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McCONNEL ROBOCUT

Models T600 & T800

REMOTE CONTROLLED TRACTOR UNIT

Operator Manual



IMPORTANT

VERIFICATION OF WARRANTY REGISTRATION

Dealer Warranty Information & Registration Verification

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

To register machines; 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

WARRANTY POLICY

WARRANTY REGISTRATION

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

1. LIMITED WARRANTIES

1.01. All mounted machines supplied by McConnel Ltd are warranted to be free from defects in material and workmanship from the date of sale to the original purchaser for a period of 12 months, unless a different period is specified.
All Self Propelled Machines supplied by McConnel Ltd are warranted to be free from defects in material and workmanship from the date of sale to the original purchaser for a period of 12 months or 1500 hours. Engine warranty will be specific to the Manufacturer of that unit.

1.02. All spare parts supplied by McConnel Ltd and purchased by the end user are warranted to be free from defects in material and workmanship from the date of sale to the original purchaser for a period of 6 months. All parts warranty claims must be supported by a copy of the failed part invoice to the end user. We cannot consider claims for which sales invoices are not available.

1.03. The warranty offered by McConnel Ltd is limited to the making good by repair or replacement for the purchaser any part or parts found, upon examination at its factory, to be defective under normal use and service due to defects in material or workmanship. Returned parts must be complete and unexamined. Pack the component(s) carefully so that any transit damage is avoided. All ports on hydraulic items should be drained of oil and securely plugged to prevent seepage and foreign body ingress. Certain other components, electrical items for example, may require particular care when packing to avoid damage in transit.

1.04. This warranty does not extend to any product from which McConnel Ltd's serial number plate has been removed or altered.

1.05. The warranty policy is valid for machines registered in line with the terms and conditions detailed and on the basis that the machines do not extend a period of 24 months or greater since their original purchase date, that is the original invoice date from McConnel Limited.
Machines that are held in stock for more than 24 months cannot be registered for warranty.

1.06. This warranty does not apply to any part of the goods, which has been subjected to improper or abnormal use, negligence, alteration, modification, fitment of non-genuine parts, accident damage, or damage resulting from contact with overhead power lines, damage caused by foreign objects (e.g. stones, iron, material other than vegetation), failure due to lack of maintenance, use of incorrect oil or lubricants, contamination of the oil, or which has served its normal life. This warranty does not apply to any expendable items such as blades, belts, clutch linings, filter elements, flails, flap kits, skids, soil engaging parts, shields, guards, wear pads, pneumatic tyres or tracks.

1.07. Temporary repairs and consequential loss - i.e. oil, downtime and associated parts are specifically excluded from the warranty.

1.08. Warranty on hoses is limited to 12 months and does not include hoses which have suffered external damage. Only complete hoses may be returned under warranty, any which have been cut or repaired will be rejected.

1.09. Machines must be repaired immediately a problem arises. Continued use of the machine after a problem has occurred can result in further component failures, for which McConnel Ltd cannot be held liable, and may have safety implications.

1.10. If in exceptional circumstances a non McConnel Ltd part is used to effect a repair, warranty reimbursement will be at no more than McConnel Ltd's standard dealer cost for the genuine part.

1.11. Except as provided herein, no employee, agent, dealer or other person is authorised to give any warranties of any nature on behalf of McConnel 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. McConnel 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 McConnel 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 McConnel 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 McConnel 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 McConnel 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 McConnel Ltd Service Dealer, within 30 days of the date of repair.

2.05. Following examination of the claim and parts, McConnel Ltd will pay, at their discretion, for any valid claim the invoiced cost of any parts supplied by McConnel 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 McConnel Ltd. is final.

3. LIMITATION OF LIABILITY

3.01. McConnel 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. McConnel Ltd makes no warranty as to the design, capability, capacity or suitability for use of the goods.

3.03. Except as provided herein, McConnel 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

For Safety and Performance…

ALWAYS READ THE BOOK FIRST



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To access manuals use the QR code opposite or the web address below;
https://my.mcconnel.com/service/pdf-manuals/pdf-operator-manuals/remote-control-technology-manuals/

SAFETY FIRST

MACHINE SAFETY DECALS MUST BE KEPT IN CLEAN READABLE CONDITION AT ALL TIMES;
Any safety decals that are missing, damaged or illegible must always be replaced immediately.
McConnel have a policy of providing replacement safety decals and manuals free of charge.

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GENERAL INFORMATION

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

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

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

⚠ DANGER

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

⚠ WARNING

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

⚠ CAUTION

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

NOTICE

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

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

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

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

NOISE LEVEL



LpA = the value indicates the maximum sound level perceived by the operator at a distance of 1m from the machine.



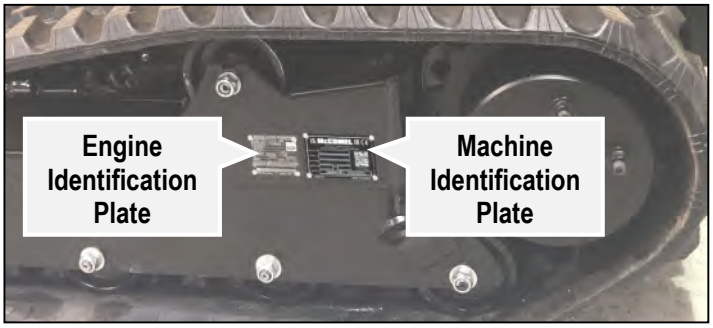
LwA = the value indicates the sound level outside the machine and refers to the noise perceived by those who are in the vicinity of the work area.

MACHINE DESCRIPTION – ROBOCUT T600 & T800

The McConnel Robocut T600 & T800 machines are all-terrain, remote-controlled, tracked vehicles for use as versatile work platforms for a comprehensive range of attachments.
Machines feature powerful 56HP or 75HP fuel-efficient Hatz diesel engines mounted on low centre of gravity chassis with perfect 50/50 weight distribution that provide maximum stability and excellent performance on all types of terrain and the ability of operating on slopes of up to 55°.
T600 & T800 models are controlled via precision digital remote-control units giving users the freedom to operate the machines in difficult and dangerous areas at distances of up to 150m.

MACHINE IDENTIFICATION

Machine and engine identification plates are fitted to the left-hand track plate of the machine in the locations indicated below, a matching engine identification plate is also located on the engine unit itself.
It is advisable that owners keep a record of the serials number of both machine and engine as stated on these identification plates and always quote serial numbers when ordering replacement parts or when seeking service information and/or advice.

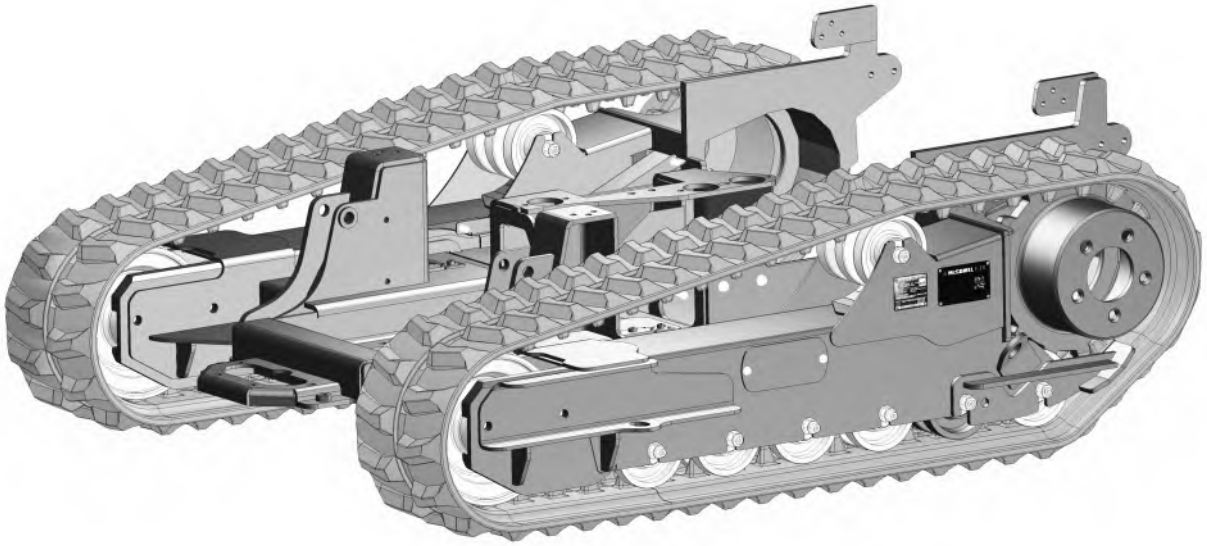




MACHINE & DEALER INFORMATION

Record serial numbers and dealer contact information here. Always quote serial numbers when ordering replacement parts or seeking service information and/or advice.	
Machine Serial Number:	Machine Installation Date:
Engine Serial Number:	
Machine Model Details:	
Dealer Name & Branch:	
Dealer Address:	
Dealer Telephone No:	
Dealer Email Address:	

UNDERCARRIAGE SPECIFICATIONS



T600 & T800 Undercarriage Specifications	
Loading capacity	1.6T
Length	1548 mm
Axle to axle length	1192 mm
Track height	479.5 mm
Cross-member height (from ground)	150 mm
Fixed undercarriage width	1260 mm
Number of lower rollers per side (per machine)	6 + 6 (12)
Number of upper rollers per side (per machine)	1 + 1 (2)
Track width	250 mm
Number of links per side (per machine)	47 + 47 (94)
Chain pitch	72 mm
Track tensioner pressure (Max)	150 bar
Total weight	480 kg
Hydraulic motor displacement	332 cm^3
Hydraulic motor pressure (Max)	300 bar
Hydraulic flow rate (Max)	39 l/min
Maximum speed	7 km/h
Operating temperature range	-10/+40°C
Maximum operating humidity	95%
Brake release pressure range	12-16 bar
Maximum gradeability	142.8%

FEATURES & SPECIFICATIONS – T600 Model

ROBOCUT T600

56hp



- 56HP *(42kW)* 3 Cylinder Hatz Diesel Engine
- Tracked carriage closed hydraulically piston pump
- Track tensioning pre-set to 150 bar Max
- Remote-controlled operation (up to 150m range)
- 3 options of rubber tracks
- Potentiometer forward speed control from 0 to 100%
- Potentiometer hydraulic power control from 0 to 100%
- Independent cooling system for hydraulic circuits
- Self-cleaning reversible fan
- Customisable work and driving light system
- Proportional lift and lower with float function
- 2 auxiliary hydraulic services up to 16 litre/min
- Main hydraulic power
  59 litre/min @ 350 bar
- Proportional joystick speed control : forwards & backwards (2 speed)
  Speed 1: 0 to 3.5 km/h
  Speed 2: 0 to 7.0 km/h
- 38 litre fuel tank capacity
- 1300mm carriage width
- Machine weight *(less fuel)*: 1200kg

ROBOCUT T800

75hp



- 75HP *(56kW)* 4 Cylinder Hatz Diesel Engine
- Tracked carriage closed hydraulically piston pump
- Track tensioning pre-set to 150 bar Max
- Remote-controlled operation (up to 150m range)
- 3 options of rubber tracks
- Potentiometer forward speed control from 0 to 100%
- Potentiometer hydraulic power control from 0 to 100%
- Independent cooling system for hydraulic circuits
- Self-cleaning reversible fan
- Customisable work and driving light system
- Proportional lift and lower with float function
- 2 auxiliary hydraulic services up to 16 litre/min
- Main hydraulic power
  95 litre/min @ 350 bar
- Proportional joystick speed control : forwards & backwards (2 speed)
  Speed 1: 0 to 3.5 km/h
  Speed 2: 0 to 7.0 km/h
- 38 litre fuel tank capacity
- 1300mm carriage width
- Machine weight *(less fuel)*: 1360kg

FLAIL HEAD USE - IMPORTANT INFORMATION

'As Supplied'

The flail head is fitted with a hydraulic ram to allow movement of the hinged hood, **by default on every start-up movement of this ram is electronically deactivated** to stop operators inadvertently opening the hood when cutting alongside the highway; this reduces the risk to passing traffic from being hit by objects ejected at speed from the working flail head. It should be noted that with the hinged hood opened objects could be thrown a considerable distance. Being struck by a thrown object could result in injury or death.

If the machine is being used away from the highway, where other vehicles and bystanders are not normally in the vicinity, the hood ram function may be activated provided the general safety information and following specific conditions are met;

- **A detailed work area and bystander risk assessment is undertaken before work begins.**
- **The operator has been trained in the safe use of the Robocut.**
- **All pre-work checks stated in this manual have been fully performed.**



On machines mounted with a grass flailhead, the hood warning screen will always be displayed on start-up; it is the operator's responsibility to ensure all safety conditions are met before selecting the option to activate the hood. Operators of this machine are responsible for the safety of all persons and property in the vicinity of the working machine; if doubt exists work should only be performed with the hood de-activated.



SAFETY INFORMATION



Read the manual before using the machine

This machine and any attached equipment has the potential to be extremely dangerous - in the wrong hands it can kill or maim; It is therefore imperative that both owner and operator of the machine reads the following section to ensure they are fully aware of the dangers that do, or may exist, and fully understand their responsibilities surrounding use and operation of this machinery.
The operator of this machine is responsible not only for their own safety but equally for the safety of all others who may come into the close proximity of the machine, as the owner you are responsible for both.
When the machine is not in use it should be parked on a firm level site with any mounted equipment at rest on the ground with the isolator key removed.
In the event of any fault being detected with the machine's operation it must be stopped immediately and not used again until the fault has been corrected by a qualified technician.

- *Before starting the machine, the operator must read and understand all aspects of use and maintenance of the machine as stated in this manual.*
- *The machine must only be used by a responsible adult who is familiar with all aspects relating to safe operation. Certificated training may be required on certain sites.*
- *The machine must not be operated by children or non-authorised persons.*
- *Operators must know the meaning of all operation and safety decals on the machine, the mounted attachments, and the remote-control unit.*
- *Operators must know the correct procedure for switching the machine off normally and know the locations of all Emergency Stop buttons.*
- *Do not attempt to use the machine if any of the Emergency Stop buttons are damaged or malfunctioning.*
- *Never use the machine with safety guarding removed or defective.*
- *Operators should practice operation on flat open ground to familiarise themselves with driving and manoeuvring the machine before attempting to use it on sloping ground.*
- *Operators should practice manoeuvring the machine around obstacles, without the mounted equipment running, before using the machine for work purposes.*
- *Never operate the machine if your vision is blocked or obscured by obstacles such as vehicles, buildings, hedges, fences etc.; move to a safe position where you have a clear, un-interrupted view of the entire machine.*

- *Never operate the machine when standing directly in the line of travel.*
- *Do not use the machine on sand piles, gravel, or other similar loose materials.*
- *Only operate the machine in good light conditions.*
- *Never start or run the machine in an enclosed area or building.*
- *Keep the machine clean to avoid build ups of dry materials that could ignite on hot components.*
- *Never stand directly below a machine that is working or parked on a slope.*
- *Always operate the joystick control slowly; rapid or jerky movements could cause the machine to 'rear up' causing loss of control.*
- *When operating the machine with the flail head running the operator must remain in a safe position at least 5 metres away from the machine; always switch the flail head off before approaching the machinery.*
- *When using the machine, the operator should place themselves in a position that provides optimum visibility over the entire work area.*
- *Never leave a running machine unattended; always switch the engine off and remove the isolator key.*
- *Always stop and switch the machine off if persons or animals enter the work area; do not restart the machine until they are at a safe distance.*
- *Never use the machine to perform tasks it was not designed for.*
- *Never ride or allow others to ride on the machine.*
- *Always inspect the work area prior to operation and remove stones, glass, metal, wire or any other foreign objects that are hazardous. Immovable hazards should be suitably 'marked' so they can be easily avoided.*
- *Take extra care when operating the machine on slopes or uneven ground; there is increased risk of objects being thrown from rotating equipment when working in these conditions.*
- *The machine can be used on slopes up to a maximum of 55° (track option dependant) providing the surface is dry and firm.*
- *Should a machine overturn, a suitable crane or winch should be used to recover it; keep all persons at a safe distance before and during recovery.*
- *Do not operate the machine in foggy or frosty conditions as there is increased risk of accidents.*
- *Take extra care when working in close proximity to electrical cables; in some circumstances, operating the machine under overhead power lines can result in loss of radio signal causing the engine to be deactivated.*
- *Do not operate the machine close to vehicles or properties where there is risk of damage by objects accidentally ejected from certain types of mounted equipment.*
- *It is the user's responsibility to protect persons in or near the work zone.*
- *When servicing or maintaining the machinery, no-one should be allowed beneath it when it is raised unless it is securely supported on suitable ramps or stands.*
- *Never attempt to service or maintain the machine whilst it is running; always switch off the engine and remove the isolator key.*

- *When transporting the machine on another vehicle or trailer the engine must be switched off and the machine chocked and secured with suitable ropes or chains.*
- *Check the condition of any flails or other mounted tools and their fixings on a regular basis; never use a machine with damaged or missing flails/tools or loose fixings.*
- *Always clean the machine after use; if machine components are hot allow them to cool to a safe temperature before cleaning. Never use solvent based chemicals for cleaning.*
- *When operating in excessively dusty conditions the machine may need to be stopped on a regular basis to remove any build ups of dust on components that could cause overheating; switch the engine off and beware of hot components.*
- *Ensure engine is switched off and Emergency Stop switch is in the 'off' position before refuelling.*
- *Wherever possible refuel the machine before work when the engine is cold. If refuelling during work, switch off the engine and allow it to cool before adding fuel.*
- *Test the Emergency Stop buttons before each period of work to ensure they function correctly.*
- *Never leave the machine, isolator key and control unit unattended in one place; the machine could be started and used by un-authorised persons.*
- *Any inspection, service or maintenance of the machine and attached equipment must only be performed with machine switched off and the isolator key removed.*
- *Always wear suitable safety gear at all times when performing service or maintenance work on the machine or any mounted equipment.*
- *Mounted equipment must always be switched off when manoeuvring outside of the work zone.*

Personal Protective Equipment (PPE)

We recommend that the following personal protective equipment is worn during operation and/or maintenance of this machinery; overalls, safety shoes, safety goggles, ear protection, safety helmet, protective gloves, respiratory protection, shin/knee protection.



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



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

MACHINE DELIVERY

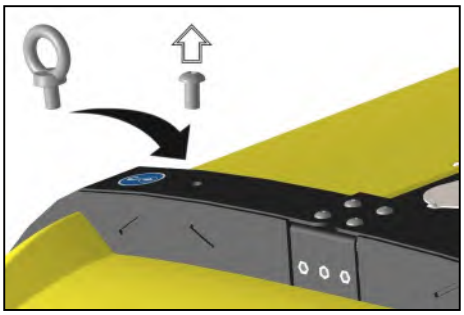
Robocut machines are delivered ready for use pre-filled with all the necessary lubricants and fluids other than fuel. Before use, all delivery packaging should be removed and the machine fully inspected; if there are any signs of damage or missing components it must be reported to your supplier/dealer immediately.

Standard items supplied;

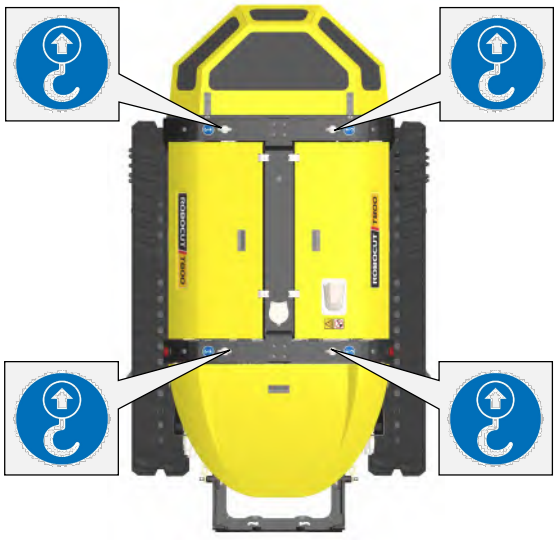
- **Machine with mounted receiver.**
- **Remote Control Transmitter Unit c/w Battery Pack.**
- **Reserve Battery Pack.**
- **Battery Charger.**
- **Belt for Remote Control Unit.**
- **Master Isolator Key.**
- **User Manual.**
- **Track Tensioner Gun**

Machine Handling

Four lifting eyes are supplied with the machine to allow for overhead lifting. The lift points for installation of the lift eyes are located on each side of front and rear roll bars; remove the M16 Allen headed bolts and install the four lifting eyes in their place, tighten fully.
The machine must only be lifted using all 4 lift points.



Lifting Point Locations





Lifting Equipment

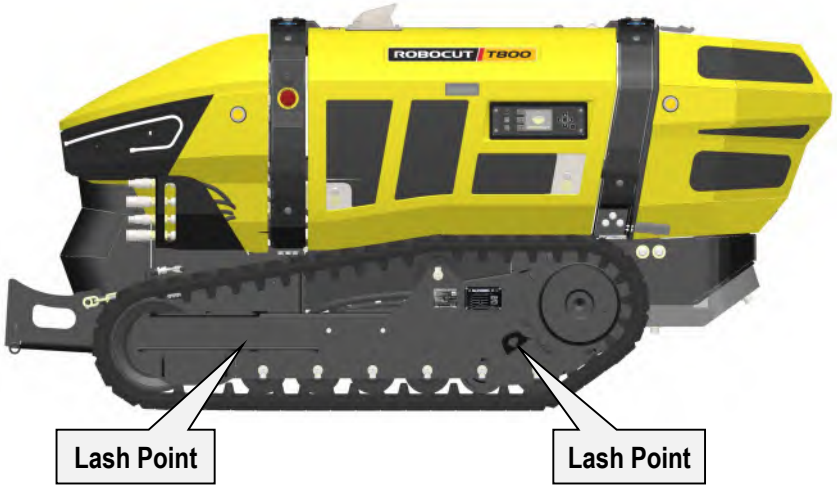
Suitable overhead lifting equipment with a Safe Working Load (SWL) greater than the total weight of the machine, including any fitted attachment, must be used for handling the machine. The attachment weight must not exceed the machine's attachment lift capacity of 500 kg. Ensure the machine is balanced and level at all times during the lifting procedure.
All operatives and bystanders must remain at a safe distance from the raised machine.

⚠ DANGER **Lifting of the machine should only be performed on a firm level site.**

⚠ DANGER **Keep all persons at a safe distance from the raised machine.**

Machine Transportation

Lash points are located at each end of the track plates on both sides of the machine; these positions should be used to fully secure the machine for transportation on flatbed vehicles or trailers.

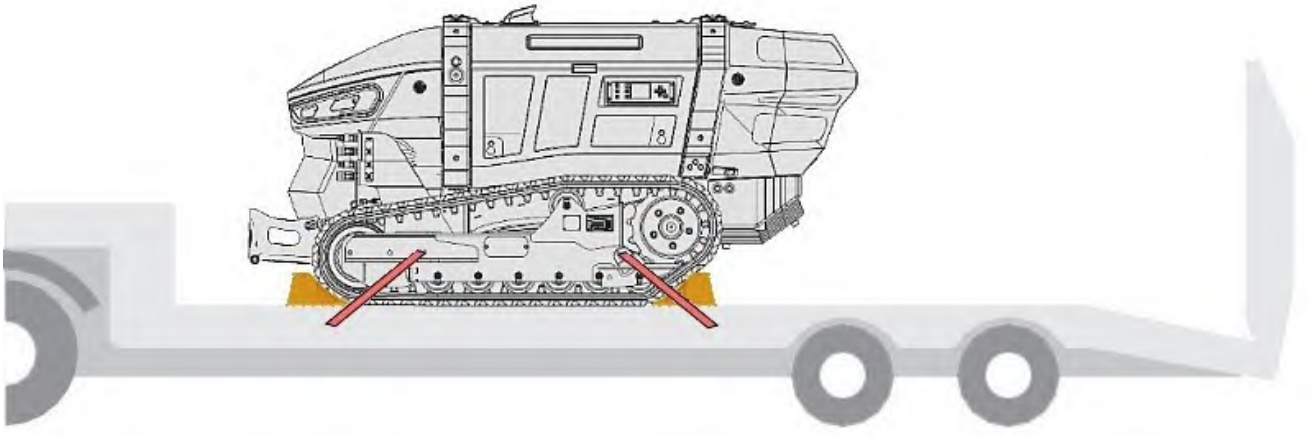


Transportation Vehicle

Use suitable vehicles with carrying capacity greater than 1600kg to transport the machine. The loading ramps for each track must be capable of supporting loads of at least 800kg and should be hooked or securely fixed to the bed of the vehicle at the correct width for the tracks, ramp incline must be less than 50°.

If the machine requires lifting onto a transportation vehicle, suitable chains or wire ropes should be used and the equipment employed must be capable of raising and supporting the weight of the machine in a safe manner – *refer to machine handling on previous page.* Machines must only be lifted with attachments removed.

Machines must be secured to the bed of the carrying vehicle using wire ropes or slings attached to the lash points of the machine.

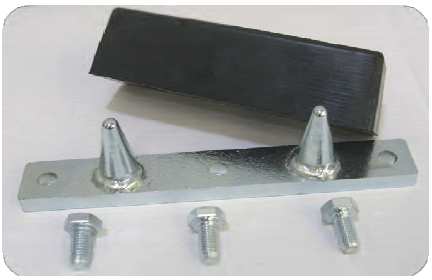


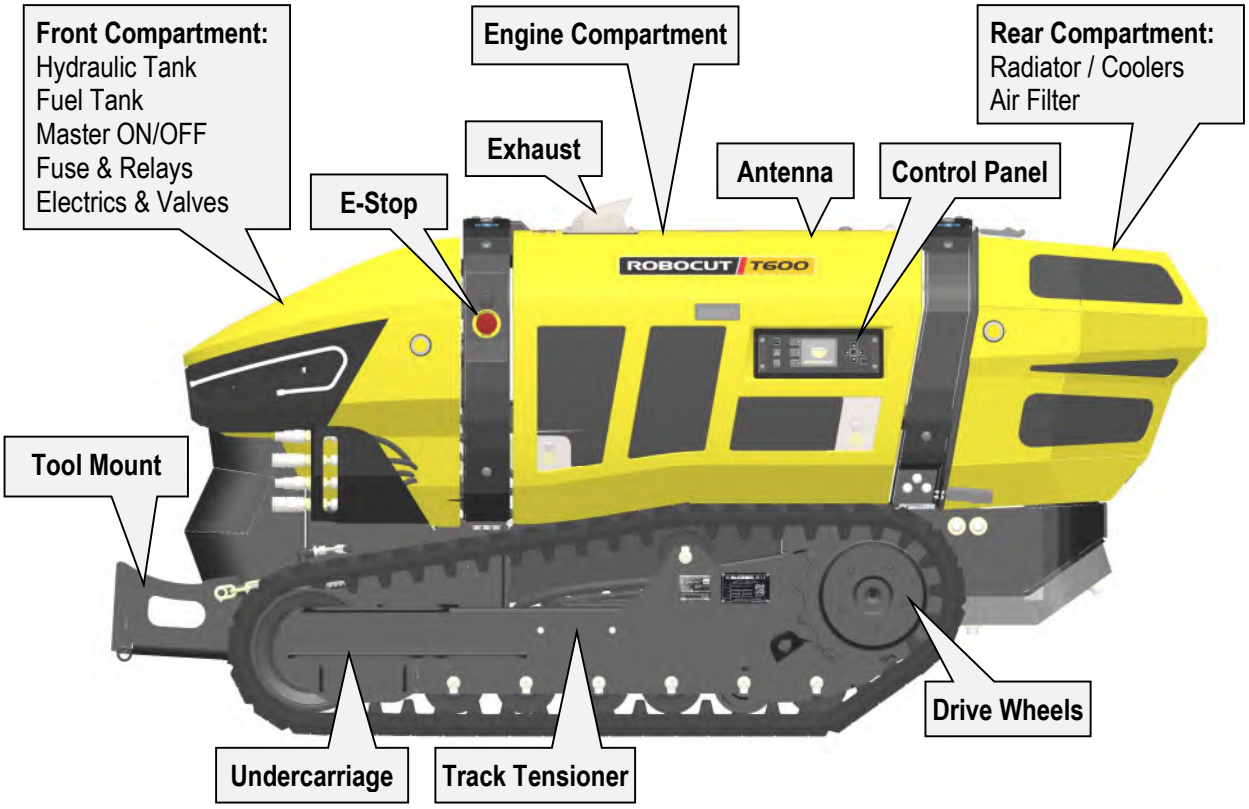
⚠CAUTION **Machine must be fully secured at all times when transporting on a vehicle.**

Machines with Studded Tracks

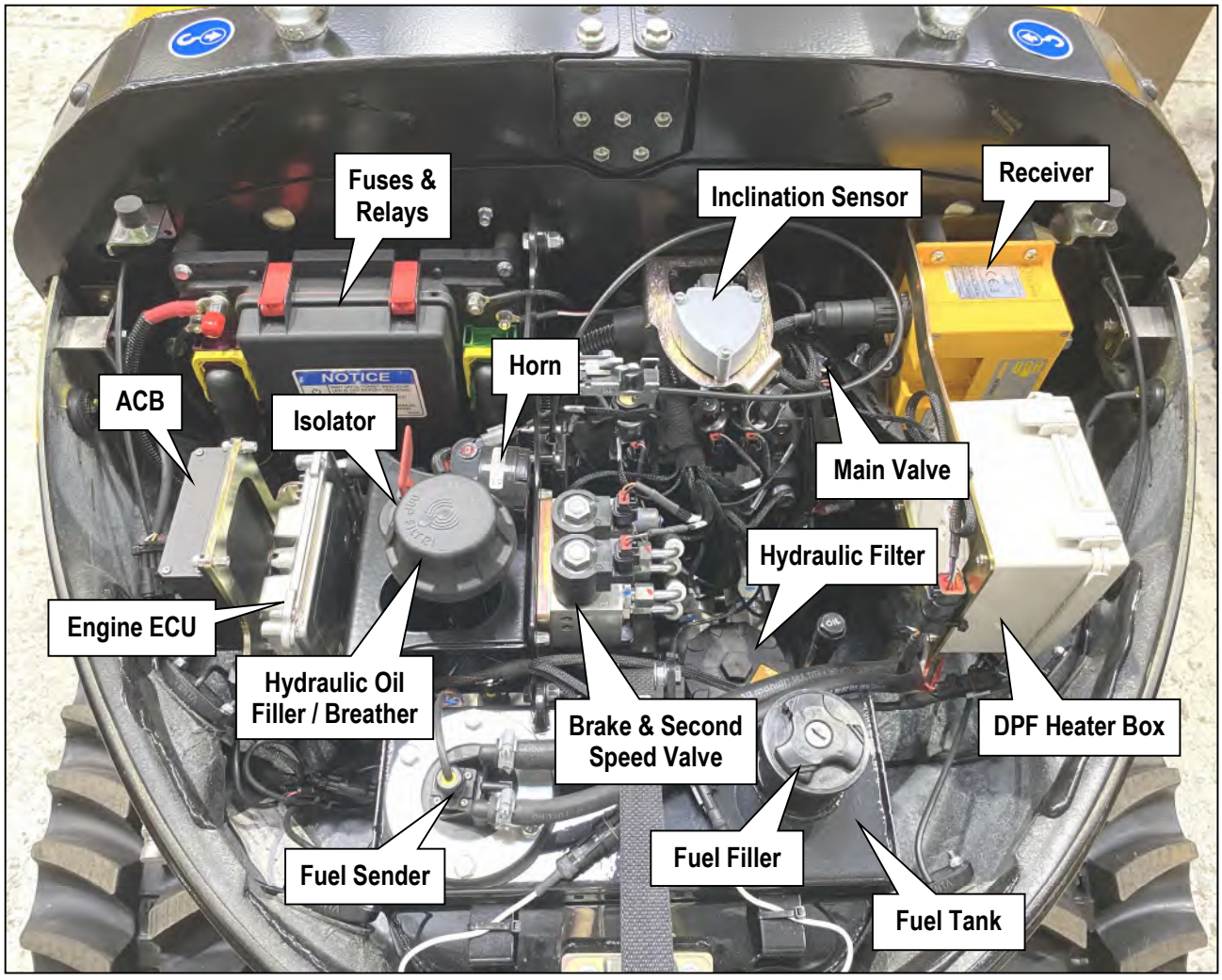
⚠CAUTION

If studded tracks are mounted on the machine, the rubber protection blocks must be installed on the studs whenever the machine is driven over concrete or tarmac surfaces to protect these surfaces from damage.

