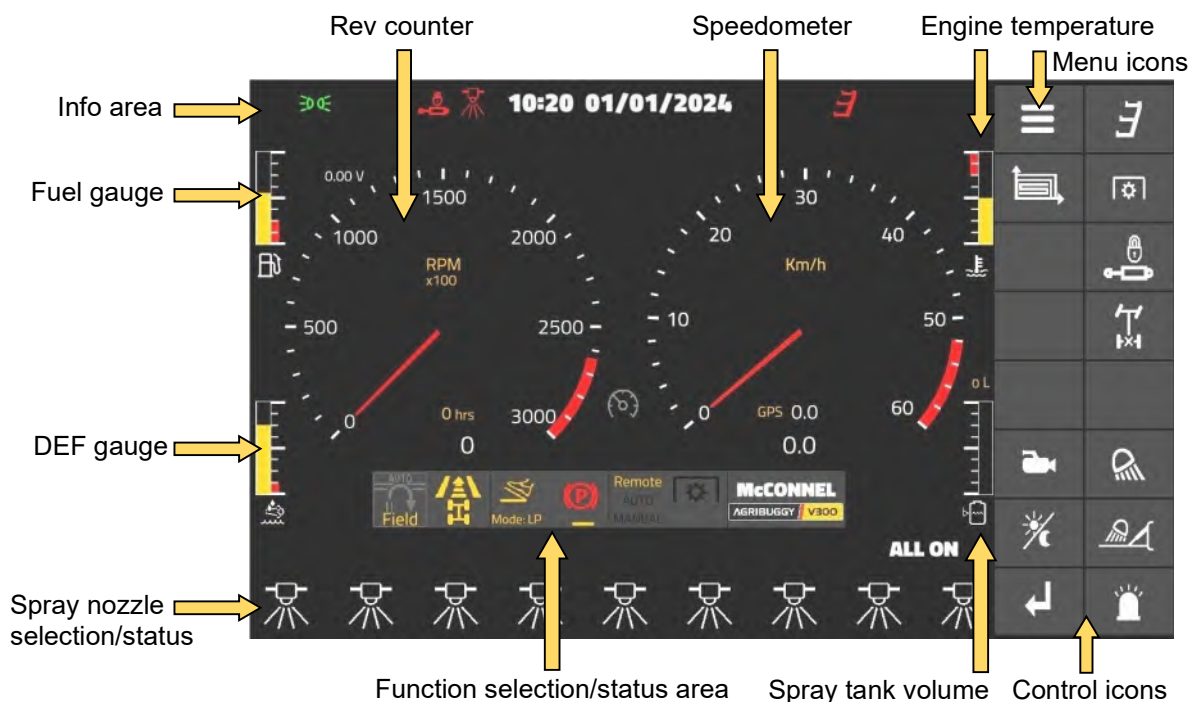
The Touch Screen MCU displays a multitude of information and controls various machine functions in conjunction with other controllers on the machine. It is an integral part of the electrical system and the machine will not function without it.

The main functions of the MCU are as follows:

- Monitoring engine functions and errors.
- Monitoring transmission functions & errors.
- Monitoring and control of the gearshift system and interlocks.
- Monitoring machine sensors, fluid levels and warning systems.
- Monitoring of functions, errors, controlling & set-up of rear steer system in conjunction with the Plus1 controller and joystick.
- Monitoring of functions and controlling & set-up of PTO system in conjunction with the Plus1 controller and the switch panel / remote PTO panel.
- Monitoring and control of the cruise control in conjunction with the engine ECM and the joystick.
- Controlling the various safety interlock systems.
- Controlling the High/low range shift and speed interlocks.
- Controlling the step.
- Controlling the handbrake & interlocks.
- Calculating forward speed from GPS & transmission output shaft speed.
- Monitoring service intervals.
- Display of up to 3 video cameras.

Main Display – Home screen

The main home screen displays machine information, menu icons, control icons, status indicators and warning symbols allowing the operator to monitor and adjust the machine during operations. The symbols displayed onscreen will vary depending on the functions selected and the particular operating mode.



Home Screen - Menu and Control Icons



Icon Identification

	Operator Menu Screen Access		Steps RAISE/LOWER Control
	Job Screen Access		PTO Control
	Unassigned		Hydraulic Lock ON/OFF Control
	Unassigned		Differential Lock ON/OFF Control
	Unassigned		Autosteer (if applicable)
	Camera Menu Access		Rear Work Lights ON/OFF
	Screen Brightness (Day/Night Mode)		Spray Boom Lights ON/OFF
	Return Key		Beacon ON/OFF

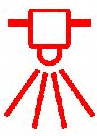
When functions are activated, their status is shown on the main screen in the areas stated below;

- Steps, Locks and Lights status indicators are displayed on the top information area of the screen.
- DPF Regeneration status indicator is displayed in the top area of the Rev Counter.
- PTO status indicator is displayed in the function selection/status area of the screen.

Return Key is for use to exit menus and return to previous screen.

Warning Symbols



	1. Flashing Beacon		8. Spray On/Off
	2. Side Lights		9. Time / Date
	3. Headlights (Dipped Beam)		10. Direction Indicators
	4. Headlights (Main Beam)		11. Trailer Direction Indicators
	5. Spray Boom Lights		12. Step Indicator (Red = Down / Green = Up)
	6. Work Lights (Rear of Cab)		13. Differential Lock Engaged
	7. Hydraulics Lock Status		14. Ground / GPS Speed Sensor

Error Warnings

In addition to the warning symbols on the top bar of the screen, there is also an error warning system to alert the operator to various other machine problems, see list below. There are two 'action' warning levels (AMBER and RED) as described below, the action required will depend on the severity of the problem. The warning screens clearly indicate the problem and, in many cases, show how the problem can be checked or resolved.



The AMBER 'splash screen' above shows a warning of medium severity which means you should stop at the first opportunity and investigate the problem. Continual use with warning indicator lit on screen will cause the engine to derate.

NOTE: For illustration purposes ALL warning icons are shown displayed on the screen above.

GREEN WARNING	AMBER WARNING	RED WARNING
Exhaust brake active	DPF Regen	Parkbrake
Cruise control - Speed	Hot exhaust gas	Handbrake
Cruise control - Engine	DPF Regen disabled	Operator presence
Glow plugs	Adblue	Engine STOP
Engine warning	Battery warning - Low voltage	
Warning	Water temperature to high	
AMBER WARNING	RED WARNING	

The **RED SYMBOLS** indicate a serious problem; you should **stop immediately** to investigate or damage to the vehicle/engine could ensue. The warning may also be a safety issue which could mean it is dangerous to continue. All RED WARNING indicators will cause the Cummins engine to derate until the highlighted issue has been rectified, more information on the problem can be found in the diagnostics menu.

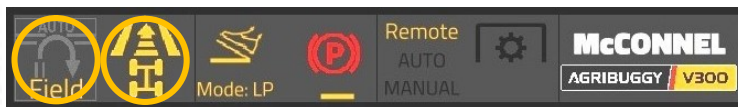
If the message is medium severity (AMBER WARNING) you can temporarily hide the warning by touching the message on the screen. Active messages can be recalled at any time by touching the 'Recall' icon on the screen.

If you require any further assistance regarding errors please contact your local McConnel dealer.

Rear Steering Information Area

Please see the appropriate section in the manual for the rear steering operating instructions.

Touch steering selection/status area on screen to access menu.

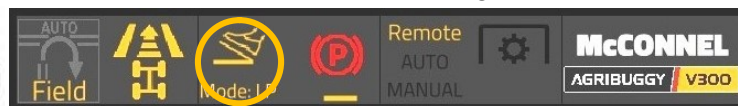


	Road mode		Auto link for headland steering mode
	Two wheel to four-wheel selectable steering mode		Four-wheel steer delay mode
	Permanent four-wheel steer mode		Crab steer mode

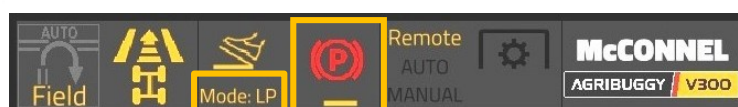
Transmission Information Area

Please see the appropriate section in the manual for the transmission operating instructions.

Touch transmission status icon to toggle pedal/joystick drive mode.



Status areas show the current selected wheel mode (LP or RC) and active state of the transmission ((P), N, F or R).

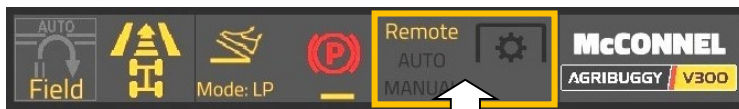


Mode: LP	Low Pressure Wheels mode	F	FORWARD drive selected
Mode: RC	Crop Row Wheels mode	N	NEUTRAL selected
	Parking Brake ON	R	REVERSE drive selected

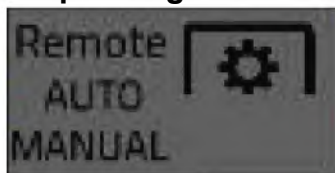
Refer to 'Wheel Size Settings Screen' page for details of inputting wheel and tyre settings.

PTO Information Area

PTO status is displayed on the main screen in the area shown opposite.



PTO Operating Modes



PTO Switched OFF



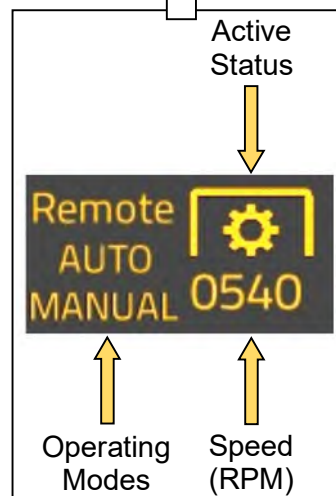
PTO Remote Operation



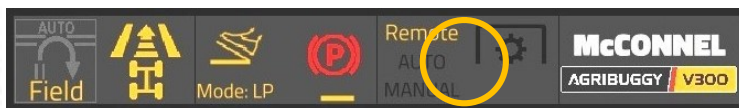
PTO Auto Speed Control



PTO Manual Speed Control



Touch PTO status area to access 'PTO Output Settings' screen.



Refer to 'PTO Output Settings Screen' page for power take off (PTO) operating instructions.

Control Screen Navigation

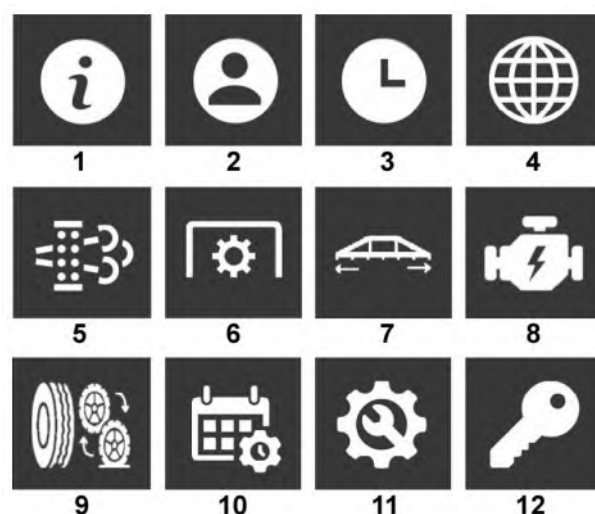
Touch menu icon to access the operator menu screen.

Users will be presented with the screen shown below, each icon on the screen represents a settings category.



Operator Menu Screen

1. About (Info)
2. User Settings
3. Job Timer View
4. Language Settings (Currently unavailable)
5. DPF Settings View
6. PTO Output Settings
7. Boom Width Settings
8. Engine Diagnostic Screens (DM1/DM2)
9. Wheel Size Settings
10. Time & Date Settings
11. User Service Menu
12. Manufacturer Settings (Restricted access)



Touch an icon to access specific settings.

About (Info) Screen

This screen is for information purposes only, no changes can be made on this screen.



User Settings Screen

This screen allows operators to customise user settings to their own preference. When saved the new settings will remain in the systems memory until any subsequent changes are made.



- Touch the required setting display box.
- Change setting(s) to user preference.
- Touch save icon to store change(s) before exiting screen.



Manual **FAN REVERSE**: press icon to run. Fan will reverse for a short period then stop before running at full forward speed for a short period.

User Setting Options:

- **Intermittent Wiper ON delay**
Option: 1 to 15 seconds (default 6 seconds)
Number panel shows when setting is selected – edit number and touch return icon to confirm.
- **Fan REVERSE delay time**
Option: 15 to 180 minutes (default 55 minutes)
Adjustable in 5 minute increments.
Number panel shows when setting is selected – edit number and touch return icon to confirm.
- **Initial Fan reverse action at start-up**
Option: Prompt at start / ON / OFF (default Prompt at start)
Toggle setting using onscreen arrows that will appear when this setting is selected.
- **Steps AUTO operation on Handbrake**
Option: ON or OFF (default OFF)
Touch setting display box to toggle settings options.
- **Indicator buzzer (ON / OFF)**
Option: Buzzer ON or Buzzer OFF (default ON)
Touch setting display box to toggle settings options.
- **Buzzer frequency – Indicators**
Option: 0 to 4000 Hz (default 3900 Hz)
Number panel shows when setting is selected – edit number and touch return icon to confirm.
- **Engine Exhaust Brake Level**
Option: 0 to 3 (default 3)
0 = OFF, 1 = 33%, 2 = 66%, 3 = 100% (approx.)
Number panel shows when setting is selected – edit number and touch return icon to confirm.
- **4WS Moving Engage Window (mV)**
Option: 40 to 1200 (default 1000)
Number panel shows when setting is selected – edit number and touch return icon to confirm.
- **Auto Reverse Camera**
Option: OFF, Cam 1, Cam 2, Cam 3 (default Cam 2)
Toggle setting using onscreen arrows that will appear when this setting is selected.
- **Spray Work Lights With Reverse**
Option: ON or OFF (default OFF)
Touch setting display box to toggle settings options.



If settings are changed the save icon must be touched in order to apply the new setting(s).



Touch return icon to exit the screen.

Job Timer View Screen



Currently unavailable on present builds.

Language Selection Screen

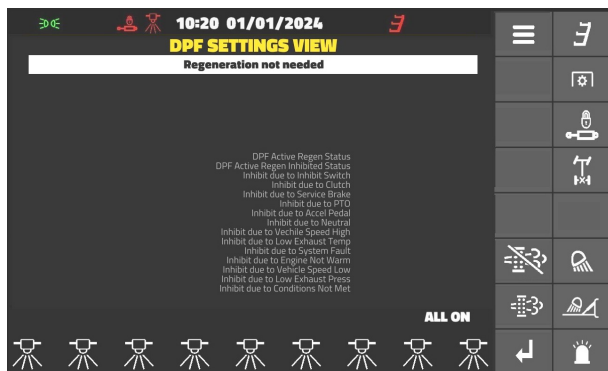


Currently unavailable on present builds. When available, this feature will allow users to select a particular language for this control system. Default language: English (UK).

