V6 Revolution Controls
Proportional Control System

For Safety and Performance…
ALWAYS READ THE BOOK FIRST

McCONNEL LIMITED
Temeside Works
Ludlow
Shropshire
England

Telephone: 01584 873131
www.mcconnel.com
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 parts 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
DECLARATION OF CONFORMITY
Conforming to EU Machinery Directive 2006/42/EC

We,

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

Hereby declare that:

The Product; Revolution Proportional Control System

Product Code; MCPT

Serial No. & Date ............................................... Type ...........................................

Manufactured in; United Kingdom

Complies with the required provisions of the Machinery Directive 2006/42/EC

The machinery directive is supported by the following harmonized standards;


This system is continually assessed by the;
British Standards Institution (BSI), Beech House, Milton Keynes, MK14 6ES, UK

BSI is accredited by UK Accreditation Service, accreditation number: UKAS 003.

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

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

Status: General Manager          Date: January 2018
JOYSTICK CONTROLS

Joystick : Overview

Joystick : Thumbwheels & Control Buttons (Default Functions)

Slew Swap Button : Default Configurations

<table>
<thead>
<tr>
<th>Machine Build</th>
<th>Default Swap Function</th>
<th>Configuration Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Arm</td>
<td>No function configured</td>
<td>Can be configured in settings to control a chosen function</td>
</tr>
<tr>
<td>VFR Arm</td>
<td>VFR Control</td>
<td>Can be changed in settings to control an alternate function</td>
</tr>
<tr>
<td>Tele Arm</td>
<td>Tele Control</td>
<td>Can be changed in settings to control an alternate function</td>
</tr>
<tr>
<td>Tele / VFR Arm</td>
<td>VFR Control</td>
<td>Can be changed in settings to control an alternate function</td>
</tr>
</tbody>
</table>

Thumbwheels & Buttons Identification
Joystick: Lever, Thumbwheel & Button Functions

TW1 Default

LIFT

Lift UP

Lift DOWN

REACH

Reach OUT

Reach IN

ANGLE

Angle A-C/W

Angle C/W

SLEW

Slew Forward

Slew Back

Slew Swap

VFR

VFR Forward

VFR Back

TELE

Tele OUT

Tele IN

B1

Auto-Reset OFF

Auto-Reset ON

B2 (Default)

Diverter #1 ON/OFF

B3 (Default)

Active Float ON/OFF

B4 (Default)

EDS Mode Selection

TW1 Swapped Mode

No function is configured to Button #1 on standard arm models.
DISPLAY UNIT CONTROLS

Display Unit: Overview

1: Joystick Screen (Home Screen)
Indicates the current designated function for each control on the joystick controls.

2: Feedback Screen
Reports; Actual PTO Speed, Power Monitor (%), Battery Voltage & Active Sensor Readings.

3: Front Hours Screen
Reports; Total & Job Hours for User(s) / Machine.
Initial 50 Hrs: countdown to 1st gearbox oil change.
After 50 Hrs: countdown to next service interval.

4: Main Settings Screen
Access screen for machine & control unit settings - refer to the main settings section of this manual for detailed information.

Main Screens: Overview

‘POWERING ON’ DISPLAY UNIT
Rotate Power ON/OFF Button clockwise; screen will display the McConnel Logo during ‘boot up’ process.
Home screen will be displayed when the unit is ready.

Touch Screen Display

Power ON/OFF Button
Rotate to Power On / Press to Power Off.

Scroll Dial:
Rotate to scroll through functions.

Home Button:
Press to return to home screen.

Menu Scroll Button:
Press to scroll main screens (4 screens).

Return Button:
Press to return to previous main screen.

Soft Keys:
Short Press and release to activate/deactivate function
Long Press and release (3 sec+) to change function (*)
* Scroll function options using Scroll Dial, press scroll dial or touch screen to confirm the selection.

Touch Screen:
Short and Long touches of the onscreen function icons perform the same actions as the soft keys.

USB Port (Manufacturers use only)

Menu Scroll Button:
Press to scroll main screens (4 screens).

3: Main Settings Screen
Access screen for machine & control unit settings
- refer to the main settings section of this manual for detailed information.

4: Feedback Screen
Reports; Actual PTO Speed, Power Monitor (%), Battery Voltage & Active Sensor Readings.
**Screen 1: Joystick Screen (Home Screen)**

**Configuring Button Functions**

1: Joystick Screen (Home Screen)

- Touch either of the control images on the screen for 3+ seconds; sub-menu will then be displayed.