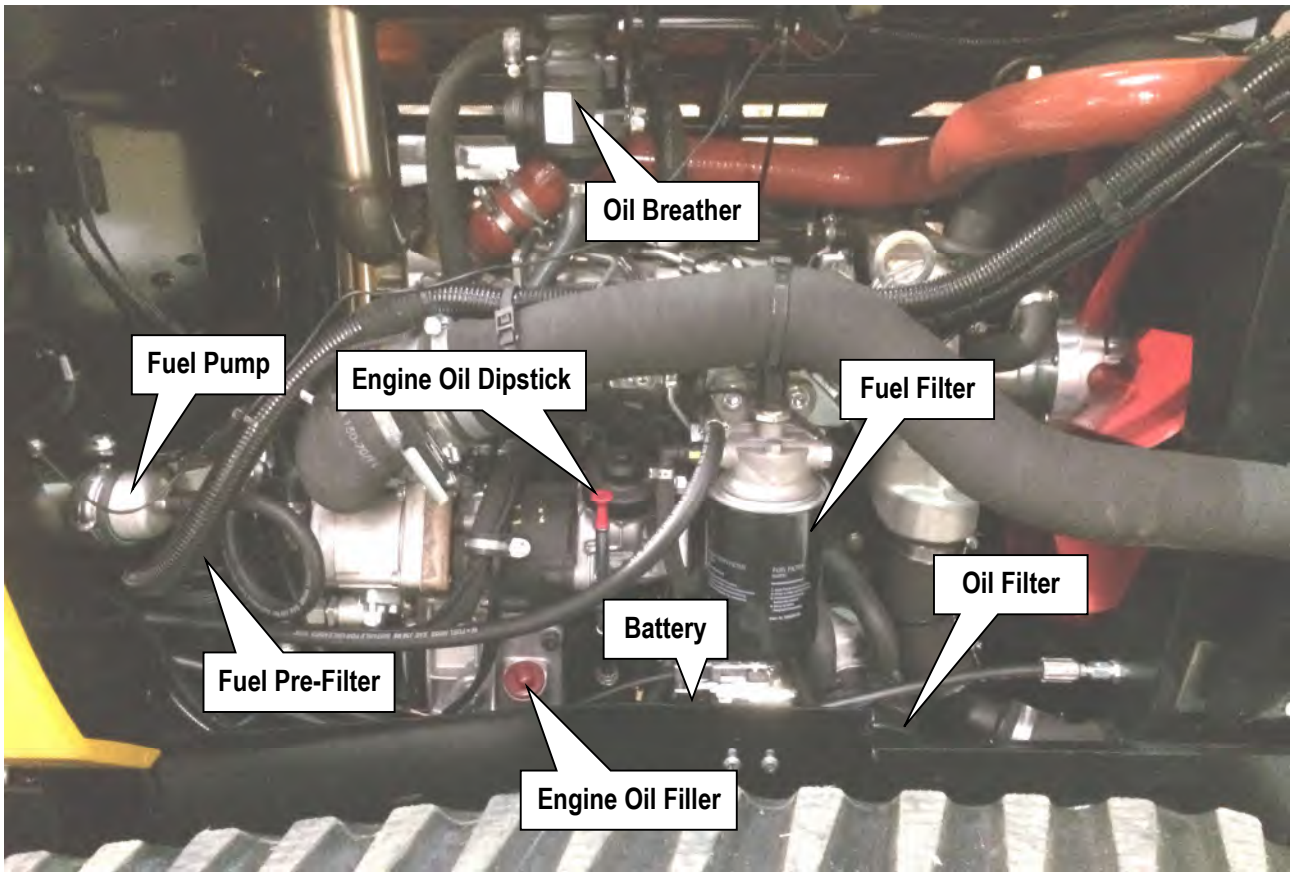




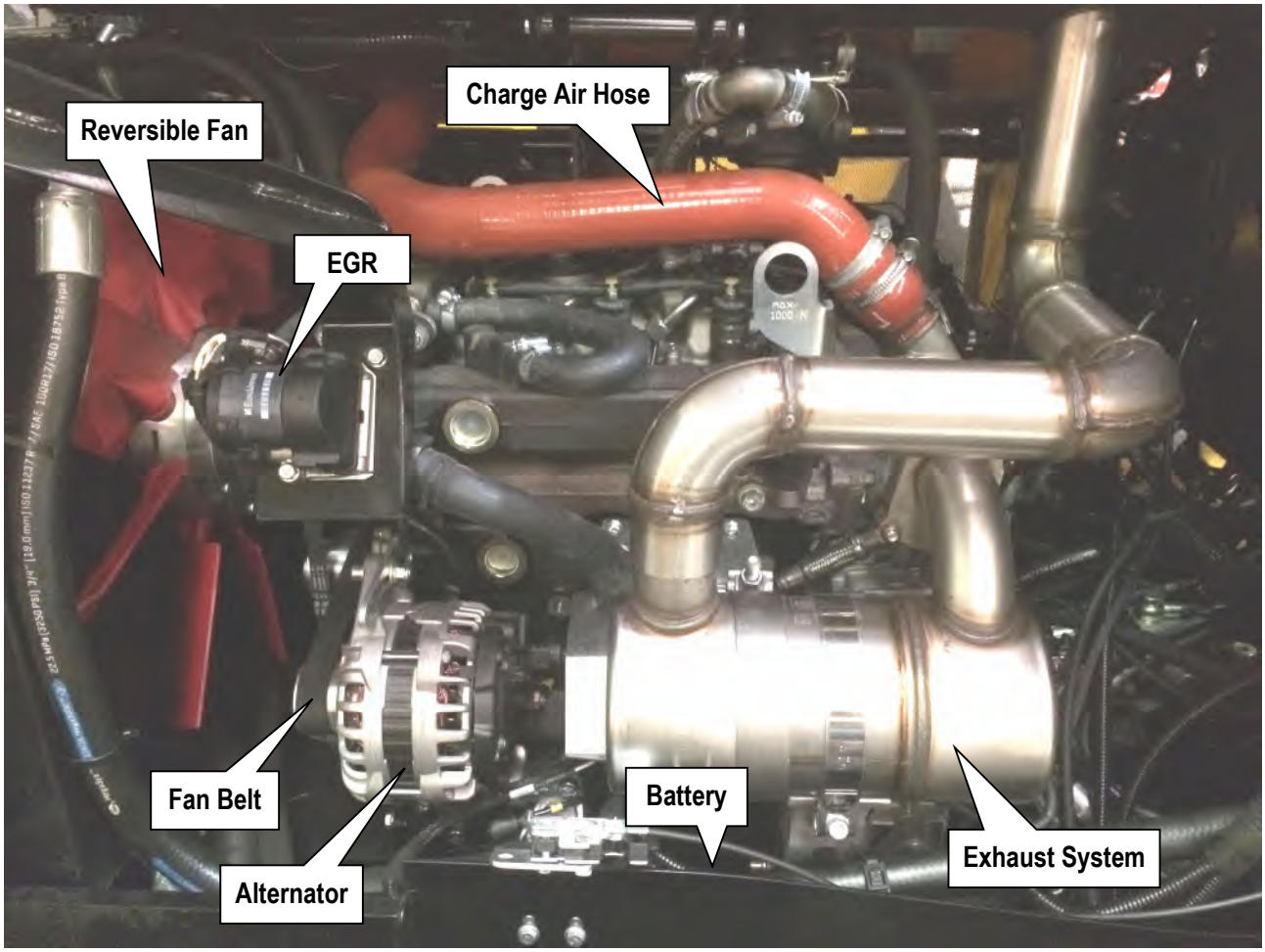
Front Compartment



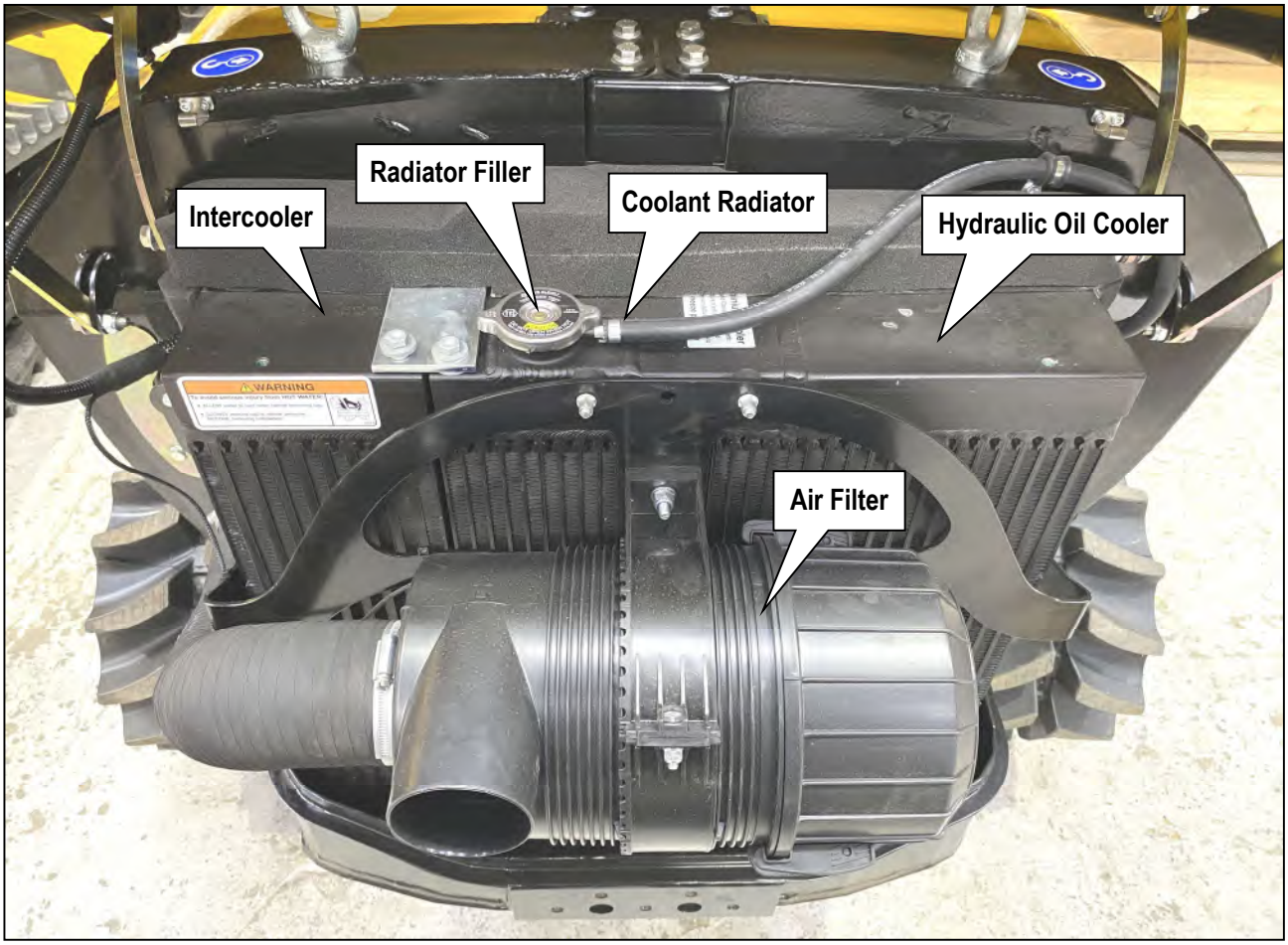
Engine Compartment - Left Side View (DOC engine)



Engine Compartment - Right Side View (DOC engine)



Rear Compartment



EMERGENCY STOP BUTTONS (E-STOP)

Location of Emergency Stop Buttons

E-Stop buttons are situated on the remote-control unit and both sides of the machine in the locations indicated below.





⚠CAUTION

E-Stops are provided for use in an emergency situation only; they must not be used as a shortcut method of switching off the engine during normal use.

Automatic Emergency Safety Features
As the machine is operated by remote-control and the user is not 'physically' controlling the machine, specific safety features have been built in to protect the operator, third party persons, and the machine itself; these are as follows;

Danger / Risk Situation	Automatic Safety Feature
Machine beyond signal reception area or radio signal blocked	EMERGENCY STOP will activate
Radio signal failure	EMERGENCY STOP will activate
Another machine on same frequency operating in the area	EMERGENCY STOP will activate
Excessive slope (>70°)	EMERGENCY STOP will activate

Manual Emergency Safety Feature
In addition to the automatic safety features stated above the operator can immediately stop all machine movements and shut off the engine by pressing an E-Stop button; these are located on the remote-control unit and on each side of the machine.

In all instances above, emergency stopping of the machine will take a maximum of 0.2 seconds from execution of the automatic or manual command and the following actions will occur;

- **Machine movement / operations and functions will be immediately halted.**
- **Engine will be immediately switched off.**

Note; after using E-Stop the machine will cease to function completely; to regain functions and continue operating the E-Stop button must be reset and a normal re-start performed.

Deactivation of E-Stop Buttons
If an E-Stop button has been activated the button must be reset (deactivated) before the machine can be re-started.

- To deactivate E-Stop button on the remote-control unit; rotate the button clock-wise.
- To deactivate an E-Stop button on the machine; pull the button outwards.

In the unlikely event of movement malfunction
If machine movements perform in an unexpected and/or incorrect manner, follow the instructions below;

1) Release the forwards/backwards movement joystick – *the control is equipped with automatic zero position; on release it will automatically return to the central (stop) position, this action activates the track brakes.*
2) Press E-Stop button on the control unit.

   ⚠ DANGER **Do not approach the machine if it is moving.**

3) Press one of the machine's E-Stop button.
4) Turn Isolator Key to the OFF position *(anti-clockwise)* and remove the key.

Contact your Authorised Dealer or McConnel Service; do not attempt to operate the machine until advice has been sought.

⚠ DANGER

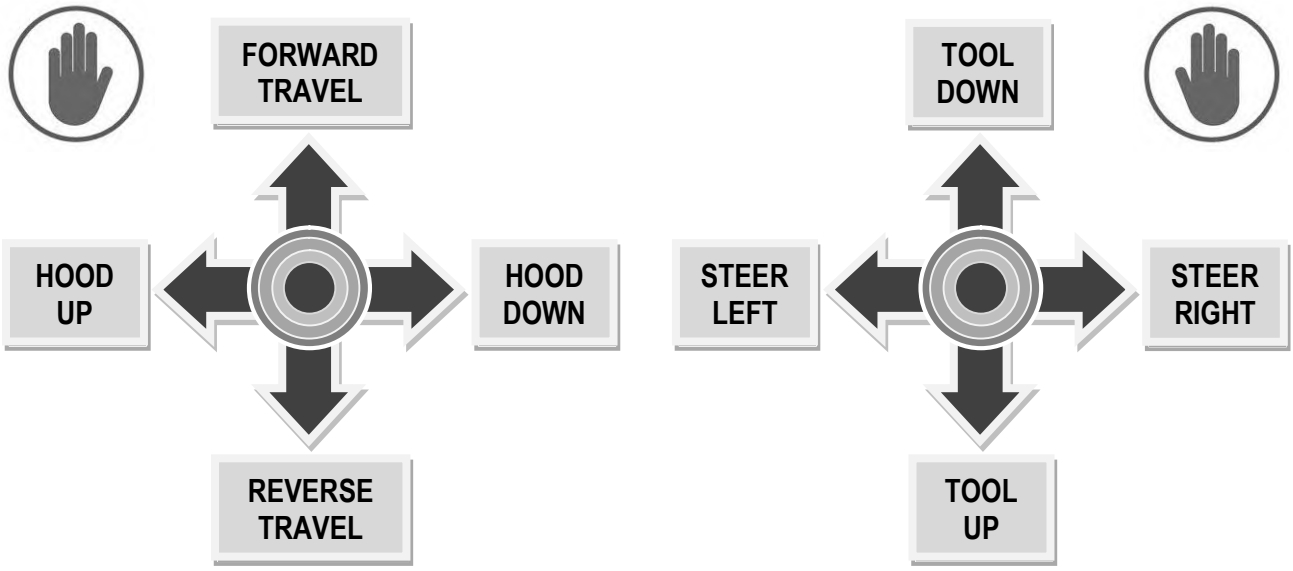
Operators must wear personal safety gear at all times whilst operating the machine and stand in a safe operating position with a clear view of the machinery and the work area.

Controls Identification



1. **LCD Display**
2. **LH Joystick – Travel Direction / Hood Control**
3. **RH Joystick – Steer Direction / Tool Lift**
4. **Emergency Stop Button**
5. **Gear Speed Dial**
6. **Steering Bias Dial**
7. **Auxiliary Selection: AUX 1 / OFF / AUX 2**
8. **Fan Control**
9. **Rotor Direction Control**
10. **Rotor Speed Dial**
11. **Gear Control Switch**
12. **Engine Start/Stop Switch**
13. **Auxiliary Selection: N/A** *(no function assigned)*
14. **AUX Button**
15. **Key (Power ON/OFF)**
16. **Diagnostic Port**
17. **Pair (Start) Button**
18. **Engine RPM Control Button (+)**
19. **Engine RPM Control Button (-)**
20. **Shift Button – N/A** *(no function assigned)*
21. **Button 1 – Wake Screen**
22. **Button 2 – Screen #1 select**
23. **Button 3 – Screen #2 select**
24. **Button 4 – N/A** *(no function assigned)*
25. **Button 5 – N/A** *(no function assigned)*

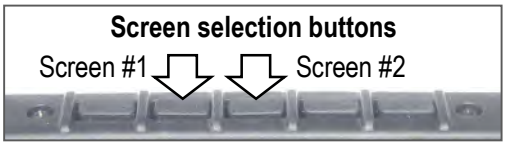
Joystick Controls



Control Unit – Display Screen & Function Operation

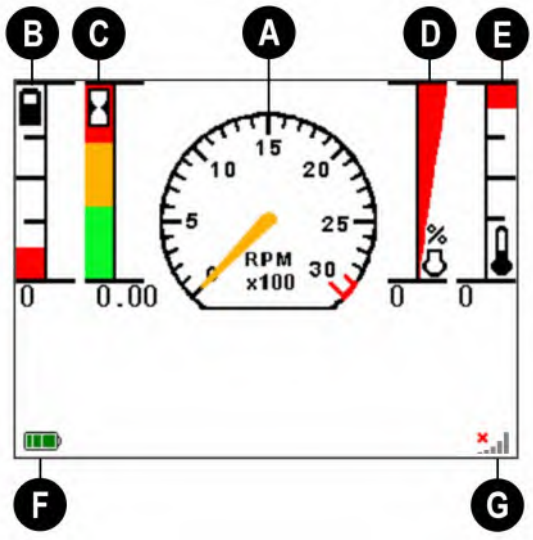
LCD Display

Select the desired screen using the screen selection buttons located above the screen.

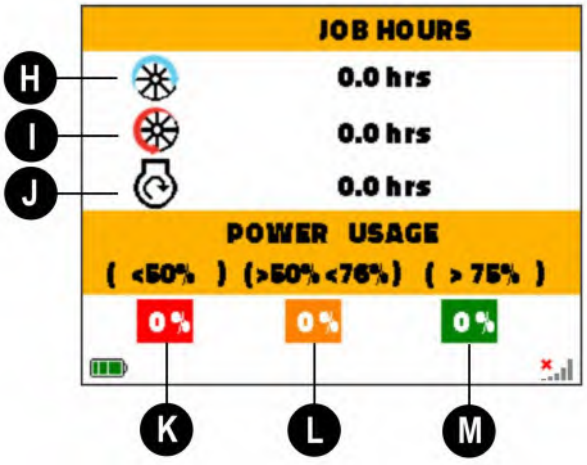


The screens report the following information;

Screen #1

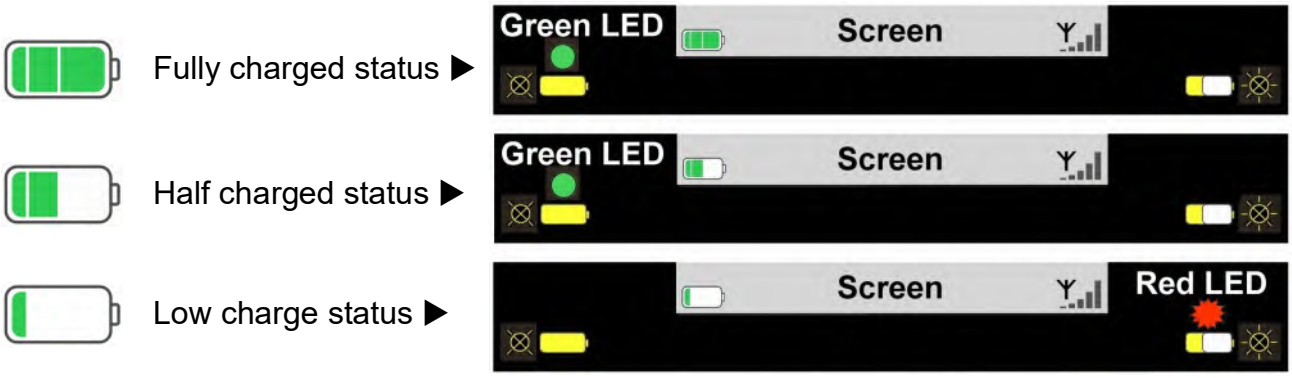


Screen #2



- A. Engine Speed (RPM)
- B. Fuel Gauge
- C. Fuel Usage
- D. Power Usage
- E. Engine Temperature Gauge
- F. Control Unit Battery Charge Status
- G. Wireless Signal Status
- H. Job Hours – Rotor Uphill Direction
- I. Job Hours – Rotor Downhill Direction
- J. Engine Hours – Running Time
- K. Power Usage % at less than 50% Power
- L. Power Usage % at 50-75% Power
- M. Power Usage % at more than 75% Power

Control Unit Battery Status Indicators
Charge status of control unit battery is indicated by the battery symbol on the LCD screen and battery status LED lights on the screen surround panel.



GREEN LED ON = battery has sufficient charge.

GREEN LED OFF / RED LED FLASHING = battery power is low.

Control unit will 'BLEEP' when approximately 5 minutes of battery power remains (*).
**Replace the battery at the earliest opportunity*.

NOTICE

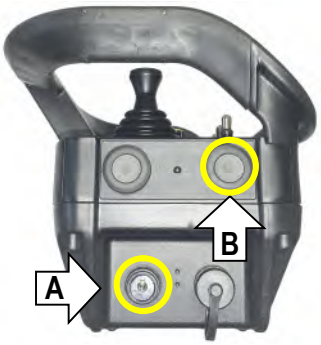
To ensure uninterrupted work, the reserve battery should be kept in the charging station ready for immediate replacment. Return the uncharged battery to the charging station.

Emergency Stop Button



'Push' button for 'EMERGENCY STOP'.
Rotate clockwise to 'Reset'.

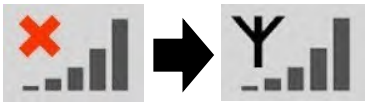
Power On Switch and Pair Button



Insert key at position '**A**', turn clockwise to POWER ON.

Press PAIR button '**B**' to pair control unit with machine.

Horn will sound to confirm the systems are paired.

NO SIGNAL  **ACTIVE SIGNAL**

Signal symbol changes to indicate an active wireless signal.

NOTE: Warning LEDs will be illuminated and on-screen warning symbols will be displayed momentarily during the pairing process.

Engine Start / Stop



Engine START: Hold switch in 'UP' position to start the engine.

Switch returns to its central position when released.

Engine STOP: Hold switch in 'DOWN' position to stop the engine.

Engine Speed (RPM)



Press + Button: Increase engine RPM

Press - Button: Decrease engine RPM



Steering Bias Dial

Control for setting steering angle bias when operating on sloped ground.



Left Steering Bias: Turn control dial to the left to select desired LH bias.
No Steering Bias: Place control dial into the central position.
Right Steering Bias: Turn control dial to the right to select desired RH bias.

Fan Control Switch

Operates 'reversible fan' function;



Manual 'ON': Hold switch in the 'UP' position to manually reverse the fan.

Reverse 'OFF': Reversible fan function 'OFF'.

Auto 'ON': Place switch into 'DOWN' position for automatic periodic fan reversal.

Gear Control Switch

Selects the required gear; Gear 1 = Low Speed / Gear 2 = High Speed.



Gear I: Place switch in 'DOWN' position to select Gear 1.

Gear II: Place switch in 'UP' position to select Gear 2.

Gear Speed Dial (Potentiometer)

Controls the travel speed in the selected gear;



Increase Speed: Rotate control dial clockwise.
Decrease Speed: Rotate control dial anti-clockwise.

Rotor Control Switch

Rotor direction ON and OFF control;



Rotor ON (Uphill): Place switch in 'UP' position to start the rotor 'uphill'

Rotor OFF: Place switch in the central position to 'STOP' rotor

Rotor ON (Downhill): Place switch in 'DOWN' position to start the rotor 'downhill'

Rotor RPM Control Dial (Potentiometer)
Controls the rotor speed;



Increase Rotor RPM: Rotate control dial clockwise.
Decrease Rotor RPM: Rotate control dial anti-clockwise.

Auxiliary Control Switches
Control switches for ON/OFF operation of additional hydraulic services;



AUX 1 ON
OFF
AUX 2 ON

AUX 3 ON
OFF
AUX 4 ON



Control direction and function of the auxiliary switches will depend on equipment fitted and the installation of its hydraulic connections.

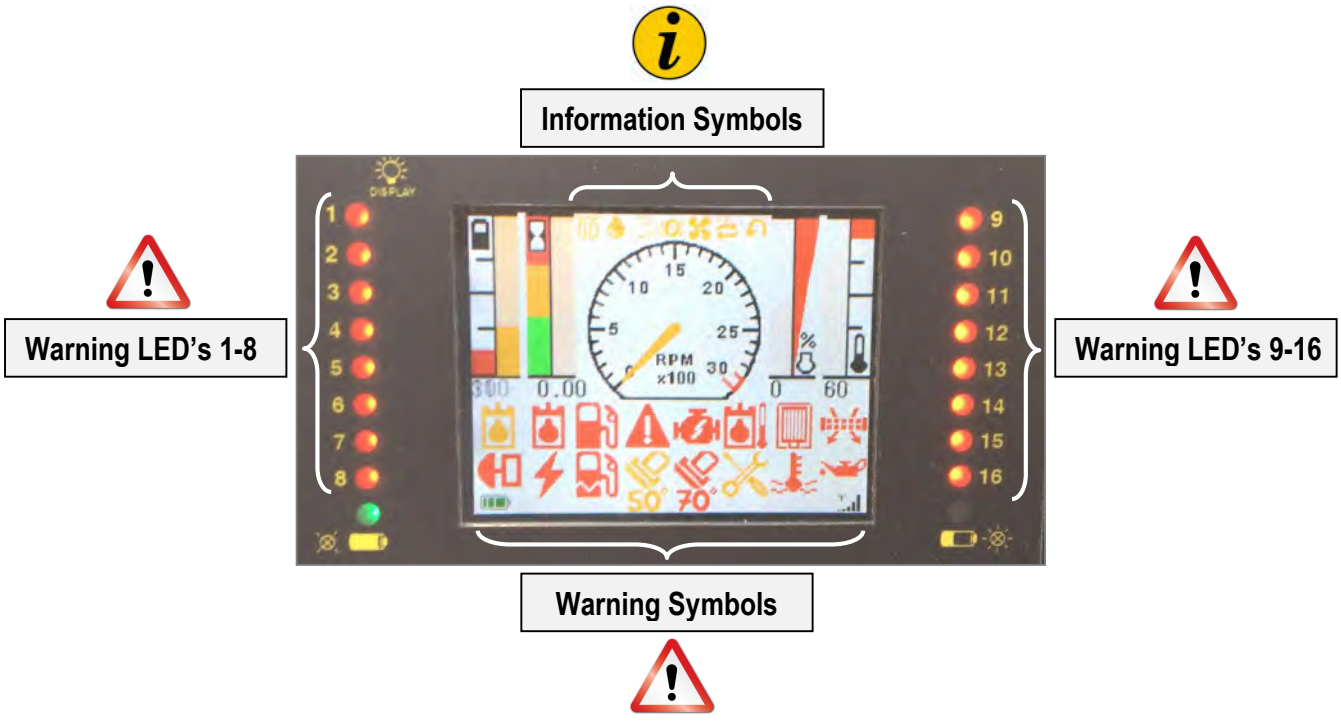
Float Control Button



Press AUX Button: Activation/deactivation of 'float' feature.

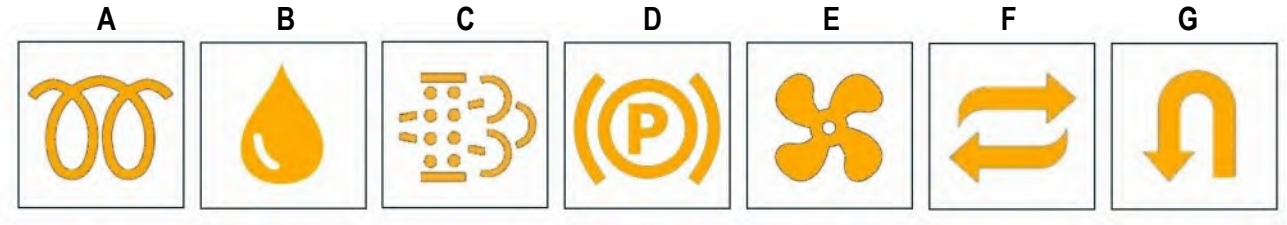


Information and Warning Symbols - Location and Identification



Information Symbols

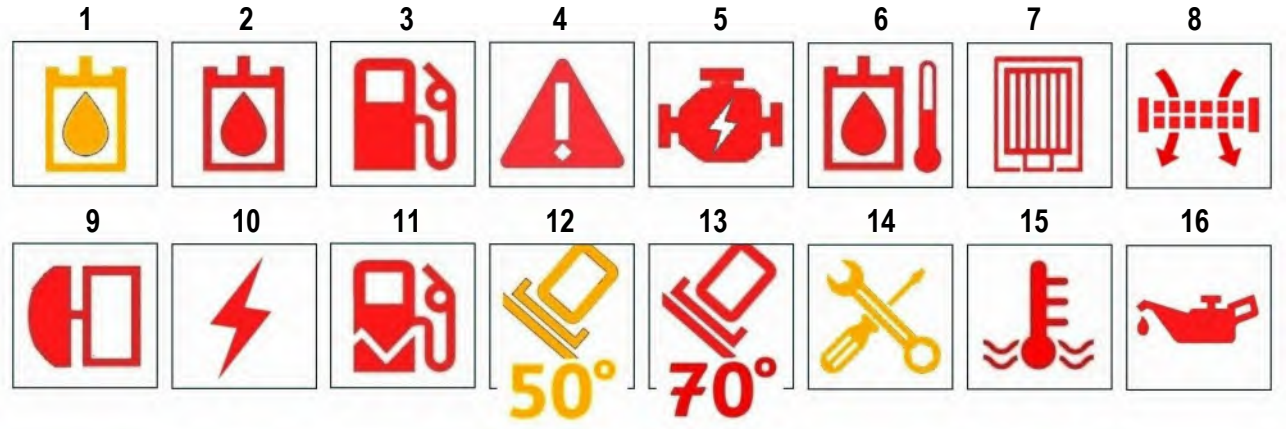
Information symbols are displayed at the top of the screen.