DPF Settings View Screen

This screen reports the Diesel Particulate Filter (DPF) Regeneration status.

The screen will state the current status in 1 of 4 levels as listed below;



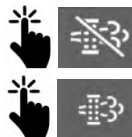
DPF Status levels:

1. Regeneration not needed.
2. Regeneration needed (low level)
3. Regeneration needed (moderate level)
4. Regeneration needed (high level)

By default, when starting the engine, the system will always operate in 'active regeneration mode' and regeneration will automatically run as and when the system dictates.

If required, users can manually run the regeneration process by touching the regeneration icon in the lower right corner of the screen; manual regeneration will only operate if engine conditions permit and the system is currently reporting a 'regeneration needed' level, (low, moderate, or high), it will not run if 'regeneration not needed' is displayed on the screen.

Where deemed absolutely necessary, the system can be set to 'inhibit regeneration'; in this mode regeneration is switched OFF and will not automatically operate. This should only be selected in exceptional circumstances where the machine is located in areas where regeneration could risk a hazardous situation.

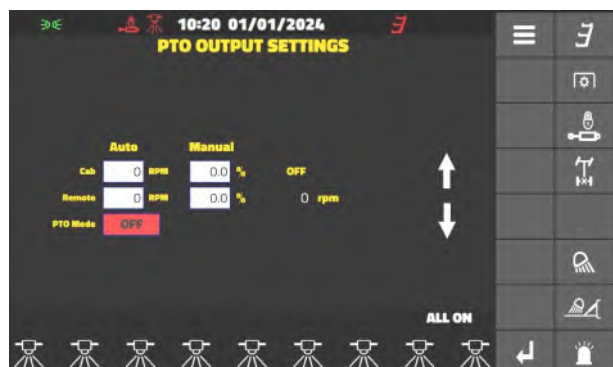


To set 'Inhibit Regeneration' mode

To run 'Manual Regeneration'

PTO Output Settings Screen

This screen reports active PTO information and current stored settings for both Cab and Remote PTO. Settings can be pre-set and saved for both outputs via this screen.



Recommended PTO 'Auto' settings:

- Cab: **400 RPM**
- Remote: **540 RPM**

Recommended max. PTO 'Manual' settings:

- Cab: **32%**
- Remote: **32%**

It is recommended that the PTO is run in 'AUTO' mode.

To set PTO speeds, touch the settings display box for the item you want to edit; a number panel will appear onscreen when the setting is selected, edit the value using the number panel and touch the return icon to save and exit that setting.

To change the PTO mode, touch the setting display box; arrows will appear onscreen when that setting is selected, edit the mode using the arrows and touch the return icon to save and exit that setting. PTO mode options are OFF, AUTO or MANUAL.

When PTO settings have been entered and saved they will remain in the system memory until any subsequent changes are made.

PTO Modes

The system offers the following PTO modes;

1. **OFF** - In this mode PTO operation is switched off and cannot be operated from cab or remote.
2. **AUTO** - In this mode PTO can be operated at the pre-set 'RPM' from cab or remote panel.
3. **MANUAL** - In this mode PTO can be operated at the pre-set '%' from cab or remote panel.

PTO Control Status

The control status of the PTO is shown on the screen and will be stated as one of the following;

1. **OFF** - PTO not operating.
2. **CAB** - PTO being operated from cab.
3. **REMOTE** - PTO being operated from remote panel.

Live speed feedback is displayed on the screen to report the current PTO speed (RPM); this is only applicable where PTO speed sensors are fitted.

Set Boom Width Screen

This screen allows the user to input the sprayer boom width; default setting is 24 metre.



- Touch the width setting display box; a number panel will appear onscreen when the setting is selected, edit the value using the number panel and touch the return icon to save and exit that setting.



Job reset icon – touch to reset job data.

When the correct boom width has been entered, the system will automatically record and report specific data for the current job whilst the machine operates.

When required, the recorded data can be cleared by pressing the soft key adjacent to the 'reset' icon on the right hand side of the screen.

Engine Diagnostics Screens

These information screens report and record any engine fault codes that may occur. These screens should only require accessing by the user if engine problems are experienced and fault code information is requested by a specialist engine technician.



Screen #1 – Active DTC's

Reports 'Active' DTC's (Diagnostic Trouble Code).



Touch DM2 icon to access stored DTC (screen #2).



Screen #2 – Stored DTC's

Recalls 'Stored' DTC's (Diagnostic Trouble Code).

NOTE: When entering this screen, codes will not be displayed until 'Ask' icon is touched; this requests information from the engine management system and any existing stored DTC codes will then be listed in the table.



Touch Ask icon to request stored DTC's.



Touch Clear icon to delete stored DTC's.

Wheel Size Settings Screen

This screen is for selecting the type of wheels fitted to the machine, the menu offers a list of common tyre makes and sizes and should be set to match the size and type being used.



Wheel type options:

- Custom Flotation
- Custom Rowcrop

To alter these settings, touch the screen area you wish to edit and amend settings as stated below.

Tap wheel image to toggle between Flotation and Rowcrop wheels, when the image of the particular wheel type being used is shown touch the save icon to select and set that wheel type.

When touched, the menu box below the wheel image allows the make and size of tyre to be set, use the onscreen arrows to select the type and size from the list. Touch the save icon to confirm.

If custom tyres are used their rolling circumference must be added manually, refer to note below.

Flotation Tyre menu
Trelleborg 580/65-R22.5
Trelleborg 560/60-R22.5
Trelleborg 600/55-R26.5
Michelin 540/65-R24
Float Custom (*)

Rowcrop Tyre menu
Alliance 11.2 x R36
Alliance 11.2 x R42
Alliance 12.4 x R36
Alliance 13.6 x R36
Rowcrop Custom (*)

(*) NOTE Custom Tyres

If the particular tyres fitted are not listed in the menus; select 'Float Custom' or 'Rowcrop Custom' option and manually insert the rolling circumference (mm) of your tyres in the relevant box using the onscreen number panel. Touch the save icon to confirm and save these settings.

Time & Date Settings Screen

This screen is for setting the current time and date. When set and saved, the time and date will remain in the system memory.



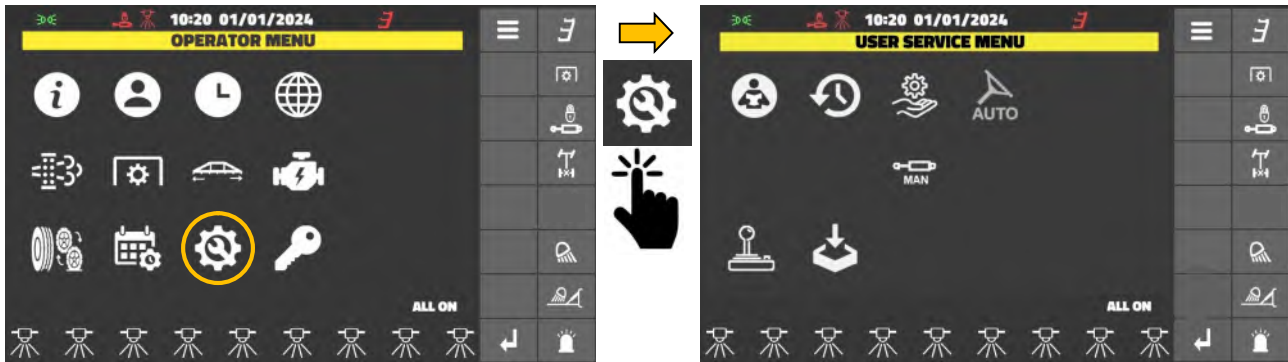
Date & Time must be set with ignition ON and engine OFF.

- Touch the required onscreen setting box.
- Change settings using arrows or number panel that show when the setting box is touched.
- Touch Save icon to store and apply change(s).
The display will automatically reboot.

NOTE: the system does not detect a time zone; where applicable, changes to the clock time for Daylight Saving Time (DST) must be manually performed via this screen.

User Service Menu Screen

This screen provides access to service information, general maintenance, and system checks.

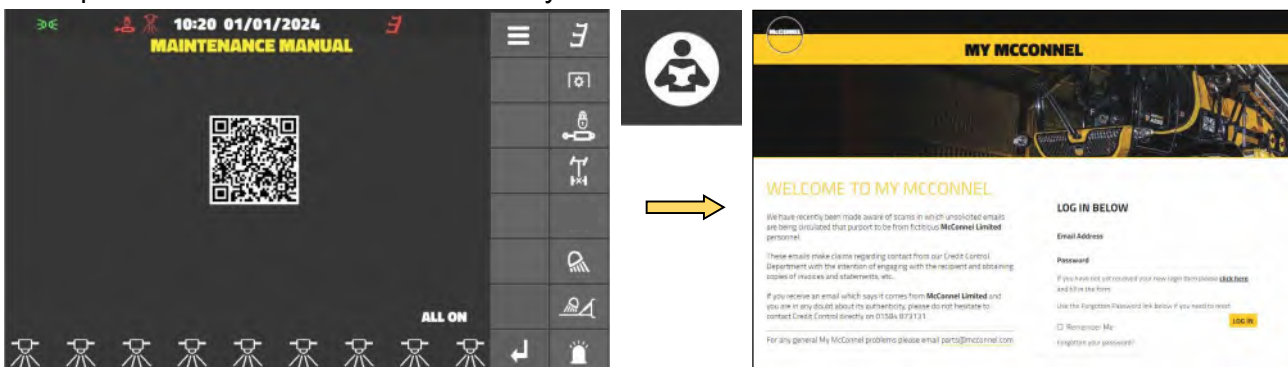


1. Maintenance Manual Access
2. Service Info View
3. Manufacturer/Dealer Portal (Restricted Access)
4. Auto-Steer Activation
5. Auxiliary Hydraulics
6. Joystick Inputs Checking Page
7. Inputs Page



Maintenance Manual Access Screen

This screen displays a QR Code for direct access to <https://my.mcconnel.com> where service, parts and operation information is available for your machine.



Service Info View Screen

This is a 'read only' screen that reports important service information.



Information reported:

- Next Service due time (Hours)
- Cab Filter use time (Hours)
- Full Service due time (Hours)
- Service History (type, date and engine hours)

Manufacturer / Dealer Service Portal

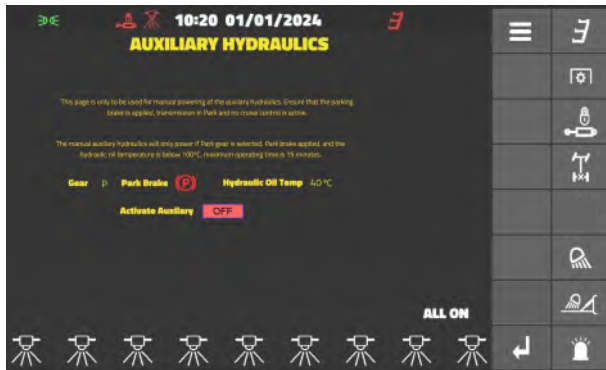


Restricted access; Manufacturer and Registered Dealer use only.

IMPORTANT DEALER NOTE: After accessing the dealer service portal the MCU must be rebooted in order to return it to restricted access status.

Auxiliary Hydraulics Screen

This screen is used for powering up the auxiliary cut-off solenoid to provide hydraulic pressure to the demount valve block; this is primarily used for charging the ram and accumulator with hydraulic oil for the passive boom suspension system.



Auxiliary hydraulics will only POWER ON if the following conditions apply;

- Machine must be in PARKING GEAR (P).
- PARK BRAKE must be applied.
- Hydraulic oil temperature must be below 100°C.

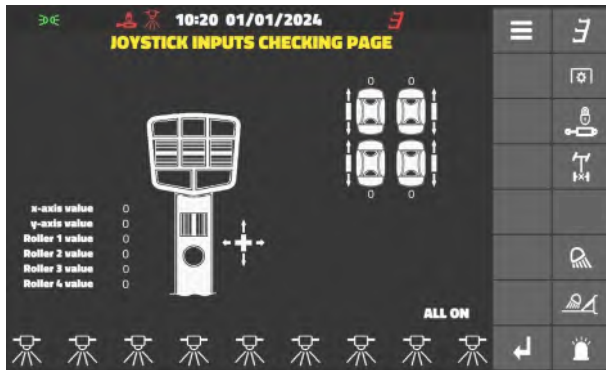


Touch screen to toggle ON and OFF.

When activated the auxiliary hydraulics will timeout after 15 minutes and automatically switch OFF.

Joystick Inputs Checking Page Screen

This screen provides a system check of the joystick to confirm controls are functioning correctly.



These checks must be performed with ignition ON and engine OFF.

Component checks;

- Joystick x-axis: signal and direction check.
- Roller buttons: signal and direction check.
- Push buttons: signal check.
- Paddle switches: signal and direction check.

NOTE: builds without VG booms display check data on the 2 lower paddle switch images only.

When each control component is operated, its location will be highlighted on the screen image to confirm signal operation is working correctly. For directional controls, the direction is highlighted, and a signal value is displayed next to its description.

Joystick and roller buttons are directional controls that operate proportionately in two directions; the controls are working correctly when a value of '255' is reported at its furthest operating position in each direction and a value of '0' when the control is at rest.

Inputs Page Screen

This screen reports the status of general sensor inputs on the machine.



Most items displayed on this screen will require the engine to be running in order to measure and report input data.

This screen should only require accessing by the user if problems occur and data from the screen is requested by the Dealer or McConnel Service.

Speedometer



The speedometer on the main screen calculates the road speed from the transmission output shaft speed and factory set figures for the gear ratios and the wheel size. The wheel size is taken as being the biggest wheel it is possible to fit. A GPS sensor is also fitted and the signal from this is used to calculate a correction factor which corrects the calculated speed to provide a true ground speed.

If the GPS system fails or a signal is not available, then the speed is calculated as above, and no correction is made. This means that with small (low pressure) wheels fitted the speedometer will over-read by up to 15%.

An indicator on the main display shows whether a GPS signal is being received and the calculated speed is being corrected. It can take a few seconds after starting to move before the speed is updated.

There is a pulsed speed output that can be used from the display by other instruments and sprayer/spreader controllers to save fitting additional shaft/wheel sensors.

Speed Limiter

For safety and legal reasons, a speed limiter is fitted to the Agribuggy which limits the maximum forward speed to approximately 52 km/h. With low pressure wheels it is not possible to exceed this speed in anyway. With row crop wheels fitted it means that maximum cruising speed can be attained at lower engine revs which is both quieter for the operator and saves a significant amount of fuel. The limiter does not affect how you drive the machine it simply limits the maximum engine speed.

