



Shelbourne header monitor kit

2004 Onwards

Shelbourne Reynolds Part Number RDS-0002 (full kit) RDS-0027 (head only).

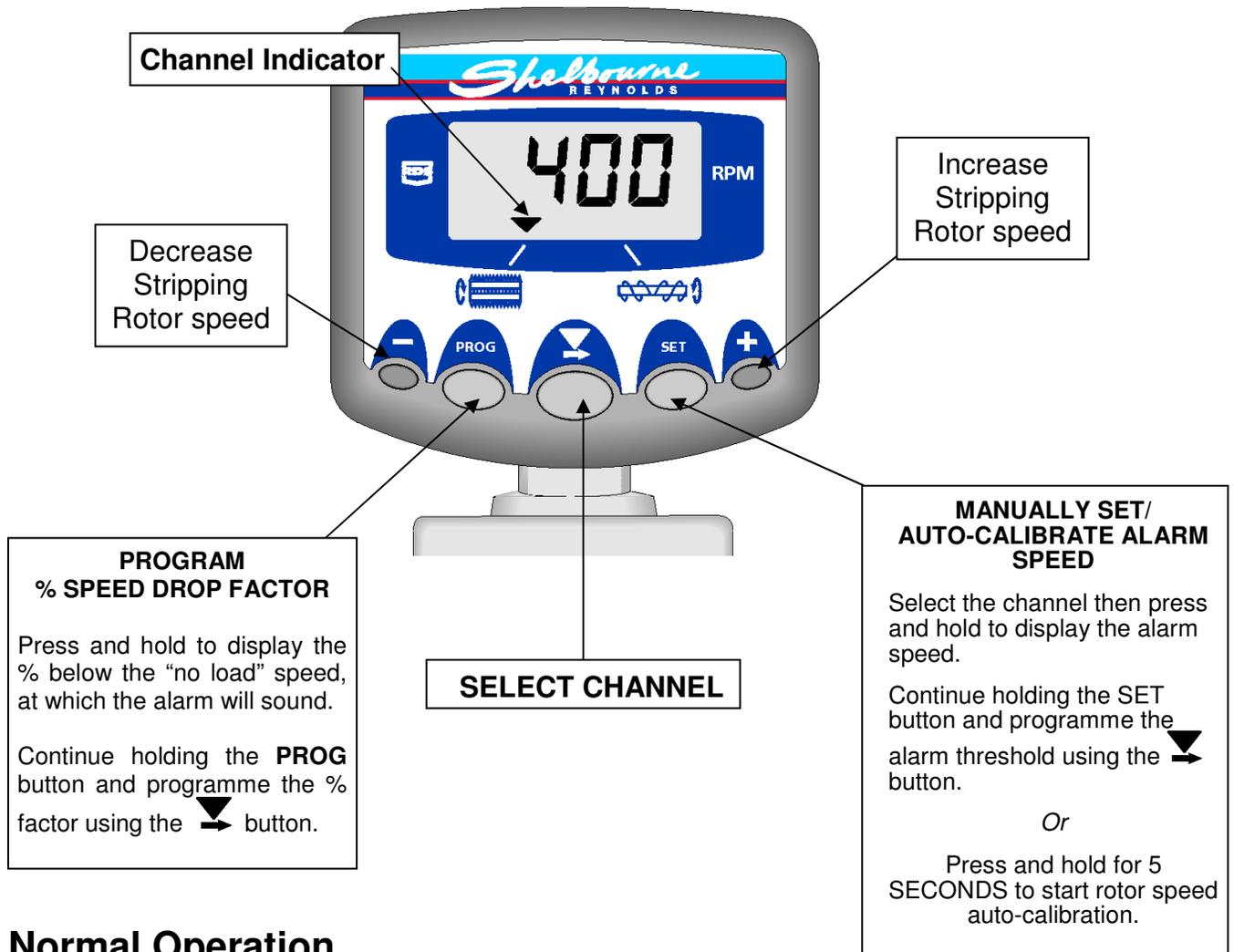
The Stripper Head Monitor performs the following functions:

Speed control of the stripping rotor (via electric linear actuator, CVS/RVS Only).

Monitors and displays the running speeds of the stripping rotor and the auger of the header. The speed of either can be displayed at any time.

Audible and visual low speed alarm for auger and stripping rotor RPM. The alarm speed may be set either manually or by auto-calibration.

The Control Switches - Summary



Normal Operation

The speed of either shaft is displayed continuously. To change channels, simply press and release the **▼** button.

Rotor Speed Control

Use the outermost + and – buttons to increase and decrease the rotor speed.

Alarms

If the **Stripping Rotor** speed drops by more than the programmed % below the “no load” speed, the audible alarm will emit an **intermittent** tone, the instrument will default to the rotor RPM display and the display will flash.

If the **Auger speed** drops by more than the programmed % below the “no load” speed, the audible alarm will emit a **continuous** tone, the instrument will default to the auger RPM display and the display will flash.