A.	Glow Plug Pre-heat Indicator	E.	Fan Reverse Indicator
B.	Hydraulic Oil Heater Indicator	F.	Joystick Swapped Mode Indicator
C.	DPF Regeneration Indicator	G.	Travel Direction Swapped Mode Indicator
D.	Park Brake Indicator		

Warning Symbols / Warning LED Identification

Warning symbols are displayed at the bottom of the screen.
If an issue occurs, the relevant LED will flash, Robocut horn will sound, and the warning symbol for the specific issue will be displayed on the screen.

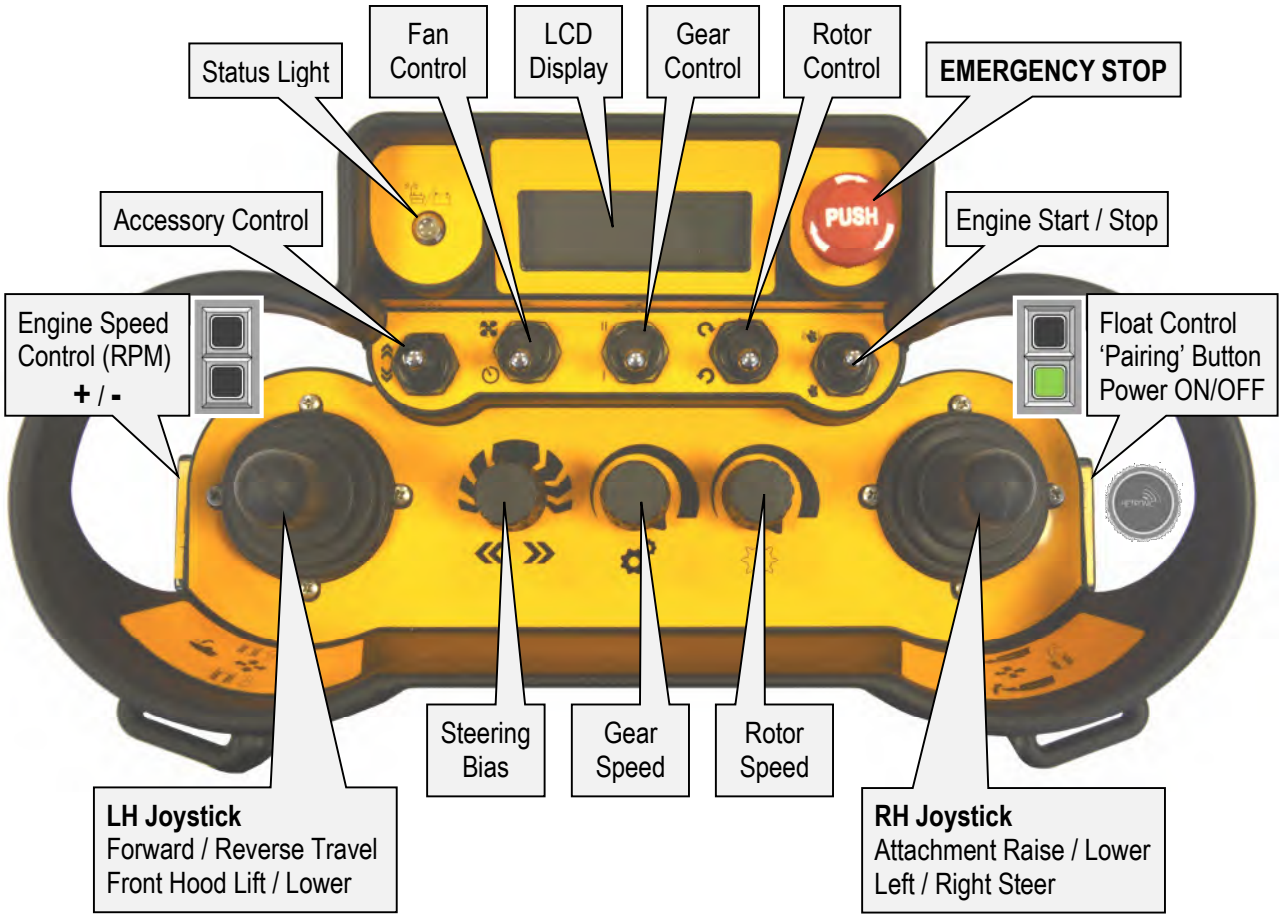


1.		Low Hydraulic Oil Warning	9.		N/A
2.		Insufficient Hydraulic Oil Warning	10.		Ignition Fault Warning
3.		Low Fuel Warning	11.		Water in Fuel Warning
4.		General Warning	12.		50° Tilt Angle Warning
5.		Engine Fault Warning	13.		70° Tilt Angle Warning
6.		Hydraulic Oil Temperature Warning	14.		Machine Service Due Warning
7.		Hydraulic Filter Blocked Warning	15.		Coolant Temperature Warning
8.		Air Filter Blocked Warning	16.		N/A

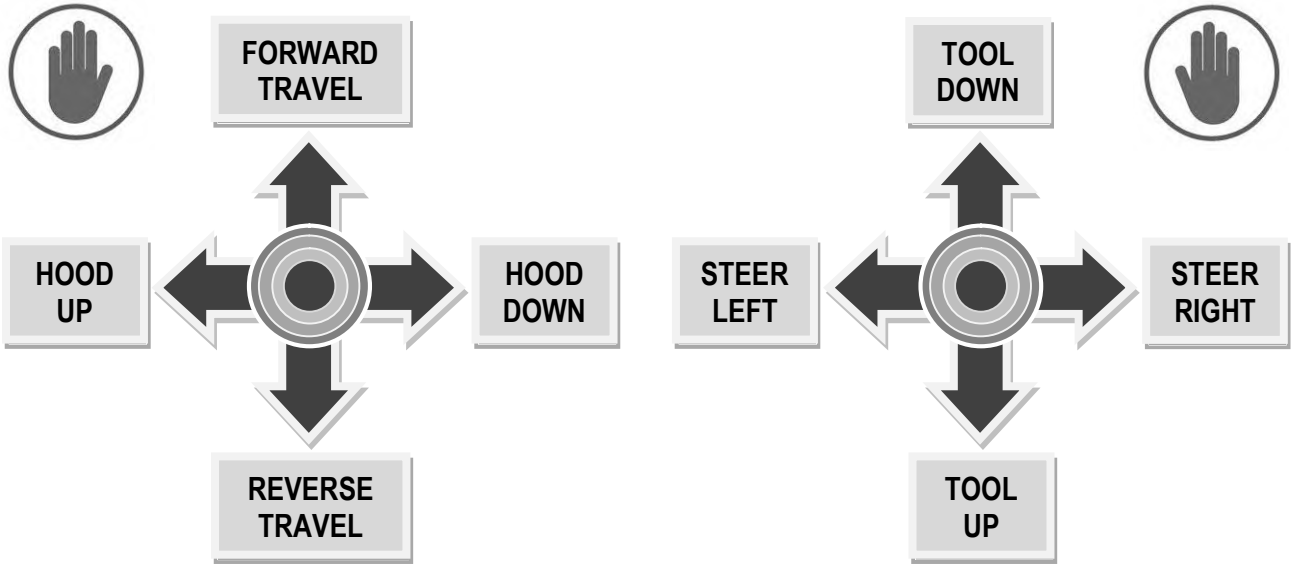
⚠ DANGER

Operators must wear personal safety gear at all times whilst operating the machine and stand in a safe operating position with a clear view of the machinery and the work area.

Controls Identification



Joystick Controls



Control Unit – Display Screen & Function Operation

LCD Display
Reports the following information;



Status Light
Indicates the status of the Remote Control Unit;
Illuminated **GREEN** = '**CORRECT**' Status.
Illuminated **RED** = '**PROBLEM**' Status.

Emergency Stop Button
'Push' button for 'EMERGENCY STOP'
Rotate clockwise to 'Reset'

Engine Start / Stop

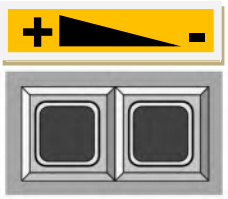


Engine START: Hold switch in 'UP' position to start the engine

Switch returns to its central position when released

Engine STOP: Hold switch in 'DOWN' position to stop the engine

Engine Speed (RPM)
Control for engine RPM



Press + Button: Increase engine RPM

Press - Button: Decrease engine RPM

Steering Bias Dial
Control for setting steering angle bias when operating on sloped ground.



Left Steering Bias: Turn control dial to the left to select desired LH bias
No Steering Bias: Place control dial into the central position
Right Steering Bias: Turn control dial to the right to select desired RH bias

Fan Control Switch
Operates 'reversible fan' function;



Manual 'ON': Hold switch in the 'UP' position to manually reverse the fan.

Reverse 'OFF': Reversible fan function 'OFF'

Auto 'ON': Place switch into 'DOWN' position for automatic periodic fan reversal.

Gear Control Switch
Selects the required gear; Gear 1 = Low Speed / Gear 2 = High Speed



Gear I: Place switch in 'DOWN' position to select Gear 1

Gear II: Place switch in 'UP' position to select Gear 2

Gear Speed Dial (Potentiometer)
Controls the travel speed in the selected gear;



Increase Speed: Rotate control dial clockwise
Decrease Speed: Rotate control dial anti-clockwise

Rotor Control Switch
Rotor direction ON and OFF control;



Rotor ON (Uphill): Place switch in 'UP' position to start the rotor 'uphill'

Rotor OFF: Place switch in the central position to 'STOP' rotor

Rotor ON (Downhill): Place switch in 'DOWN' position to start the rotor 'downhill'

Rotor RPM Control Dial (Potentiometer)
Controls the rotor speed;



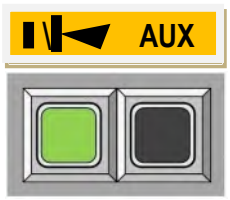
Increase Rotor RPM: Rotate control dial clockwise
Decrease Rotor RPM: Rotate control dial anti-clockwise

Auxiliary Control Switch
Control switch for ON/OFF operation of an additional hydraulic service;



Control direction of the auxiliary switch will depend on the type of equipment fitted and installation of the hydraulic connections.

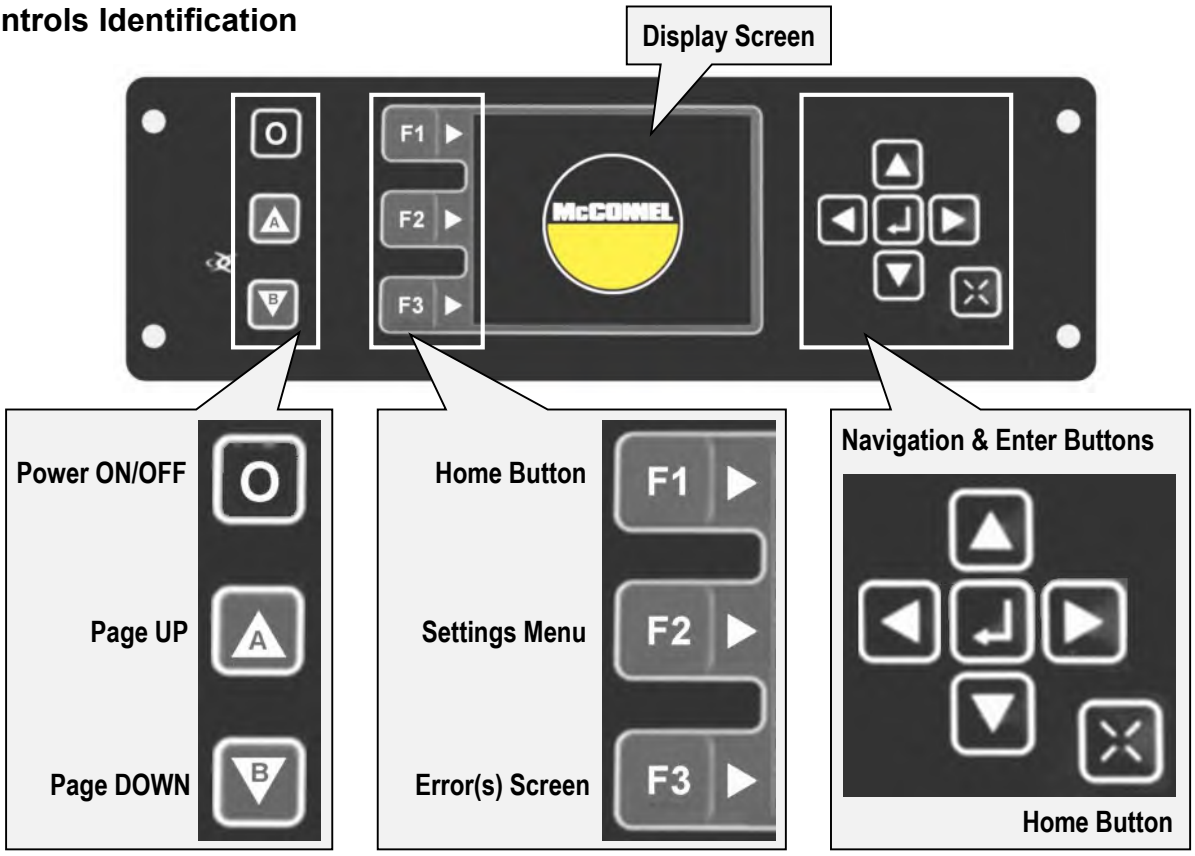
Pair Button & Float Control Button



Press ⫽ **Button:** Pair machine and remote-control unit

Press AUX **Button:** Activation/deactivation of 'float' feature.

Controls Identification



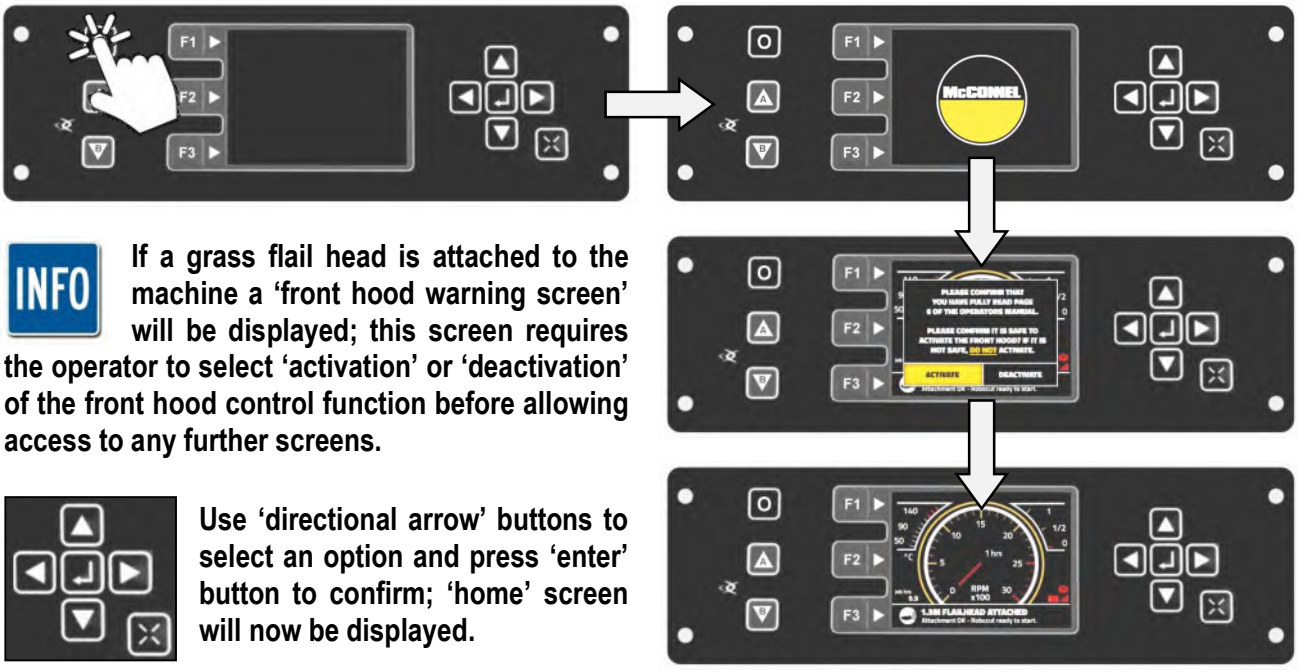
Control Functions

Key	Function
O	**Power ON/OFF Soft Key** Switches the control panel ON/OFF.
A	**Page UP Soft Key** Press to scroll up a screen menu.
B	**Page DOWN Soft Key** Press to scroll down a screen.
F1	**Home Soft Key (F1)** Press to display 'home' screen.
F2	**Settings Menu Soft Key (F2)** Press to access the settings menu.
F3	**Error(s) Screen Soft Key (F3)** Press to view error messages.

Key	Function
▲	**Navigate UP Soft Key** Press to navigate upward.
◀	**Navigate LEFT Soft Key** Press to navigate leftward.
▶	**Navigate RIGHT Soft Key** Press to navigate rightward.
▼	**Navigate DOWN Soft Key** Press to navigate downward.
↵	**Enter / Select Soft Key** Press to select or enter.
✕	**Home Button Soft Key** Press to return to 'home' screen.

Power ON/OFF

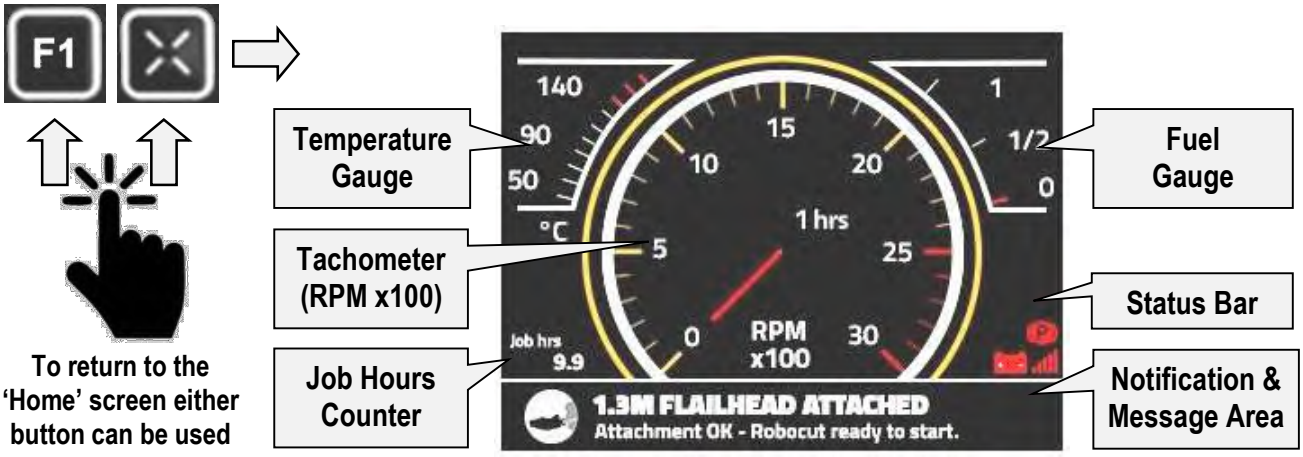
Press ON/OFF button to power up the control panel;



INFO **If a grass flail head is attached to the machine a 'front hood warning screen' will be displayed; this screen requires the operator to select 'activation' or 'deactivation' of the front hood control function before allowing access to any further screens.**

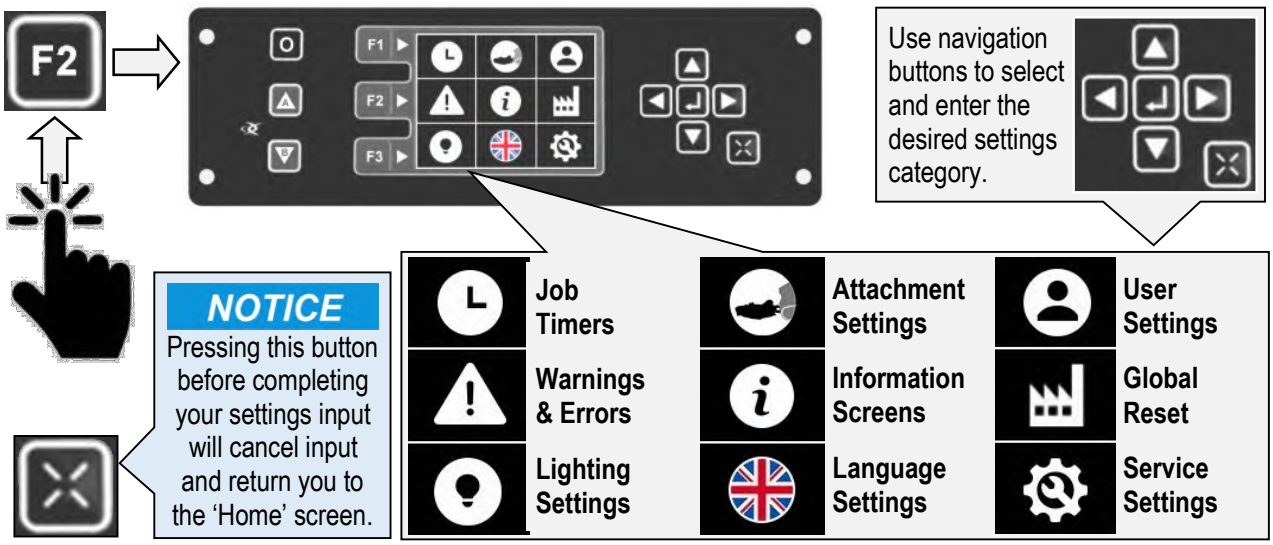
Use 'directional arrow' buttons to select an option and press 'enter' button to confirm; 'home' screen will now be displayed.

Home Screen



To return to the 'Home' screen either button can be used

Settings - Main Menu Screen

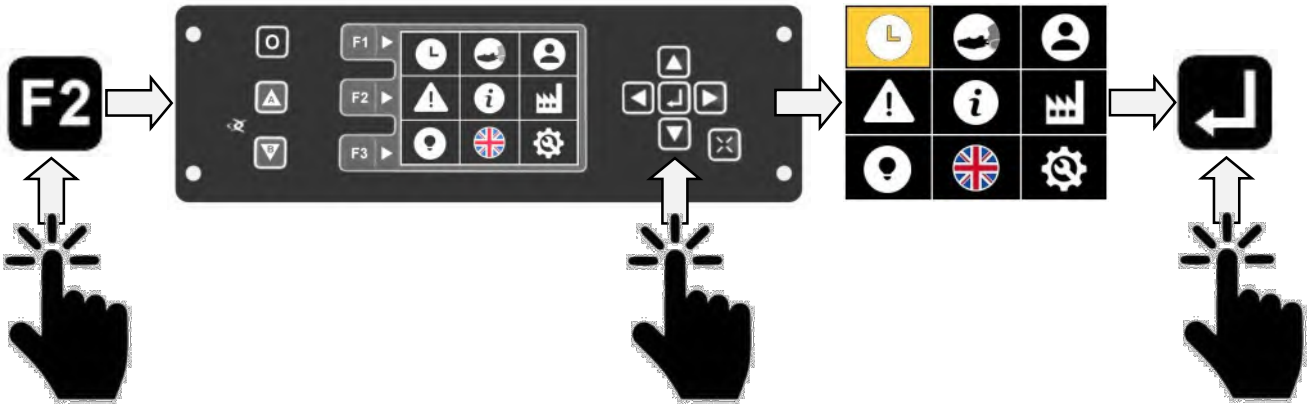


Access to Settings Sub-Menus

To access settings sub-menus, press button ‘F2’ to display the main settings screen.
Navigate to the required settings icon using the directional arrow buttons; on selection the icon will be shown highlighted (yellow).
Press the ‘Enter’ button to access the sub-menu of the selected settings.

Job Timer Settings

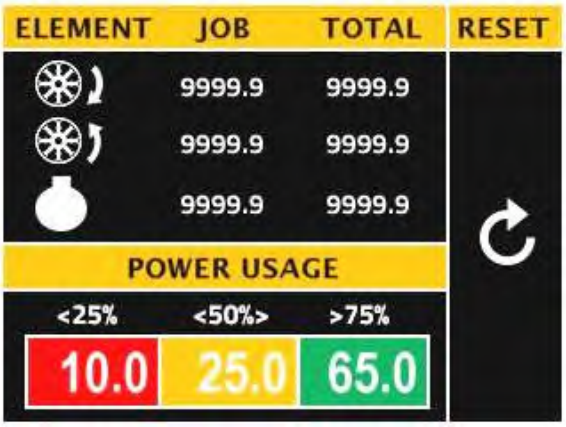
Press ‘F2’. **Use arrow buttons to highlight ‘Job Timer’ Settings.** **Press ‘Enter’ button.**



Job timer settings measure, record and log the following information;

1. Job running time of the attached tool in its ‘downhill’ direction (or direction 1).
2. Job running time of the attached tool in its ‘uphill’ direction (or direction 2).
3. Job engine running time.
4. Job engine power usage: % load at current RPM* *(recorded as %time at %load).*
5. Total running time of the attached tool in its ‘downhill’ direction (or direction 1).
6. Total running time of the attached tool in its ‘uphill’ direction (or direction 2).
7. Total engine running time.

INFO **(*) For engine health and efficiency, power usage should ideally be kept within the upper % bands - this is achieved by running the engine at lower RPM; this will also provide increased fuel economy.**



Job times (items 1, 2, 3 & 4 in the list above) can be reset by navigating to the reset symbol on the screen and selecting enter on the keypad; this will return all stored job figures to zero (0).

Total times (items 5, 6 & 7 in the list above) cannot be reset and serve to record running totals for these 3 elements of the machine.

Exit: to exit the menu pressing one of the following buttons;

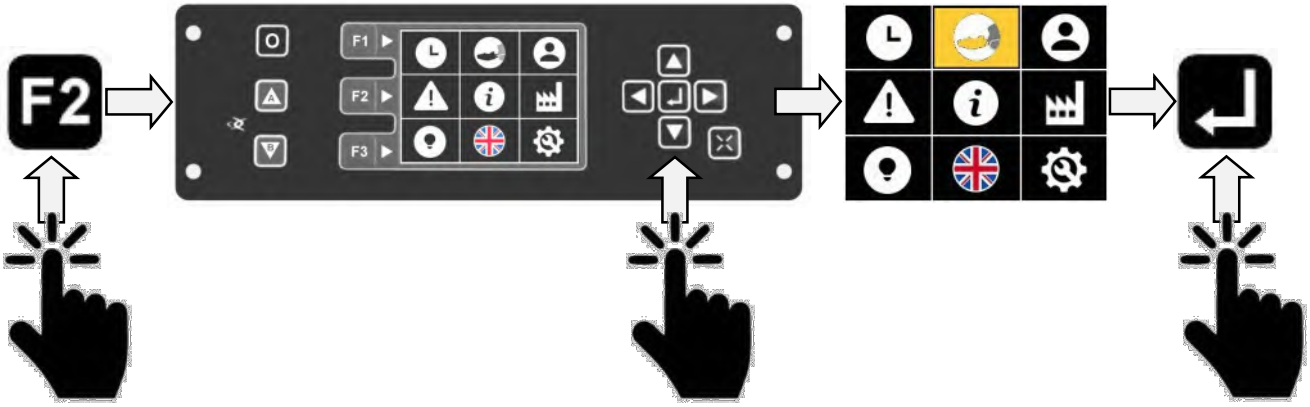
Return to previous screen.

F2 **Return to ‘Main Settings’ screen.**

F1 **Return to ‘Home’ screen.**

Attachment Settings

Press ‘F2’. **Use arrow buttons to highlight ‘Attachment Settings’.** **Press ‘ENTER’ button.**



Attachment lists will be displayed at the ‘Page 1’ screen.

Press button A or B to scroll pages. Button ‘A’ = Forward scroll / Button ‘B’ = Reverse Scroll.

ATTACHMENTS
ROBO FLAILHEAD
ROBO MULCHER
ROBO FOREST
ROBO ROTARY TURF MOWER
ROBO CUTTERBAR MD
ROBO RAKE
ROBO STUMP GRINDER

Page 1.

ATTACHMENTS
ROBO CHIPPER
ROBO BLADE
ROBO TRENCHER
ROBO SNOW-BLOWER
ROBO BRUSH
ROBO FORK
ROBO ROTARY TILLER

Page 2.

ATTACHMENTS
ROBO ROTARY HARROW
ROBO TOE-TIP BUCKET
ROBO LOADER & BUCKET
ROBO GRAPPLE BUCKET
ROBO AIR BLAST SPRAYER
ROBO TREE SHAKER
ROBO AUX

Page 3.

Use navigation buttons ▼ and ▲ to scroll attachments list.

ATTACHMENTS
ROBO FLAILHEAD
ROBO MULCHER
ROBO FOREST
ROBO ROTARY TURF MOWER
ROBO CUTTERBAR MD
ROBO RAKE
ROBO STUMP GRINDER

Highlight required attachment and press ‘ENTER’ button to access sub-menu of that attachment.

ROBO FLAILHEAD OPTIONS
1.3M FLAILHEAD
1.6M FLAILHEAD
1.9M FLAILHEAD

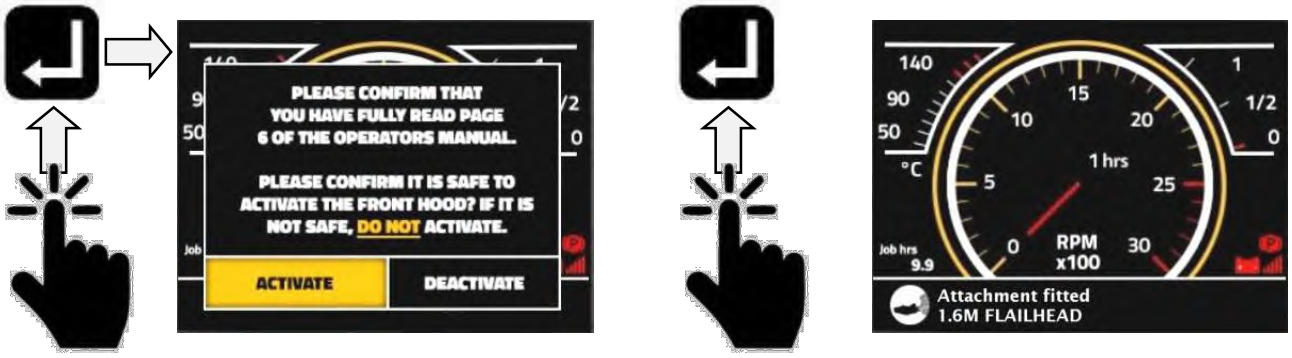
Use navigation buttons ▼ and ▲ to scroll attachment options.

ROBO FLAILHEAD OPTIONS
1.3M FLAILHEAD
1.6M FLAILHEAD
1.9M FLAILHEAD

ROBO FLAILHEAD OPTIONS
1.3M FLAILHEAD
1.6M FLAILHEAD
1.9M FLAILHEAD

With required option highlighted press ‘ENTER’ button to select the option; ‘tick’ icon will ‘highlight’ and that options text colour will change from black to white to confirm selection.

Press ‘Enter’ to exit settings and return to ‘Home’ screen



Grass flail heads attachments only: Hood Warning screen will be displayed, use the navigation buttons to select ‘ACTIVATE’ or ‘DEACTIVATE’; refer to page 6 for important hood activation information.