Operation : Controls

Starting Engine

1. Ensure the PTO is disengaged, parking brake is applied, and transmission is in Neutral (**N**) or Park (**P**) position before starting.
2. Turn the ignition switch to its centre position; **wait for the Machine Control Unit (MCU) to boot up.**
3. Crank the engine by turning the key fully clockwise. Release key when engine starts. If it fails to start within 30 seconds, or starts and then stops, return the key to the off position, wait 2 minutes, and then repeat the above procedure.
4. Idle the engine for 3 to 5 minutes before operating with a load. After starting a cold engine, increase the engine speed (rpm) slowly to provide adequate lubrication to the bearings and to allow the oil pressure to stabilize.
5. After starting, and before shifting from neutral to forward or reverse drive, it is necessary to apply the footbrake (do not press accelerator pedal). NOTE: engine will not rev using the accelerator pedal until the brake pedal has been pressed and released.

Stopping Engine

1. Before stopping engine ensure vehicle has completely stopped, when stationary apply the parking brake (doing so will also select 'Park' in the transmission).
2. Allow engine to idle for at least 10 seconds before stopping, particularly if you have been running at high engine revs, this is to avoid possible damage to the turbo-charger bearings.
3. To stop engine, turn the key anticlockwise. **Do not turn the battery isolator switch off for 120 seconds after the engine has stopped**, or until the light next to the isolator has gone out, this is to permit the DEF system to complete its purge cycle and allow ECU shutdown; *failure to observe this can result in the indication of engine fault codes.*



Battery Isolator Switch

Switch is located on right-hand side of machine above the battery compartment.

CAUTION

When engine has stopped wait 120 seconds before turning the battery isolator switch off.

Park Brake

Applied by pressing the rocker switch situated on the console; should only be operated when stationary and foot brake applied. Activation of the park brake also selects the park function in the transmission. To release the brake, first press the red safety catch to unlock the switch and then press down.

The park brake should not be applied whilst the vehicle is in motion except in an emergency situation: failure to observe this may result in transmission damage.

NOTE: the park brake operates on the rear axle which may result in a slight movement of the vehicle after it is applied.



Power Steering

When turning do not hold the steering tight on full lock as this will cause the relief valve to 'blow off' potentially causing premature wear and excessive heat. Do not turn the steering when stationary, particularly when on hard surfaces, this causes unnecessary excessive pressures in the steering system, especially when wide tyres are fitted.

Speed Control - Foot Pedal

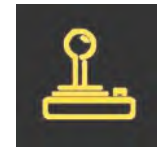
The foot pedal on the Agribuggy controls the travel speed of the vehicle from 0-100% but does not directly control the engine speed (rpm). The maximum achievable travel speed will be determined by the particular speed setting selected by the operator – *refer to maximum speed settings below.*



When driving the Agribuggy with the foot pedal, anticipate tough spots and be ready to respond to avoid the engine losing speed. The machine is equipped with a cruise control system for automatic speed control (See MCU for details).

Speed Control – Joystick

The Agribuggy can be configured to control travel speed by use of the joystick instead of the foot pedal; this option is selected by touching the foot pedal/joystick control icon on the main screen to toggle the control for the required mode. The image displayed on control icon indicates the current selected control device.



Joystick speed control should only be used for field work, never on the highway.

Selecting Speed Control Device

On initial start-up the foot pedal is the default device for controlling travel speed. The procedure for changing the speed control device is shown below;



Touch speed control device icon to toggle between pedal and joystick control; image displayed indicates which device is set to control the travel speed.

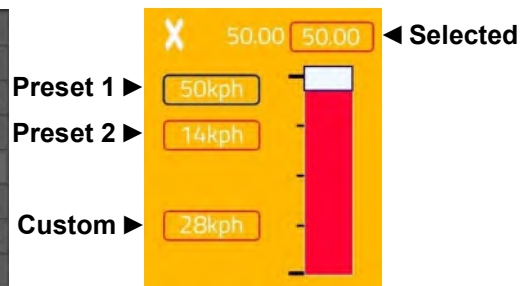
Maximum Speed Settings

The Agribuggy offers 3 maximum travel speed settings, 2 preset speeds (14km/h or 50km/h) and one custom speed (user set at any speed up to 50km/h). Speed selection and setting the custom speed is via the main screen on the MCU.

Selecting Maximum Speed

Touch the onscreen speedometer to open the speed settings panel.

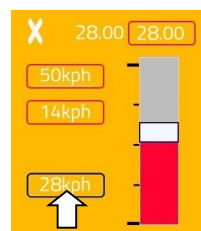
This panel will display the 2 preset speeds (14km/h and 50km/h) and the users custom set speed.



Selection of the required maximum speed is by touching one of the displayed speeds, the speed selected will appear in the display box at the top right of the panel and is also indicated by the yellow needle on the speedometer display. Touch the 'X' icon to close the settings panel.

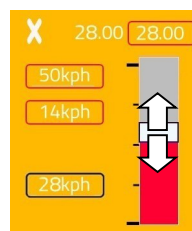
Setting Custom Maximum Speed

There are 2 methods available for setting a custom maximum speed, these are;



Method 1:

Touch and hold the custom speed box for **>3 seconds**; on release a number panel will appear, enter the custom speed required and touch the return icon to confirm. Speed entered will now be displayed in the custom speed box for selection when required. Touch 'X' to exit.



Method 2:

Touch and drag the onscreen slider to select the custom speed required; speed figure stated in the custom speed box alters as the slider is moved. Speed set will be displayed in the custom speed box for selection when required. Touch 'X' to exit.

Hydrostatic Transmission

The Agribuggy features a hydrostatic variable speed transmission. A central differential in the transfer gearbox distributes power to both front and rear axles providing permanent all-wheel drive.

Drive Selector Joystick

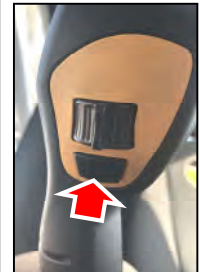
The function of the joystick lever is for selecting forward (F), reverse (R) or neutral (N) gears. The lever is equipped with a safety switch located on its front face to prevent inadvertent or accidental selection out of neutral or from forward into reverse.

Press and hold the switch whilst selecting desired position, at the same time apply pressure to the brake pedal. For forward gear move the lever forwards and for reverse gear move the lever rearwards, the central position is neutral.

To shuttle between forward and reverse, move the lever to the left and press the safety switch; transmission will slow, stop, and engage the gear for the opposite direction.



Joystick Gear Control



Safety Switch

Operating Transmission

PARK

Park is selected automatically when the park brake is applied, in this position a multidisc parking brake is applied on the back axle to prevent the vehicle from rolling away.

FORWARDS

To select Forwards from Park or Neutral, pressure must first be applied to the brake pedal then push joystick forwards, press safety switch then let the joystick go.

NEUTRAL

Use the Neutral position when the vehicle is stationary, and the engine is to idle for a prolonged period (e.g. at traffic lights). With the hand brake in the off position and your foot on the brake pedal, just press the safety switch once, this will then put the transmission in the Neutral position.

REVERSE

To select Reverse from Park or Neutral, pressure must first be applied to the brake pedal then pull the joystick backwards and press safety switch to select Reverse.

SHUTTLE

Once Forward or Reverse gear is selected, to change from Forward to Reverse, or Reverse to Forwards, release the speed pedal (if driving in pedal mode) pull the joystick to the left, press safety switch then let the joystick return to centre – this will trigger the machine to decelerate at a controlled rate and once stopped will select the gear for the opposing direction.

Drive Modes

The Agribuggy can be driven using the foot pedal or the joystick lever for speed control.

Pedal Mode: In this mode the foot pedal controls the driving speed from 0-100%.

Press the foot pedal down to increase speed and release the pedal to decrease speed.

Pedal driving mode can be used when travelling on the highway and for field work.

Joystick Mode: In this mode the joystick controls the driving speed from 0-100%.

Move the joystick lever forwards to increase speed and move lever backwards to decrease speed.

Joystick driving mode must only be used for field work, never on the highway.

NOTE: Maximum speed setting selected will determine the 100% speed figure, this can be 14km/h, 50km/h or a custom maximum speed preset by the user. *Refer to the maximum speed settings page.*

Operating : Driving

Driver Settings

Before starting the machine ensure that seat, steering column, and mirrors are correctly adjusted.

Driver's Seat

To avoid risks from whole body vibration ensure that the seat is correctly adjusted before driving the vehicle.

Steering Column

Adjustment of the steering column is via the lever located on the right-hand side of the column; set height and angle of the steering wheel to a position where it offers maximum control and comfort to the driver. A foot pedal located on the base allows the column to be raised forwards for ease of access when entering or exiting the cab.

Do not adjust column whilst driving!

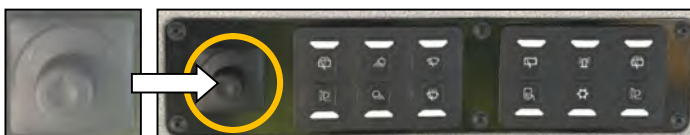


Mirror Adjustment

Mirrors are electrically adjusted using the control on the left-hand side of the switch panel located in the roof space above the windscreen.

Rotate the switch to select the left or the right mirror and adjust the angle by moving the switch in the direction required. Adjust the mirrors to a position where they provide optimum rearward view.

Do not adjust the mirrors whilst driving!



Starting & Driving

All drivers should thoroughly familiarize themselves with the following instructions before driving:

- Before starting the engine, ensure that the park brake is applied.
- After starting the engine, keep foot brake and park brake applied before and whilst moving the joystick to the required drive position.
- Keep the brakes applied until you are ready to move.

Transmission Oil Temperature

The transmission in the Agribuggy uses hydraulic oil. Should the transmission overheat, a warning will be displayed on the MCU; you should **stop immediately and investigate the cause**.

Differential Lock (Diff-lock)

The transfer gearbox is fitted with a lockable rear differential. With the differential locked, the drive shafts to the front and rear axles are (in effect) joined together, causing both to rotate at the same speed. This feature enhances traction when working in difficult and slippery conditions and when working on steep hillsides. With the differential unlocked for normal conditions and roadwork, the different running requirements of the two axles can be accommodated, thereby enabling the Agribuggy to operate permanently in all-wheel drive for both road and field work.

When to use the Diff-lock

As a general rule, the differential should only be locked on slippery or loose surfaces, or on very steep hillsides. If excess wheel slip is evident then, it should of course be used. However, **do not** use it unnecessarily. **It must be disengaged for all road work.**

If the machine should become 'stuck' without diff-lock engaged, excessive wheel slip must not be allowed to continue in order to protect the centre diff from risk of damage. Diff-lock **must always** be disengaged before making sharp turns, i.e. headland turning, tight manoeuvres etc.

Selecting Diff-lock

Diff-lock **must only be engaged when the vehicle is stationary**, failure to observe this could result in serious transmission damage.

Diff-lock can be disengaged when the machine is moving or whilst stationary.

Engaging Diff-lock

Press the diff-lock switch, the onscreen diff-lock icon will illuminate green when the differential engages. NB This will only happen when the lock is actually engaged rather than when it has been selected. Similarly, it will only extinguish when the diff is actually disengaged.

Dis-engaging Diff-lock

Press the diff-lock switch, the onscreen diff-lock icon will return to white when the differential is disengaged. If the warning is obviously reluctant to extinguish after the diff-lock has disengaged, some transmission 'windup' may be present. Reversing the vehicle for a short distance and then going forward will usually 'unwind' the transmission.

Braking System

As a safety precaution, the hydraulic braking system has dual reserved circuits; if the main circuit should fail, the others will continue to function but longer stopping distances will be experienced. In the event of an emergency situation where engine or hydraulic failure is experienced the reserve system will only offer limited pedal operation until the system loses all its pressure.

Always observe the following precautions:

1. Never allow the vehicle to freewheel with the engine turned off (steering will also be affected).
2. If the engine should stop for any reason whilst the vehicle is in motion, bring the vehicle to a halt as quickly as traffic conditions allow.
3. Remember! Regular servicing is vital to ensure that the brake pads are examined for wear (especially when working in wet/muddy conditions) and changed periodically to ensure long term safety and optimum performance. When new brake pads have been fitted you should allow a period of time for them to 'bed in' before optimum braking is achieved.

Should you experience braking problems, or suspect any issue with the braking system, the machine must be parked up and not moved or used until the system has been fully inspected and/or repaired by a specialist engineer.

Hydraulic PTO Safety

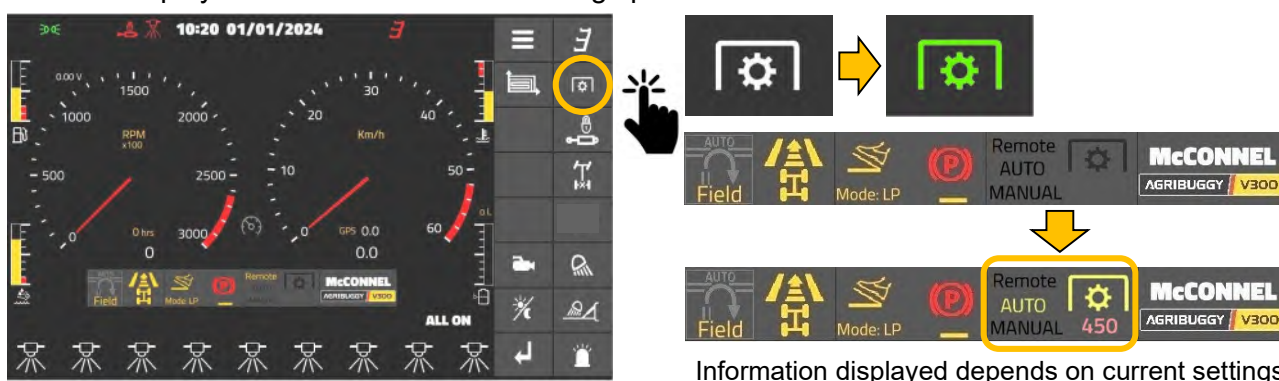
The engine must be **SWITCHED OFF** before connecting the PTO or making mechanical adjustments.

Operation

The PTO is hydraulically driven and fully independent and may therefore be engaged at any time. Although the spray pump can be run at a maximum of 540rpm, lower PTO speeds reduce wear and tear in the spray pump and hydraulic system and can also help to prevent foaming in the spray tank. It is recommended that the pump is run at a lower speed if possible, providing you can attain your application rate and sufficient agitation. Speeds of 350-450rpm are normally adequate.

Operating the PTO

The PTO is switched ON/OFF by touching the PTO control icon on the MCU screen; when switched ON the PTO symbol on the icon will change from white to green and the PTO information area will display the mode and current running speed.

