EVOLUTION CONTROLS
Operation Manual
EVOLUTION CONTROLS

Power ON

Power OFF / EMERGENCY STOP

TW1
B1
TW2
B2

Thumb Wheels & Frontal Buttons

Default Control: TW1: Slew Operation
TW2: Angle Operation

B1: Slew Tele* Swap
B2: Angle Float ON/OFF

(B Tele* / Midcut* / VFR* as applicable)

B3: Lift Float ON/OFF
B4: Rotor STOP

Rear Buttons

Lift Float
Advanced Float*

Angle Float

Rotor START
(Uphill)

Auto-
Reset

Diverter #1
6th Service Activation
(Default Control TW1)

LED’s: Function Status
- Deactivated
- Active
- Temporarily deactivated

Slew (Swap Mode)

Tele* / Midcut* / VFR* (Default)

Rotor STOP

<3s

<3s

Diverter #2
ON/OFF Control for Accessory

Configuration Key
(Joystick button assignment)

Thumb Wheel Swap (TW1 TW2)

*Applicable builds

On Tele/VFR machines, VFR is the default 'Slew Swap' function;
the Tele function is configured to the D1 diverter control.
Arm Operation Controls

Default Mode (B1 OFF)

Auto-Rest

Swap Mode (B1 ON)

B1: Slew Tele* Swap

Default Mode (B1 OFF)

Tele* / Midcut* / VFR* (applicable feature)
# Keypad Control Buttons

<table>
<thead>
<tr>
<th>Button</th>
<th>Function</th>
<th>Control Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Angle Float ON/OFF" /></td>
<td>Angle Float ON/OFF</td>
<td>Pressing either the LH or the RH button will switch Angle Float function ON/OFF.</td>
</tr>
<tr>
<td><img src="image" alt="Lift Float ON/OFF" /></td>
<td>Lift Float ON/OFF – where applicable incl. Advanced Lift Float if feature is activated – latest status/setting is retained in memory.</td>
<td>Pressing either the LH or the RH button will switch Lift Float function ON/OFF.</td>
</tr>
<tr>
<td><img src="image" alt="Advanced Lift Float Activate/Deactivate" /></td>
<td>Advanced Lift Float* Activate/Deactivate (* where applicable)</td>
<td>Press/hold buttons B1 &amp; B2 for 5 seconds to activate Advanced Lift Float - repeat to deactivate the Advanced Lift Float feature.</td>
</tr>
<tr>
<td><img src="image" alt="Advanced Lift Float" /></td>
<td>Advanced Lift Float; Lift Float pressure balance adjustment (± 5 bar increments).</td>
<td>When lift float function is active B1 &amp; B2 adjust lift pressure in 5 bar increments. B2 (+)+</td>
</tr>
<tr>
<td><img src="image" alt="Rotor START" /></td>
<td>Rotor START (Uphill Direction).</td>
<td>Press to start rotor. 8 second delay for direction change.</td>
</tr>
<tr>
<td><img src="image" alt="Rotor START" /></td>
<td>Rotor START (Downhill Direction).</td>
<td>Press to start rotor. 8 second delay for direction change.</td>
</tr>
<tr>
<td><img src="image" alt="Rotor STOP" /></td>
<td>Rotor STOP.</td>
<td>Press to stop rotor. Press first before direction change.</td>
</tr>
<tr>
<td><img src="image" alt="Auto-Reset" /></td>
<td>Auto-Reset (Slew).</td>
<td>Press to activate auto-reset function. Deactivates if slew is manually operated.</td>
</tr>
<tr>
<td><img src="image" alt="Tele* / Midcut* / VFR*" /></td>
<td>Tele* / Midcut* / VFR* operation; Default controls for the machines specific* function.</td>
<td>Pressing the arrow buttons will operate the specific arm* function in the applicable direction. Operates slew in swap mode.</td>
</tr>
<tr>
<td><img src="image" alt="Telesw" /></td>
<td>A) Slew Tele* Swap (*specific function) B) Thumb Wheel Swap (TW1 TW2)</td>
<td>A) Press button for less than 3 seconds B) Press button for more than 3 seconds</td>
</tr>
<tr>
<td><img src="image" alt="Diverter #1" /></td>
<td>Diverter #1 : 6th Service Activation</td>
<td>Press button to activate 6th Service. Operation is with Thumb Wheel 1 (TW1)</td>
</tr>
<tr>
<td><img src="image" alt="Diverter #2" /></td>
<td>Diverter #2 : Accessory Control ON/OFF</td>
<td>Press to switch the accessory ON or OFF. Only applicable if an accessory is fitted.</td>
</tr>
<tr>
<td><img src="image" alt="Configuration Setting" /></td>
<td>Configuration Setting for Joystick buttons. Options: Auto-reset, Angle Float, Lift Float, Rotor Stop, Slew-Tele Swap, D1, D2.</td>
<td>Press and hold until continual beep, press the required joystick button then select the desired function on control unit keypad.</td>
</tr>
</tbody>
</table>

- ![Function OFF status (LED OFF)](image) Function OFF status (LED OFF).  
- ![Function ON status (LED ON)](image) Function ON status (LED ON).  
- ![Calibration mode active (All LED’s Flashing)](image) Calibration mode active (All LED’s Flashing).
Advanced Lift Float (Applicable builds only)
On machines that feature ‘advanced float’ the feature is activated and deactivated by simultaneously pressing and holding buttons B1 & B2 for 5 seconds; the unit will then ‘beep’ to confirm the selection.