Press ‘ENTER’ button to select your option; warning screen will exit and Home screen will be shown. For attachments other than grass flail heads the hood warning screen will not be displayed.

NOTICE

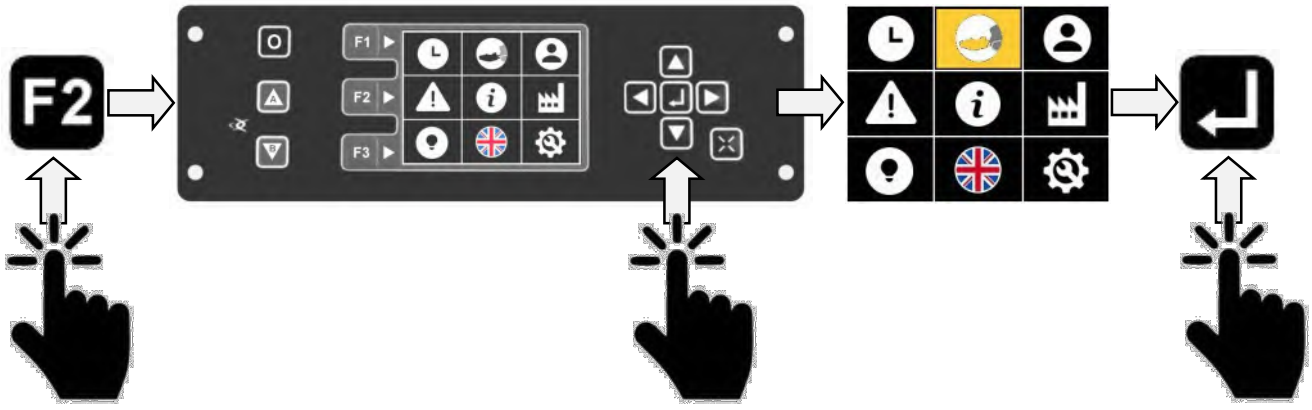
Selected attachment information will now be displayed in the ‘home’ screen notification area for 20 seconds; this information will also be shown for 20 seconds every time the machine is started.

Robo Aux

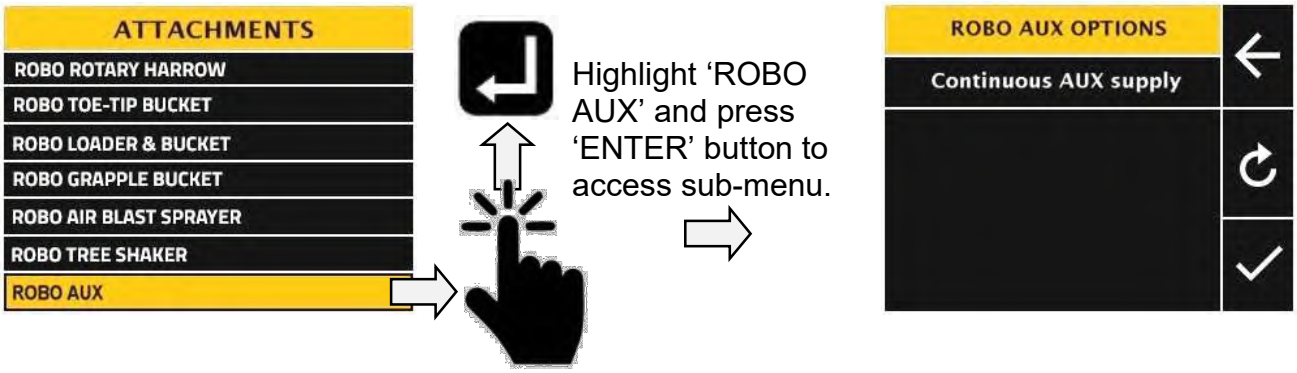
Selecting ‘ROBO AUX’ from the attachments list permits use of compatible machines that can be connected to the Robocut continuous auxiliary supply and operated via their own control unit. The Robocut auxiliary hydraulic system provides a continuous oil flow of up to 16 l/min.

The procedure for selecting this type of attachment is as follows;

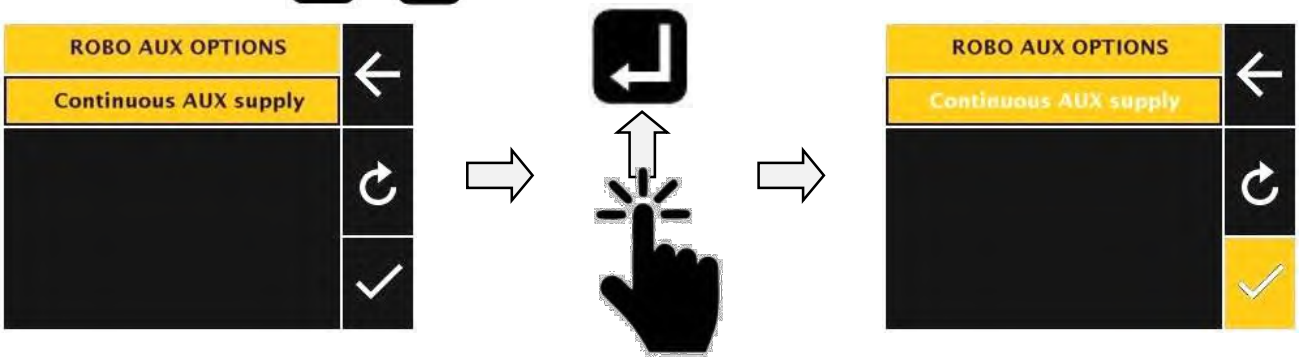
Press ‘F2’. Use arrow buttons to highlight ‘Attachment Settings’. Press ‘ENTER’ button.



Navigate to ‘ROBO AUX’ using page buttons A and B and navigation buttons ▼ and ▲

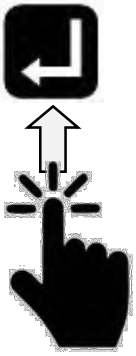


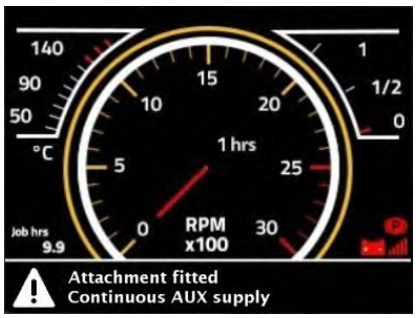
Use navigation button or **to select 'Continuous AUX supply'.**



With 'Continuous AUX supply' highlighted press 'ENTER' button to select; 'tick' icon will 'highlight' and option text colour will change from black to white to confirm selection.

Press 'Enter' to exit settings and return to 'Home' screen

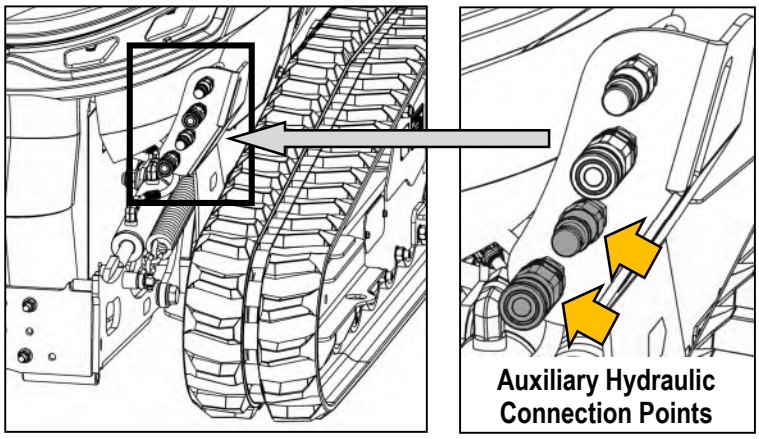




NOTICE

The selected attachment information will be displayed in the 'home' screen notification area for 20 seconds; this information will also be shown for 20 seconds every time the machine is started.

Hydraulic Connections for Auxiliary Attachments



Auxiliary Hydraulic Connection Points

Auxiliary Control Switch



ON/OFF switch for Auxiliary Service

Control direction will depend on the type of equipment fitted and connection installation.

Navigation Information for Settings Input

For speed of input, the control panel software has been designed to provide 'direct route' navigation through settings input by predominant use of the 'Enter' button; this works by automatically selecting the next default command icon that is required to quickly progress to the next stage of the settings process.

When inputting settings, users can deviate from the default navigation route at any time by using the navigation buttons to select an alternate command on the screen and confirming the selection using the 'Enter' button.

The common command icons shown below perform the function stated; select command icon and press 'Enter' button to confirm and activate the command.

Common Command Icons

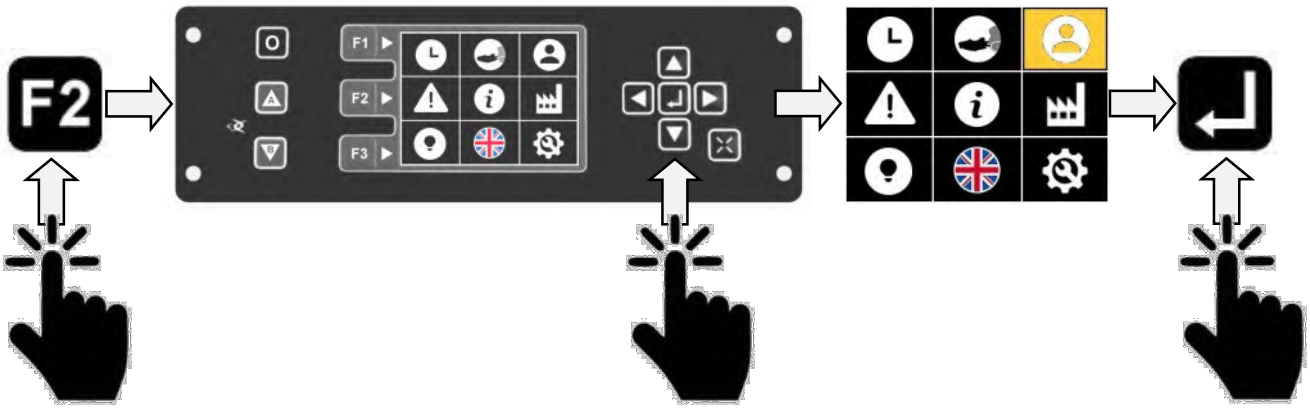
- Return to previous screen.
- Exit settings without change.
- Confirm /Accept.
- Decrease a setting figure.
- Increase a setting figure.

Settings Navigation Buttons

- F2 Main Settings Access.
- Navigation button *(down shown).*
- 'Enter' (Confirm) button.
- 'Page Up' button.
- 'Page Down' button.

User Settings

Press ‘F2’. **Use arrow buttons to highlight ‘User’ Settings.** **Press ‘Enter’ button.**

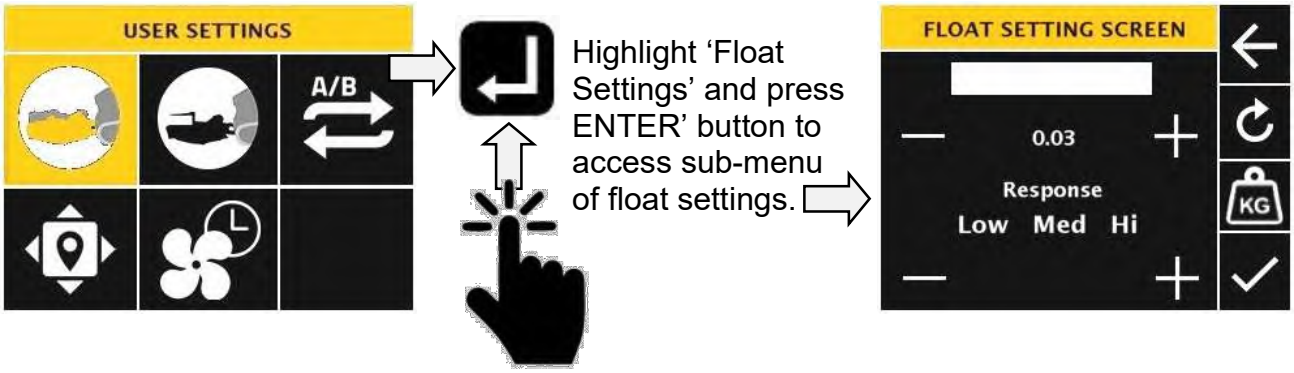


Use navigation buttons ▼ and ▲ to scroll to categories in User Setting menu.

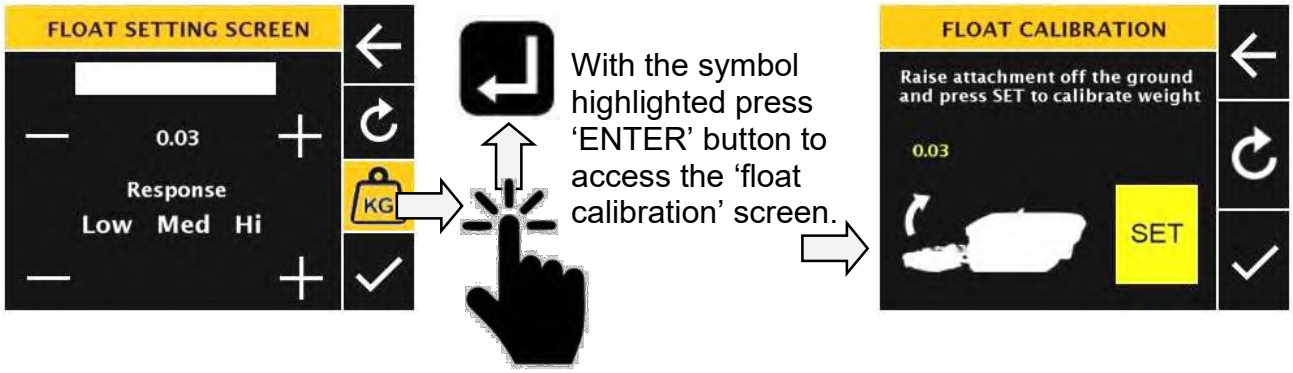
Float Settings – Automatic Calibration

Calibrating float settings for the specific mounted attachment.

The machine must be parked on a firm level site to accurately perform float calibration.

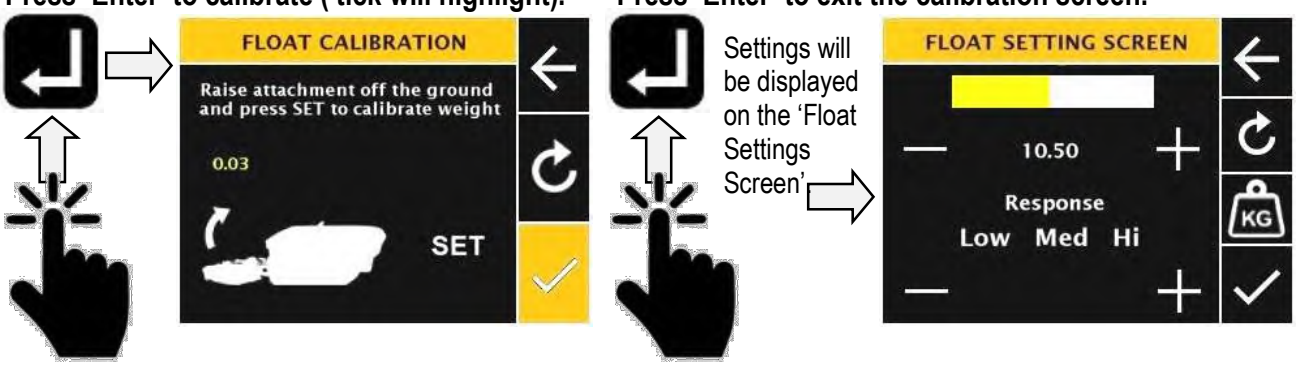


Use navigation buttons ▼ and ▲ to select the weight icon.



Operate remote control to raise the mounted attachment off the ground to maximum height.

Press ‘Enter’ to calibrate (‘tick will highlight). **Press ‘Enter’ to exit the calibration screen.**



Float Settings – Manual Adjustments

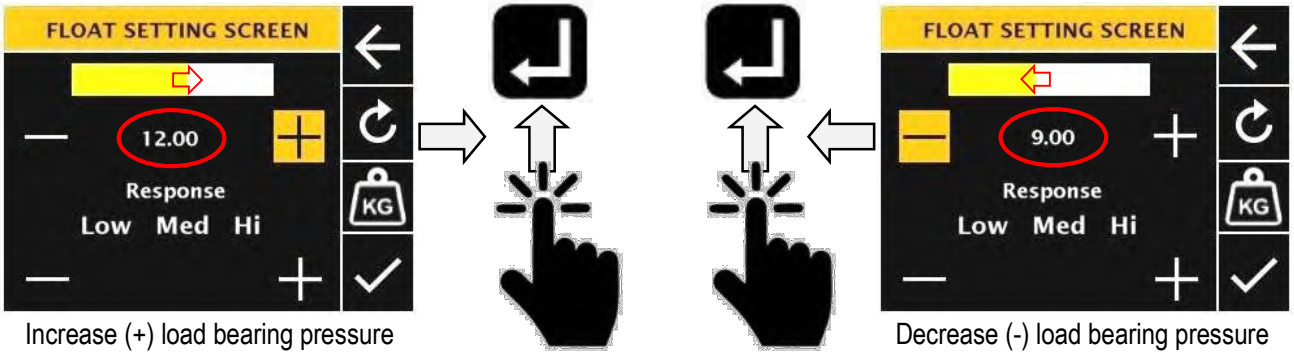
Float settings can be manually adjusted by the user to suit their individual requirements; these adjustments are performed in the 'Float Settings Screen'.

Adjustments available are;

- Increase/decrease the machines load bearing pressure.
- Float response speed; **LOW** (Recommended), **MEDIUM** or **HIGH**.

Supported Weight Adjustment:

Navigate to highlight the '+' or '-' icon then press 'Enter' button repeatedly to increase or decrease the machines load bearing pressure figure (bar).



Increase (+) load bearing pressure

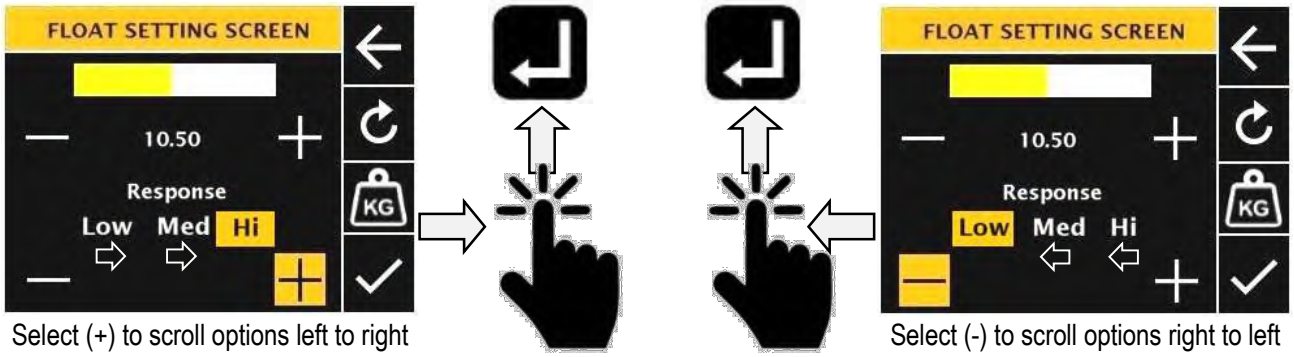
Press 'Enter' repeatedly to adjust

Decrease (-) load bearing pressure

Float Response Adjustment:

Navigate to highlight the '+' or '-' icon then press 'Enter' button to scroll the LOW ● MED ● HI options

Select '+' and use 'Enter' to scroll left to right and select '-' and use 'Enter' to scroll right to left.



Select (+) to scroll options left to right

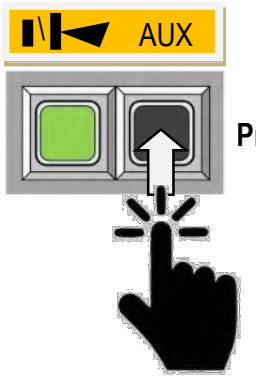
Press 'Enter' to select response speed

Select (-) to scroll options right to left

The default float response speed setting is ***LOW****: this is the recommended option for normal work and conditions.*

Navigate to the 'tick' icon and press 'Enter' to accept settings and exit the float settings screen.

Float Operation



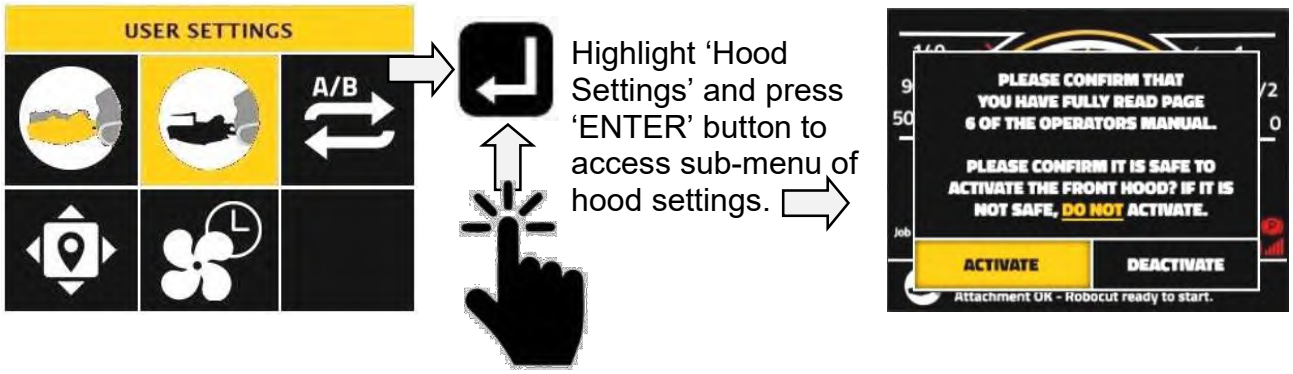
Press AUX button on remote control to ACTIVATE or DEACTIVATE 'float' feature.

INFO Unless subsequently changed, when float has been calibrated, and/or individual float settings entered, the settings for that particular attachment will remain in the systems memory, even if it is removed from the machine and re-mounted at a later date.

Front Hood Activate / Deactivate Settings

Allows activation or deactivation of front hood operation on grass flail heads.

When a grass flail head is mounted on the machine the hood activate/deactivate screen will automatically be displayed every time the machine is switched on.



⚠WARNING

It is the operator's responsibility to ensure all safety conditions are met before selecting the option to activate the hood. Operators of this machine are responsible for the safety of all persons and property in the vicinity of the working machine; if doubt exists work should only be performed with the hood deactivated.

Use navigation buttons ◀ or ▶ to select 'ACTIVATE' or 'DEACTIVATE'.

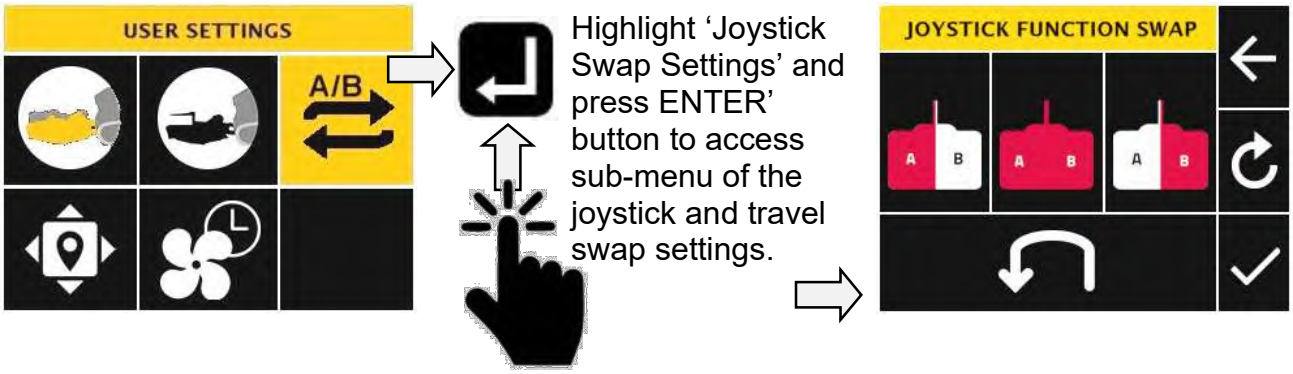
Press 'Enter' to confirm setting and exit to 'Home' screen.

INFO On machines fitted with an attachment other than grass flail head, the hood settings screen will perform no function and the 'hood warning' screen will not be displayed when the machine is switched on.

Joystick Function Swap & Travel Swap Settings

Allows users to customise the joystick functions and/or machine forward travel direction for personal preference or to perform a specific task.

INFO Changes to these settings are only retained in the systems memory for the duration of the operating period - if the machine is switched off, all changes to the joystick and travel direction settings will revert to default; this is to ensure that controls operate in a familiar manner for all users at start-up.



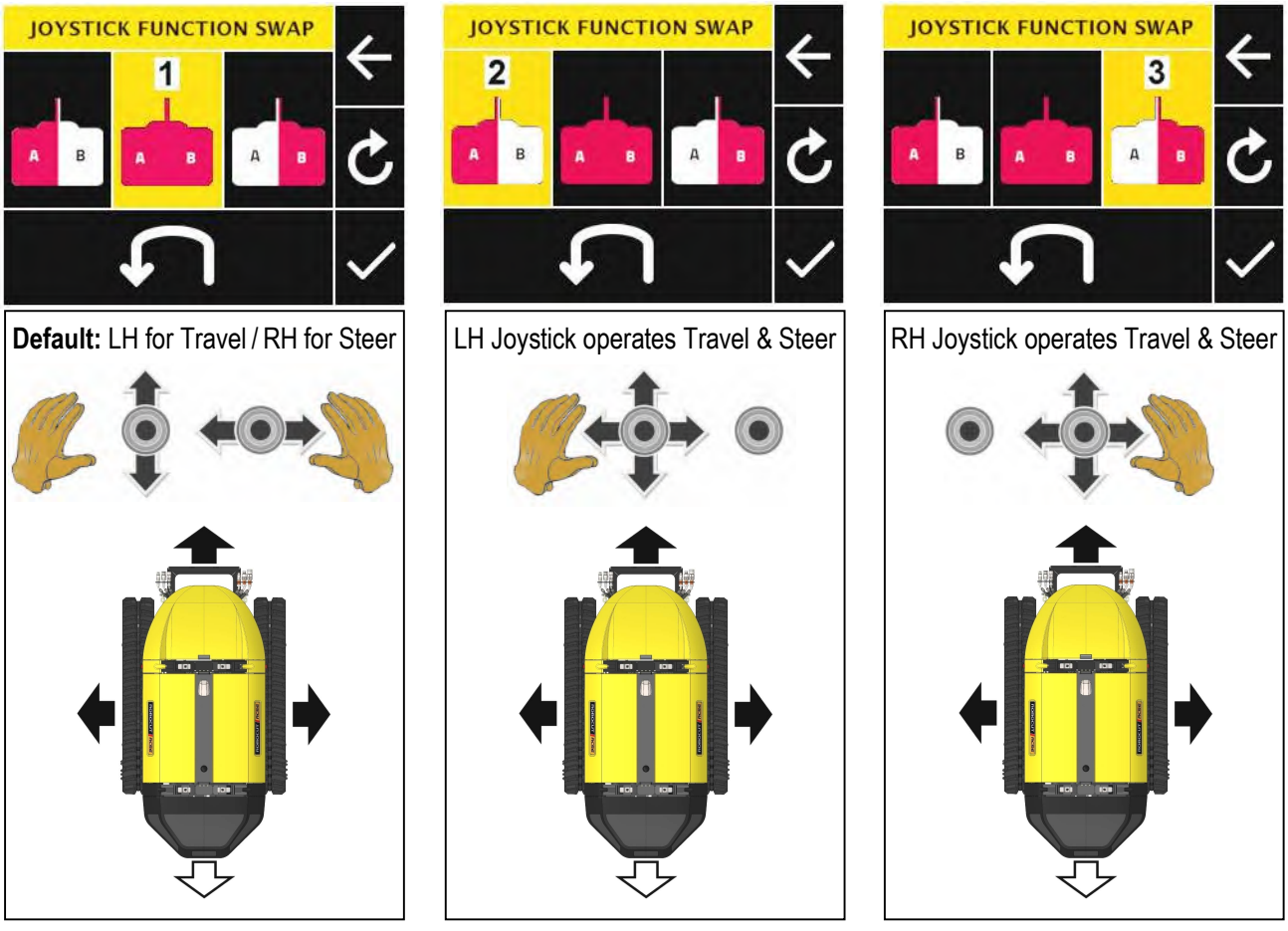
For joystick function swap refer to the settings below - if joystick function swap and travel direction swap is required refer to settings on the following page.

Joystick Function Options for 'Forward Drive' Mode

1. LH Joystick operates Travel / RH Joystick operates Steering **(Default).**
2. LH Joystick operates Travel & Steering.
3. RH Joystick operates Travel & Steering.

Joystick Function Swap Settings

Use navigation buttons to highlight the custom joystick setting.



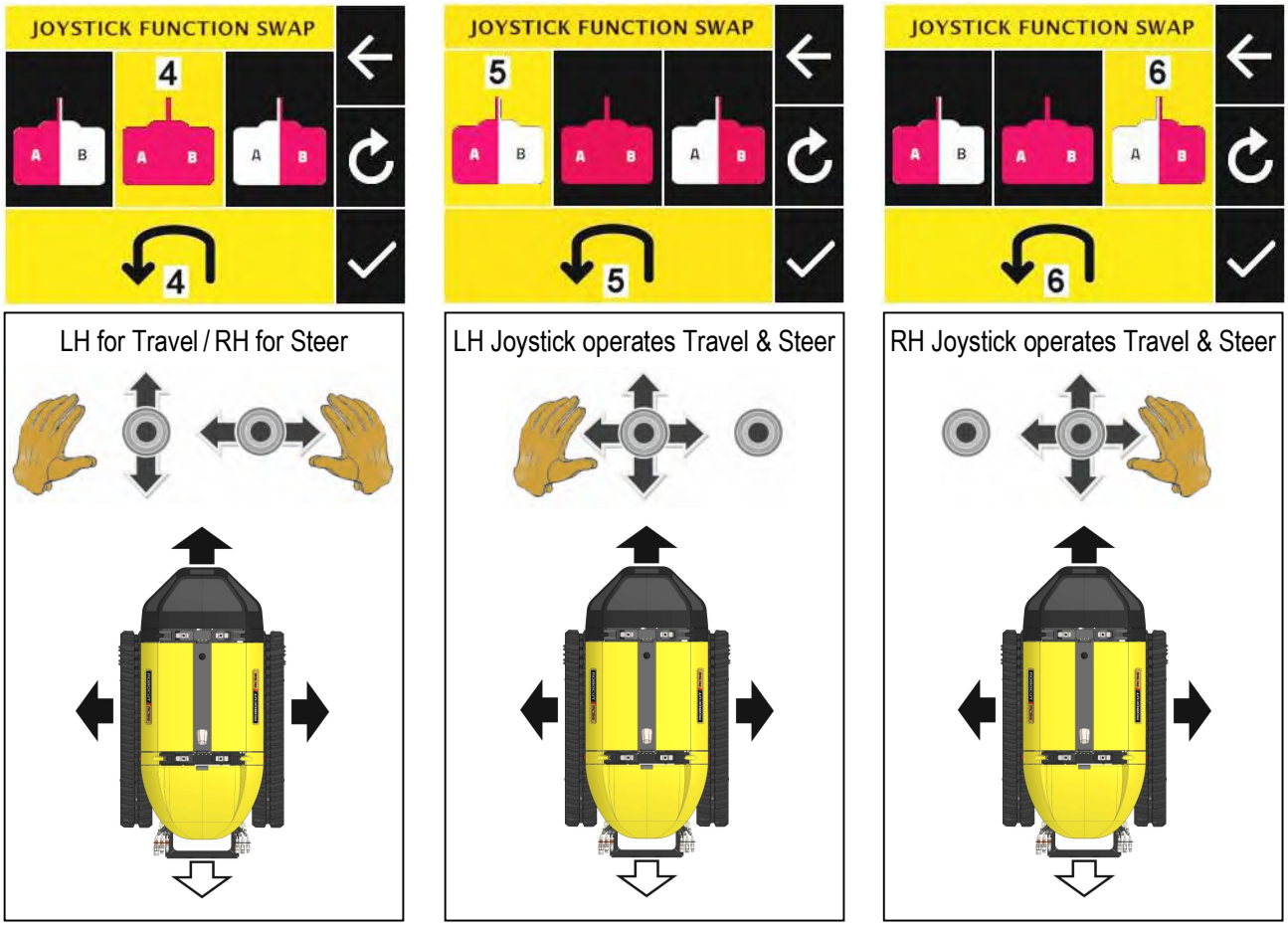
Press 'Enter' to highlight 'tick', press 'Enter' again to confirm setting and exit to the 'Home' screen.