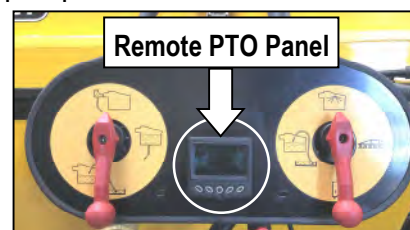


Automatic Mode: In automatic mode the speed is monitored by the electronic system and adjustments are made to the hydraulic valve to maintain the preset PTO speed. This will adjust the valve and make allowances for temperature, pressures, and input flow.

Manual Mode: This is a very simple control where the output of the valve is set to a given percentage. This mode can be used when there is no speed signal input that can be used to help govern the speed; this is often the case with centrifugal type spray pumps.

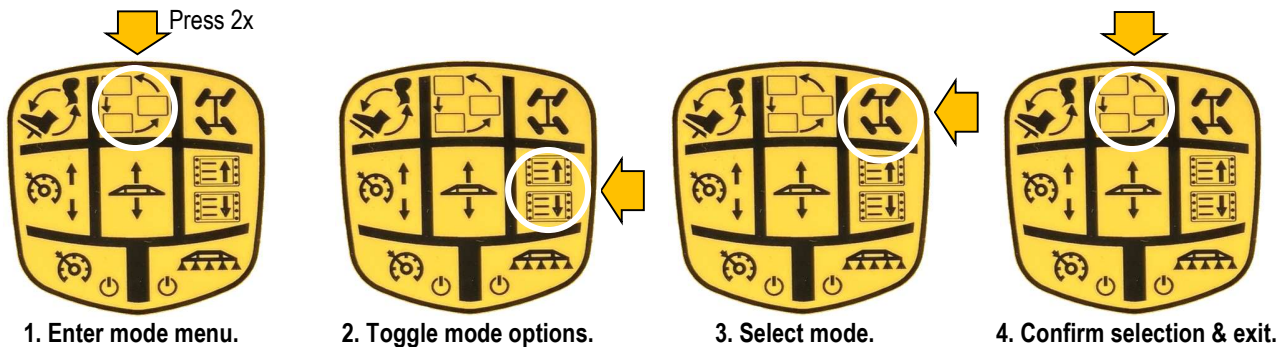
Remote Mode: The PTO is controlled by a remote display on the 5-way tap panel mounted on the spray pack. This is used when filling the sprayer, the pre-set will come in at default and can then be adjusted on the remote display to suit.

For further details on Remote PTO operation refer to Demount Sprayer operation manual.

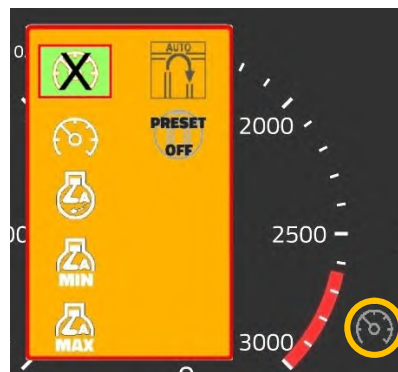


Activating the Cruise Control

Access and selection of the 'cruise control system' is by operation of the joystick buttons indicated below, the mode menu button (1) is also used for steering mode selection; press the button once to access the steering mode menu, press the button twice to access the cruise control menu – the relevant settings menu for the particular mode will be displayed on the control screen.



Decal on control console indicates function of each button on the joystick; buttons will only operate if appropriate cruise mode has been selected.



Cruise menu also accessible via the cruise icon located in centre of screen



Cruise Mode Selection

To select a 'cruise mode' use the middle right roller to scroll up and down to select one of the modes listed below, when 'highlighted' enable the selected mode with the top right button. Press top centre button to confirm and exit the menu. Alternately, mode can be selected by touching the relevant mode icon on the cruise control menu screen.



Speed mode – This mode can be used on the road and in the field to hold a preset speed input by the operator, the engine will automatically adjust the revs to keep the set speed. This can also be set using the middle-left roller whilst driving where the current speed will be set. If the throttle is pressed, forward speed will increase and return to the set point once released. Can be overridden at any time by using the brake pedal or cancelling on the joystick.



Engine mode – This mode allows you to set the engine to either a pre-set speed or you can set it to the current engine speed by pressing the set button or using the left roller. There are two pre-set speeds which can be saved for field and road use. When this mode is active you can increase the speed by depressing the foot throttle.



Max Limit mode – This mode sets the maximum speed the engine will run at when your foot is all the way down on the throttle. This can be used for example to set a speed whilst travelling up and down the field. You can then ease back on the throttle for turning at the ends and then put your foot hard down when you start work again. Headland control is not available when in this mode.



Min Limit mode – This mode maintains a minimum engine speed but allows engine speed to increase as required for transmission. This is recommended for field work when controlling travel speed via the joystick.

Rear Wheel Steering System

The rear wheel steer system on the Agribuggy is controlled electronically. Signals from sensors mounted on both axles are continually monitored by the electronic control box and a varying signal is sent from the control to an electro-hydraulic proportional valve which, in turn, directs oil to the steering ram on the rear axle to ensure the rear wheels are always kept in the correct position. The rear wheel position is also continually monitored when in two-wheel steer and crab modes, again, to ensure that the wheels do not "creep" and to keep them in the correct position.



Safety Precautions

1. Always ensure the rear wheel area is clear before activating the four-wheel steer system.
2. Always switch to the roadwork position for speeds above 12mph (20kph).
3. Do not switch modes when travelling at speed.
4. Danger of trapping, on no account allow any person to be placed between the wheels and chassis while the engine is running, always remove the ignition key and isolate the battery before accessing the area.

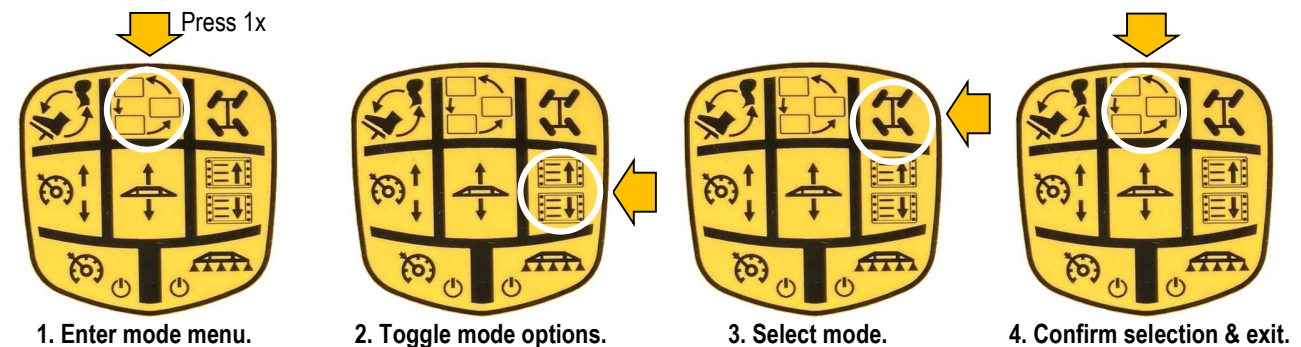


Rear Steering Activation

The rear steering system is controlled by buttons on the joystick. Options are selected from a menu on the main display. To open, and subsequently close, the steering menu on the display press the top centre button on the joystick – see below.

Steering Mode Selection

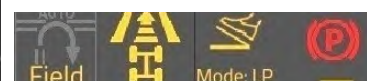
Access and selection of a steering mode is by operation of joystick buttons indicated below:



In certain modes, 'toggle' operation of the 'steering' button will automatically switch between the particular steering functions available in that mode.

Applicable modes are indicated by an asterisk (*) in the mode list on the following page.

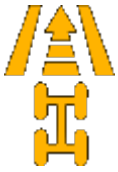
Steering menu can also be accessed by touching the steering icon on the main screen.



Steering mode can be selected by touching the relevant mode icon on steering menu screen.

If no buttons are pressed, or mode icons touched, the pop-up menu will disappear after 5 seconds.

Mode Options



Road Mode

In the Road mode position the electronics are deactivated for safety and the rear axle will be locked hydraulically. Before switching to this position, allow the rear wheels to straighten up in Two-wheel Steer. After a few miles on the road the wheels may tend to "creep". If this happens slow down to less than 5 mph, switch back to Two-wheel Steer (which will quickly straighten the rear wheels) and then switch back to Road mode again. The steering system should not be operated at speeds above 12 mph. If this speed is exceeded the system will automatically straighten the rear wheels and will shut down into road mode.



Two-wheel Steer / Auto Four-wheel Steer (*)

In Two-wheel Steer mode the rear axle position is monitored continually and fine adjustments will be made by the system to ensure the wheels keep straight. You may switch to this position at any time in the field and the rear wheels will straighten up automatically once the front wheels pass through the "Mode activation window" (see next section below). When this mode is selected you can also use the 4ws steer button to toggle between 2- and 4-wheel steer modes. If headland mode is active, it will automatically switch between 2- and 4-wheel steer mode when the sprayer is switched on/off.



Four-wheel Steer

In Four-wheel Steer mode the rear wheels will always follow the front ones and will give you the tightest turning circle. You may switch to and from this position at any time in the field and the rear wheels will re-align automatically when the front wheels pass through the "Mode activation window" (see next section below).



Delay Mode

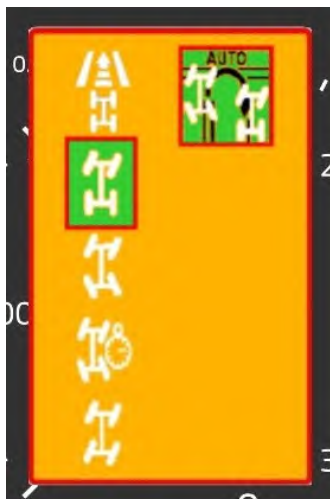
In delay mode the rear wheels will only start to move when the front wheels have passed an angle of approximately 8 degrees. This is useful when spraying as it allows a degree of deviation from the straight-ahead position with the front wheels without the rear wheels moving. This is better than four-wheel steer as you travel down the field as it keeps the boom more stable. For headland turns the rear steering comes in once you have started the turn and the slight delay also makes for more accurate wheel tracking as you turn.



Crab Steer / Two-wheel Steer (*)

Crab steer may sometimes be useful when manoeuvring in buildings and in tight corners in fields. The rear wheels turn in the same direction as the front ones allowing the machine to move sideways. When this mode is selected you can also use the 4ws steer button to toggle between crab steer and 2-wheel steer modes.

Headland Mode



To select 'headland mode', use the middle row right roller button on the joystick to highlight the auto box and press the top right button to turn headland mode 'ON/OFF'. Headland mode is only available when the main mode selector is in the 2WS/Auto position. The headland mode icon will illuminate when this mode is selected. In headland mode the steering will change from 2WS to 4WS when the sprayer is switched 'ON/OFF' with the bottom right button.

Steering Toggle

When the steering is set to 2WS/Auto 4WS you can also use the top right select button to toggle between 2WS and 4WS modes. If headland mode is switched 'ON' the top right button will reverse the current setting and switching the sprayer 'ON/OFF' will correct the setting to 4WS with the sprayer 'OFF' and 2WS with the sprayer 'ON'.

Steering Mode Activation Window

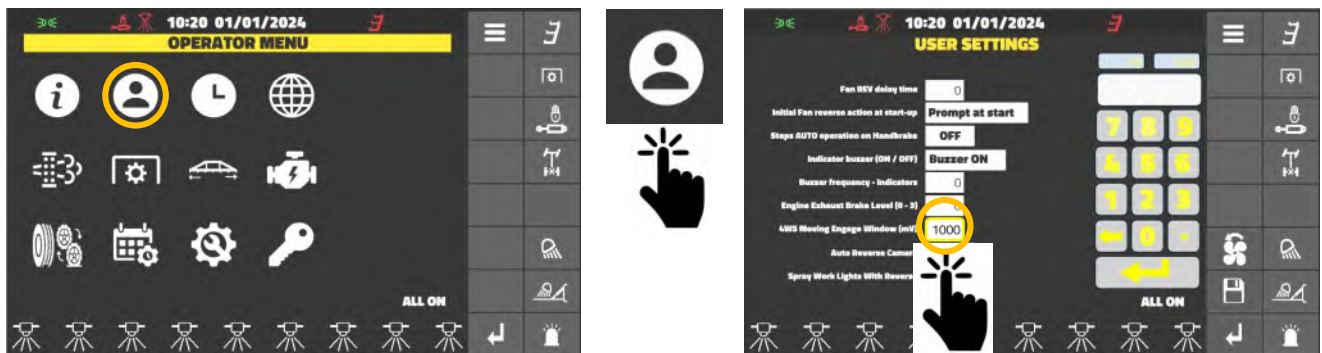
The steering mode activation window is used to avoid large, unexpected movements of the rear axle steering. When changing steering modes, the rear wheels will only start moving when the front wheels are within the mode activation window.

Steering 'Activation Window' Settings

When the machine is stationary or moving less than 3km/h the central window is fixed at approximately 50mV (0.75° either side of centre). When the machine is moving faster than 3 km/h a larger central window is used, this can be changed within the user settings menu, the default is 1000mV (15° either side of centre).

4WS Moving Engage Window Setting

Adjustment of this setting is on the 'user settings' screen.



Access the user settings screen and touch value box next to '4WS Moving Engage Window (mV)'; a number panel will be displayed on the screen.

Enter the number value required, any value between 40mV and 1200mV can be entered; see below for mV to degree (°) calculations.

NOTE - 1mV = 0.03°

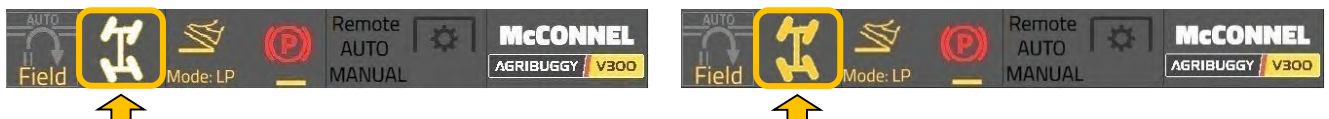
40mV = 1.2°

1200mV = 36°

When required value has been entered, touch return on number panel to confirm the setting.

Steering Status Indicator

The 4WS steering symbol on the status bar indicates the steering mode selected and current status; the image is shown in white when selected and changes to yellow when the mode becomes active.



White symbol indicates mode selected but not engaged.

Yellow symbol indicates selected mode is engaged.