An alarm will continue either until the correct speed is restored, or by pressing either the **PROG**,  or **SET** button.

Setting the Alarm Thresholds

Start by programming the % speed drop factor, and then program the rotor and auger alarm speeds. The rotor alarm speed can be programmed either by doing an auto-calibration or manually. The auger alarm speed must be programmed manually.

Set % Speed drop factor

This is the % speed drop from the optimum rotor speed before the instrument will alarm.

The factory default setting is 8%. Range: - 0 to 30%.

1. Press and hold the **PROG** button to display the % factor currently set.
2. Continue holding the **PROG** button and PRESS  to select the digit to change.
3. HOLD  to ange the selected digit.
4. RELEASE  to select the next digit and repeat as above, otherwise simply release both buttons. The instrument will then return to the normal display mode.

Auto-calibrating the Alarm speed (Rotor RPM only)

A suitable running speed under full load should initially be determined for optimum performance in various crop conditions.

The factory default alarm settings are,

Stripping Rotor alarm: 450 rpm Auger Shaft alarm: 100 rpm.

Alarm speed = “No load” speed minus the Speed Drop factor.

With the rotor running at the normal “no load” speed, press and hold the **SET** button for 5 seconds. The display will then show “**LOAD**” and the auto-calibration commences.

Wait for 5 seconds. The display will then show “**DONE**”. The instrument then calculates the appropriate alarm speed and saves it to memory.

NOTE: If you subsequently adjust the % Speed Drop Factor, the alarm speed will be re-calculated automatically.

Manually setting the Alarm Speed (Rotor and Auger RPM)

1. Press the  button to select the appropriate channel to programme.
2. Press and hold the **SET** button to display the alarm speed currently set for that channel.
3. Continue holding the **SET** button and PRESS  to select the digit to change.
4. HOLD  to change the selected digit.
5. RELEASE  to select the next digit and repeat as above, otherwise simply release both buttons, and the display will return to the normal mode.

Error message: "PROG"

"**PROG**" on the display indicates the instrument memory has been corrupted. You can attempt a "Power-On Reset".

1. Switch the power supply off.
2. Press and hold the three middle buttons and switch the power on. If the instrument can recover itself, it will perform a short self-test routine and return to the normal display. If not, then the instrument must be returned for servicing or replacement.

NOTE: All alarm settings will be reset to the factory default values.

Installation

Head Unit

Confirm with the machine operator on where to mount the head unit in the cab. The head unit must not restrict the view out of the cab, nor impede the use of the controls.

Pod Mounting

The instrument mount is designed to offer maximum flexibility in positioning the head unit, either from the right hand side of the cab, from the dashboard or from an overhead position.

1. Snap the cover plate into the recess of the long bracket (it only fits one way).
2. Assemble the two brackets, and mounting plate with clamping knobs, and attach to the head unit. As you will notice, you can index each pivot point on the mounting bracket to angle the head unit in relation to the mounting plate.

NOTE: Either the long or short bracket can be attached to the head unit, whichever gives the most suitable orientation.

3. Having established the orientation for the bracket, fix the mounting plate to the cab with the self-tapping screws provided.



Do not drill into a ROPS or FOPS frame.

1. If you are fixing the mounting plate to plastic e.g. the dashboard or other cab moulding, it is recommended to use M4 screws with mudwing washers to strengthen the mounting point.



Do not attempt to adjust the mounting bracket assembly without first slackening off the clamping knobs sufficiently. You will only succeed in damaging the bracket otherwise.

Panel Mounting

Follow the instructions printed on the paper template provided in the optional panel mounting kit.

Junction Box



The Terminator is not sealed. It must be located where it will be protected from EXCESSIVE MOISTURE AND DIRT

The junction box can be mounted using the screws provided, or can be left in-line with the cables.

Power Supply – 12V Negative Earth Vehicles

The instrument normally operates from a 12V DC supply. A 15A-blade fuse located on the PCB in the junction box protects the system. A powers supply of 15A minimum is required to operate actuator



The fuse in the junction box will only protect the junction box circuitry and the head unit. It will NOT protect the power supply cable. Always use a replacement fuse of 15 A maximum rating.

1. Route the power lead back to a switched, fused point, e.g. from the back of the ignition switch or from the fuse box.
2. Connect the brown wire of the power supply lead to +V. If you are not certain of the fused rating, then you should wire an in-line fuse holder fitted with a 15A fuse, to protect the power lead.
2. Connect the 0V terminal (blue) to the bodywork/chassis. Ensure connection onto bare metal and that the connection point gives a good grounding path to the battery.

NOTE: The head unit does not have an integral On-Off switch, and is normally powered on via the ignition circuit. However, a toggle switch (Part No: S/AC/199-2-134: - not supplied) can be wired in-line with the +v supply.

If required, panel-mount the toggle switch at a suitable point (1/2" dia drill required) and connect into the +V (brown) wire of the supply lead. If required, use a suitable length of the same gauge wire.