Joystick Function Options for 'Reverse Drive' Mode

4. LH Joystick operates Travel / RH Joystick operates Steering – machine drives in reverse direction.
5. LH Joystick operates Travel & Steering – machine drives in reverse direction.
6. RH Joystick operates Travel & Steering – machine drives in reverse direction.

Joystick Function Swap Settings & Reverse Drive Selection

Use navigation buttons to highlight the required joystick setting and travel direction swap.



Press 'Enter' to highlight 'tick', press 'Enter' again to confirm setting and exit to the 'Home' screen.

⚠WARNING

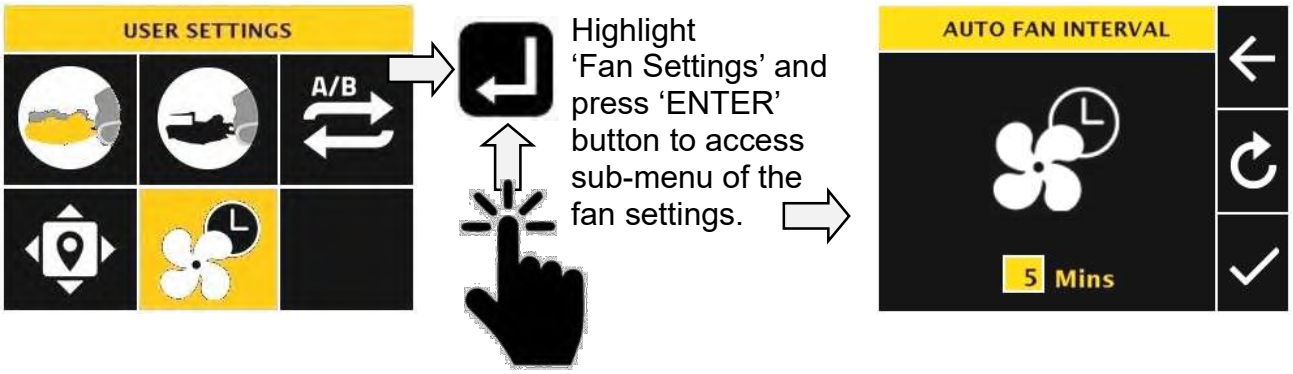
When operating the machine with joystick and/or travel direction swapped, some or all of the joystick functions will not match the control information decals on the remote-control unit; users must ensure they remain aware of this at all times when using the machine with the joystick controls reassigned. These settings will automatically return to default when machine is re-started.

Reversing Fan Settings

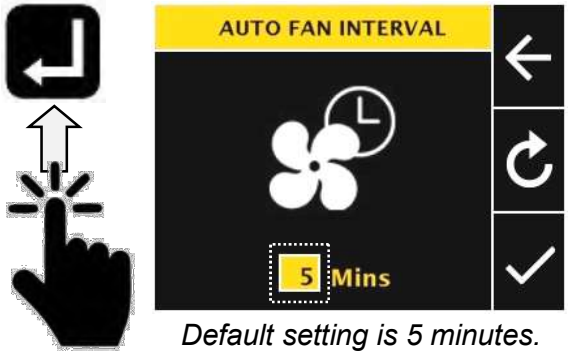
Allows users to customise the pre-set time interval for the automatic reversing fan.

INFO The default interval time for the fan reversal feature is 5 minutes; this can be changed by the user to a time interval of their choice and can be set to any figure between 3 and 30 minutes. Changes made will remain at the new setting unless subsequently changed or a global reset performed.

Interval Time Setting

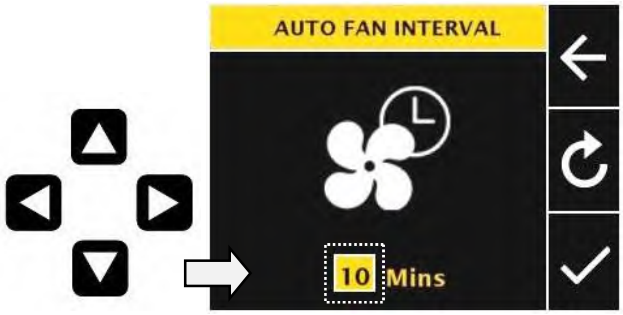


Press 'Enter' to edit time.



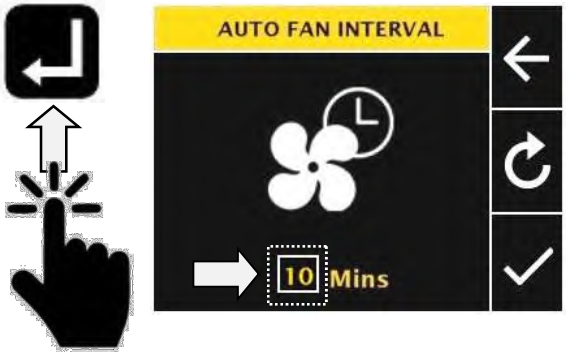
Default setting is 5 minutes.

Use navigation buttons to adjust displayed time.

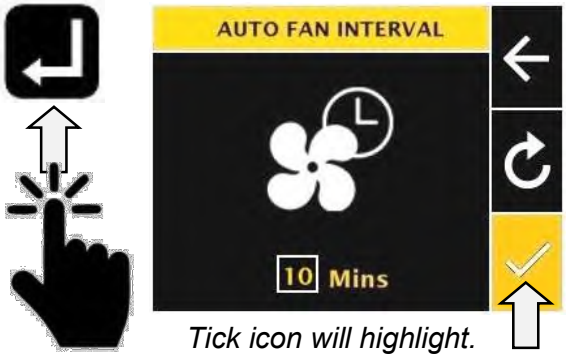


Set required time interval.
(Options are 3 to 30 minutes)

Press 'Enter' to confirm time.

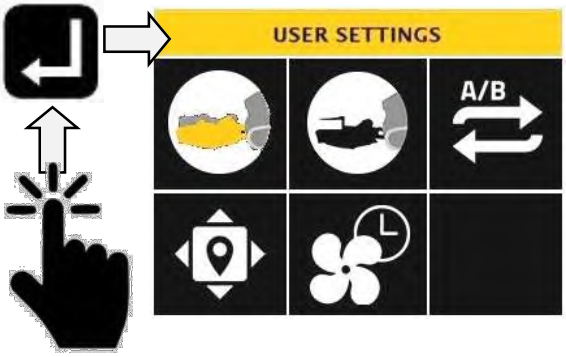


Press 'Enter' to activate the fan time setting.



Tick icon will highlight.

Press 'Enter' to accept and exit the screen.



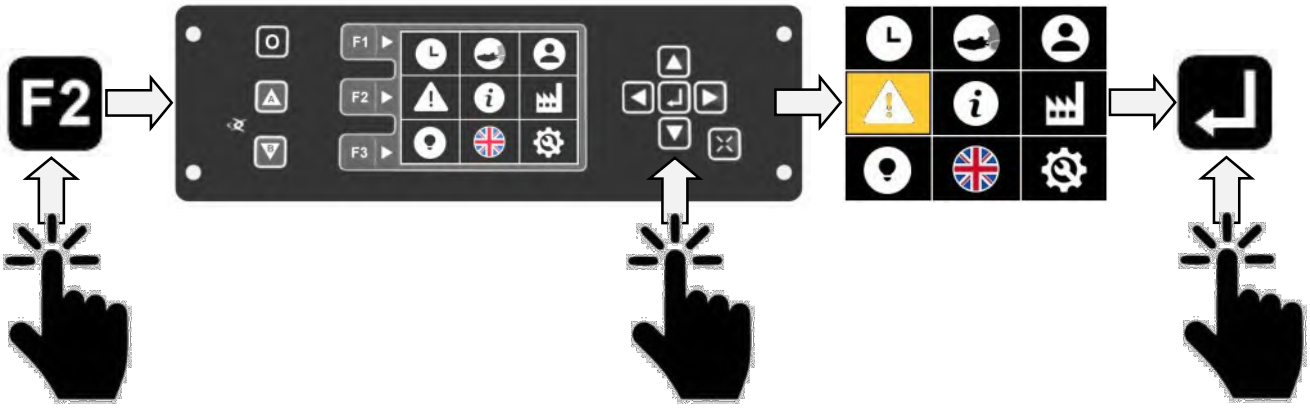
⚠CAUTION

The automatic reversing fan system is designed to reduce the build-up of dirt and dust in the radiator matrix; it is advisable to set the interval time to a lower figure that operates fan reversal more frequently, this is especially important when operating in dry and dusty conditions.

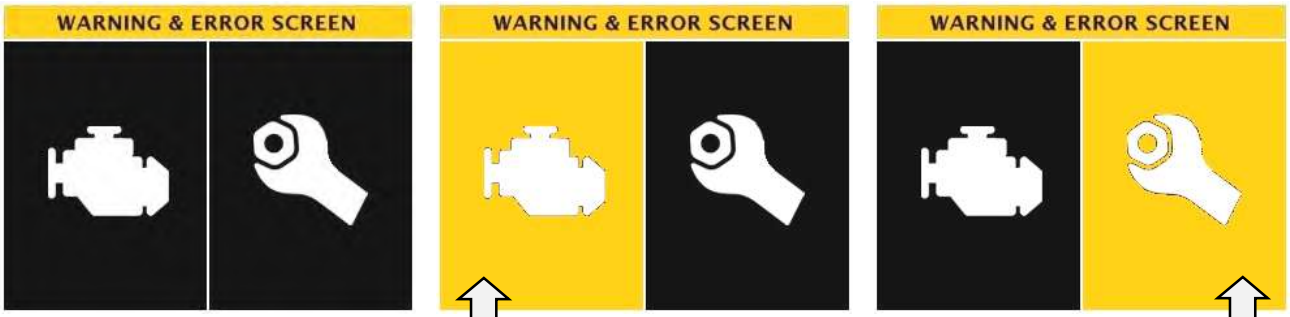
Warning & Error Screens

These screens display warnings and/or error information that is received from the engine and machine management systems.

Press 'F2'. **Use arrow buttons to highlight 'Warning Settings'.** **Press 'ENTER' button.**



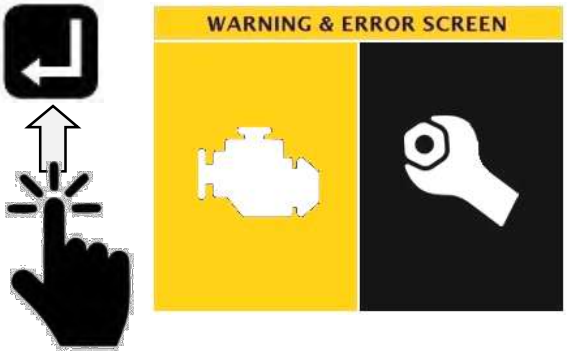
Category menu will be displayed. **Use navigation buttons to highlight required category.**



Engine **Machine** Engine menu selected Machine menu selected

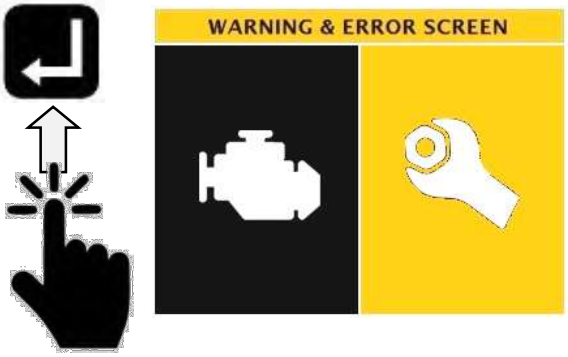
Engine Menu

Press 'Enter' to view 'Engine Faults Screen'.



Machine Menu

Press 'Enter' to view 'Vehicle Errors Screen'.



Engine faults display screen:

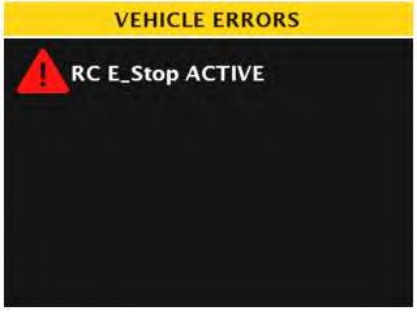
ENGINE FAULTS

	FMI	SPN	Count
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0

⚠CAUTION

If an engine fault is displayed the machine must be switched off immediately and the fault code reported to your local dealer.
When an engine fault occurs the engine will enter 'limp mode'; the machine should not be used until the fault has been rectified.

Vehicle errors display screen:

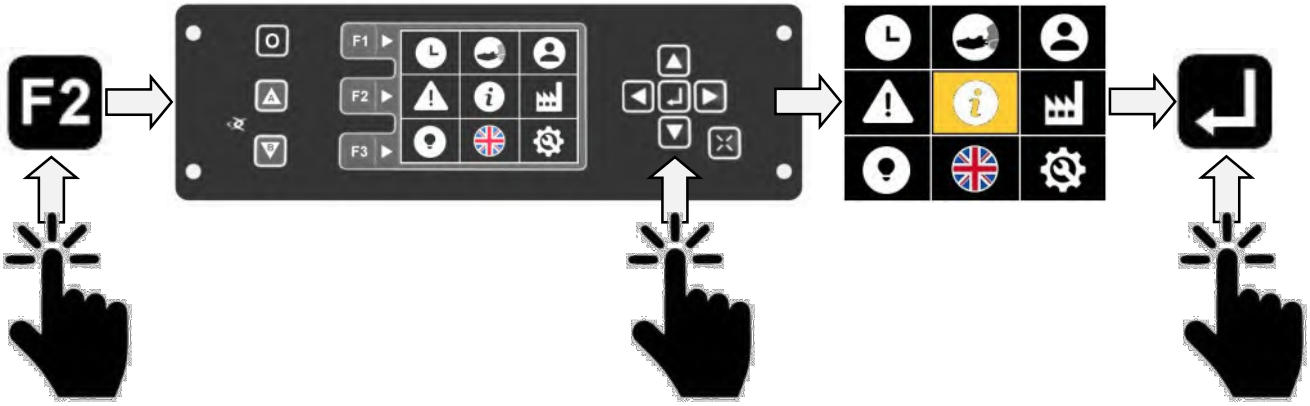


If a vehicle error is displayed, the cause should be checked, and appropriate action taken to rectify the issue and clear the error. The example error shown above (**RC E-Stop ACTIVE**) is a message the system reports when the machine is not detecting a wireless signal from the remote-control unit; switching the remote-control unit 'ON' and synchronising the control with the machine will clear this error message.

Information Screens

Machine identification and service information / report screens.

Press ‘F2’. **Use arrow buttons to highlight ‘Information Settings’.** **Press ‘ENTER’ button.**

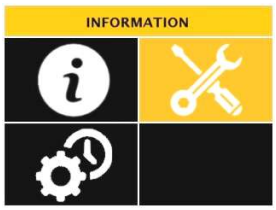


Category menu will be displayed. **Use navigation buttons to select category.**





Machine Information
Model and Serial No.
Software version info.



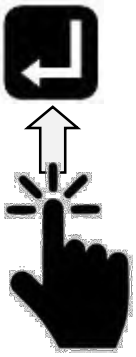
Service History
Machine Service log;
Service date and No.



Service
Service checklists.
Service verification.

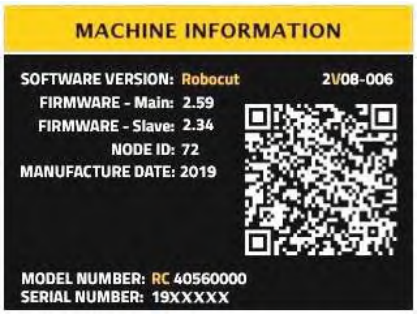
Machine Information

Press ‘Enter’ to access Machine Information screen.





Software details: ▶
Firmware details: ▶
Manufacture date: ▶
QR code: *direct link to PDF operator manual*
Model & Serial No. ▶

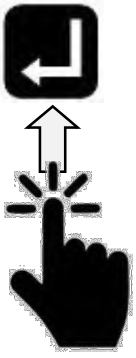


Press ‘Enter’ to exit screen

INFO *The QR code on the information screen provides direct access to the latest online version of this operator manual; the manual can be read ‘online’ or downloaded to your device.*

Service History

Press ‘Enter’ to access Service History screen.





Service date & No. ▶

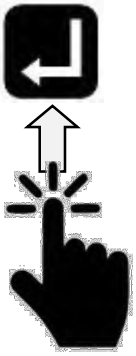


Press ‘Enter’ to exit screen

INFO *When the machine is serviced the date is recorded and displayed on the service history screen; for reference purposes, the screen retains a list of the last 6 service dates.*

Service Screen

Press 'Enter' to access Service screen.





Use navigation buttons to select 'Checks' category.

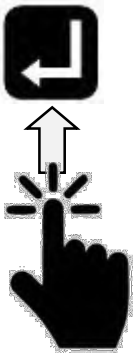
Service Counter ▶

Service Verification ▶

Service checklists ▶

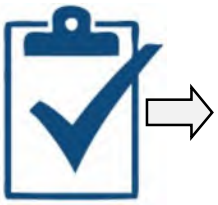


Press 'Enter' to access 'Daily Checks' information.

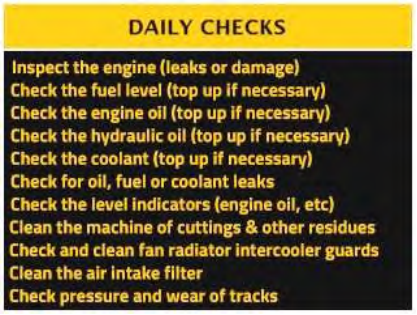




Check all items daily before and after use

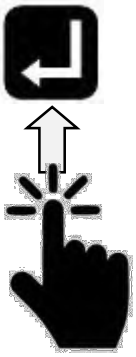


Daily Checklist



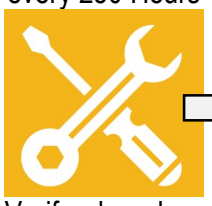
Press 'Enter' to exit screen.

Press 'Enter' to access '250+ hrs Checks' information.





Service as listed every 250 Hours



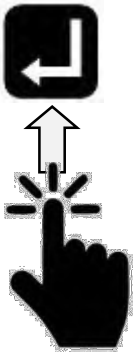
Verify when done

250 Hour Service Checklist



Press 'Enter' to exit screen.

Press 'Enter' to access '500+ hrs Checks' information.





Service as listed every 500 Hours



Verify when done

500 Hour Service Checklist



Press 'Enter' to exit screen.

INFO *When a 250- or 500-hour service has been performed it must be verified to record the service date; refer to following page for service verification instructions.*

CAUTION HOT SURFACE **Care must be taken when checking or servicing the machine immediately after the engine has been running; always allow hot components and engine fluids to cool down to a safe temperature before attempting to perform machine checks or service tasks.**

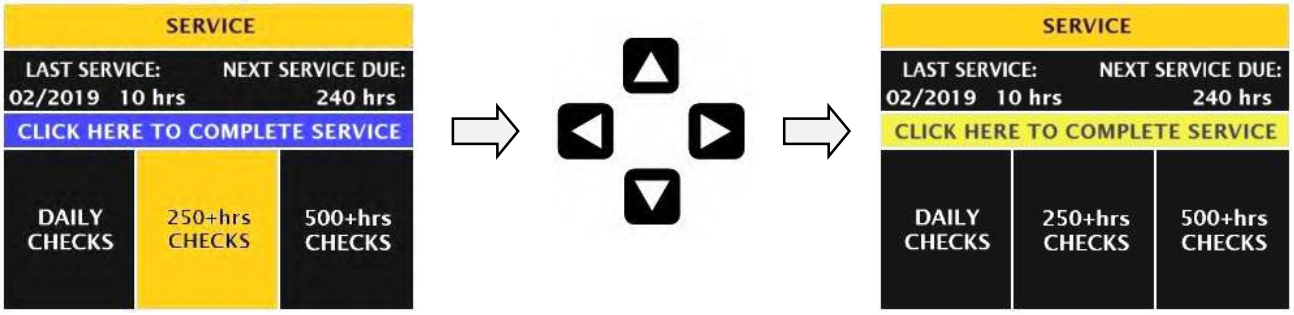
Service Verification

When a machine service has been completed, it must be verified to confirm and record the service date.

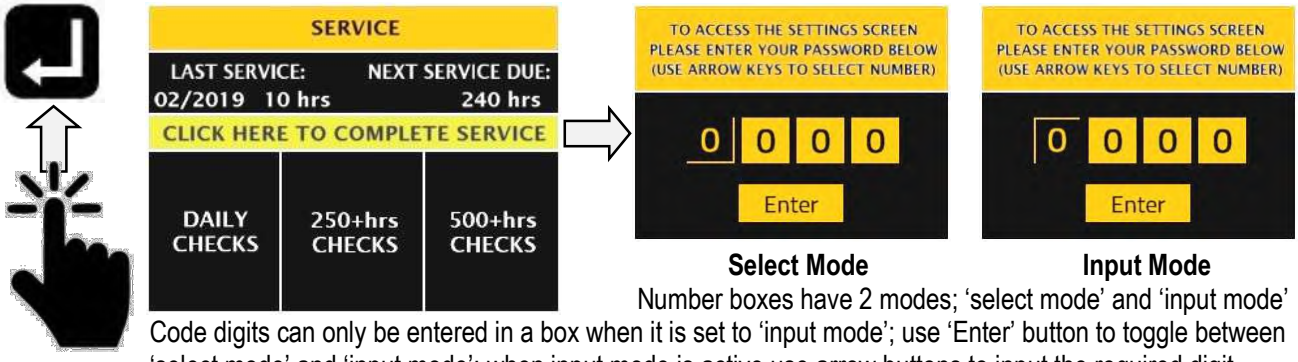
INFO **Verification of a service requires a 'Service Validation Code' which must be entered during the verification procedure; contact your dealer to obtain the 4 digit service code.**

Service Verification Procedure

Use navigation buttons to select the 'Complete Service' section of the service screen.



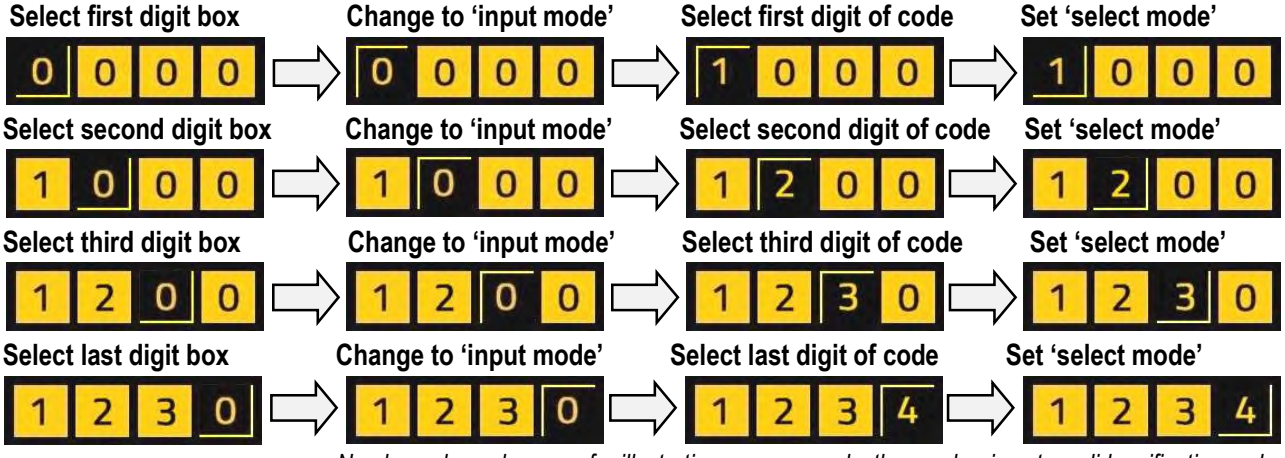
Press 'Enter' to access the service code input screen.



Select Mode **Input Mode**

Number boxes have 2 modes; 'select mode' and 'input mode'

Code digits can only be entered in a box when it is set to 'input mode'; use 'Enter' button to toggle between 'select mode' and 'input mode'; when input mode is active use arrow buttons to input the required digit.



Numbers shown here are for illustration purposes only; the number is not a valid verification code.

Navigate to the 'Enter' icon.

Press 'Enter' to access verification screen.



Press 'Enter' to accept and close.

Date will be logged in service history.

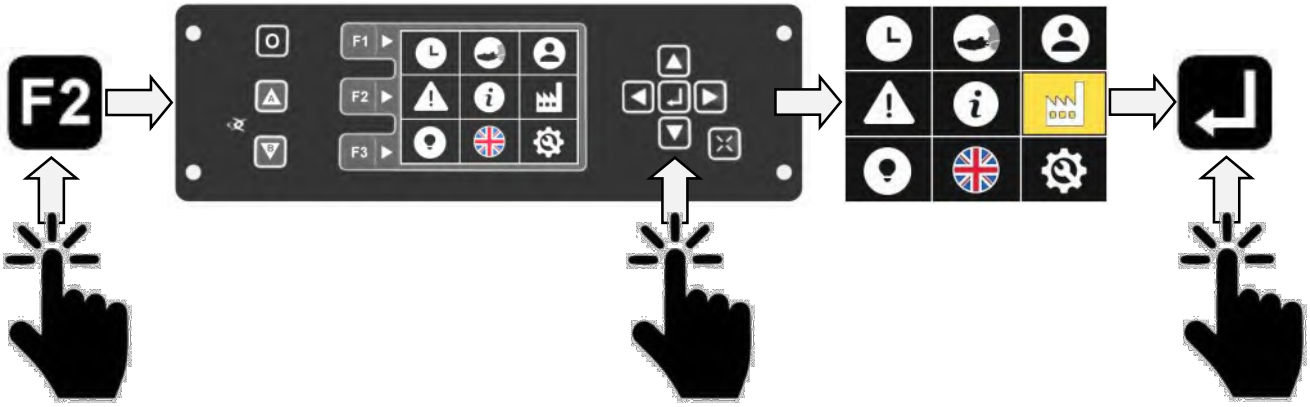
Global Reset

Restores all user settings to their original factory default values.

INFO Global reset only restores settings that can be customised by the user, it will not reset any hour counters, service history information or manufacturer settings; these will remain unaffected.

The procedure for performing ‘global reset’ is as follows;

Press ‘F2’. **Use arrow buttons to highlight ‘Global Reset’.** **Press ‘Enter’ button.**



Reset screen will display a ‘warning message’; *you can decline or accept at this point.*

To perform reset; highlight ‘YES’ on screen. **Press ‘Enter’ to perform reset and exit screen.**



User settings restored to default.

To decline reset; highlight ‘NO’ on screen **Press ‘Enter’ to exit screen without resetting.**

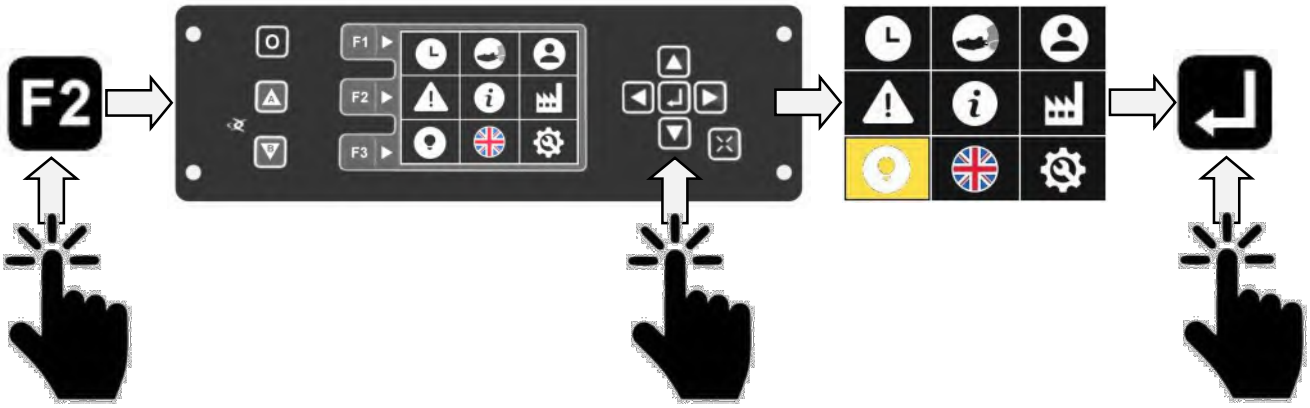


User settings remain unchanged.

Lights Settings

These setting allow the user to customise the machines lighting system. Machines are equipped with 3 types of lights and features pattern setting options for the strobe lights. The procedures for changing light settings are shown below:

Press 'F2'. **Use arrow buttons to highlight 'Light Settings'.** **Press 'Enter' button.**



Lighting Screen Menu



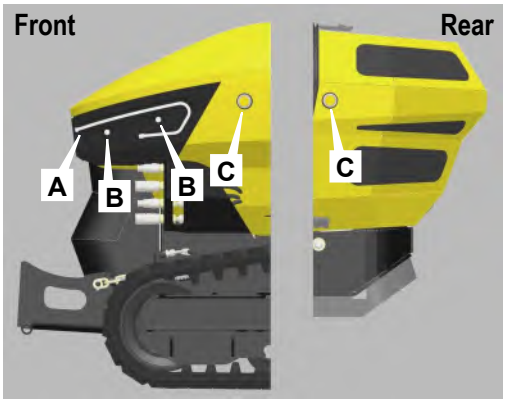
◄ LED day lights **(A)**

◄ Front spot lights **(B)**

◄ Strobe lights **(C)**

◄ Strobe light settings

Light identification and status



Use arrow buttons to select light symbol; 'Enter' button operates as 'toggle' switch for ON and OFF.

Day Lights ON/OFF

Select 'day lights' symbol. **Press 'Enter' button to switch lights 'ON' or 'OFF' (toggle feature).**



By default, day lights are pre-set to switch 'ON' at start up and operate in 2 indication modes; if remote control is un-synchronised the lights will 'pulse', when remote control is synchronised the lights will be 'constant on'.