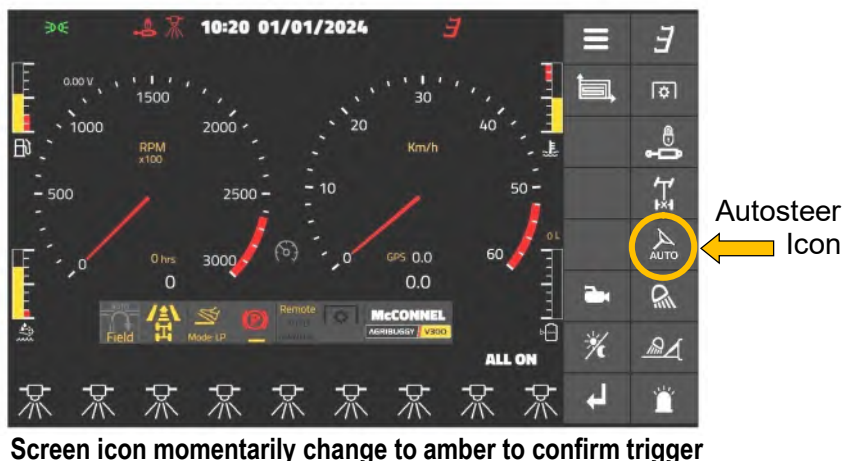
Autosteer (Option)

Autosteer, where available, is an automatic steering function controlled by the third-party sprayer system. Where this feature exists, there is an option that can be enabled in the factory/service menus to allow the feature to be selected and deselected via the joystick.

Press the right-hand roller switch downwards to toggle selection/deselection of Autosteer; screen icon will momentarily switch to amber when roller switch is operated to show the trigger is being sent to the autosteer, it does not relate to the current status of the autosteer. Status of Autosteer will be displayed on the third-party sprayer screen.



Autosteer Select/Deselect



Operating : Hydraulics

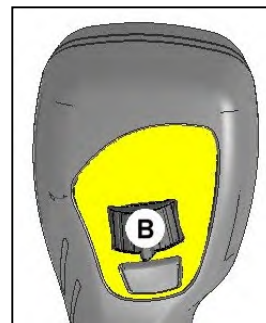
Spool Valves

The Agribuggy is fitted with electro-hydraulic spool valves for operating the booms; the valves are controlled via 2 roller switches on the joystick for lift, lower and tilt, and via 2 paddle switches on the console for inner and outer folding on standard machines. Machines equipped with the Variable Geometry Boom option have an additional 2 paddle switches on the console for operation of that particular function.

A decal located on the control console indicates the functions of the joystick and console controls.

Spool Valve Controls

- A) Boom Raise/Lower Control
- B) Boom Left/Right Tilt Control
- C) Inner Boom Fold Control
- D) Outer Boom Fold Control
- E) LH Boom Variable Geometry Control (Option)
- F) RH Boom Variable Geometry Control (Option)



Console shown is for a standard machine without variable geometry booms; machines with VG booms will have two additional paddle switches located at positions E & F.



WARNING CAB DOOR MUST BE CLOSED when operating the booms



CAUTION HYDRAULICS MUST BE UNLOCKED before operating the booms

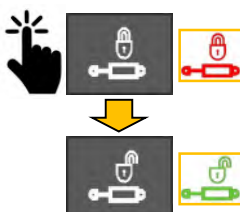
There are normally 4 services fitted which can be any combination of single and double acting spools. A double acting spool can be safely used to operate a single acting service if required.

The hydraulic system/spool valve(s) fitted are only designed for intermittent operation of hydraulic cylinders and **should not be used to power motors or other hydraulic circuits**. Maximum pressure at the spools is **190bar**.

Ensure that all couplings are clean before connecting hoses and that any couplings that are not in use are protected with plugs/caps; ingress of dirt into the hydraulic system can lead to premature wear and possible failure of major components.

Hydraulic Lock Control

The hydraulic lock is activated and deactivated via its control icon located on the right-hand side of the screen; touch the icon to toggle between locked to unlocked status. The status is displayed on control icon and on the information bar at the top of the screen.



Air Conditioning & Ventilation

A climate control unit is installed in the cab roof. The unit will control the temperature of the air which may be drawn into the cab through a carbon filter or the re-circulated air within the cab.



When applying chemicals, it is important that some air be drawn into the cab at all times to ensure that it is kept positively pressurised to keep dust and vapours out.

Operating - Cab Ventilation

Air Climate Controller



Operation

A single push button dial on the electronic climate controller operates all air climate functions; pressing the dial will cycle the settings, turning the dial will adjust the selected setting. The screen on the unit will display the selected function and setting options.

- Press and hold the dial to turn the climate control unit ON.
- Rotate the dial to increase or decrease the fan speed.
- Press dial to access temperature setting; rotate dial to increase or decrease temperature.
- Press dial to access aircon ON/OFF; rotate dial to select ON or OFF.
- Press and hold dial to turn the climate control unit OFF.

Adjustable air vents are positioned throughout the cab to provide directional ventilation; these are built into the roof space and cab pillars.



Multi-directional Air Vents are located in roof space and within the cab pillars

Service & Warranty

The Agribuggy carries a 24 month / 2000-hour warranty, *whichever occurs first*, on defective parts and workmanship. It does not cover faults caused by incorrect use and servicing or faults caused by fertiliser or chemical corrosion.

All servicing should be carried out as per this instruction manual particularly during the warranty period. The first service is normally carried out by the customer after the first fifty hours running. If any faults are apparent on delivery, at this first service or during the warranty period McConnell Limited would appreciate notification as soon as possible, even if the fault is rectified by the customer. McConnell Limited understand that many customers will repair straight-forward faults themselves without reporting them, however McConnell's policy is one of continual improvement and with co-operation and any suggestions and ideas, product enhancements can be made to the mutual advantage of customer and supplier.

If any problems occur with the machine, please contact McConnell Limited without delay, with whom you can discuss the best way to deal with the problem to avoid unnecessary delays. If a repair is carried out by the customer or by an outside engineer to save time, and it is wished to claim costs under warranty, McConnell Limited must be notified first, or the claim will not be accepted under any circumstances. Unauthorised repairs may affect or even invalidate any remaining warranty. Any parts replaced must be returned to us for assessment.

If McConnell Service Engineers are called out at any time, to work on the machine or if the machine has to be returned to their works for repair, it must be thoroughly cleaned to remove all chemical and fertiliser residues to enable the work to be carried out safely and effectively. If the machine is not clean, we reserve the right to either refuse to carry out the work or to charge for cleaning.

Wheel Chocks

To avoid the risk of accidental movement, wheel chocks must be tightly placed to the front and rear of a suitable wheel prior to performing close inspections, maintenance, or servicing. When not in use the chocks are stowed on the side of the vehicle in the location shown below. Wheel chocks should be carried on the vehicle at all times to ensure they are readily available for any emergency situations.

Wheel Chocks - Stowage Location



Maintenance & Technical Information

The life of the Agribuggy will depend on the care it receives throughout its life. It is the operator's responsibility to ensure that the machine is correctly operated and that the maintenance operations outlined in this manual are carried out regularly after the specified hours of operation are reached. If you are unsure of how to carry out any of the maintenance operations, please do not hesitate to enlist the help of your local McConnel dealer.

Please remember that the Agribuggy is unlike a tractor in many ways and the standard of maintenance needs to be much higher; they are designed primarily as lightweight machines, but although the components used in their construction are lightweight the parts will generally last just as long as heavy-duty components providing, they are inspected, serviced, and maintained regularly. The Agribuggy is fitted with suspension and a rubber mounted engine; consequently, the drive line components are open to the elements and there are more moving parts that are subject to 'wear and tear'. In addition, engine hoses, cables, and wiring looms on the machine are also more susceptible to 'wear and tear' and therefore must be subject to regular inspection.

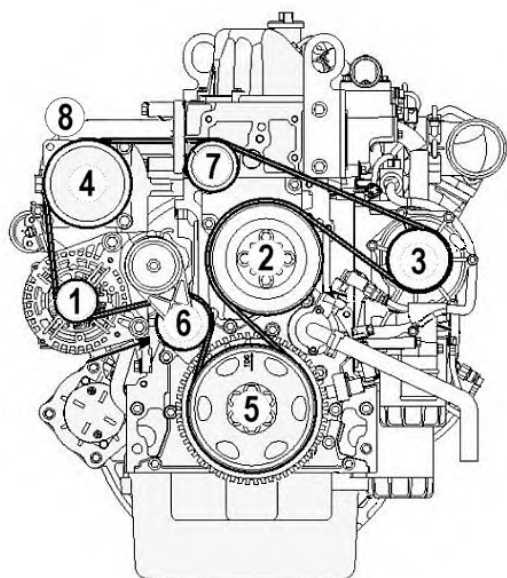
Finally, these machines are much more susceptible than tractors to general corrosion, seizure of components, and electrical problems, this is due to the mounting position of the sprayer and fertiliser spreaders - right on top of it!

When carrying out your weekly service it is well worth spending a little time looking over (and under!) the machine and checking the condition of hoses, wear on drive shafts, and for any signs of chafing or things coming loose. Also take the opportunity to go round with the oil can and lubricate anything that moves - particularly when working with fertilisers. An hour a week can save expensive down-time later on.

All nuts and bolts should be checked for tightness after the first day of operation, **especially axle U-bolts, wheel nuts, steering joints and track rod ends**. Check engine and hoses for fluid leaks regularly during the first few days of operation and on a regular basis thereafter.

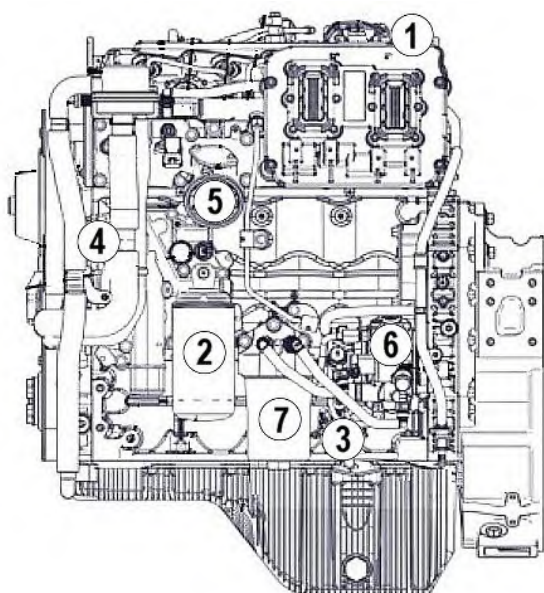
Refer to the condensed maintenance guide for general maintenance tasks and service intervals.

Engine Components : Location & Identification



Front View

1. Alternator
2. Fan Drive
3. Water Pump
4. A/C Compressor
5. Crankshaft
6. Belt Tensioner
7. Idler Pulley
8. Turbo



Left View

1. Oil Filler Cap
2. Oil Filter
3. Dipstick
4. Water Pump
5. Intake Air Heater
6. Fuel Pump
7. Fuel Filter

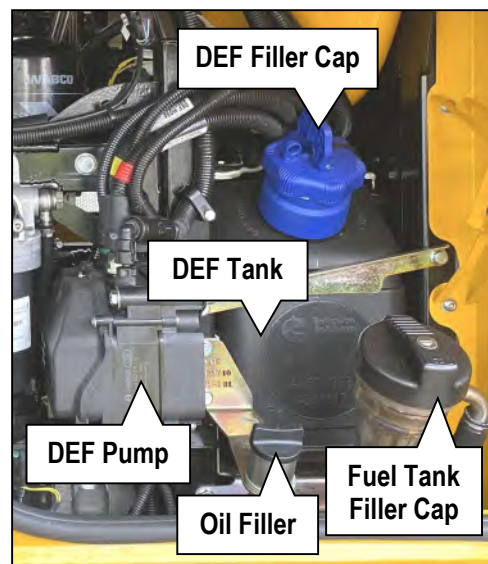
Diesel Exhaust Fluid (DEF) Tank

The DEF tank is mid mounted on the left-hand side of the engine bay.

The level of DEF in the tank is displayed on the MCU; when filling, the level is monitored by a sensor in the tank and the signal is routed via the engine ECU, there is a delay before the information is available to display on the MCU.

Diesel Fuel Tank

The diesel fuel tank is mounted at the rear of the chassis. The fuel filler point for the tank is located within the engine bay to the front of the DEF tank – *refer to photo opposite*.



Daily Maintenance Points : Engine

Engine Oil Level

Check engine oil level daily with machine standing on level ground.

Check the oil level when the engine is hot let the engine stand for approx.15 minutes after shutting down to allow oil to drain back into the sump.

Withdraw dipstick and wipe clean, fully reinsert and withdraw to check the level.

The oil level should NEVER be allowed to fall below the bottom level mark on the dipstick.

Do not fill above 'Max' mark on dipstick



NB If it is necessary to check the oil whilst the engine is cold; follow the procedure above without starting the engine - *re-check oil level again after engine has been started and reached its working temperature.*

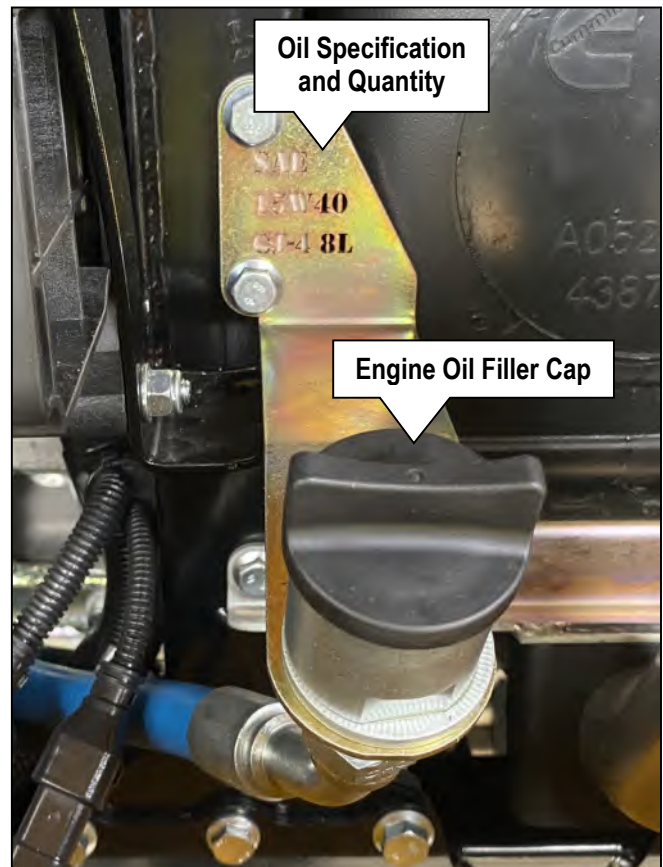
As a general guide:

- *If the oil level is nearer to the upper mark than the lower one; add no oil.*
- *If the oil level is nearer the bottom mark than the top one; add half a litre of oil.*
- *If the oil level is on the bottom mark or below; add one litre of oil.*

Engine Oil Filler

The engine oil filler cap is located at the front of the engine bay next to the fuel tank filler.