Buttons / Thumbwheels Sub-Menu Screen

- Touch ‘BUTTONS’ area on screen to enter category and display the ‘Control Selection Screen’ for joystick buttons.

Control Selection Screen (Buttons)

- Rotate Scroll Dial to view button menu; when the desired button is displayed press Scroll Dial to select and assign it. Screen will automatically change to ‘Function Selection Screen’.

Function Selection Screen

- Rotate Scroll Dial to view functions menu; when desired function is displayed touch ‘OK’ on screen to assign that function to the chosen button. Screen will automatically return to Home Screen.

On v6 controls, the button options that can be configured are B1, B2, B3 & B4 only; buttons B5 & B6 are not a valid selection on this control system.

**Configuring Thumbwheel Functions**

1: Joystick Screen (Home Screen)

- Touch either of the control images on the screen for 3+ seconds; sub-menu will then be displayed.

Buttons / Thumbwheels Sub-Menu Screen

- Touch ‘THUMBWHEELS’ area on screen to enter category and display the ‘Control Selection Screen’ for joystick thumbwheels.

Control Selection Screen (Thumbwheels)

- Rotate Scroll Dial to view thumbwheel menu; when the desired thumbwheel is displayed press Scroll Dial to select and assign it. Screen will automatically change to ‘Function Selection Screen’.

Function Selection Screen

- Rotate Scroll Dial to view functions menu; when desired function is displayed touch ‘OK’ on screen to assign function to the chosen thumbwheel. Screen will automatically return to Home Screen.

On v6 controls, the thumbwheel options that can be configured are TW1 & TW2 only; thumbwheels TW3 & TW4 are not a valid selection on this control system.

‘Slew’ & ‘Angle’ are the only functions that can be operated by the thumbwheels; by default they are assigned to TW1 & TW2 respectively; if required these can be swapped in the settings to TW1 for ‘Angle’ and TW2 for ‘Slew’.
Rotor Operation

Starting the Rotor

When switched off a rotor can continue to ‘freewheel’ under its own momentum for up to 40 seconds before stopping.

Stopping the Rotor

For machine safety ‘Rotor ON’ icons are deactivated and cannot be operated during ‘Run Down’. The rotor cannot be restarted or direction changed until the ‘Rotor OFF’ symbol is displayed.

Rotor can be switched off using the screen icon or the adjacent soft key.

CAUTION
Function Controls

1: Home Screen
Short touch of screen icon or short press of its adjacent soft key will activate/deactivate function.

Long touch and release (3 sec+) of screen icon or the soft key will enter the function selection menu.

Function Icons & Control Settings:

Function Controls

Screen 2 : Feedback Screen

2: Feedback Screen
Reports; Actual PTO Speed, Power Monitor (%), Battery Voltage & Sensors Readings

Actual PTO Speed
Power Monitor: Displays power demand on the flail circuit during work.

Battery Voltage
Sensor Readings
Reach Sensor Position (*)
Main Frame Proximity Sensor (*)
Lift Sensor Position (*)

(*) where applicable

Screen 3 : Front Hours Screen

User Hours Reset:
Touch symbol.

View Users List:
Touch 'S' symbol.

Return Button:
Press to exit Users List.

Users List/Detailed Hours Screen

Access to ‘all user’ reset (Password protected).

Function Controls

3: Front Hours Screen
Reports; Machine Total Hours.
User Job Hours *

(*) User Job Hours can be reset by touching symbol on the screen.

On New Machines;
Displays hour countdown to the required 50 hours initial gearbox oil change.
After Initial 50 Hours;
Displays hour countdown to next Service Interval.

Users List/Detailed Hours Screen

Password protected.

On New Machines;
Displays hour countdown to the required 50 hours initial gearbox oil change.
After Initial 50 Hours;
Displays hour countdown to next Service Interval.
Screen 4 : Main Settings

**4: Settings Screen**
Activation/Deactivation of Reach & Slew Stops.
Current user display / select user.
Access screen to main settings sub-menus.

**Sub-menus are accessed via Screen Icons or relevant Soft Keys**

Status Indicator; when a function is active (ON) the screen icon for that function is ‘highlighted’ yellow.