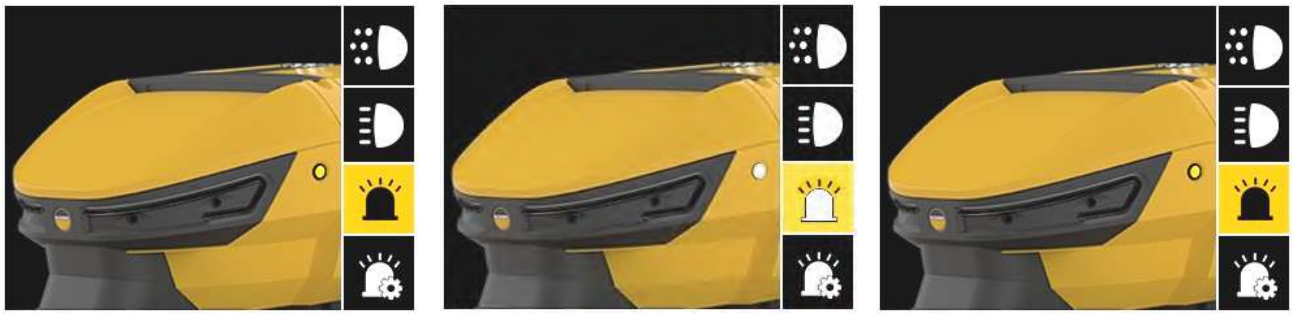
Spot Lights ON/OFF

Select 'spot lights' symbol. **Press 'Enter' button to switch lights 'ON' or 'OFF' (toggle feature).**



Strobe Lights ON/OFF

Select 'strobe lights' symbol. **Press 'Enter' button to switch lights 'ON' or 'OFF' (toggle feature).**



The lighting systems operate independently; this allows any combination of lights to be selected and used. When multiple lights are selected the screen icon for each active set will be highlighted.

Strobe Light Custom Settings

Strobe lights can be pre-set to operate in a specific 'flash' pattern; a menu of different patterns is available in the 'strobe light settings' screen.

Strobe Light Pattern Selection

Access to the strobe light setting is via the settings icon on the main lighting screen.

Select 'strobe light settings' icon. **Press 'Enter' to display the 'strobe light settings' screen.**



STROBE LIGHT SETTINGS	
RANDOM (DEFAULT)	QUAD 75FPM
ECE 65 125FPM SINGLE	QUINT 75FPM
ECE 65 125FPM DOUBLE	ULTRA 75FPM
ECE 65 125FPM QUAD	SINGLE-QUAD 75FPM
ECE 65 125FPM SINGLE-QUAD	SINGLE-H/L 90FPM
SINGLE 60FPM	STEADY 4
DOUBLE 75FPM	TOTAL RESET

Current setting will appear 'highlighted'.

Use 'arrow buttons' to navigate the light settings menu.

Select light pattern required. **Press 'Enter' to activate and exit the settings screen.**

STROBE LIGHT SETTINGS	
RANDOM (DEFAULT)	QUAD 75FPM
ECE 65 125FPM SINGLE	QUINT 75FPM
ECE 65 125FPM DOUBLE	ULTRA 75FPM
ECE 65 125FPM QUAD	SINGLE-QUAD 75FPM
ECE 65 125FPM SINGLE-QUAD	SINGLE-H/L 90FPM
SINGLE 60FPM	STEADY 4
DOUBLE 75FPM	TOTAL RESET

By default, strobe lights are pre-set to 'Random'; in this mode the system automatically cycles through the various light patterns and will not appear to flash in a recognisable sequence.

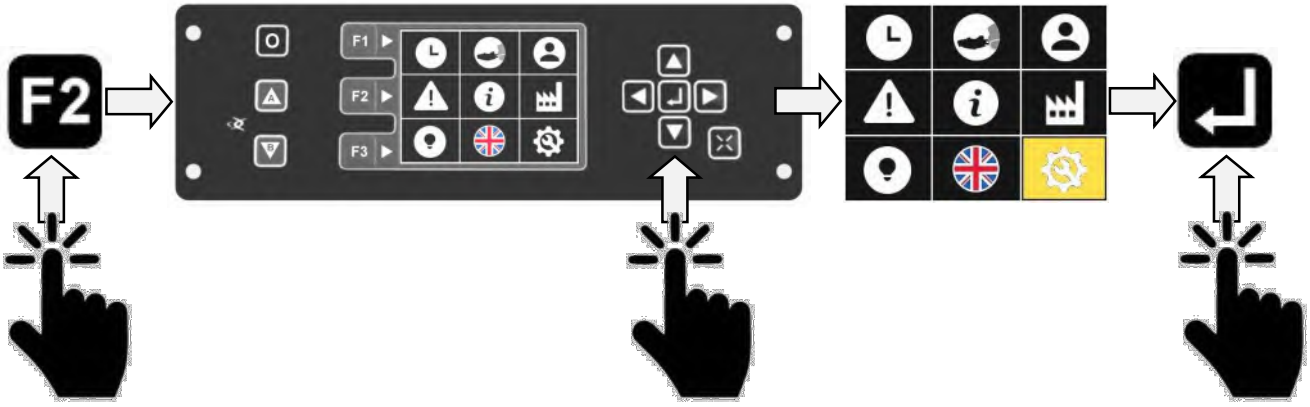
To return to default setting; select 'Random (Default)' or 'Total Reset' from the menu and press 'Enter'.

Service Settings

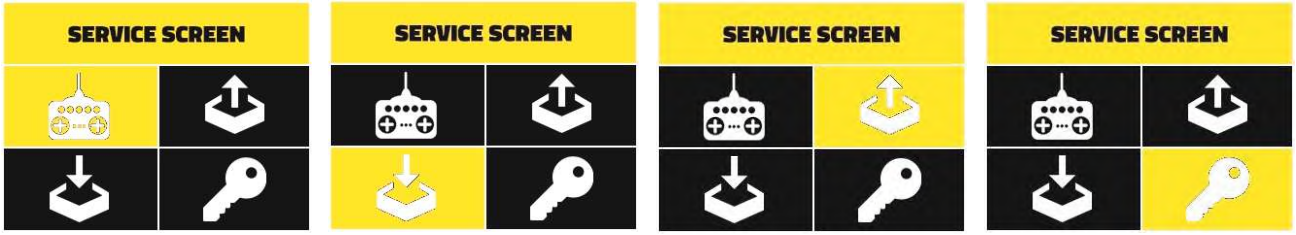
The service settings are primarily for use by McConnel Service or a registered dealer. These screens are accessible to the user but are restricted to 'read only' access.
Users should only need to refer to these screens in the event of a machine malfunction where diagnostic information or data is requested to identify a system error or fault.

The procedure to access the service screens is as follows:

Press 'F2'. **Use arrow buttons to highlight 'Service Settings'.** **Press 'Enter' button.**



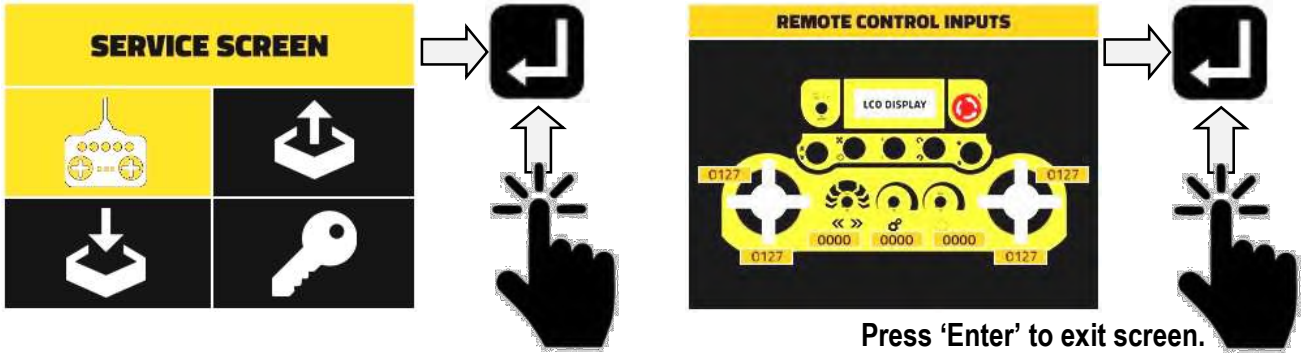
Service screen will be displayed; *'read only' access to the service sub-menus is available from this screen.*



Remote Control Inputs | Vehicle Inputs | Vehicle Outputs | Service Access

Remote Control Inputs

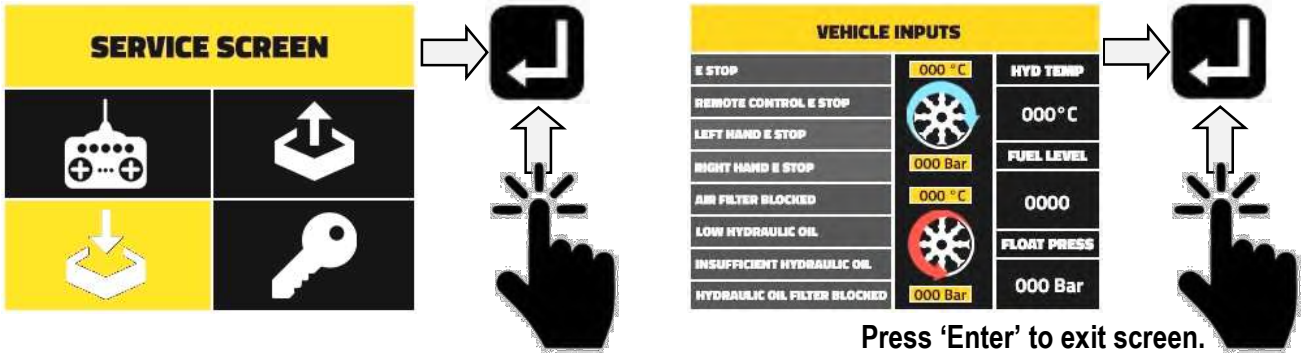
Select 'remote control inputs'. **Press 'Enter' to access remote control input reporting screen.**



Press 'Enter' to exit screen.

Vehicle Inputs

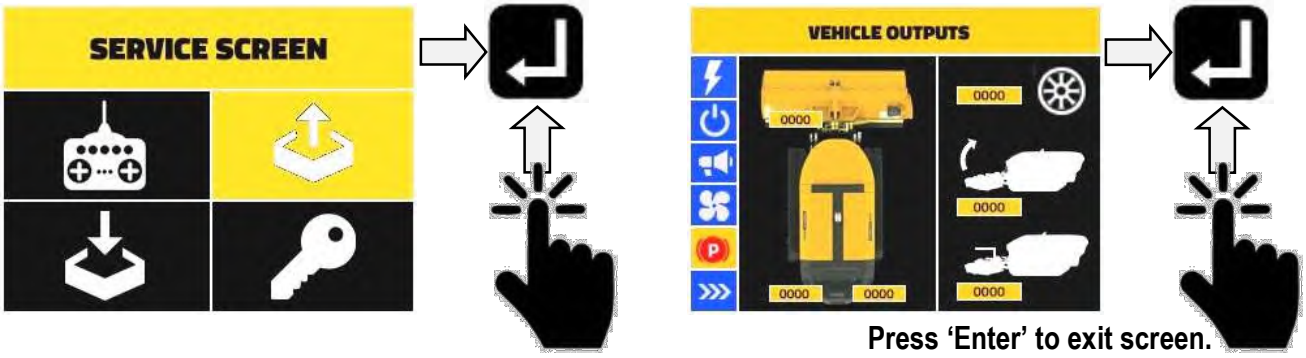
Select 'vehicle inputs'. **Press 'Enter' to access vehicle inputs reporting screen.**



Press 'Enter' to exit screen.

Vehicle Outputs

Select ‘vehicle outputs’. **Press ‘Enter’ to access vehicle outputs reporting screen.**



Press ‘Enter’ to exit screen.

Service Access *(Factory and Dealer access only)*

Select ‘service access’. **Press ‘Enter’ to display service access password screen.**



⚠WARNING **Checks and inspections must be performed with machine parked on firm level ground with engine off and isolator key removed.**

Refer to T600/T800 Service Schedule for full details of maintenance tasks required for this machine.

The following checks and tasks should be performed daily before using the machine;

- Check all safety guarding is in good condition and fitted correctly.
- Check nuts and bolts for tightness, retighten if required.
- Check track condition and tension, re-tension if required.
- Check oil, coolant and fuel levels, replenish if required.
- Check filters – clean or replace if required.
- Check radiator matrix is clean, clear blockages if required using compressed air.
- Lubricate machine as per details stated in the maintenance section.
- Check attached equipment for damaged and/or missing tools, replace if required before use.
- Check attached equipment as stated in the user manual for that machine.

⚠CAUTION

Before attempting to start the engine ensure you have read and understood the manual and observed all safety instructions surrounding use of the engine and the machine.

⚠WARNING

Engine must only be started in open air, never in an enclosed environment.

Before Starting

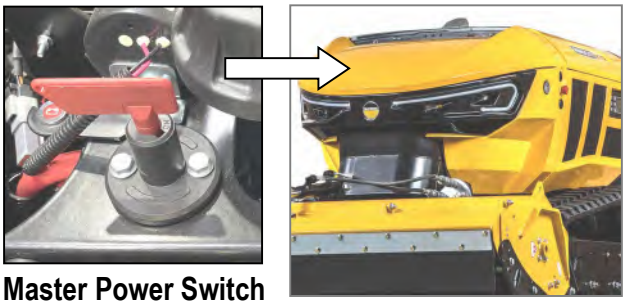
- *Observe all safety instructions.*
- *Ensure machine is in the open air and not in an enclosed environment.*
- *Check fuel level; replenish if required.*

Engine Starting Procedure

Turn master power switch to '**ON**' position - *switch is located in the front compartment.*

IMPORTANT!

See following page for important information regarding 'switch off' operation of the master power switch on machines with DPF engines.

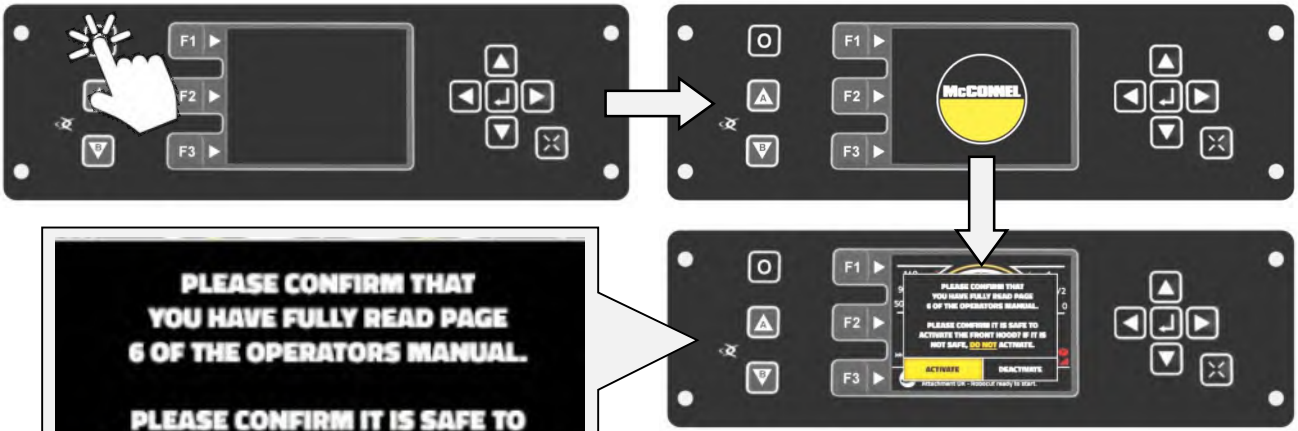


Master Power Switch

Control Panel Activation

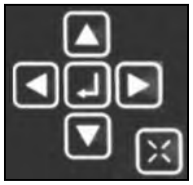
Press 'ON' button to activate the control panel on the machine; screen will switch on and the machine's front and rear lighting will illuminate in 'pulse' mode to indicate the machine is switched on but not synchronised to the remote-control unit.

On machines that are fitted with a 'Grass Flail Head' the following safety warning stage is applicable – on machines mounted with any other type of attachment this warning is not shown and the 'home' screen will automatically be displayed.



If a grass flail head is attached to the machine a 'front hood warning screen' will be displayed; this screen requires the operator to select 'activation' or 'deactivation' of the front hood control function before allowing machine synchronisation.

Navigation and selection of the on-screen functions is via the 'directional arrow' buttons and central 'enter' button located on the right-hand side of the control panel.





Home Screen

Machine and Remote-Control Synchronisation

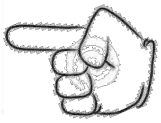
Check all E-Stop buttons are in their deactivated (out) position; any E-Stop buttons that are active must be reset to deactivate the stop.



HETRONIC CONTROLS ONLY - for AUTEC controls refer to the AUTEC control unit pages.



Switch the remote-control unit 'ON' by turning the power switch clockwise; control unit will emit a series of 'buzzing' sounds and screen will display the 'unsynchronised' symbol.



Remote Control Unit ON/OFF



Unsynchronised Status



Press GREEN button on right-hand side of remote-control unit to pair the remote unit with the machine; horn will sound and lights on machine will change to 'permanently on' mode.

When synchronised, the remote-control unit screen will show basic machine information.



Synchronised Status

Starting the Engine



Engine Start: Hold engine switch in 'UP' position until the engine starts.



Release switch when engine starts; the switch will return to its central position.

Stopping the Engine



Engine STOP: Hold switch in 'DOWN' position until the engine stops.

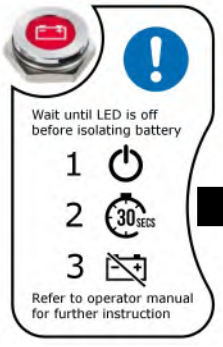


Release switch when engine stops; the switch will return to its central position.

When the machine is not in operation, or it is left unattended, the master power switch should be turned off to isolate the battery. Remove the master power switch key to prevent unauthorised use. **For DPF engine machines refer to the important information below.**

Master Power Switch - DPF Engine Machines

Machines with DPF engines have a master power LED light; when DPF engines are switched off the engine management system requires a period of time to perform its 'shut down' procedure - this can be up to 30 seconds. When the 'system shut down' has completed the power LED light will switch off; the master power switch can now be switched off. Failure to observe this will result in system errors.





Master Power Switch

Emergency Stopping (E-Stop)



In emergency situations, the engine and all machine functions can be immediately stopped by pressing any of the E-Stop buttons.

E-Stop buttons are located on the remote-control unit and on each side of the machine.

When an E-Stop button is pressed, all machine movements and functions will immediately cease and the engine will automatically switch off.

REGENERATION PROCEDURE (DPF Stage 5 Engines only)

NOTE: The following procedure only applies to machines with DPF stage 5 engines.

Regeneration Settings
Machines have 2 regeneration settings that can be pre-set by the operator;

Dynamic Regeneration:
Regeneration is automatically performed whilst machine is in work.

Static Regeneration:
Regeneration is manually performed by the operator with the machine 'parked up'.

⚠WARNING

Hot exhaust gases are emitted from the machine during the regeneration process; if machines are working in dry or arid conditions the regeneration setting should be set to 'static regeneration' mode and the machine must be parked up in a safe location where the regeneration process will not risk causing a fire.

By default, machines are pre-set to 'Dynamic Regeneration' mode; this mode requires no action by the operator, the procedure will be automatically performed whilst the machine continues to work.
If the machine is set to 'Static Regeneration' mode; operators must manually perform the procedure as stated below.

Regeneration Interval
Regeneration must be performed after **every 60 hours** of operation, or when **'Soot Load Level' reaches 100%**, *whichever occurs first*.

Regeneration Warning
A regeneration warning will automatically be displayed on the screen of the control panel at 60-hour intervals or as soon as the 'soot load level' reaches 100%; *the operator should seek to perform the regeneration procedure at the earliest opportunity.*

If operation of the machine continues without the regeneration being performed, a second warning will occur when the soot level loading reaches 112%, at this point the system will disable the rotor and sound the horn; *regeneration procedure must now be performed in order to permit further operation.*

Preparations for Static Regeneration
Prior to performing static regeneration, ensure the following steps have been carried out;

- Clean dust, debris, and vegetation from the machine.
- Park machine outdoors in a safe, well ventilated, non-flammable environment.
- Remove machine covers.
- Ensure bystanders/passers-by are kept at a safe distance from the machine.

Static Regeneration Procedure

1) Start engine.
2) Enter the 'User Settings' menu on machine control panel.
3) Select 'Regeneration' icon 

System will start and run the regeneration process to burn off 'built-up' soot particles; on completion of this process the system will automatically shut-off. Under normal conditions the process will take approximately 15 minutes to complete.

⚠WARNING **Hot exhaust gases in excess of 600°C will be emitted.** 

⚠CAUTION **The regeneration process must be allowed to fully complete; interrupting or halting the process may damage the engine.**

Regeneration Process
The operator must remain with the machine throughout the entire regeneration process.



Safety Precaution: it is recommended that a suitable fire extinguisher is kept at hand for unexpected eventualities.

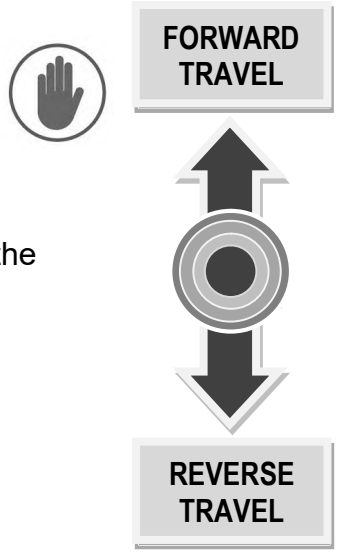
⚠WARNING

Operation of the machine must only be performed by a responsible person who has read the manual and is familiar with the machine's controls and all aspects relating to the safe use of this equipment.

⚠CAUTION

It is advisable that all new operators practice using the machine, without any attachments running, in a safe open area in order to familiarise themselves with the controls and movements of the machine.

Forwards & Backwards Travel (Default Mode)
Operation of the machine's forward and backwards movements are controlled by the **left-hand joystick** on the remote controls;



Push the lever forwards to move the machine forwards.
Pull the lever backwards to move the machine backwards.

The joystick operates proportionally; the further the lever is moved the faster the machine travels.

The maximum speed available will be determined by the gear selected and the gear speed potentiometer setting.

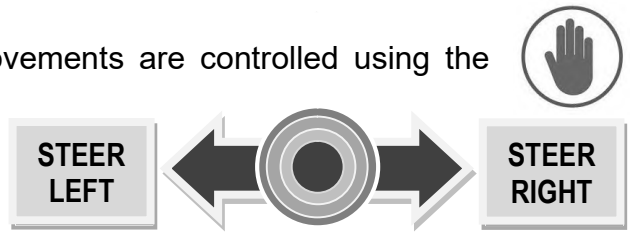
Gear 1 = Low Speed ..... **0 - 4 kph** *(2.5 mph)*
Gear 2 = High Speed .... **0 - 7 kph** *(4.5 mph)*

Gear Control
The machine has 2 gears to provide a choice of travel speeds; in addition to the gear selected the travel speed will be managed by operation of the travel joystick which itself is directly proportional to the speed setting of the potentiometer – *see below*.
When in work it is recommended that the machine is operated in gear 1 and speed limited, especially when working on steep slopes. Gear 2 is primarily for use when driving the machine between work areas on smooth even terrain where it is safe to use higher speed.

Gear Speed Potentiometer
The speed potentiometer control determines the maximum travel speed capability of the machine, from 0 – 100%, when operating the forward/reverse travel joystick - it is in effect an adjustable speed governor.
Adjustment is by rotating the switch to the required speed position; the setting chosen will depend on numerous factors but should always be at a setting that allows the operator optimum control of the machine at all times.

Steering Direction

Operation of the machine's left and right movements are controlled using the **right-hand joystick** on the remote controls;



Move the lever to the left to steer left.
Move the lever to the right to steer right.

Steering Bias

The steering bias feature allows the operator to set a 'degree of steer' for manoeuvring the machine across slopes, setting and adjustment is performed using the steering bias dial;



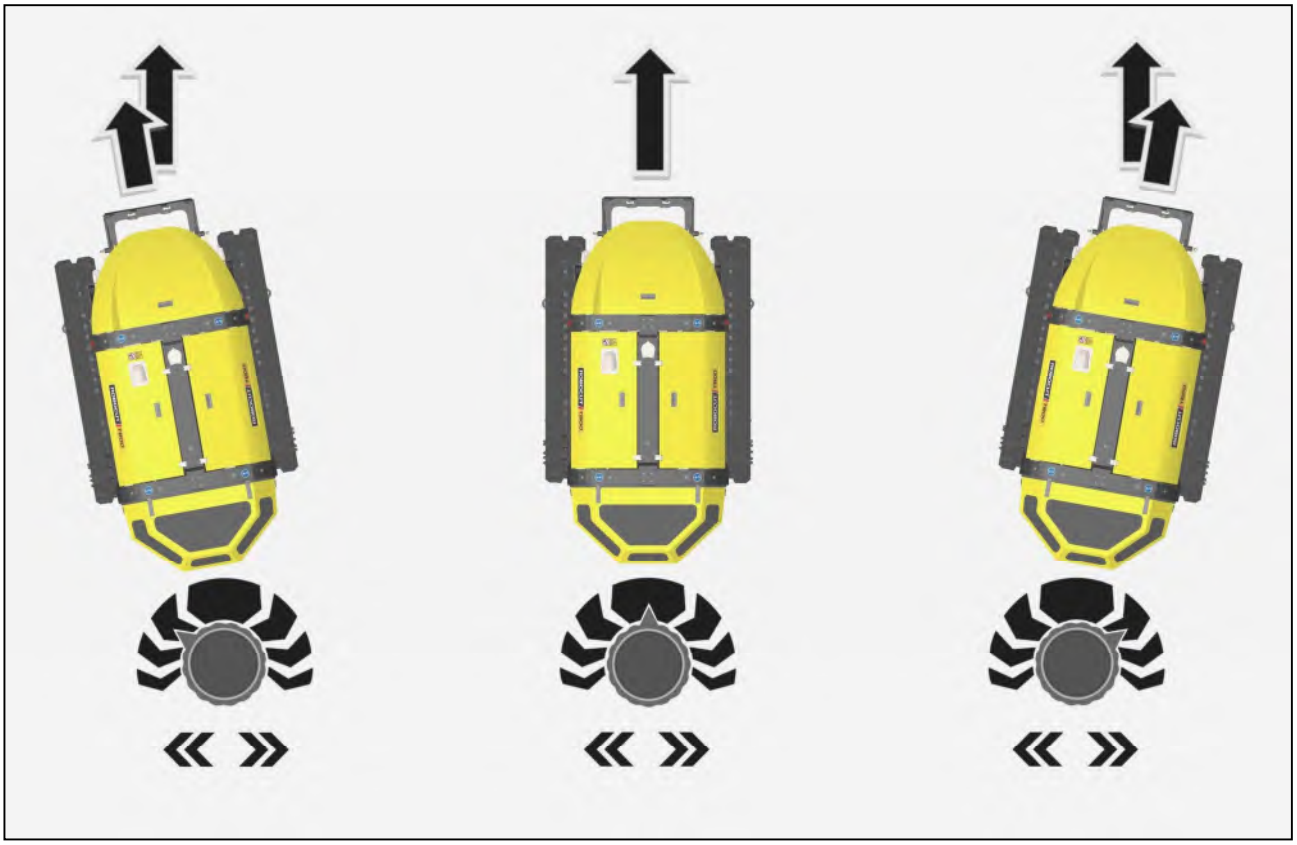
Turn control dial to the left to select a desired degree of left steering bias.
Turn control dial to the right to select a desired degree of right steering bias.
Place control dial into the central position to de-select steering bias.

The further the dial is rotated in each direction the greater the degree of bias.

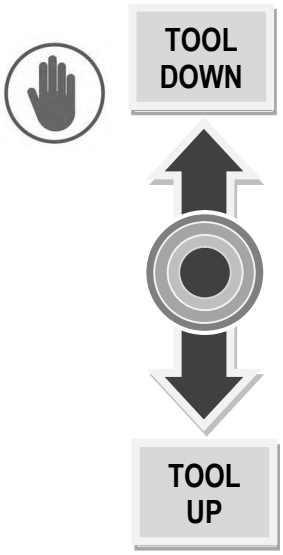
Operating with Bias

Steering will still need to be monitored and controlled by the operator in the normal manner but steering corrections required to guide the machine will be greatly reduced.

Bias Control



Tool Height Control
The tool height is controlled by forward and backwards operation of the **right-hand joystick**;

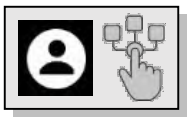


Push the lever forwards to lower the tool.
Pull the lever backwards to raise the tool.

Float Activation/deactivation (Flail heads)
The 'float' feature is primarily designed for machines with a flail head fitted. Activation and deactivation of the 'float' feature is via the 'AUX' toggle button on the right-hand side of the remote-control unit;

Press AUX button to switch the 'float' ON/OFF.

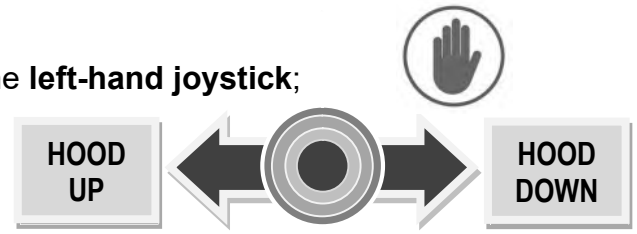
When activated this feature provides ±15° of horizontal float and advanced float that can be pre-programmed to the user's desired settings.



'Float' setting information is accessed via 'User Settings' on the machine's interactive control panel. On-screen instructions will guide the user through all aspects of selection, setting and activation of the advanced float features.

Hood (Accessory) Control
Hood control for flail heads is operated using the **left-hand joystick**;

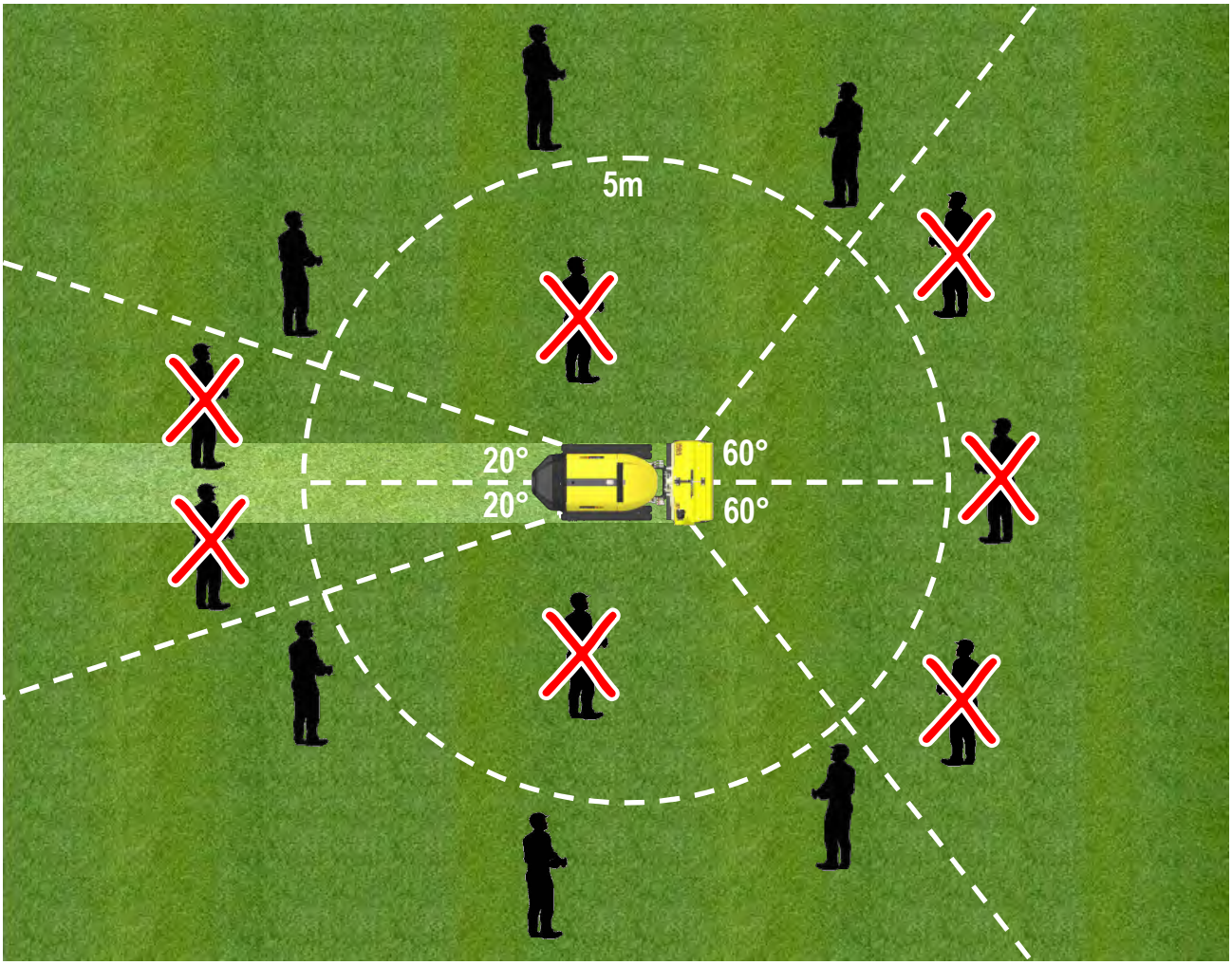
Move the lever to the left to raise the hood.
Move the lever to the right to lower the hood.