Power Supply – 24V Negative Earth Vehicles

The head unit will operate satisfactorily over the voltage range 10-30V. However, the changeover relays located in the junction box for driving the speed change actuator, are rated at 12V only.

You must therefore, fit a 24-12V-voltage dropper on combines with a 24V electrical system.

A suitable kit is available ref. RDS Pt No. K/INST/24V. Full instructions are included.

External Alarm

The audible external alarm function can remain operational where an existing installation is upgraded with a new head unit using the upgrade cable RDS-0006 (16).

However on new installations using the junction box, there is no facility to connect an external alarm.

Shaft Speed Sensors

The two reed switch type shaft speed sensors are identical. Each are operated by a magnet on the rotating component.

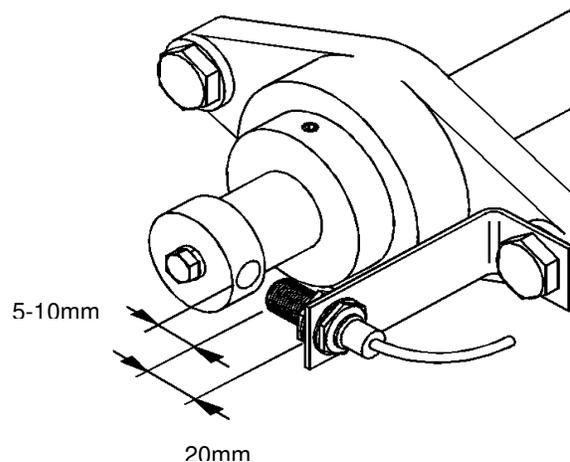
Stripping Rotor Speed Sensor

The Stripping Rotor Speed Sensor is mounted on the right hand end of the header (as viewed from the cab).

Drill and tap a hole M6 x 20mm minimum depth in the end of the shaft and secure the End-mounted Magnet Carrier to the end of the Stripping Rotor shaft.

Secure and tighten the Sensor Mounting Bracket onto one of the shaft bearing-housing bolts.

Mount the sensor to the bracket and adjust the sensor position so that there is a gap of 6 to 10 mm between the magnet carrier and the end face of the sensor (see below).



Auger Shaft Speed Sensor

The Auger Shaft Speed Sensor is also mounted on the right hand end of the header.

Mount the blue magnet on the auger end plate. If the magnet is positioned on a 67 mm radius it will sit snugly against the bearing flange plate on the end of the auger.

Drill a 5.5mm dia hole and mount the magnet using the M6 Taptite screw. The fibre washer must be fitted between the magnet and the end plate.



Do not overtighten the fixing bolt or the magnet may break.

The sensor mounts directly through the auger bearing mounting plate so that the magnet will pass in front of it.

Drill a hole 12.5 mm diameter in the plate 55 mm forward of the centre line of the auger.

Mount the sensor through the end plate, adjusting the position so that there is a gap of 5-10mm between the magnet and the end face of the sensor.

Variable-Speed Control

The actuator lead blue wire is connected to the speed control actuator so as to increase the rotor speed, and likewise the brown wire is connected so as to decrease the rotor speed

Cable Routing

Ensure that the cables are fixed with adequate clearance from moving parts. Secure both the header cable and the actuator cable to the header with cable ties and self-adhesive clips.

Drill a hole 16mm diameter into the box section at the rear of the header. Feed a length of stiff fencing or welding wire along the box section, to emerge with the hydraulic pipe at the right-hand end of the header. Attach the wire to the ends of the cables and feed the ends into the box section. Pull the cables through using the wire.

Connect the sensors and actuator as per the attached wiring diagram. Loop excess cable into an 'S' shape and secure with a cable tie. Ensure the cables are secured and tidy. Fit a length of 'Spiroband' to the header cable to protect it from chafing where it passes through the hole in the box section.

Ensure the Weatherpak connectors are positioned alongside the other header-combine connections. Route the leads tidily up the header trunking and into the combine cab, together with existing cables/hydraulic lines.

Testing the Installation

Power

Switch the combine ignition on. The display and illumination will come on, and the audible alarm will give a single beep.

RPM display

Run the header. As soon as the shafts turn, the display will show the speed of either shaft.

Press the  button to select the other shaft speed channel and ensure that the speed is displayed correctly.

Speed Control

Press and hold the “+” button and the rotor speed should increase. Press the “-“ button and the rotor speed should decrease.

If the functions are reversed, then swap over the connections on the actuator lead.

NOTE: The actuator has no limit switches therefore if the rotor speed does not change within a 3-second period, the output will switch off and remain off until the button is released and pressed again. This is designed to prevent the circuit/actuator from being damaged when the limit is reached.

Alarms

The instrument is factory set with alarm speeds of 450rpm for the stripping rotor and 100 rpm for the auger shaft. Run the machine up to full speed and ensure that both these alarms are exceeded, then slow the machine down.

As the speed drops below the alarm speed, the audible alarm will sound six times and the display will flash.