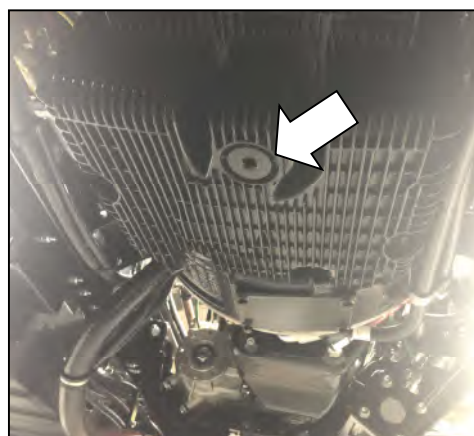
Oil specification and quantity is stated on the filler mounting bracket for easy reference.



Maintenance : Changing Engine Oil

Oil and Filter Change

1. Warm engine until the water temperature reaches 60°C.
2. Park machine on a firm level site, stop engine and turn battery isolator 'OFF'. Chock wheels to prevent machine movement.
3. Remove oil filler cap from rocker cover, place suitable draining tray (*capacity at least 9 Litre*) under engine and remove drain plug from sump.
4. Clean the area around the oil filter head.
5. Using a suitable wrench or 1/2" drive (base of filter), unscrew the oil filter canister.
6. Position a suitable draining tray underneath the filter and remove the filter from the engine casting by hand. Discard the old filter canister.
7. Thoroughly clean the gasket face of the filter head.
8. Apply a thin film of clean oil to the filter gasket surface. Fill the new filter with clean oil of the correct type.
9. Screw on new oil filter until the gasket abuts the filter head and tighten a further 1/2 turn or tighten to a torque of **38 Nm. DO NOT OVERTIGHTEN.**
10. Clean and check the sump drain plug (use a new O-ring if the existing one is damaged), install sump drain plug.
NOTE: the drain plug is plastic, torque to 24Nm.
11. Fill engine via the oil filler point. The engine oil capacity is **8.0 litres**.
12. Replace oil filler cap, run engine and check for any leaks from the oil filter.
13. Stop the engine, allow oil to settle, check and top up as necessary, **DO NOT OVERFILL.**



Engine Oil Drain Plug



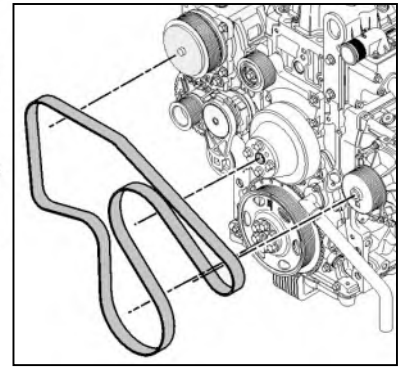
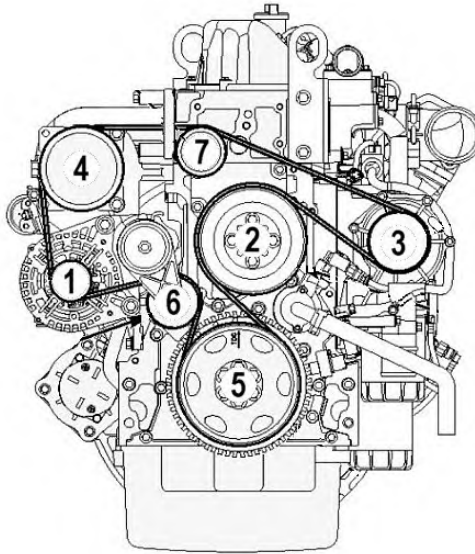
Engine Oil Filter

Maintenance : Drive Belt & Pulleys

The engine cooling fan and other ancillary components are driven by a multi-V 'serpentine' belt. The belt is tensioned by an automatic tensioner.

The schematic below shows the routing of the belt and identifies pulleys and driven ancillaries.

1. Alternator Pulley
2. Fan Drive Pulley
3. Water Pump Pulley
4. A/C Compressor Pulley
5. Crankshaft Pulley
6. Belt Tensioner
7. Idler Pulley

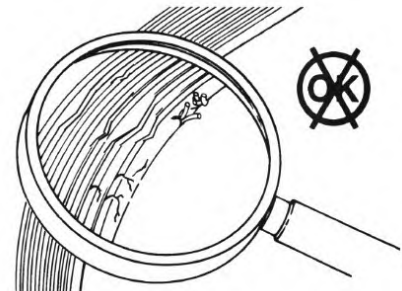


Before checking or replacing the belt; ensure starting key is removed and battery isolator is turned 'OFF' to prevent the engine from being started.

Drive Belt (Check Daily)

The drive belt should be checked on a daily basis and replaced immediately if any of the following issues are detected;

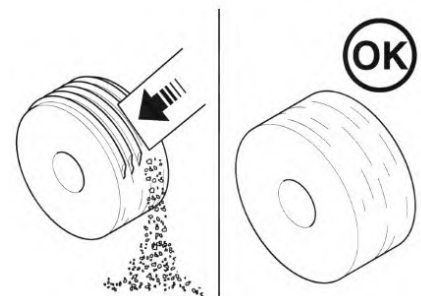
- Cracks
- Glazing
- Tears or Cuts
- Hardening
- Excessive Wear



Idler and Drive Pulleys

Idler and drive pulleys should be inspected on a regular basis for signs of wear or cracks.

NOTE: Plastic pulleys can often accumulate 'build-up' of road dirt and/or belt material, this should not be confused with wear. Dirt can be removed using a suitable tool when checking for wear. Clean or replace pulleys as necessary.

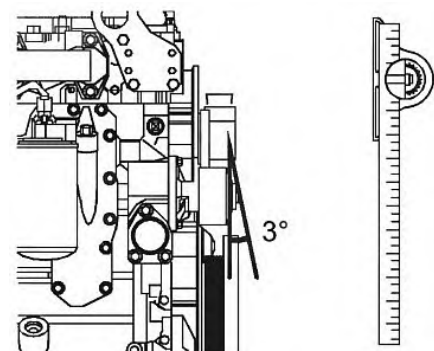


Pulley Alignment

A worn belt tensioner or misaligned pulley can cause a belt to 'walk off'. Verify on a regular basis that all pulleys are correctly aligned using a suitable pulley alignment tool.

Maximum pulley misalignment is 3 degrees.

Repair, adjust, or replace misaligned components as necessary.



Belt Tensioner System

Belt tension is automatically controlled by a 'spring-loaded' tensioner pulley; providing the spring and drive belt are in good working condition the belt will remain correctly tensioned at all times, no manual adjustment is available or necessary.

Check tensioner pulley for signs of damage, wear, or misalignment on a regular basis.

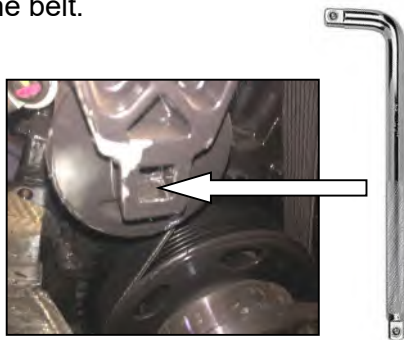
Removing Belt



CAUTION! Numerous pinch points exist on the belt run, safety gloves should be worn, and fingers kept clear of any pinch risk areas.

Before attempting to remove the drive belt it is always advisable to sketch a diagram of the belt arrangement to aid installation for correct routing.

Slackening and removal of the drive belt requires the spring-loaded tensioner to be pivoted away from the belt; a 1/2" socket wrench inserted in the tensioner housing can be used to lever the pulley away from the belt.



Lever tensioner clockwise to slacken belt

Replacing the Belt

Belt replacement is basically a reversal of the removal procedure; pivot the tensioner clockwise to allow fitment of the belt, when correctly installed carefully release the tensioner to apply tension to the belt. Check alignment of the belt with the tensioner and other pulleys.

Cooling Fan

The cooling fan has a fixed coupling which does not require any maintenance.

Maintenance : Cooling System

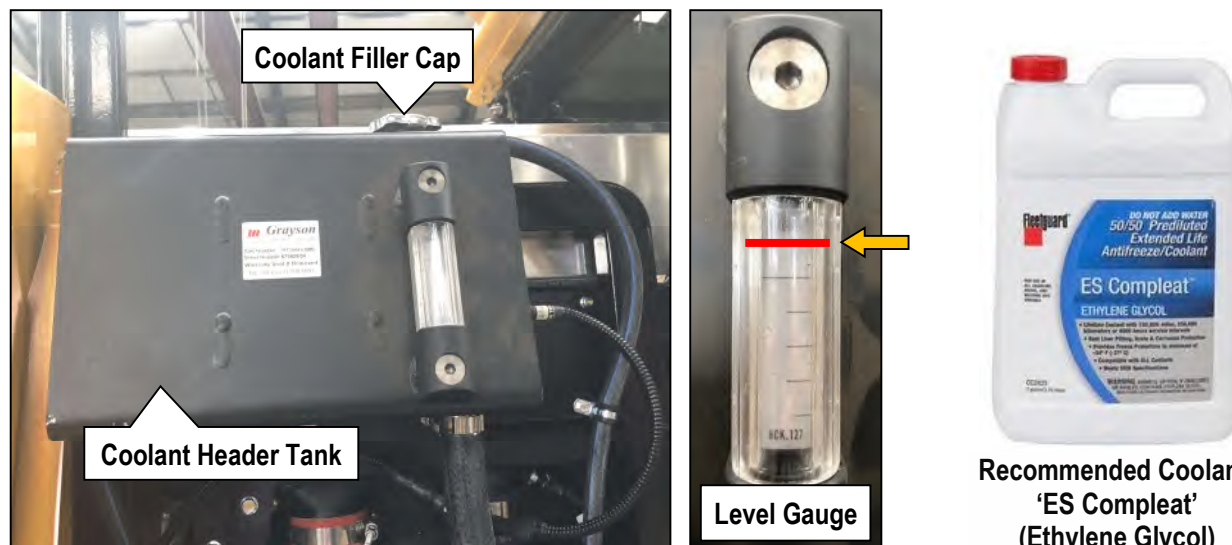
Cooling System



Do not remove the pressure cap from a hot engine. Wait until coolant temperature is below 50°C before removing the cap. **Heated coolant and steam can cause personal injury.**

Coolant should be level with the 'top mark' on the header tank sight gauge when the engine is cold. **DO NOT OVERFILL.** Only turn the cap to the first stop so that pressure in the system is released, then wait a few seconds before removing the cap completely.

Never use cold water to top-up the cooling system of a hot engine, particularly if the coolant level is very low; this can cause serious damage to the engine.



Shown with the machines right-hand cover panel removed

Recommended Coolant:
'ES Compleat'
(Ethylene Glycol)

The system should only be topped up with a water/anti-freeze mix as specified; refer to 'Fuels, Lubricants and Coolants chart'. Ensure the pressure cap is re-tightened correctly before running the engine. The recommended coolant is 'ES Compleat' 50/50 prediluted Antifreeze/Coolant.

The cooling system should be flushed out and the coolant replaced every **4000 hours or annually, whichever occurs first**. The concentration level of the coolant should be checked twice a year.

When the coolant has been replaced, or if a large quantity of coolant has been used for 'topping up', care must be taken to ensure the system is free from air. In these instances, the engine should then run, *(with cab heater turned on)*, until normal working temperature is reached – the engine should then be switched off and allowed to cool and the water level re-checked.

A fine mesh screen is fitted in front of the cab air intake grill; this should be kept clean at all times. It can be cleaned by brushing lightly or 'blowing out' with an airline

Ensure the cab lower side panels together with their respective sealing rubbers are correctly fitted at all times; this will ensure that only clean air can be drawn through the inlet grill to the condenser.

Ensure the radiator cores are kept clean; inspect the radiator regularly and clean with an air line as and when required. **Use of pressure washer is not recommended** as these can damage the fins.

A crop deflector is fitted to the front of the machine as standard; this not only reduces crop damage, but it will also avoid blocking the condenser with pollen etc.

Maintenance : Fuel System

Fuel System

It is particularly important to keep the fuel system well maintained - if even only slight traces of contamination or water are allowed to get past the filtration system and into the injection pump, the engine performance will be seriously affected, and serious damage will be caused to the pump.

Fuel Tank

The fuel tank capacity is approx. **26 gallons (118 litres)**. Use clean diesel fuel only. Always fill the tank at the end of the day's work to avoid condensation. Take care to ensure the cap is correctly closed after filling and when washing off do not direct a pressure washer directly at, or under, the filler/breather.

Fuel Filter

The primary fuel filter element should be replaced every **1000 hours or annually, whichever occurs first**. Access to the filter is via the engine bay.

Filter Removal

Unscrew the filter housing from the filter head to access the replaceable filter element.

When replacing the filter housing tighten to **24Nm**.



Primary Fuel Filter location

Draining Fuel Filter

If erratic idling and/or low engine performance is experienced and water in the fuel is the suspected cause, the primary fuel filter should be drained to remove any accumulated water.

The procedure for draining the fuel filter is as follows;

- Switch off engine and shut off master power switch.
- Place a suitable liquid collection container under the fuel filter.
- Turn the filter drain valve **(A)** counterclockwise sufficient enough to allow water/fuel to drain from the filter.
- Hand tighten drain valve **(A)** when water/fuel has fully drained.
- Bleed the fuel system as stated in the section below.

Dispose of the released water/fuel in a manner that is not harmful to the environment and is in accordance with local environmental regulations.

Bleeding the Fuel System

The injection pump on the engine is self-priming, however, should you change the fuel filter or run out of fuel, the system may need bleeding as far as the fuel filter - a manual priming pump **(B)** is fitted to the filter head for this purpose – *refer to illustration opposite*.

Operate the filter priming pump repeatedly until air-free fuel flows from the filter outlet.

Start the engine as normal but avoid turning the engine over continually for more than 30 seconds to avoid damage to the starter motor - *it may take several attempts*.

When the engine starts it may run erratically for a few minutes, *this is normal*.

On no account should any of the injector pipes / fittings be slacked in the bleeding process.

Note: *Environmental care should be taken at every stage of these processes; catch released fuel using a suitable container and dispose of fuel in accordance with local environmental regulations.*



Primary Fuel Filter

A) Drain Valve

B) Priming Pump

Diesel Exhaust Fluid (DEF)

The DEF tank is located mid mounted on the left-hand side in the engine compartment.

The tank has a filter attached to the suction assembly.

To access; lift engine cover, release the clamps and withdraw the tank and suction assembly.