For machines fitted with an accessories other than a flail head this control can be used to operate a non-proportional service on that equipment.

OPERATING POSITION & DISTANCE

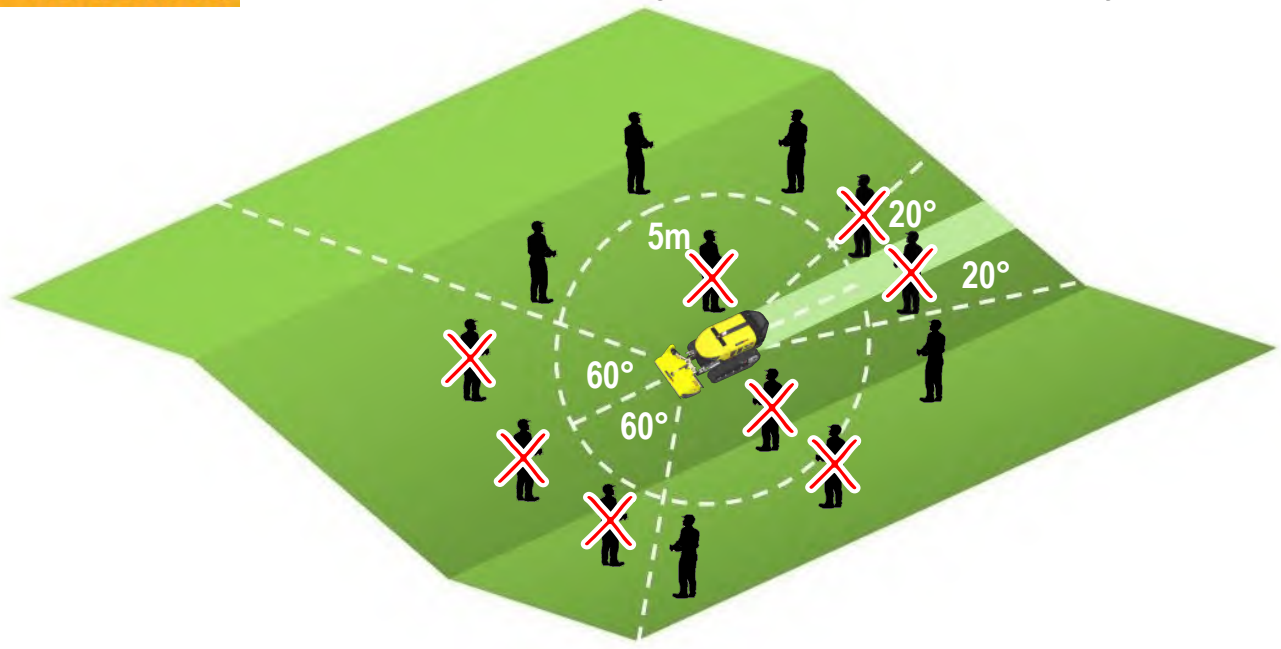
Only operate the machine from a safe distance and position that provides an unobstructed view of the machine and work area. When operating this machinery you are responsible for your own safety and the safety of all others who enter the work area.



Working on Slopes

When working on slopes do not operate from any position directly below the machine, where possible it is safer to stand in a suitable location above the machine.

⚠WARNING Do not operate the machine on ground or surfaces that are slippery underfoot.



⚠WARNING **Work and Work Area Precautions**

The following checks should be made prior to operation in the work area;

- Inspect the work area prior to operations; check for, and remove any foreign objects such as large stones, metal items, wire, glass etc. which could damage machinery or may be ejected by the equipment during operations. Any immoveable objects should be visually marked and avoided.
- Ensure the work zone is free of animals and persons.
- Never manoeuvre the machine into areas where you cannot clearly see the work.
- Only work machinery in materials and conditions that are within their capability; attempting to work a machine for the wrong task, or beyond its designed capability, is highly dangerous and risks damage to machine components.
- Never drive the machine down a slope that is in excess of its track option capability.
- Never operate the machine on slopes or terrain where there is a risk of overturn.

⚠CAUTION **Never operate the machine in a manner or conditions that place the machine at risk of 'roll-over'.**

In the event of 'roll-over' the engine must be switched off immediately and the machine safely recovered using suitable equipment. Do not attempt to re-start the engine until it has been inspected and checked by a qualified engine technician.

Personal Protection Equipment (PPE)
Operators must wear suitable safety gear when operating and/or maintaining this machine.



Recommended Safety Gear

- Safety Gloves
- Safety Boots
- Eye Protection
- Protective Overalls
- Safety Helmet
- Ear Defenders
- Dust Mask
- Shin/Knee Protection

Work Lighting Conditions



⚠WARNING

Never operate the machine in poor lighting conditions
Only work in good lighting conditions; you must have a clear view of the machine and the entire work area at all times. If necessary, use suitable artificial lighting that complies with local rules and regulations.

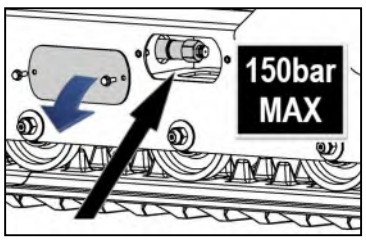
Fire Hazard



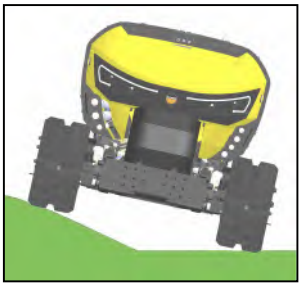
⚠WARNING

Do not smoke near the machine
Fuels, oils and lubricants are flammable – keep naked flames away from the machine at all times.

Track Protection
In certain driving conditions or circumstances the machine is at an increased risk of track damage and/or losing a track during manoeuvres; the following advice should be observed to avoid or reduce this risk.

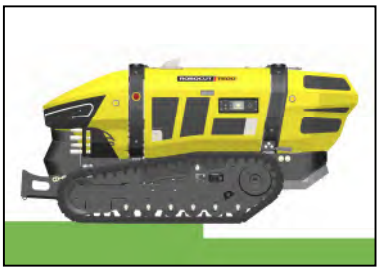


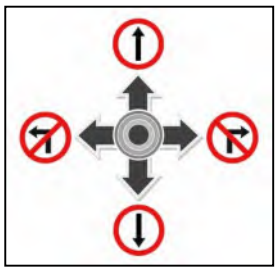
Keep tracks correctly tensioned at all times
Incorrect track tension will increase the risk of track damage or losing a track.



⚠CAUTION

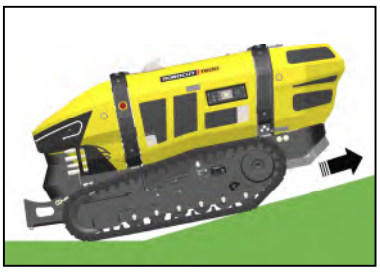
Do not move along the edge of a slope, or over uneven ground, with one track on the horizontal plane and the other track inclined or partially raised in excess of 10°.
To avoid the risk of track damage always proceed with both tracks travelling on the same plane.

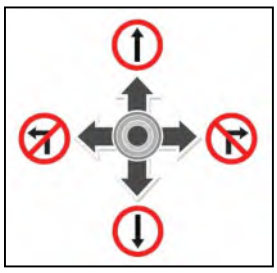




⚠CAUTION

Do not change direction whilst moving on kerbs, rocks or surfaces with considerable differences in height *(more than 20cm)*; in these instances always move the machine perpendicular to the obstacles.





⚠CAUTION

When reversing uphill, do not steer when transferring from level surfaces to slopes; if unavoidable, all manoeuvres should be performed gradually.



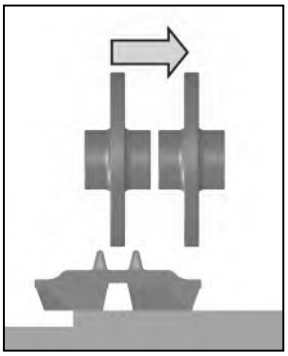
⚠CAUTION

When the machine manoeuvres over an obstacle, a space is created between the bearing rollers and the track - this can cause the track to come off its seat. The same situation can occur in reverse when a space is created between bearing roller, idler roller, and track. To eliminate this risk, track guides are provided on the front part of the undercarriage.



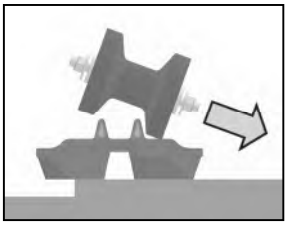
⚠CAUTION

If the machines changes direction, and the track cannot move sideways due to the presence of an obstacle, there is a risk that the track can be damaged or come of its seat; wherever possible avoid turning the machine if it is against an obstacle, if unavoidable, make manoeuvres slowly and gradually until clear of the object.



⚠CAUTION

If the machine moves in reverse in these conditions there is risk of the track coming off its seat.



⚠CAUTION

If the machine is steered in these conditions the track will come off its seat.

EXTENDING TRACKS

Machines equipped with extending tracks will permit adjustment of track width for conditions where enhanced stability is required or situations where a wider track stance is beneficial to operation.

Tracks can be independently extended by up to 250mm on each side of the machine; when fully extended it will provide a maximum track width of 1800mm.

Where possible, it is recommended to extend or retract the tracks only while the machine is in motion, with the travel speed kept below 2 km/h during the procedure.



⚠CAUTION

Do not attempt to extend the tracks if heavy or solid objects are within the extending zone.

Track Extension Controls

Press and **hold** '**AUX**' **button** on left-hand side of control unit; sideways operation of the left or right joystick will now control extension of the left or right track respectively.



Press & HOLD



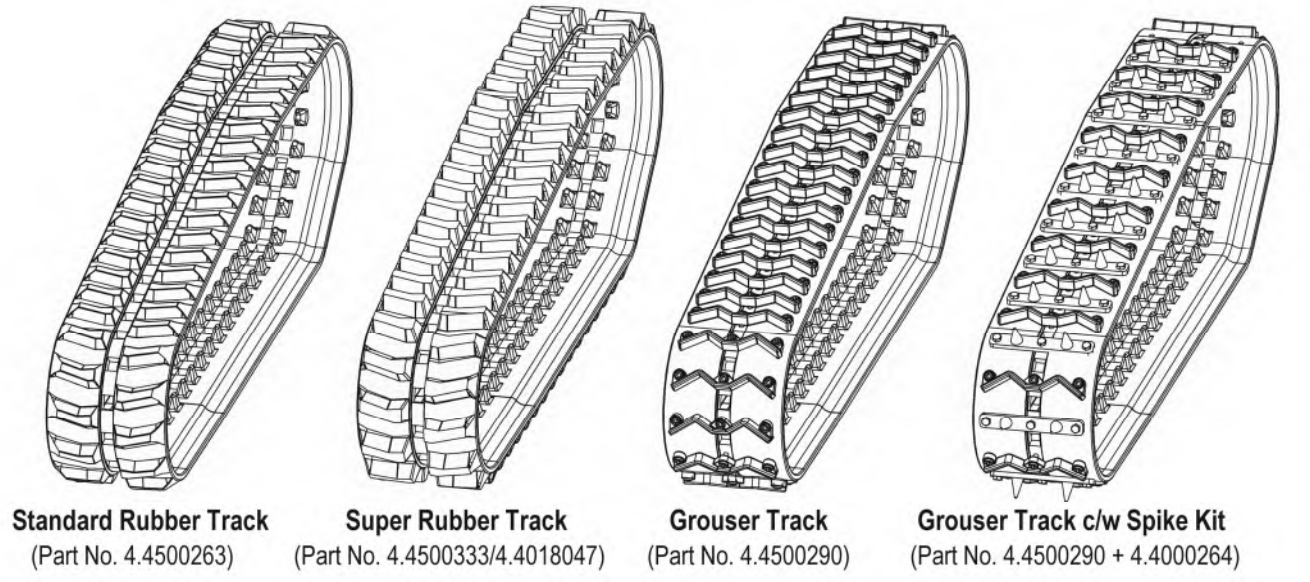
Left Track EXTEND | **Left Track RETRACT** | **Right Track RETRACT** | **Right Track EXTEND**

When tracks have been moved to their required extended position, release the AUX button to revert joystick operations to their normal control function.

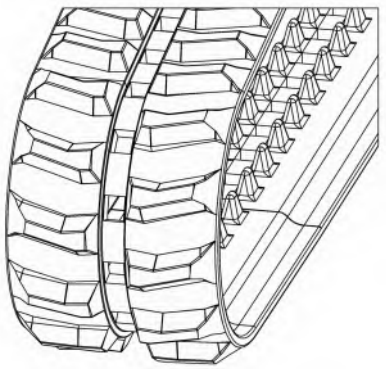
Note: For machines equipped with Hetronic controls, the black button on the right-hand side of that unit is used to permit operation of the track extension feature.

After operating with extended tracks; remove mud, grass or other accumulated debris from the track extending mechanism prior to retracting the tracks.

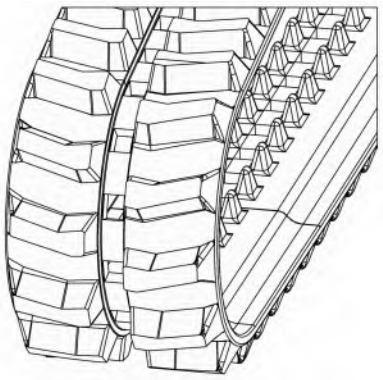
Track Identification



Standard Rubber Track (4.4500263)
General duty low disturbance track.

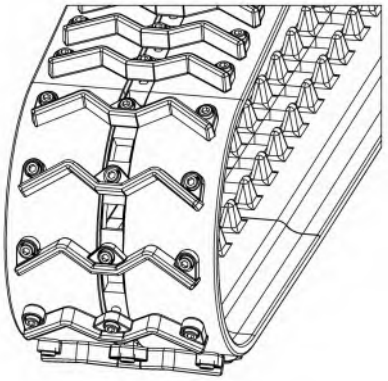


Super Rubber Tracks (4.4500333/4.4018047)
Deep tread rubber tracks for increased traction.



Steel Grouser Track (4.4500290)
Rubber tracks with 46 steel grousers for increased traction.





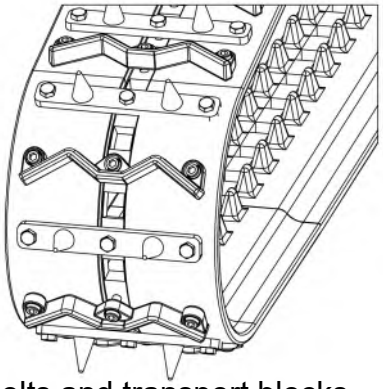
Spike Kit (4.4000264)
Spike sets for maximum traction in difficult conditions.



Spike Set & Fixings



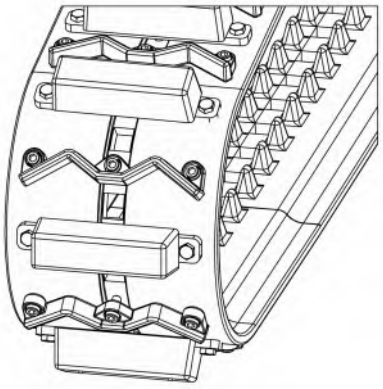
Transport Block



Kits consist of 46 spike sets (23 per track) complete with fixing bolts and transport blocks. Spike kits are only suitable for fitment to Grouser Tracks 4.4500290

Spike Kit Installation
To fit the spikes, remove every second grouser by removing the Allen headed bolts and replace with the steel spike treads using the 3 bolts supplied and torque to 70Nm.

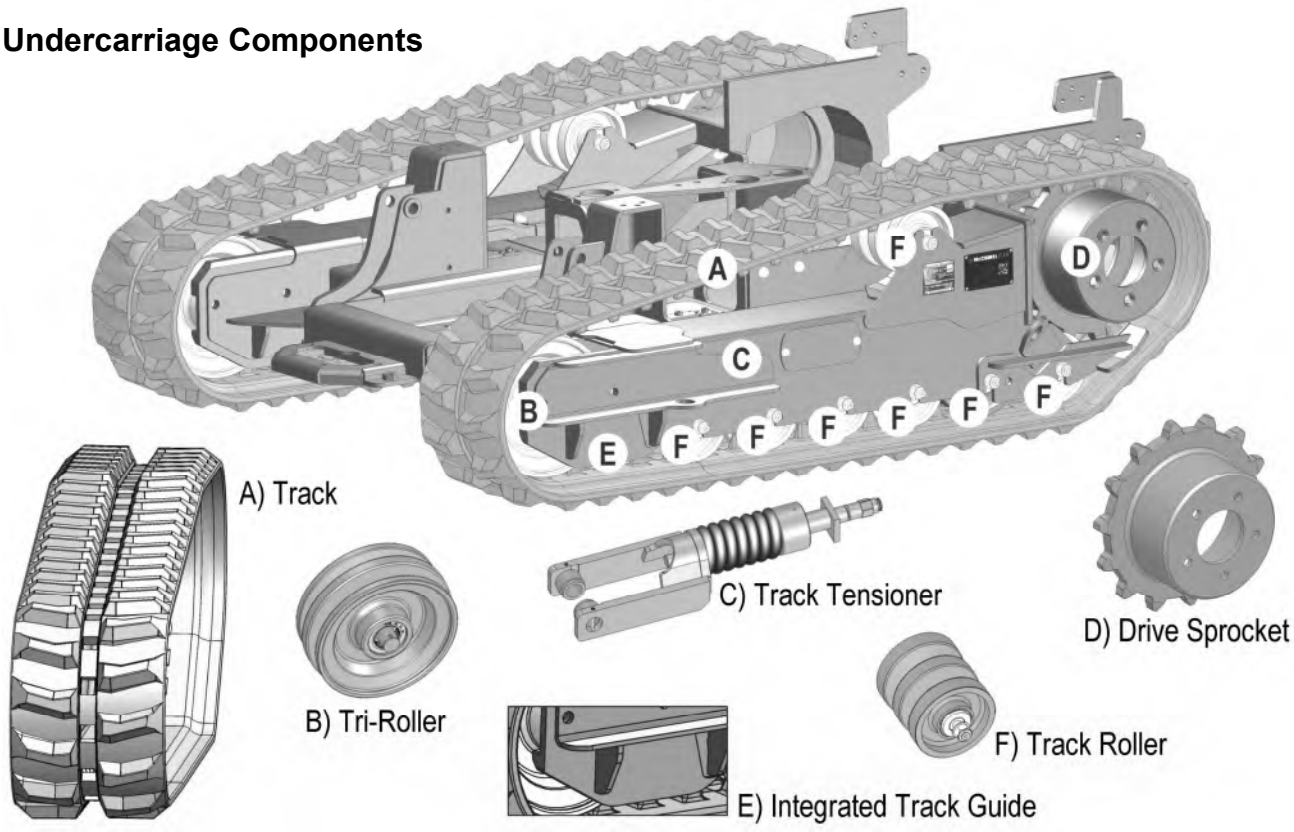
Transport Block Fitment
The rubber transport blocks have holes in them that locate on the spikes and are fitted by pushing them onto each set of accessible spikes before slowly driving the machine forward so its weight forces them tightly into place; repeat the process until all the spike sets are fitted with a block. After transportation a lever or large screwdriver will be required to prise the blocks back off the spikes.



⚠CAUTION

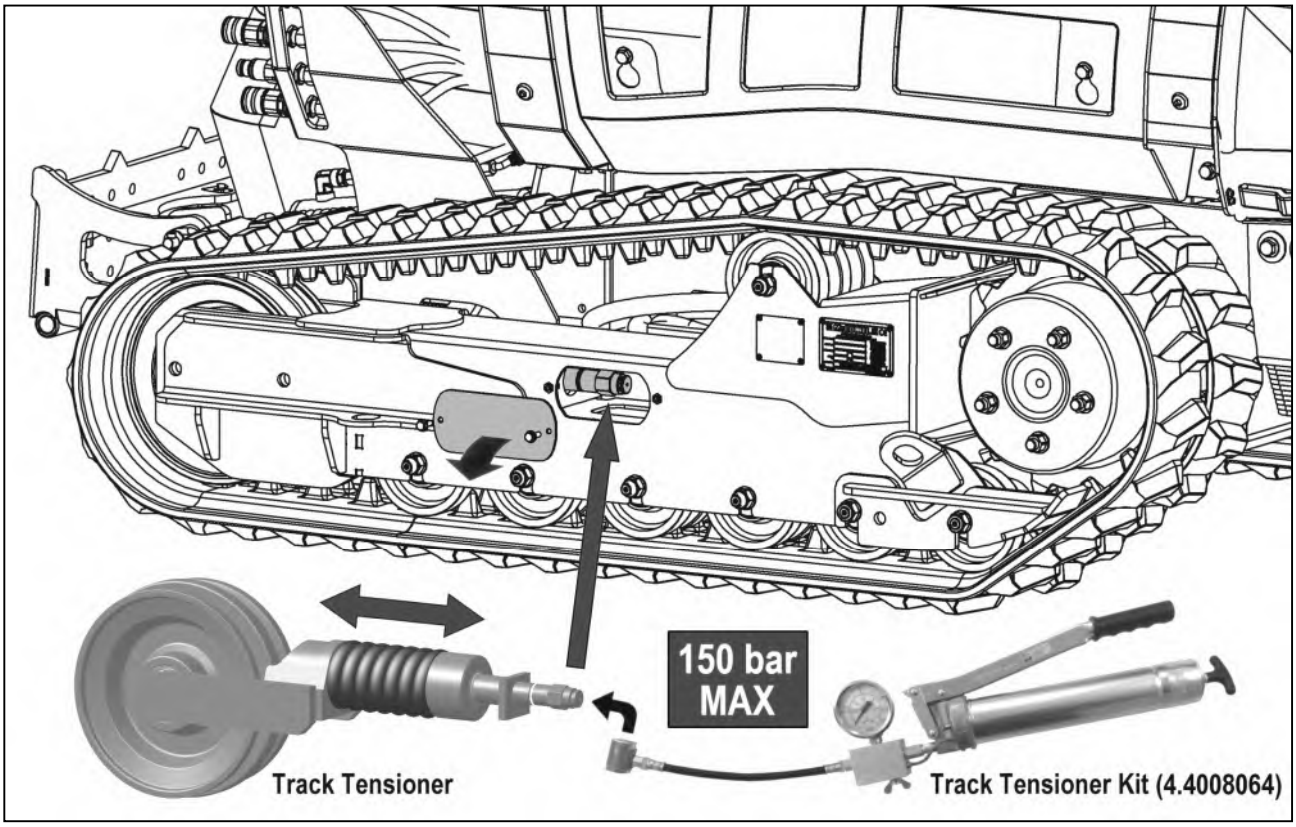
For protection of the spikes and ground surfaces, transport blocks must always be fitted to each spike set for transporting the machine over hard surfaces.

Undercarriage Components



TRACK TENSIONING SYSTEM

The tracks on the machine are tensioned using a grease tensioning system.
Adjustment to track tension is made by pumping or draining grease through the adjusters located behind cover plates on each side of the undercarriage.
When grease is pumped into the track adjuster it expands a cylinder, this moves the track idler wheel forwards exerting tension on the track.
Grease is added to the tensioning system using a track tensioning grease gun equipped with a pressure gauge and adaptor hose (P/N: 4.4008064).
Correct track tension is **130-150bar (Max)**.



The adjusters should be checked on a regular basis to ensure track tension is correctly maintained; if track tension is too low there is a heightened risk of the track coming off whilst operating the machine, if track tension is excessive, it will increase the wear rate of track and/or track components.

Wear Limits
Track components shown opposite must be replaced as soon as they reach their maximum wear limit; this corresponds to the 100% worn figures stated below.


Track Rollers


Tri-Roller


Drive Sprocket

Ø when new ►	*130.0mm*		*264.0mm*		*290.0mm*
Ø at 25% wear ►	*128.0mm*		*263.0mm*		*289.0mm*
Ø at 50% wear ►	*126.0mm*		*261.5mm*		*287.5mm*
Ø at 75% wear ►	*124.0mm*		*259.5mm*		*285.5mm*
Ø at 100% wear ►	*121.0mm*		*257.0mm*		*283.0mm*

Lubrication of Undercarriage Components
Components of the tracked undercarriage (rollers, pins, bushings etc.), must be greased every 20 working hours.

Track Replacement
Tracks must be replaced when there is a minimum 10mm of tread remaining, or sooner if there are signs of excessive cuts, cracks, or damage that could affect their safe use.

⚠WARNING

Never attempt to work on any machine that it not safely supported and chocked. Only use suitable lifting equipment that is capable of safely supporting the entire weight of the machine.

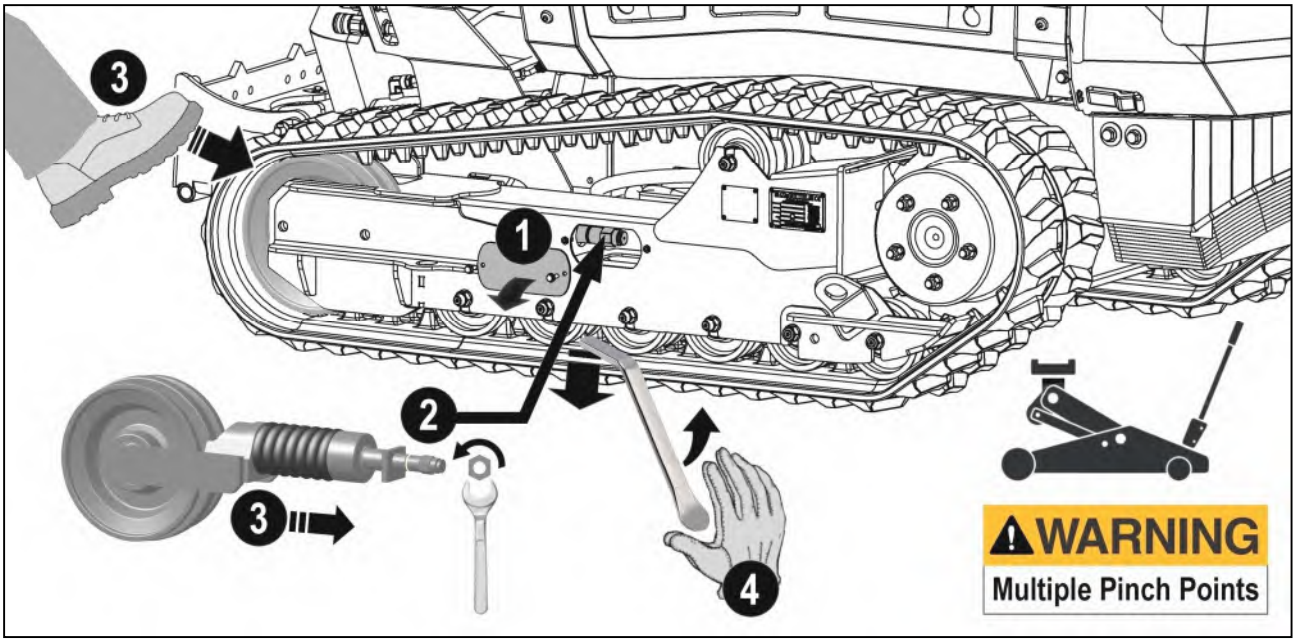
⚠WARNING

Ensure suitable safety gear is worn at all times when performing maintenance tasks. Beware, there is 'pinch risk' when working on track components – *keep hands clear of risk areas*.

Track Removal Procedure

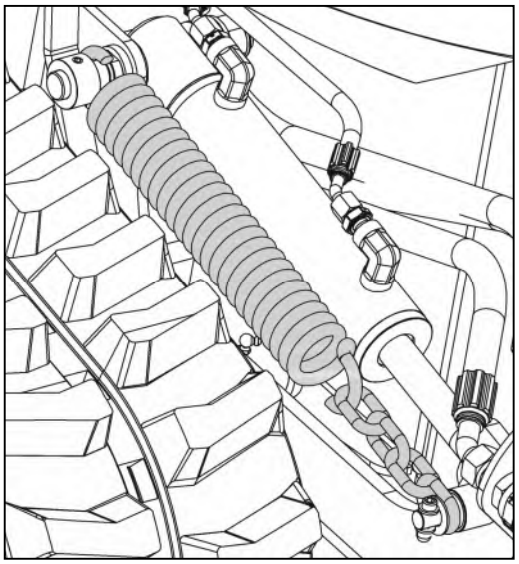
- Clean undercarriage components and surrounding areas of the machine prior to performing track removal or undercarriage maintenance tasks.
- Raise machine off the ground to a height of approximately 30-40cm; *use suitable lifting equipment and ensure the machine is stable and safely supported at all times.*
- Remove tensioner access panel **(1)**.
- Open valve on the tensioner unit a sufficient amount to allow the release of grease pressure **(2)**.
- Compress the tensioner unit; this can be done by using your foot to push the track and tri-roller rearwards **(3)**.
- Draw the track downwards and outwards at its mid-point position on the lower run to pull it off its seating, carefully lever between track and roller until track is free enough to be removed **(4)**.

  Tracks are heavy items; keep clear of the track as it falls to the ground.



Track Fitting Procedure
Installing the new track is basically a reversal of the removal procedure above; tension the track by pumping grease into the tensioner unit to a pressure of **130-150bar (Max).** *Refer to track tensioning page for details.*

Support Springs



The hydraulic rams that raise and lower the front mounted tool are equipped with support springs; the support pressure offered by the springs can be adjusted to suit differing needs and applications by altering their work position tension.