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**EDS Settings : Master Activation & Report Screen**

- **EDS Status**
- **Factory/Dealer Settings**
- **EDS Master Activation**
- **Factory Default Reset**
- **Rotor STOP**

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**Display & Sound Menu : Visual & Audio Settings**

- **Screen Illumination:** Adjustment ± Default Reset
- **Button Illumination:** Adjustment ± Default Reset
- **Day**
- **Auto**
- **Night**
- **Audio ON**
- **Audio Alerts**
- **Audio OFF**
- **Reset All**
- **Day / Night Ambient Light Level**
- **Language Selection**
- **Screen Calibrate**

**Changing User Language**
‘Touch’ the flag symbol on the screen repeatedly until the flag of the required language is displayed; switch the control unit off and re-boot to activate the new language.

The control unit is currently installed with the following languages:

- English
- Danish
- Dutch
- German
- French
- Polish
- Spanish

Status Indicator; when ON/OFF functions are ON, the screen icon for that function will be ‘highlighted’ yellow.
Basic Valve Settings : Work Mode Selection
Work mode selection screen; available options are VERGE Mode or HEDGE Mode.

Hedge Mode (Valve Bank #1 settings):
Slower valve speeds for increased work accuracy.

Verge Mode (Valve Bank #2 settings):
Faster valve speeds for faster forward travel work.

Advanced Valve Settings : Access to Valve Settings
With the required work mode selected touch ‘ADVANCED’ tab on the screen to access the advanced valve settings screen.

Changes to valve settings only alter the performance of Proportional Valves; changing the settings of the Bang-Bang Valves will not alter their performance.

Advanced Valve Settings : Valve Selection
Using ‘on-screen’ menu scroll the specific valve name to the top of screen then select the ‘edit’ icon to change the values in that valve.

Changing Valve Setting : Minimum Setting Value
Enter numeric valve for the ‘MINIMUM’ setting.

Enter desired ‘MIN’ valve setting.

‘Touch Screen' input only

‘Touch Screen' input only

Touch 'ENT' to confirm setting; screen will switch to ‘Valve Max’ setting screen for the same valve.
Changing Valve Setting: Maximum Setting Value
Enter numeric valve for the ‘MAXIMUM’ setting.

Repeat this procedure for each valve you want to change.

Default Settings for Valve Bank #1

<table>
<thead>
<tr>
<th>Valve Service</th>
<th>Min Value</th>
<th>Max Value</th>
<th>Valve Service</th>
<th>Min Value</th>
<th>Max Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lift Up</td>
<td>55</td>
<td>180</td>
<td>Lift Down</td>
<td>55</td>
<td>250</td>
</tr>
<tr>
<td>Reach In</td>
<td>60</td>
<td>180</td>
<td>Reach Out</td>
<td>60</td>
<td>200</td>
</tr>
<tr>
<td>Angle CW</td>
<td>50</td>
<td>160</td>
<td>Angle A-CW</td>
<td>55</td>
<td>160</td>
</tr>
<tr>
<td>Slew In</td>
<td>55</td>
<td>180</td>
<td>Slew Out</td>
<td>55</td>
<td>120</td>
</tr>
<tr>
<td>Tele In</td>
<td>55</td>
<td>180</td>
<td>Tele Out</td>
<td>55</td>
<td>180</td>
</tr>
<tr>
<td>6th Service In</td>
<td>55</td>
<td>180</td>
<td>6th Service Out</td>
<td>55</td>
<td>180</td>
</tr>
<tr>
<td>7th Service In</td>
<td>55</td>
<td>180</td>
<td>7th Service Out</td>
<td>55</td>
<td>180</td>
</tr>
</tbody>
</table>

Values listed are recommended valve settings for normal hedge cutting operations.

The minimum and maximum settings relate to valve response times; values range between 0 and 255, the higher the value the faster the response time.
Diverter Menu: Information Screen & Symbol Customisation

The diverter menu screen lists and identifies the diverter valves. This screen also allows the user to replace the displayed diverter symbol with the symbol of the function currently assigned to the diverter; *the following illustrations show the procedure for changing a diverter symbol.*

1. **Function selection screen:** Use ‘Scroll Dial’ to search and display the chosen function description.

2. **Assigned function description:**
   - **Head Orbitor**

3. **If Head Orbitor is the function assigned to D1, scroll to display ‘Head Orbitor’ then touch ‘OK’ to confirm.**

4. **Result of the above symbol change shown on example ‘Home Screen’**

5. **Default ‘Diverter 1’ symbol……...replaced with ‘Head Orbitor’ symbol.**

**WARNING**

This procedure does not assign a function to the diverter, it will only change the symbol displayed ‘on-screen’ for the particular diverter control; *always ensure that the symbol assigned to the diverter is the correct symbol for the currently assigned function.*
Test Screen : Access to Test Menu

Test Screen : Joystick Calibration
To test joystick calibration operate the control lever to its maximum positions in both the ‘X’ axis and the ‘Y’ axis; calibration is correct when the test screen reports ‘-1000’ & ‘1000’ at the opposing maximum positions in each axis, and ‘0’ at it’s mid-point position.