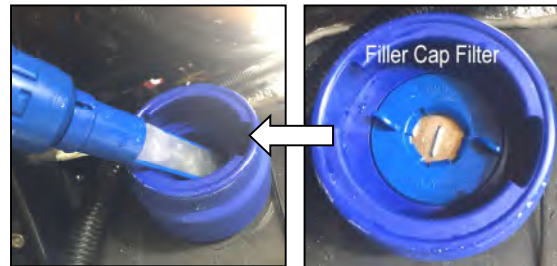


The filter is located on the base, retained by a screw.

The DEF dosing unit has a 10-micron filter.

Before removing the old filter ensure that the unit has completed its purge cycle. Turn off the battery isolator. Wipe dosing unit with a clean damp cloth to remove any dirt that could contaminate the unit.

To change the filter; remove the cap and O-ring and extract the old filter. Replace filter and O-ring with genuine new parts. Check the threads on the cap and unit, clean the cap fit the filter and new O-ring and tighten the cap; torque to **20Nm**. Re-engage battery isolator, start the vehicle and check for leaks.



Diesel Exhaust Fluid level must be checked daily.

Hydraulic System

The hydraulic system is powered by one LS 45cc pump driven off the rear of the transmission pump, this pump will achieve a MAX output of 45cc. Please consult the manufacturer if you wish to drive anything other than a conventional diaphragm sprayer pump.

Do not alter the relief valve settings on either the pump or the distribution manifold without consulting the manufacturer, these are pre-set at the factory.



LS Pump Hydraulic Oil

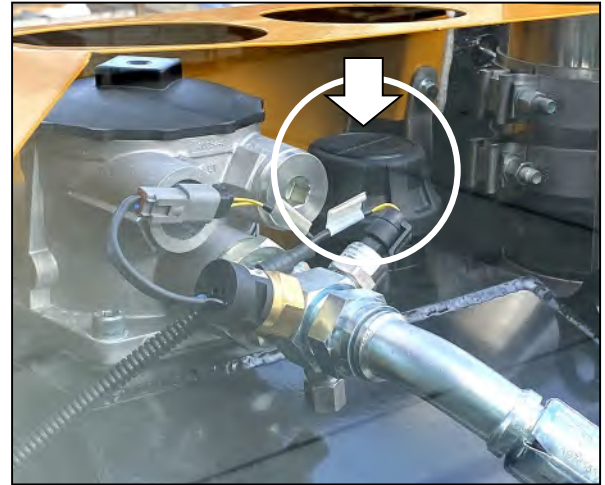
If for any reason the LS pump has been drained, or the hydraulic oil replaced, the pump must be refilled with oil before attempting to use the machine; failure to observe this will result in serious damage to the pump. The pump is refilled via the drain port.

Transmission Pump & Motors

If for any reason the transmission pump and/or motors have been drained, or the hydraulic oil replaced, they must be refilled with oil before attempting to use the machine; failure to observe this will result in serious damage to these components. The pump and motors are refilled via their drain ports.

Hydraulic Breather Filter

The hydraulic breather filter (Part Number: 154.022) is located on the top right-hand side of the hydraulic tank directly behind the cab; this filter should be replaced every **1000 hours or annually**, whichever occurs first.



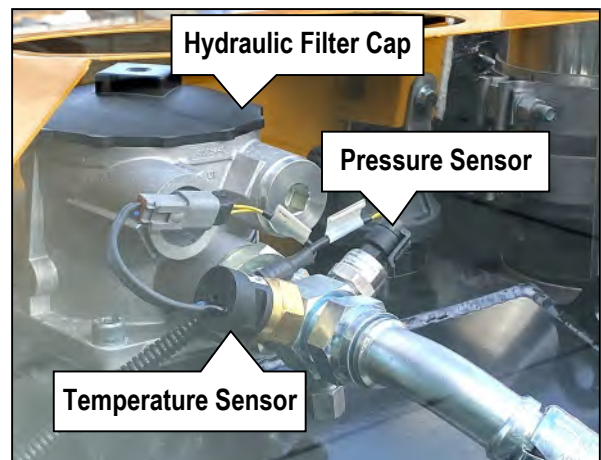
Hydraulic Breather Filter

Hydraulic Oil

Ensure the hydraulic system is kept clean. Be careful when refilling the tank. Do not direct high pressure hose at filler/breather cap. Oil level should be kept to top mark on level gauge.

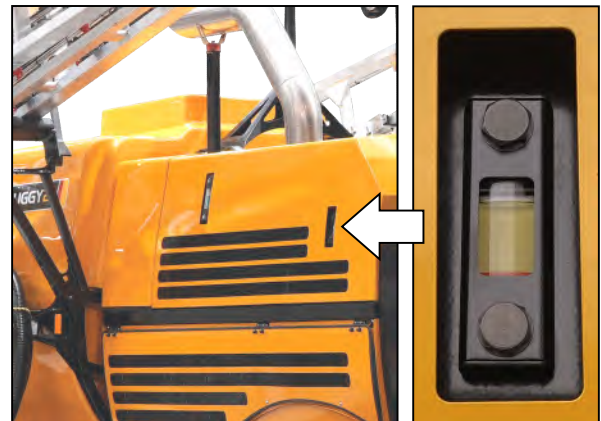
Use a good quality clean hydraulic oil for topping-up (ISO VG 46). **Do not use universal oils.**

The oil should always appear clear and clean, if there are any signs of cloudiness or 'milkiness' at all, the oil should be changed.



Hydraulic Tank

The hydraulic oil tank is located directly behind the cab; the level gauge is on the upper right-hand side of the vehicle.



Hydraulic Oil Level Gauge

Maintenance : Air Cleaning

Air Cleaning System

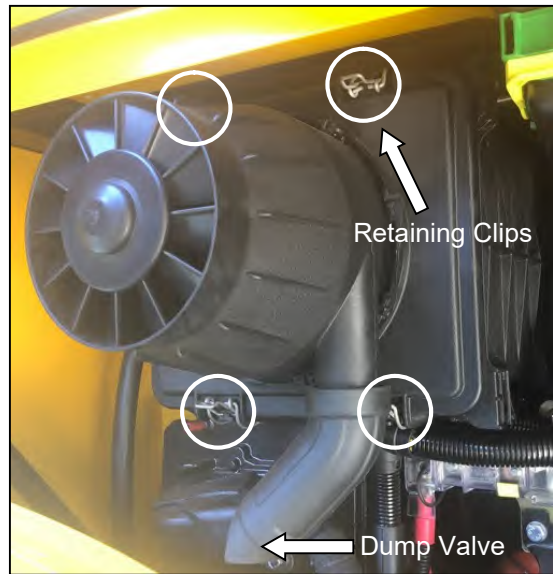
A cyclone type air cleaner is fitted to the Agribuggy with a dry element; under normal operating conditions it should be replaced every **1000 hours**. In dusty conditions it should be replaced more regularly; *change if air cleaner restriction warning is indicated.*

When air filter element does need servicing, it must be replaced with a new one; *do not attempt to clean it.* Condition of the air intake hoses should be checked regularly for signs of wear or damage and should be replaced when necessary.

Dump Valve

The dump valve is situated on the end of the filter housing (see right). Squeeze the valve open to release any accumulated particles every **50 hours**.

To change the filters, release the four retaining clips and remove the lid and extract the primary filter. The secondary filter can then, if necessary, be extracted; if changing the secondary filter, fit the replacement as soon as the old one is removed to prevent dust getting into the clean side of the air intake. Ensure the filter housing is clean internally before fitting replacement filters.



Primary Air Filter



Secondary (Safety)
Filter Element

Pneumatic System

The pneumatic system consists of a compressor with intake filter, which is within the main filter assembly, a filter dryer with regulating valve, and air tanks. The system provides pneumatic power for the following:

- Spray pack
- Rear Differential Lock

Air pressure is regulated to **8 Bar**.

The filter dryer is located between the compressor and purge and air tank. The purge tank and air tank are drained by means of an auto drain valve located on both tanks. Before disconnecting air hoses, ensure all the air is discharged.



Intake Filter



Filter Dryer



Air Tank Auto Drain Valve

Maintenance : Cab Filtration

Cab Filtration and Pressurisation Unit

The Agribuggy cab is fitted with an integrated pressurisation system and category 4 filtration. The air inlet filter will filter out dust and small particles and the carbon element of the filter will filter out chemical particles and vapours. Positive pressure inside the cab will prevent particles or vapour entering. The carbon in the filter will only remain effective for up to a maximum of 6 months, whether the machine is being used or not, as the carbon degenerates when in contact with the air. If the machine is being used continuously it is recommended that the filters be changed every **500 hours or every 6 months, whichever occurs first**. NOTE: Always keep the inlet grill free of dirt, dust, chaff etc.

Filter Replacement



Caution: Exposure to chemicals can cause injury - wear protective equipment (PPE).

The machine is equipped with 4 replaceable cab filter cartridges housed behind access panels on each side of the cab roof; 2 filter cartridges per side.

When replacing filters, all 4 filters must be replaced at the same time.

To access and replace filters;

- Release the 2 retaining thumb screws and raise the hinged access panel.
- Release thumb screw and remove the filter cartridge clamp.
- Individually pull the filter cartridges out of the housing using innermost pull strap on cartridge.
Carefully place the used filter cartridges in suitable plastic bags and dispose of in accordance with environmental regulations.
- When fitting a replacement cartridge; insert at a slight angle, outermost end first, ensuring it is fully located before pushing the innermost end into the housing. Refit the centre clamp when both cartridges have been installed.
- Close access panel and secure with thumb screws.



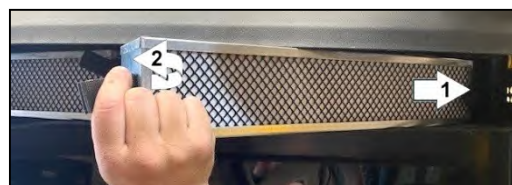
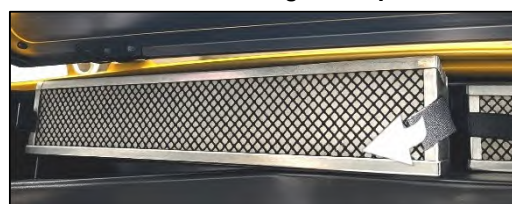
Cab Filter Cartridge



Filter Access Panel



Filter Cartridge Clamp



Air Conditioning

With the exception of the recirculation air filter there are no other user serviceable parts in the air conditioning system. The only regular maintenance required is cleaning the intake grill, replacement of the filter, and servicing of the compressor drive belt (see belt section for details). It is recommended that the system is serviced annually by a qualified refrigeration engineer, at which time the receiver dryer and oil should be changed. The system uses refrigerant gas R134A and holds 1.2 kg.

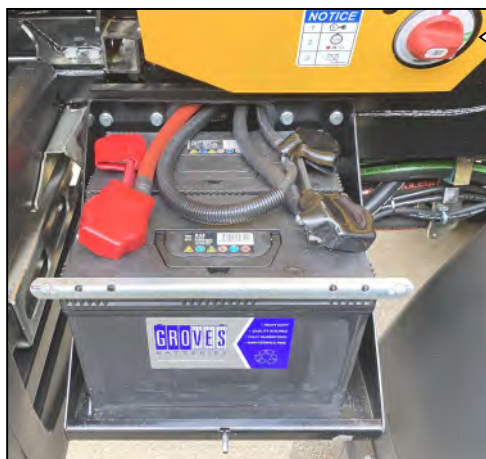
Maintenance : Electrical

Electrical System

Batteries

The machine is fitted with 2 batteries; they are 'maintenance free' and topping up is not normally required throughout the normal life of the batteries. However, ensure terminals are kept clean and protected with petroleum jelly.

The Batteries are mounted on the right-hand side of the machine next to the clothing lockers.



Isolator Switch

NOTICE	
1	
2	
3	
AB76994Z10P	

An isolator switch is fitted to the offside lower engine panel for use in emergencies or when any welding or repairs are being carried out to the machine, if the machine is left for more than a day this should be put in the 'OFF' position to prevent the batteries from discharging.

DO NOT turn battery isolator switch 'OFF' for 120 seconds after the engine has stopped.

There are several ECU's (Electronic control unit) on the machine, these are as follows:

- Display Unit (MCU)
- Engine ECM
- Transmission ECU (Compushift 3 Sport)
- Steering/PTO Controller (Plus1)
- Circuit Board: Cab
- Spray Pack Controller

The ECU's are all connected via a J1939 Can Bus system. This system allows the ECU's to "talk" to each other via a network system which consists of just 2 wires.

The heart of the electrical system is the power distribution circuit board which is mounted in the rear right-hand corner of the cab and the engine bay behind the LHS engine panel. All the machine wiring harnesses plug into this board and all the relays and fuses are mounted on it. All of the relays are operated via the can bus with the majority of the instructions being sent either by the MCU or the switch panel.

N.B. It is very important to protect all wiring connections from the corrosive effects of fertilisers and chemicals; all connections should be frequently checked, cleaned, and coated with dielectric grease, or other suitable anti-corrosive lubricant.

The 2 main fuse panels located in the cab and the engine bay can be accessed by removal of their covers. If any fuses require replacement **ensure they are replaced with the correct rating or serious damage to the wiring system, and particularly the electronic circuit board, WILL OCCUR.**

Maintenance : Brakes

Handbrake

The handbrake on the Agribuggy uses a wet multi disc system; this is non-adjustable.

Foot Brake

The brakes are all self-adjusting discs and only need to be checked for wear periodically.

Always replace the pads before they become fully worn; *never allow them to wear right down to 'bare metal'*.

When working in muddy conditions check the pads on a weekly basis, and always if a braking issue is experienced or suspected.

If you use your Agribuggy to spread a lot of fertiliser, inspect the metal brake pipes on a regular basis for signs of corrosion and replace, as and when necessary.



Maintenance : Steering

Steering Checks

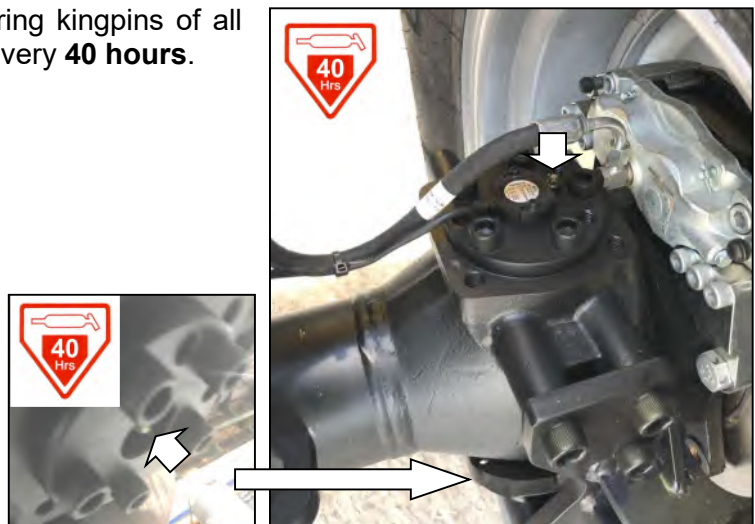
The steering on the Agribuggy is 'hydrostatic' with the oil supply for the steering unit being drawn from the main hydraulic system on the machine.