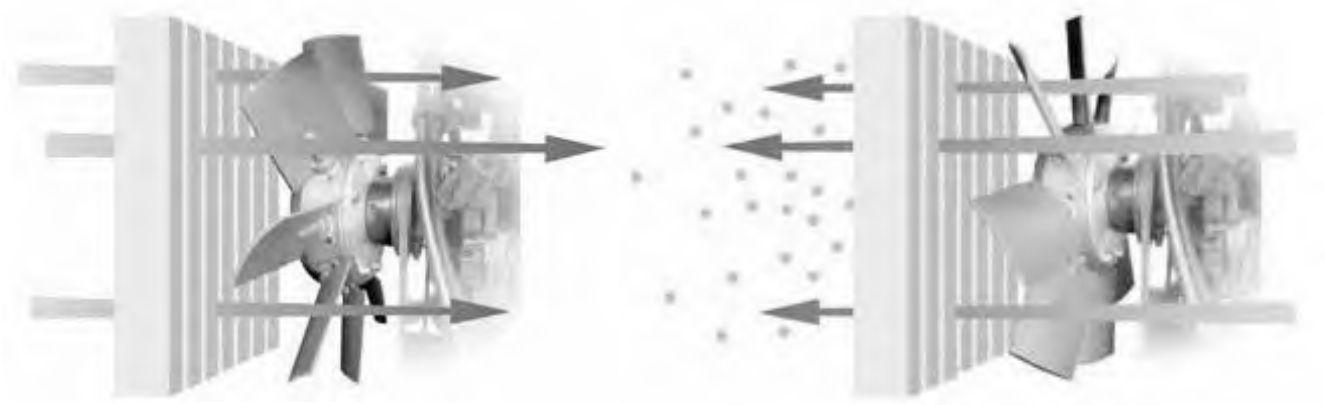
The procedure for adjusting the springs is as follows;

- Raise the mounted tool fully by operation of the hydraulic rams.
- Remove bolt and washer from rod end of the ram and release chain from lug.
- Re-attach chain selecting alternative link to either increase or decrease tension.
- Replace washer and bolt to secure the chain.
- Repeat the process on the opposite ram - *ensure the same link position is selected for both sides of the machine*.

Reversible Fan

The reversible fan system is an in-built 'self-clean' feature designed to reduce build-up of dirt and dust in the radiator matrix. The system is programmed to momentarily reverse airflow by automatically adjusting the pitch of the fan blades after a pre-defined time.
By default, the fan will reverse the airflow every 5 minutes, if required the pre-set time period can be changed via the machines control panel to a time setting of your choice.
Time interval can be pre-set in user settings to a minute number in the range 3 - 30.

Normal Fan Mode **Reverse Fan Mode**



Airflow through radiator for cooling *Airflow through radiator for cleaning*

Reversible Fan - Mode Control

The working mode of the reversible fan can be controlled by the operator by using the fan control switch on the remote-control unit, the fan switch activates the following modes;

- **Manual Reverse ON:** In this position the fan will operate in 'reverse' mode for as long as the switch is held in this position.
- **Reverse OFF:** In this position the fan reverse function is deactivated; the fan will operate in 'forward' mode only.
- **Auto Reverse ON:** In this position the automatic fan reverse is activated; the fan will operate in 'forward' mode for the pre-set time before momentarily reversing.

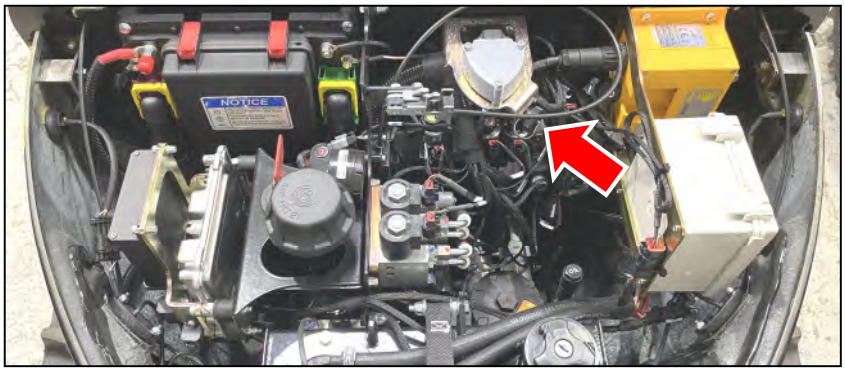
Refer to control section for details of fan switch location and operating positions.

Manual Control Unit (Emergency Track Operation only)



A manual control device for track operation is provided with the machine to allow the operator to bypass the radio controller in the event of a controller malfunction.
When connected to the machine this devise will allow the operator to start the engine, raise and lower the tool, and manoeuvre the mower in any direction.
This feature is primarily for use in an emergency situation to allow transport of the machine in the event of a sudden breakdown or for diagnosing an issue with the controller.
When operated in this mode the machine will only travel at minimum speed and all other control features are deactivated.
To use this control feature the emergency control unit must be connected to the electronic ignition box via the connection plug located in the frontal compartment of the machine.

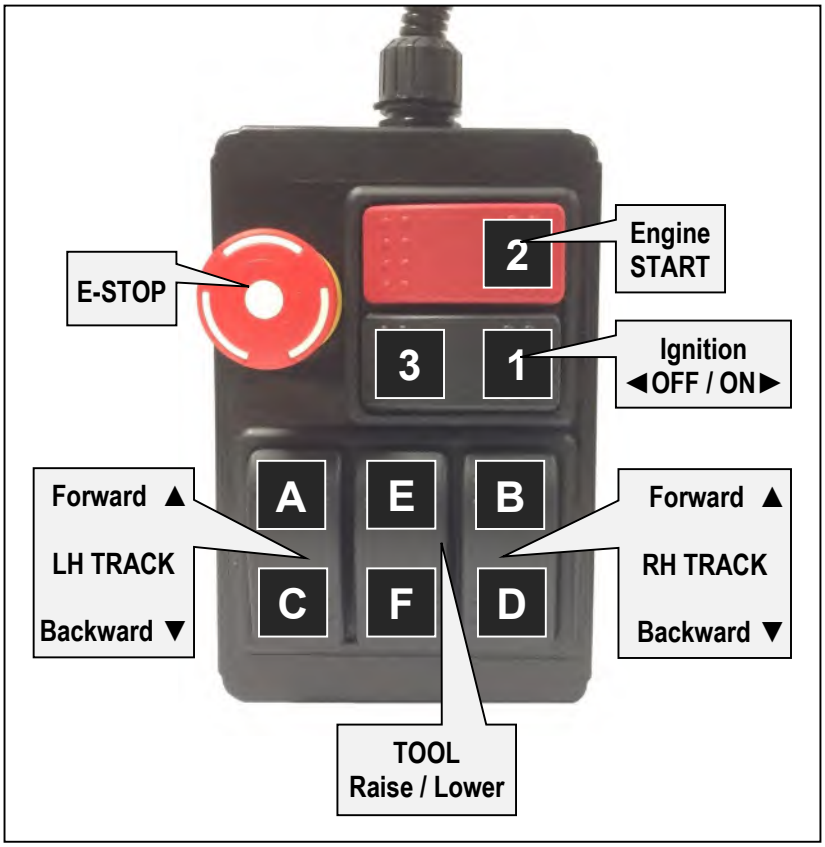
WARNING: Before connecting this control unit to the machine, ensure that the machine display is switched OFF and the E-Stop on the wired control is in the OFF position. Failure to do so may result in a blown fuse.





Location and identification of the emergency control unit connection point

Manual Controller (Emergency Control Unit)



Control Functions:

1) Ignition ON
2) Engine START
3) Ignition OFF (Engine STOP)

A) Forwards LH Track
B) Forwards RH Track
C) Backwards LH Track
D) Backwards RH Track
E) Raise Tool
F) Lower Tool

⚠WARNING

The manual track control must only be used for emergency situations or for troubleshooting purposes – never attempt to use this feature for normal work operations.

Manual Controls Operation *(refer to control illustration on previous page)*

Starting the engine;

- Set E-Stop button in the deactivated position.
- Press rocker button at point ‘1’ to switch ignition ON.
- Press button ‘2’ to start engine, release button as soon as engine starts.

Stopping the engine;

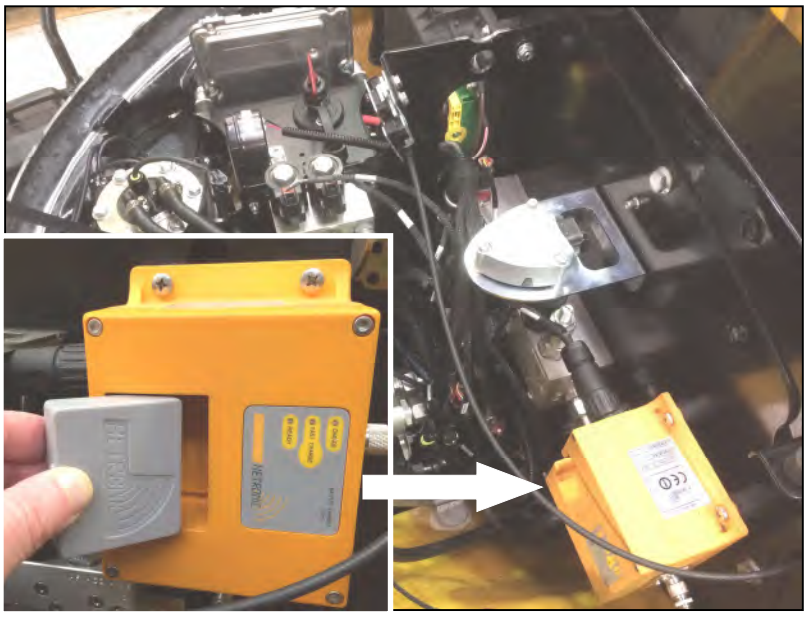
- Press button at point ‘3’ to switch ignition OFF and stop the engine.

Driving & manoeuvring the machine;

- Forward travel is by simultaneous operation of buttons at points ‘A’ & ‘B’.
- Right turn is by operation of button ‘A’ only.
- Left turn is by operation of button ‘B’ only.
- Reverse travel is by simultaneous operation of buttons ‘C’ & ‘D’.
- Counter-rotation to the right is by simultaneous operation of buttons ‘A’ & ‘D’.
- Counter-rotation to the left is by simultaneous operation of buttons ‘B’ & ‘C’.
- Raising the tool is by operation of button ‘E’.
- Lowering the tool is by operation of button ‘F’.

Charging Station for Remote-Control Battery

The machine’s remote-control unit is supplied with a spare battery for use as a reserve.
A charging station for control unit batteries is ‘built-in’ to the receiver unit located in the front compartment of the machine.
For uninterrupted operation, the reserve battery can be stored in the charging station; this will ensure it remains fully charged and ready for use.



Location of Remote Battery Charging Station

The charger has a ‘fast charge’ option button for an emergency situation where rapid charging is needed. In normal conditions batteries must be charged with fast charge option switched off.



Fast Charge (Emergency use only)

The charging station only provides power to the battery whilst the engine is running; it will automatically ‘cut out’ when the battery reaches its fully charged state.

Parking Brake Release

During operation or transport, situations may arise when it may be necessary to tow the machine. Before attempting to tow the machine, the parking brake must be manually released to reduce the possibility of damage to the drive motor, tracks, or braking systems, and provide safe towing.

The procedure of releasing the brakes requires access to the brake flange plate at the back of the drive motor and utilisation of the following items; a 12mm bolt, a 12mm nut and a support plate with a central hole; minimum thickness of support plate should be 20mm to avoid bending. The method of release is described below;

⚠WARNING

Ensure machines tracks are safely and securely 'chocked' before attempting to release the brakes.



Remove the 4 bolts which retain the cover to the drive motor housing to gain access to the brake assembly on the back of the drive motor.



Pry the rubber dust cover from brake release access hole.



With nut and support plate on the 12mm bolt; thread the bolt into the manual brake release hole until it 'bottoms out' in the hole. Move the washer down the shank of the bolt and thread the nut down until it is in firm contact with the metal support plate. Tightening the nut will gradually draw the bolt out and pull the brake plates away releasing the brakes. Turn the nut until it tightens against the plate and will no longer turn. Stop when resistance prevents further movement, **do not over-tighten.**

Towing

⚠CAUTION

Towing of the machine should only be performed in an emergency situation; it should be avoided whenever possible.

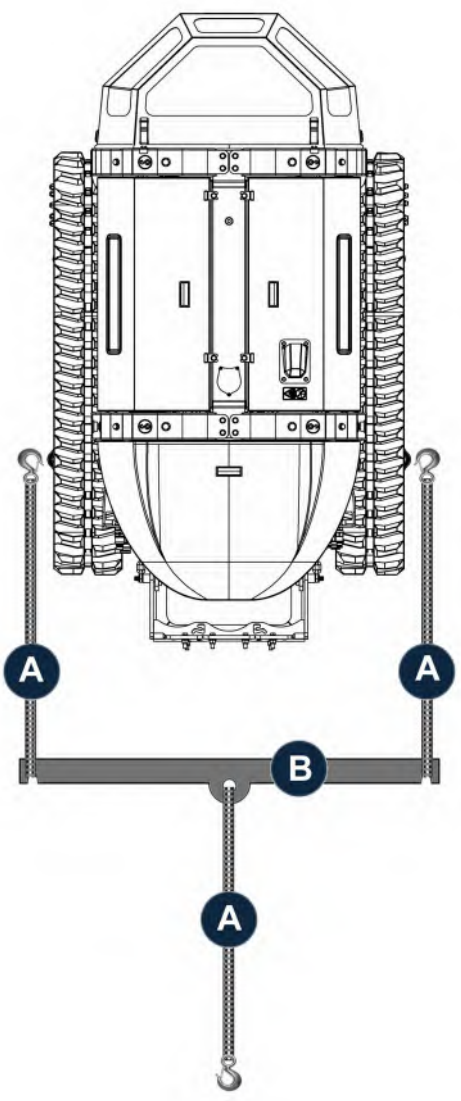
Manually release the braking system before attempting to tow the machine; *see previous page for details of this procedure.*

Suitable towing straps or chains rated to **minimum 2 tonne** and free from damage or defects must be used to tow the machine. Towing equipment should be configured as shown in the illustration opposite.

A. Towing strap/chain with minimum 2 tonne rating.

B. Rigid link device with minimum 2 tonne rating.

Attach the straps/chains to the lifting point positions on each side of the machine. Tow the machine maintaining even pull on each side in a forward direction. Avoid towing the machine from one side or the other as this can risk damaging the tracks and/or track components.



⚠WARNING

When towing the machines on downward inclines suitable rigid towing equipment must be used.

⚠WARNING

Care must be adopted at all times when towing the machine as there will be no form of braking. Chock tracks to avoid risk of 'freewheeling'. Keep all persons clear of the front and rear of the machine when parking brakes have been manually released.

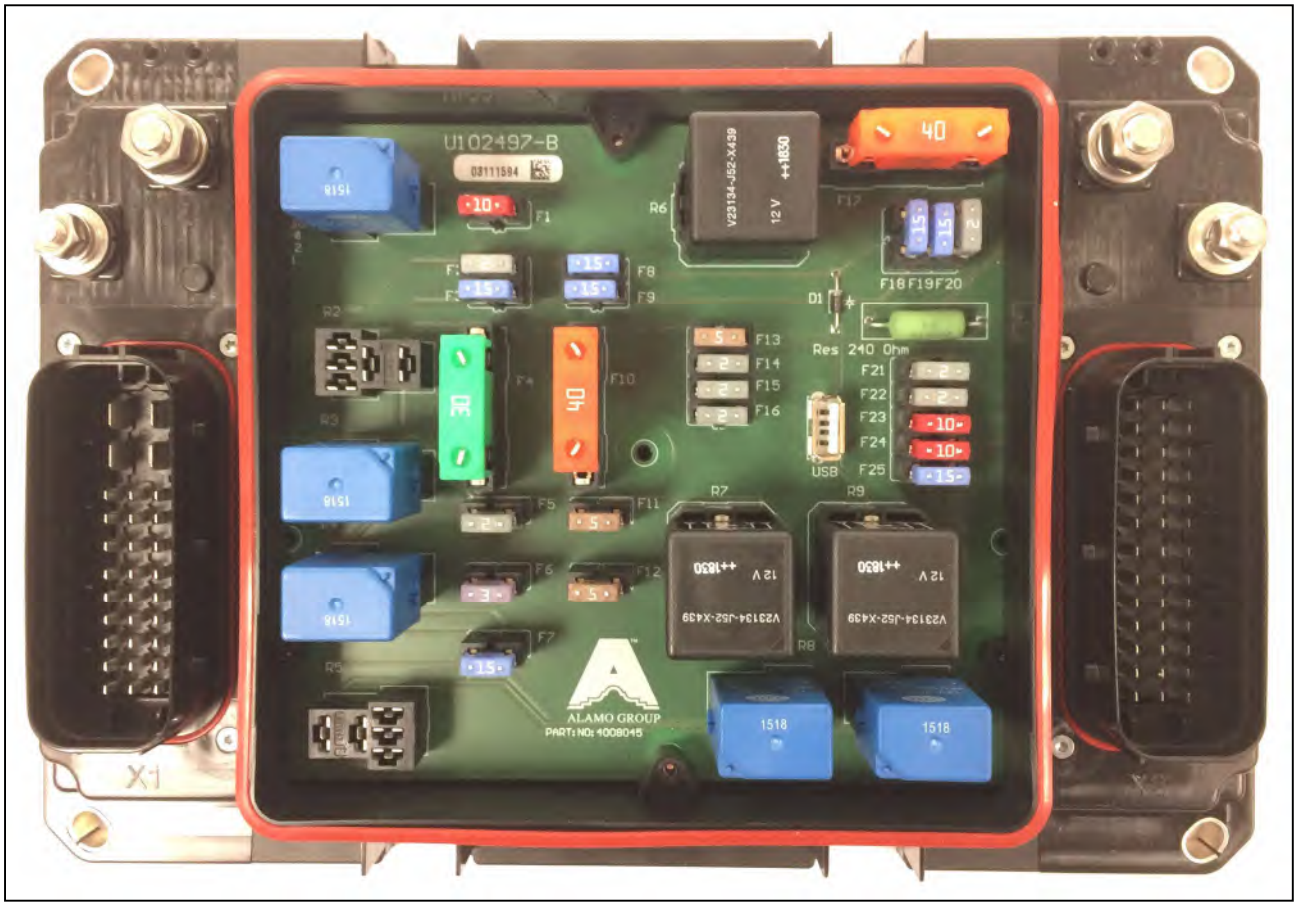
⚠WARNING

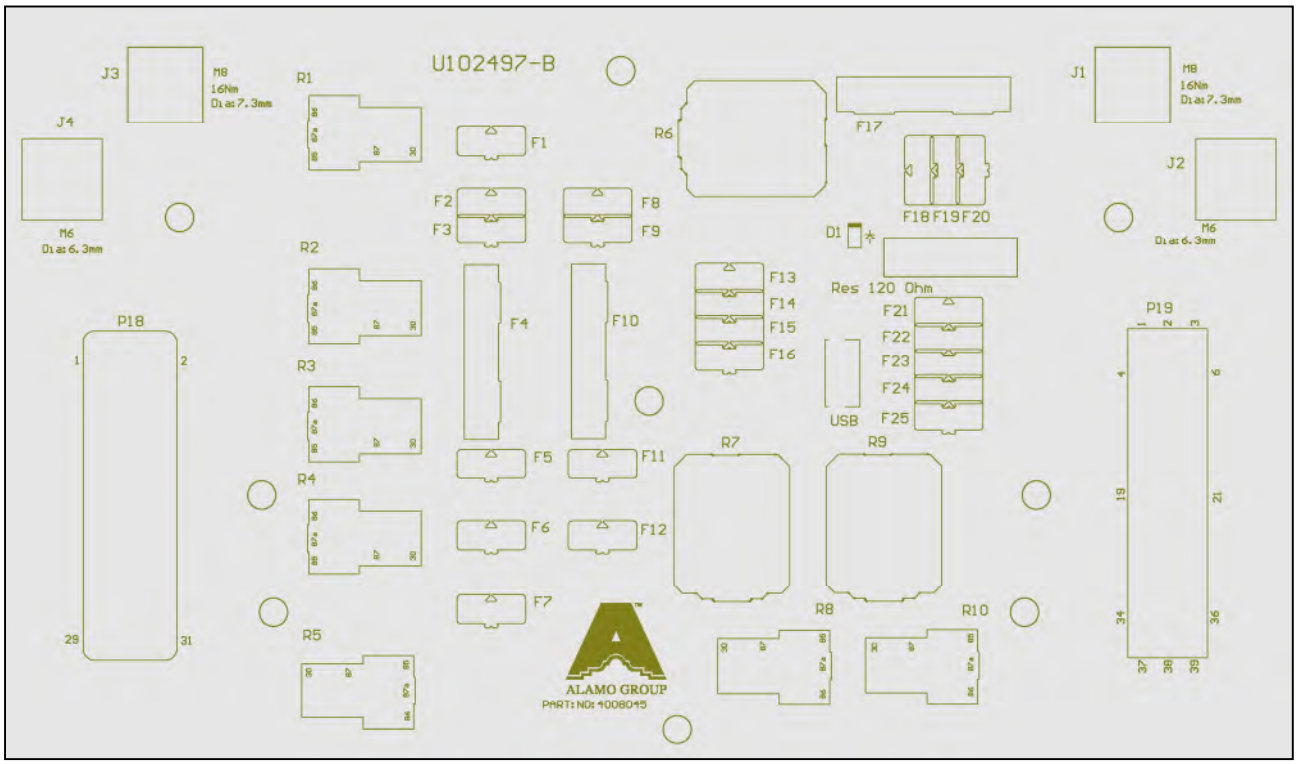
When towing or lifting the machine the correct attachment points must be used, failure to observe this may result in serious damage to machine and/or injury to persons.

Symptom	Possible Cause	Solution
Track damage.	Excessive tread wear; Loosening or breaking of internal structural steel rope.	Replace track.
Track slackens frequently.	Faulty tensioner valve. Damaged tensioner seal. Worn tensioner components.	Replace valve. Replace seal. Replace worn components.
Upper track does not stay in position.	Track slide worn. Upper roller worn.	Replace slide. Replace upper roller.
Lower track does not stay in position.	Lower track guide worn. Lower roller worn.	Replace lower track guide. Replace lower roller.
Track 'jams' when the machine is steering.	Material (stones, rocks, earth etc.) trapped between rollers, sprockets, idler roller and track.	Remove material by turning the track in both directions while slackening slightly, raise machine at same time if possible.
Oil leakage	Hardened seals. Gasket/seals damaged or worn.	Clean around component and recheck after a few days. Contact Dealer.
Excessive noise.	Internal malfunction. Worn seals.	Contact Dealer.
Excessive vibration.	Internal malfunction. Worn seals.	Contact Dealer.
Overheating	Lack of oil. Arduous conditions/hot climate. Brakes binding.	Add oil. Contact Dealer. Check brake release pressure.
Motor runs but gear unit not working.	Motor wrongly assembled. Internal malfunction. Brake jammed.	Check coupling between motor and gear unit. Contact Dealer. Check braking system.
Brake not releasing.	Lack of brake pressure. Faulty brake seals.	Check brake connections. Contact Dealer.
Brakes not locking.	Residual pressure in circuit. Worn brake components.	Check hydraulic system. Contact Dealer.

FUSES & RELAYS

The fuse box is mounted on the bulkhead in the front compartment of the machine.





Fuses: Identification

Ref.	Function	Rating
F01	Fuel Pump (10A)	10A
F02	ECU Supply (X5)	2A
F03	Spare	(15A)
F04	Starter	30A
F05	Work Lights	2A
F06	Strobe Lights	3A
F07	Spare	(15A)
F08	Trimble Autosteer	15A
F09	Spare	(15A)
F10	Main Fuse	40A
F11	Spotlights	5A
F12	Daylight Running Lights	5A
F13	Charge Lamp	5A
F14	PLC Electronics	2A
F15	Remote Receiver	2A
F16	E-Stop LED Supply	2A
F17	Glow Plugs	40A
F18	Manual Override	15A
F19	ECU Supply (X1)	15A
F20	PLC Electronics (CDC2000X)	2A
F21	-	(2A)
F22	Sensors Supply	2A
F23	PLC Outputs (CCM1100S)	10A
F24	PLC Outputs (CDC2000X)	10A
F25	-	(15A)

Relays: Identification

Ref.	Function
R1	Fuel Pump Relay
R2	Spare
R3	Work Lights Relay
R4	Strobe Relay
R5	Spare *(Machines with DOC engines)*
	ECU Hold-up *(Machines with DPF engines)*
R6	Power ON Relay (70A)
R7	Ignition ON Relay
R8	Daylight Running Lights Relay
R9	Start Relay (70A)
R10	Spotlights Relay

Diesel Engine Maintenance
For specific service and maintenance information regarding the diesel engine, refer to the engine manufacturer's handbook provided with the machine. Ensure all service and maintenance work on the engine is carried out at the intervals stated in that manual.

Service Schedule
Refer to the service schedule section in this manual for details of the required maintenance and service tasks for the machine.

Periodic Checks & Tasks

- Check braking system performs correctly.
- Check safety warning decals on attached equipment is correctly displayed and kept in good readable condition.
- Thoroughly clean the machine and attached equipment on a regular basis.
- Check all machine components and structures are in good condition.
- Ensure paintwork is kept in good condition.
- Check and test lighting system.
- Lubricate the tracked undercarriage every 20 working hours.

Hydraulic Hoses
Hoses and hydraulic connections should be inspected for signs of wear or damage on a regular basis, damaged or worn components must be replaced immediately. The working life of undamaged hoses is approximately six years, they should be replaced after this period.

Fuel, Lubricants & Coolant
Always use the specified fuel, lubricants and coolant as stated in the following tables.

Fuel Specification
Use diesel fuel that meets the minimum requirements of the following specified standards:

Fuel Standard	Market
BS2869 A1/A2	UK
EN 590	Europe
ASTM D 975-09a 1-D S15 or 2-D S15	USA
JIS K 2204 (with a maximum HFRR value of 520 µm)	Japan

Fuel Tank Capacity: 38 Litres

Engine Lubricant Specification
All brand name **5W-40** oils that satisfy at least the following specification are suitable.

Oil Specification
ACEA E6 'Low SAPS'
ACEA E9
ACEA C3 / C4 (HTHS ≥ 3,5 mPas)
API CJ-4

Engine Oil Capacity: T600 Model = 5.1 Litres / T800 Model = 5.6 Litres

Lubricant

Type : EP Lithium Grease	**Use for :** Pins / Bushes / Bearings / Track Tensioner

Engine Coolant Specification
The following radiator protection fluids are approved by the manufacturer:

Manufacturer	Product
Aral	ARAL Antifreeze silikatfrei
Arteco	Havoline XLC (OF02), Havoline XLC+B
Auto-Teile-Ring	Cartechnic Antifreeze CT 12 plus
BASF	Glysantin® G30®, Glysantin® G40®
Belgin Madeni Yaglar Tic	LUBEX ANTIFREEZE G-12 PLUS
BP	BP Procool
Bucher	MOTOREX COOLANT M4.0
BVG Blume	Mofin Antifreeze M40 Extra
Castrol	Castrol Radicool SF, Castrol Radicool Si OAT
CCI	LLC C521, LLC L415
CHEMIA-BOMAR	Glidex Extra Premium
Chevron	Caltex Extended Life Coolant, Havoline XLC Concentrate, Ursa ELC NF Concentrate
CLASSIC	CLASSIC KOLDA UE G30, CLASSIC KOLDA UE G40
EUROLUB	EUROLUB Antifreeze D-30, PROCAR Antifreeze silikatfrei, EUROLUB Antifreeze D-40 super
Exxon	Mobil Delvac ELC Coolant
Fuchs	Fuchs MAINTAIN FRICOFIN G 12 PLUS, Fuchs MAINTAIN FRICOFIN LL, Fuchs MAINTAIN FRICOFIN DP
Gazpromneft-Lubricants	G-ENERGY ANTIFREEZE SNF
Krafft	K-140 Energy - Plus
Kuttenkeuler	Kuttenkeuler Antifreeze K 12 Plus
LUKOIL	OMV coolant SF, OMV coolant SOT
Mitan	Alpine C40 , Alpine C12+
MOL-LUB	EVOX Premium Concentrate
Müller Mineralöle	Startol Top G 12 Plus
Neste Markkinointi	Neste Superjäähdytinneste XLC
OAO Technoform	Cool Stream Premium
Old World Industries	Final Charge Global Coolant
Petrol Ofisi Anonim Sirketi	PO EXTENDED LIFE coolant
Tedex	Tedex Antifreeze OT LL
Total	Total Glacelf Auto Supra
Valvoline	Zerex G 30, Zerex G 40-91

Coolant System Capacity: 9.2 Litres (50/50 mix).

Hydraulic Oil Specification
The hydraulic oils below are recommended for the specified generation of machine:

Oil Type	Manufacturer	Product name / type
Biodegradable	PANOLIN	PANOLIN HLP SYNTH E 46
Mineral	Good quality brand of choice	**0-30°C** ISO 46 Mineral / **20-50°C** ISO 68 Mineral

Hydraulic Oil System Capacity: T600 Models = 31 Litres / T800 Models = 33 Litres.

ROBOCUT T600 & T800



SERVICE SCHEDULE

SERVICE SCHEDULE

- Periodic maintenance schedules imply the performance of regular checks.
- Record all interventions carried out in addition to routine maintenance.

DAILY CHECKS

- Inspect the engine (leaks or damage).
- Check the fuel level (top up if necessary, recommended at the end of working period).
- Check the engine oil (top up if necessary).
- Check the hydraulic oil (top up if necessary).
- Check the coolant (top up if necessary).
- Check for oil, fuel or coolant leaks.
- Check the level indicators (engine oil etc.).
- Clean the machine with compressed air to remove cuttings or other debris.
- Check and cleaning of the fan radiator / intercooler.
- Clean the air intake filter.
- Check tightness of screws or nuts.
- Grease as indicated.
- Check track pressures (recommended setting: 130 bar).
- Check wear of tracks.
- Check the safety devices, beepers and guards are in proper order.

Hydraulic Oil
Check hydraulic oil level on a regular basis and top-up when required.
Always use the oil type and brand stated in the table below;

Type	Brand / Specification	Applicable Use	Replace by
Mineral	ISO 46 Mineral / ISO 68 Mineral	T600 / T800 machines	500 hours

Every 60h (DPF Stage 5 Engine builds only)

- Perform Regeneration.
  Refer to the 'Regeneration Procedure' section in this manual.

SERVICE SCHEDULE

AFTER THE FIRST 25h

- Check all fluid levels and top up as necessary.
- Check engine, hydraulic, and cooling system for leaks.
- Check tightness of wheel nuts and track pressures or regulate track tension.
- Check drainage of the water/fuel separator.
- Check loom for chaffing / premature wear.
- Check hydraulic hoses for chaffing / premature wear.
- Check batteries.
- Check and clean cooling fins.
- Check and adjust cooling fan belt.
- Check and adjust alternator belt
- Clean machine from cutting debris.
- Clean air pre-filter.

Date

Stamp

Signature

500h / ANNUAL

- Check and clean radiator fins.
- Check and adjust cooling fan belt.
- Check and adjust alternator belt.
- Change air pre-filter/filter.
  (Part Nos. 4008049.01 / 4008049.02)
- Change engine oil filter.
  (Part No. 4008001.20)
- Change pro-vent crank breather filter.
  (Part No. 4008001.24)
- Change engine oil.
- Change pre and secondary fuel filters.
  (Part Nos. 4008001.21 / 4008001.22)
- Change hydraulic filter and breather.
  (Part Nos. 4008023.03 / 4008108)

Date

Stamp

Signature

SERVICE SCHEDULE

500h/ANNUAL

Date	Stamp
Signature	

500h/ANNUAL

Date	Stamp
Signature	

500h/ANNUAL

Date	Stamp
Signature	

500h/ANNUAL

Date	Stamp
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Additional Service Interventions
Record and date any additional service/repair interventions here:

Description	Date



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