Lift Float Button LED Status;
LED OFF: Lift Float OFF
LED ON: Lift Float ON
LED Flashing: Advanced Lift Float ‘Active’ (ON)

Advanced Lift Float – Pressure Adjustment
When advanced lift float is active, operation of joystick buttons B1 and B2 adjust the lift float pressure; B1 reduces the pressure and B2 increases the pressure; each ± adjustment equates to a 5 bar pressure increment.

NOTE: If the lift float setting is adjusted too low the unit will emit a series of ‘beeps’ and the arm will slowly rise and stop for 2 seconds before then returning to the ground; at this point lift float pressure will be reset to its default setting - this is a built in safety feature for protection of machine and tractor components.

Switching the advanced lift float function off and back on will recalibrate the system to its default pressure setting; this should be performed with the flail head raised clear of the ground (approx. 30cm).
When the rotor is switched off it will continue to ‘freewheel’ under its own momentum for up to 40 seconds before finally coming to a standstill – do not leave the tractor cab or attempt to approach the flailhead until the rotor has stopped turning completely.
TEMPERATURE COMPENSATION – SELECTION & CALIBRATION

The control unit features a built-in temperature compensation system which automatically adjusts the performance of the system in response to increased solenoid temperatures ensuring maximum operating performance is retained in all work conditions.

On initial machine setup the temperature compensation system must be calibrated and activated; when this has been performed the temperature compensation system will not require any further attention or adjustment and will operate automatically.

*The procedures for calibration and activation of the temperature compensation system are as stated below. *Ensure PTO is OFF for the calibration procedure.*

**Temperature Compensation - Calibration**

*With the control unit powered OFF;*

1. Press and hold ‘D1’ & ‘D2’ keys.
2. Turn ‘Power ON’; unit will emit a ‘beep’, *Power, D1 & D2 LED’s will illuminate.*
3. Press ‘Rotor Stop’ key.
4. D1 & D2 LED’s will flash (cutoff outputs will turn on for approx 2 seconds). *Unit will emit a ‘beep’ to confirm calibration and the unit will be restarted.*

**Temperature Compensation - Enable / Disable**

*With the control unit powered OFF;*

2. Turn ‘Power ON’; unit will emit a ‘beep’ and *Power LED will flash.*
3. Press ‘Auto-Reset’ key to enable (or disable) temperature compensation. *Power LED ON = Temperature Compensation ON (Enabled) Power LED OFF = Temperature Compensation OFF (Disabled)*
4. Press ‘Rotor Stop’ key to complete selection. *All LED’s will flash and the unit will be restarted.*
These control units are capable of operating ‘Bang-Bang’ or Proportional control valves and will be pre-set at the factory to match the specific machine it is being supplied with. Where a control unit is supplied as a replacement or is being used on a different machine it must be re-configured to match the particular valve set of the machine; the procedure for this is stated below.

### Bang-Bang / Proportional (PWM Mode) Selection

*With the control unit powered OFF;*

2. Turn ‘Power ON’; unit will emit a ‘beep’ and Power, Lift Float & Angle Float LED’s will flash.
3. Press ‘Rotor Stop’.
4. Press the dedicated key for the type of control valve fitted to the machine; Select ‘Angle Float’ key for machines equipped with Proportional valves. Select ‘Lift Float’ key for machines equipped with ‘Bang-Bang’ valves. Unit will emit a ‘beep’ to confirm selection and LED of selected key will remain lit.
5. Press ‘Rotor Stop’ key to complete selection.
   All LED’s will flash and the unit will be restarted.
CONTROL UNIT CALIBRATION

If for any reason the controls should stop responding the unit will need to be calibrated; the procedure for this is shown below.

Press and release the rotor stop button to enter calibration mode; all LED’s will simultaneously flash to confirm.

With the unit powered off; simultaneously press and hold both rotor direction buttons before then powering on the unit. When all LED’s light up; release both buttons.

Operate the joystick through its complete range of movements 4 to 5 times then operate each toggle switch fully forwards and fully backwards 4 to 5 times. All LED’s will flash continuously.

Press the rotor stop button once to exit calibration mode; all LED’s will flash rapidly and the unit will emit a confirmation ‘beep’.

Unit will automatically power off and back on.
ERROR / FAULT REPORTING

Error detection / reporting is indicated by specific flashing of the LED(s) on the control unit; depending on the nature of the fault these will be indicated by the just the Power LED flashing for a specific fault or by all the LED’s flashing at the same time for a critical hardware fault. Refer to the chart below of details of errors/faults.

Note: on error detection flashes of the LED(s) will be continually repeated with a short delay between each specific sequence of flashes.

<table>
<thead>
<tr>
<th>Specific Fault Detection / Report</th>
<th>Critical Hardware Fault Detection / Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power LED</td>
<td>Error / Fault</td>
</tr>
<tr>
<td>2 x Flash</td>
<td>Analogue input fault</td>
</tr>
<tr>
<td>3 x Flash</td>
<td>System overcurrent</td>
</tr>
<tr>
<td>4 x Flash</td>
<td>Channel overcurrent</td>
</tr>
<tr>
<td>5 x Flash</td>
<td>System over temperature</td>
</tr>
<tr>
<td>6 x Flash</td>
<td>System under voltage</td>
</tr>
<tr>
<td>7 x Flash</td>
<td>System overvoltage</td>
</tr>
<tr>
<td>8 x Flash</td>
<td>Calibration fault</td>
</tr>
<tr>
<td>9 x Flash</td>
<td>Td channel cut-off overcurrent</td>
</tr>
<tr>
<td>10 x Flash</td>
<td>Td EEPROM load error</td>
</tr>
</tbody>
</table>