Test Screen : Thumbwheel Calibration
To test thumbwheel calibration operate each thumbwheel to it’s maximum position in each direction; calibration is correct when the test screen reports ‘-1000’ & ‘1000’ at the opposing maximum positions and ‘0’ at it’s mid-point position.

Test Screen : Button Cycle Count
The control unit counts each operation of the joystick buttons; the running total for each button is recorded on the test screen.
**Test Screen: Sensors**
The sensors test screen displays ‘active’ machine sensors and reports their current status or a measured value. The types of sensors fitted will depend on machine specification.

- **RCV Sensor** will report one of the following depending on the current status: OFF, CLOCKWISE, COUNTER CLOCKWISE or RUN DOWN.
- **Position Sensors** report a numeric value based on its current position.
- **Pressure Sensors** report a measured pressure value.

**Only sensors that are active will be displayed on this screen; for a sensor to be active it must be ticked (✔) in the ‘Calibrate Test Screen’.

**Test Screen: Calibrate**
The calibrate screen allows machine sensors to be activated or de-activated; sensors are ‘active’ when their respective box is ticked (✔).

**Information Screens: Setup Screen / Details Screens (Factory use)**

- Protected access to factory settings.

<table>
<thead>
<tr>
<th>Sensor Identification</th>
<th>Current Sensor Reading</th>
</tr>
</thead>
</table>

**Sensor identification**
- Sensor 'tick (✔) box'

- **Sensor Activated (ON)**
- **Sensor De-activated (OFF)**

- Touch 'tick box' on screen to Activate or De-activate a sensor.
- Touch arrows on screen to scroll the list of available sensors.

- Access to Information Screens (Factory use).

<table>
<thead>
<tr>
<th>Setup Information Screen &amp; Machine Details Screen</th>
</tr>
</thead>
</table>

- Setup information screen & machine details screen.

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**Stops Screen: Reach Stops**

Reach positions information.  
Current Arm Position / STOP 1 Position / STOP 2 Position

Touch here to delete ‘Reach STOP’ settings.

Touch here to set ‘STOP 1’ position.

Touch here to set ‘STOP 2’ position.

Setting Reach ‘Stop’ Positions:
Position arms in desired stop position 1 - touch ‘STOP SET’ on screen.
Position arms in desired stop position 2 - touch ‘STOP 2 SET’ on screen.

Activation and deactivation of Reach & Slew Stops is via the main settings screen.

**Stops Screen: Slew Stops (VERSI Machines Only)**

Slew positions information.  
Current Slew Position / STOP Point 1 / STOP Point 2 / STOP Point 3 / STOP Point 4

Touch here to delete ‘Slew STOP’ settings.

Touch relevant symbol to set ‘STOP Point 1 or 2’.

Touch relevant symbol to set ‘STOP Point 3 or 4’.

Setting Slew ‘Stop’ Positions:
Slew arms to desired stop point position – touch the relevant ‘STOP SET’ symbol on screen to set ‘Stop Point’. Repeat for each stop point required.

Activation and deactivation of Reach & Slew Stops is via the main settings screen.

‘Slew Stop’ positions are factory pre-set at 90º to the tractor on both sides and at 12º forward of those positions.

**Filters Screen : Service Information**

On-screen Information;
Oil Filter Part Number.
Recommended Filter Change Interval (Hrs).
Remaining time to next filter change (Hrs).
Filter Change Overdue Time (Hrs).
Recommended Oil Specification.

Touch ‘RESET’ symbol on screen to reset the filter hours counter.

**Warning Screen : PTO Over Speed Warning**

RED SCREEN will be displayed with ‘PTO OVER SPEED’ if speed reaches 200RPM above maximum.

AUDIBLE ALERT will sound if the feature is activated (ON).

NO AUDIBLE ALERT if the feature is deactivated (OFF).

Refer to ‘Visual & Audio Settings’ for activation/deactivation of Audio Alerts.
Warning Screen: ACB and/or Joystick Disconnected

RED SCREEN will be displayed with;
'ACB DISCONNECTED' and/or 'JOYSTICK DISCONNECTED'
If one or both are not connected to the control unit.

If either or both of these warnings are displayed check the relevant components are connected.