Regularly check the steering hoses for security and damage; repair and/or replace any loose or damage components immediately.

Security of mechanical elements of the steering should also be regularly checked.

Lubrication

Grease nipples are located on the steering kingpins of all four wheels; these will require greasing every **40 hours**.



Upper and Lower Kingpin Grease Points

NOTE: on all Agribuggy's the front and rear steering systems are not connected in any way, either mechanically or hydraulically.

Steering Stop Adjustment

If steering stop adjustment is required, please contact your McConnel dealer; this procedure will need to be adjusted on the 4ws programming parameters.

Maintenance : Axles

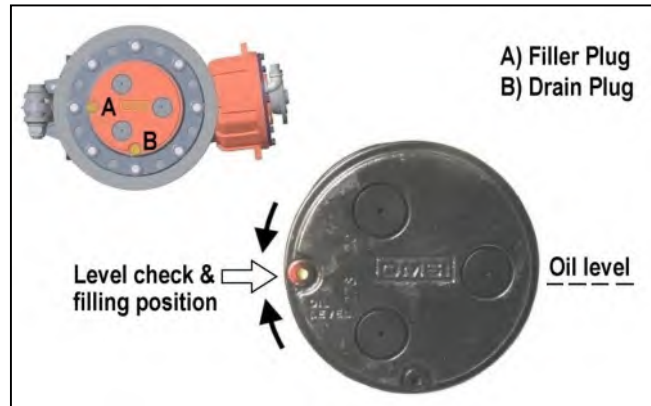
Wheel Hubs

The wheel hub/epicyclic units on the Agribuggy axles are filled with oil; the oil level should be checked every **500 hours**.

To check the oil level, the wheel hub must be rotated until the oil level/filler plug (A) is in the '9 o'clock' position as shown opposite.

Use SAE 80W90 API GL-5 oil for topping up.

Oil should be changed **after an initial 100 hours** and every **800 hours or annually** thereafter. To drain the oil, rotate the hub until the drain plug (B) is at its lowest position.



Wheel Bearings

The wheel bearings should be checked on a regular basis for signs of play. Should any play be evident they can be adjusted by McConnel, your local dealer or by a suitably trained engineer.

Axle Oil Levels

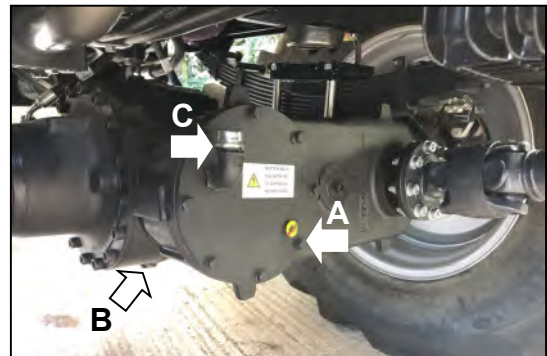
Use **SAE 80W90 API GL-5** gear oil for topping up the axle oil levels. The filler/level plugs are shown opposite.

A) Oil Level/Filler Plug

B) Oil Drain Plug

C) Breather

The axle oil should be changed every **800 hours or annually** using **SAE 80W90 API GL-5**.



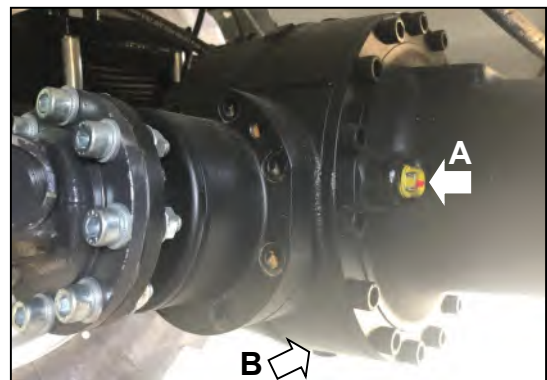
Front Axle

Axle Breathers

Should any axle oil leaks develop, the axle breather should be removed first and checked to make sure it is not blocked; some breathers have a small ball fitted inside which is prone to seizure, particularly when the machine is used for spreading fertiliser.

Drive Module

The drive module uses **10w40 oil**.



Rear Axle

Maintenance : Grease, Tyres, Cleaning

Wheel Nuts

Check wheel nut torque (**340Nm +/- 20Nm**).

Tighten the wheel nuts in the sequence shown opposite.

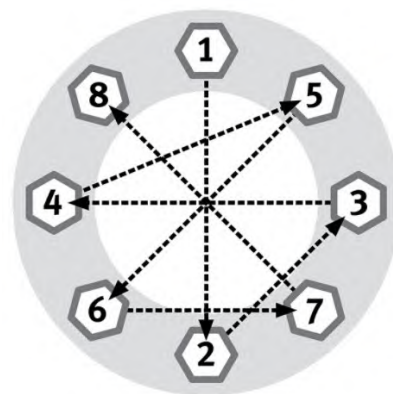
Wheel Alignment

The front axle and rear wheel alignment should be the same on the front and the rear; this should be set so all wheels are straight ahead with no toe in or out.

Greasing

Grease nipples are located as follows and all nipples should be greased every **40 hours**.

Axle kingpins: 4 on the front axle and 4 on the four wheel steer rear axle.



Tyres

The low pressure tyres are normally pre-set at 11 psi (0.7 bar). The pressure may be reduced in adverse conditions to as low as 8 psi (0.6 bar) depending on the load being carried, however, the main thing to watch is that the tyre side walls do not crease when loaded. If the machine is being used for long periods on the road the pressure should be increased to 14 psi (1 bar). Row crop tyres should be inflated to 35 psi (2.4 bar).

Cleaning

Mud and crop debris should be cleaned away from the steering swivel and brake callipers on a daily basis to avoid damage to axle oil seals and bearings.

Do not allow crop debris to build up on the engine, exhaust, or in any of the cooling system radiators; this should be checked on a daily basis when working in tall or dusty crops.

Great care should be taken in cleaning the machine; particularly after spreading fertiliser. Some types of fertiliser are very corrosive and if not cleaned daily, problems will soon be encountered.

The wiring system is most vulnerable, and connections should be regularly checked. The radiator is also susceptible to corrosion and every effort should be made to keep fertiliser out of the radiator core.

After 'washing off', leave engine running for a while so the engine compartment dries out.

Some types of fertiliser spreaders are prone to throwing fertiliser forwards or causing dust; if this is the case with your spreader it is advisable to fit a sheet or screen in front of the spreader to stop it entering the engine compartment.

Coating the chassis with a mixture of oil and diesel, or a proprietary anti-corrosive coating agent, after cleaning, pays dividends if you spread large amounts of fertiliser.

It also pays to go round the machine with the grease gun and an oil can on a daily basis when the machine is being used intensively for spreading fertiliser in damp conditions.

Please remember, the machine warranty does not cover problems caused by corrosion and mud/debris build up!

Maintenance Schedule

Service Operation		Daily 10 Hours	First 100 Hours	Every 50 Hours	Every 100 Hours	250 Hours 3 mths	500 Hours 6 mths	Every 800 hrs annual	1000 Hours 1 year	2000 Hours 2 years	4000 Hours 3 years	5000 Hours 4 years
1	Check engine oil level, top up if necessary	●	●	●	-	●	●	-	●	●	●	-
2	Check air intake pipework	●	●	●	-	●	●	-	●	●	●	-
3	Check coolant level, top up if necessary	●	●	●	-	●	●	-	●	●	●	-
4	Drain water from fuel water separator	●	●	●	-	●	●	-	●	●	●	-
5	Check fan drive belt and cooling fan	●	●	●	-	●	●	-	●	●	●	-
6	Check crankcase breather tube	●	●	●	-	●	●	-	●	●	●	-
7	Check cooling radiators/steering swivels for cleanliness	●	●	●	-	●	●	-	●	●	●	-
8	Check DEF level	●	●	●	-	●	●	-	●	●	●	-
9	Check wheel nuts for tightness	●	●	●	-	●	●	-	●	●	●	-
10	Grease kingpins & check for wear	●	●	●	-	●	●	-	●	●	●	-
11	Lubricate electrical connections	-	●	●	-	●	●	-	●	●	●	-
12	Check/clean radiator screen	-	●	●	-	●	●	-	●	●	●	-
13	Check condition of drive belts, pulleys, pump, alternator and refrigerant compressor	-	●	-	-	●	●	-	●	●	●	-
14	Check for oil, fuel & coolant leaks	-	●	-	-	●	●	-	●	●	●	-
15	Check expansion tank pressure cap	-	●	-	-	●	●	-	●	●	●	-
16	Tighten leaf spring U-bolts	-	●	-	-	●	●	-	●	●	●	-
17	Check condition of suspension bushes; replace if necessary (P/No.AB72274C00P).	-	-	-	-	-	-	●	●	●	●	●
18	Check engine, prop-shafts, steering joints are tight	-	●	-	-	●	●	-	●	●	●	-
19	Clean & lubricate battery terminals	-	-	-	-	●	●	-	●	●	●	-
20	Check condition & security of wiring looms	-	-	-	-	●	●	-	●	●	●	-
21	Change Fuel Filter (Canister type & Spin-on type)	-	-	-	-	-	-	-	●	●	●	-
22	Check all air, oil and water hoses for leakage, damage or deterioration	-	-	-	-	●	●	-	●	●	●	●
23	Remove wheels, check brakes for wear and replace pads if necessary	-	-	-	-	●	●	-	●	●	●	●
24	Check axle/wheel hub oil levels	-	-	-	-	●	●	-	●	●	●	●
25	Drain fuel tank	-	-	-	-	●	●	-	●	●	●	●
26	Replace cab carbon filter	-	-	-	●	-	●	-	●	●	●	●
27	Check wheel alignment on steering axles	-	-	-	-	●	●	-	●	●	●	●
28	Check & adjust wheel bearings if necessary	-	-	-	-	●	●	-	●	●	●	●
29	Change engine oil and filter (Specified oil MUST be used)	-	-	-	-	-	●	-	●	●	●	●

Maintenance Schedule (continued)

Service Operation		Daily 10 Hours	First 100 Hours	Every 50 Hours	Every 100 Hours	250 Hours 3 mths	500 Hours 6 mths	Every 800 hrs annual	1000 Hours 1 year	2000 Hours 2 years	4000 Hours 3 years	5000 Hours 4 years
30	Change air filter elements (vital to reduce risk of premature engine wear)	-	-	-	-	-	●	-	●	●	●	●
31	Change all axle and hub oils	-	●	-	-	-	-	●	-	-	-	-
32	Change auto transmission oil filter	-	-	-	-	-	-	-	●	●	●	●
33	Service A/C inc. replace receiver dryer	-	-	-	-	-	●	-	●	●	●	●
34	Replace hydraulic oil and filters suction element	-	-	-	-	-	-	-	●	●	●	●
35	Replace hydraulic breather filter	-	-	-	-	-	-	-	●	●	●	●
36	Replace main drive belts and check the belt tensioner	-	-	-	-	-	-	-	-	●	●	●
37	Flush out cooling system & renew coolant	-	-	-	-	-	-	-	-	●	●	●
38	Replace compressed air inlet filter	-	-	-	-	-	-	-	●	●	●	●
39	Replace DEF dosing unit filter	-	-	-	-	-	-	-	●	●	●	●
40	Replace DEF tank suction filter	-	-	-	-	-	-	-	-	●	-	●
41	Check crankshaft pulley	-	-	-	-	-	-	-	-	●	-	●
42	Engine overhead set adjust	-	-	-	-	-	-	-	-	-	-	●
43	Check Aftertreatment Diesel Particulate Filter	-	-	-	-	-	-	-	-	-	●	●
44	Check Air Dryer System Filter	-	-	●	-	-	-	-	-	-	-	-
45	Replace Air Dryer System Filter	-	-	-	-	-	●	-	-	-	-	-

Fuels, Lubricants, Coolant etc.

Capacities are approximate and all quoted in litres

Component	Grade	Volume
Engine Crankcase	SAE 5W-40 heavy-duty engine oil to the following classifications are recommended: ACEA E-9, API CJ-4 or CK-4. High to low (on dipstick) 1.5 Litre	8 Litre Sump
Cooling System	ES Compleat CES 14603, EC-1, 93K217, 48-25878, CEMS B1-Type II, MAT 3620, CSO185, 014617004, 8650-5 & 20774185.	TBC
Transfer box	MIL-L-2105 90W EP MIL-L-2105B, C & D 80W EP	4 Litres
Front Axle Differential	SAE 80W90 API GL-5	6.6 Litre
Rear Axle Differential	SAE 80W90 API GL-5	6.6 Litre
Epicyclical Hubs Front Axle	SAE 80W90 API GL-5	1.3 Litre
Epicyclical Hubs Rear Axle	SAE 80W90 API GL-5	1.3 Litre
Air Reservoir Tank	-	Purge tank 5 Litre Main reservoir 20 litre
Fuel Tank	ASTM 2-D, Ultra-low sulphur diesel with a maximum sulphur content of 50 parts per million with a minimum centane number of 40. Fuel lubricity BOCLE number of 3100 or greater.	110 Litres
DEF Tank	Diesel Exhaust Fluid to ISO 22241-1 DIN 70070	15 Litres
Hydraulic Tank	ISO VG 46	150 Litre
Air Conditioning	Gas R134A	1000 gram 75 ML oil PAG46

Electrical System	
Batteries	2x 1000A 120 Amp/Hr
Battery Terminal Ground	Negative
Alternator	135 Amp 14 Volt

Parts

All replacement parts are available from McConnel Limited. Some parts may also be available from other local sources. Only genuine replacement parts should be used during the warranty period and we strongly recommend that you do the same after the warranty has expired.

If you require any parts information, please do not hesitate to contact us.

When ordering parts please quote the Agribuggy model/build no. which can be found on a plate on the front right hand corner of the chassis.

If you are in any doubt about operating or maintaining the machine or fitting any of your own equipment, please do not hesitate to contact us.

This instruction book covers all the most important points on operation and servicing of the Agribuggy but by no means cover everything in full detail. It is updated periodically and we would therefore welcome any suggestions of further information that you would like to see included.

The manufacturer cannot be held responsible for any accident, injury, or other occurrence resulting from the incorrect use of the machine or equipment fitted to it.



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