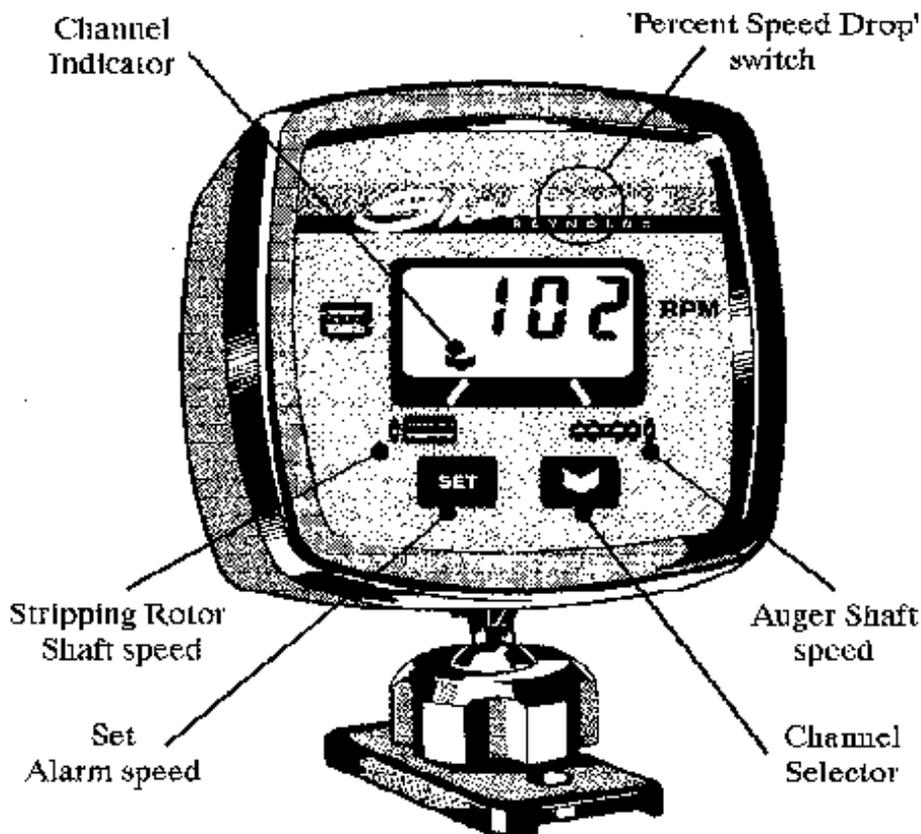




Shelbourne header monitor kit

Up to 2004



The Shelbourne Header Monitor monitors and displays the running speeds of the Stripping Rotor and the Auger of the combine header. The speed of either can be displayed at any time.

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

The instrument may be programmed to give an audible and visual warning, if either shaft speed drops below a preset value. The alarm speed may be set either manually or by auto-calibration.

Controls

The instrument will normally be powered through the vehicle ignition circuit and will be on whenever the ignition is on. The display is permanently illuminated.

There are three push button switches on the front panel.

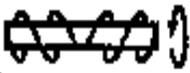


Channel Select

Press to select either channel. The channel is indicated by a chevron on the LCD display.



Indicates Stripping Rotor speed.



Indicates Auger speed.



Set

Press to display the alarm speed set on each channel

Press and hold in combination with  to program the alarm speed.

‘Percent Speed Drop’ switch

The third switch is located beneath the ‘our’ of the ‘*Shelbourne*’ logo.

Press to display the % speed drop. This is the percentage below the stripping rotor ‘no-load’ speed at which the alarm sounds.

Normal Operation



Select and display Speed

Select either Auger shaft speed or Stripping Rotor shaft speed.

Shaft speed is displayed continuously.

Speed alarm

If the speed of either shaft drops below the programmed alarm speed, an alarm will sound and the display will default to the appropriate channel and flash.

The alarm will continue until either,

- The correct shaft speed is reached.
- Any switch is pressed to cancel the alarm.

Instrument settings

The alarm speeds are factory-set to 450 r.p.m. for the stripping rotor and 100 r.p.m. for the auger. The alarm speed for either shaft may be adjusted manually and for the stripping rotor, with an ‘Auto-cal’ procedure.

Manually setting alarm speed (either shaft)

NOTE The shafts must be stopped



1 Select the relevant channel.



2 Hold continuously

The lefthand digit will flash.



3 Hold to cycle to the desired digit, then release, otherwise press once

The second digit will now flash.



4 Repeat Step 3 for the remaining digits.



‘Auto-calibrate’ alarm speed (Stripping rotor)

Initially, set a value for the ‘% speed drop under load’. The value is factory-set to 8(%) and may be adjusted within the range 0- 30(%).

1 Press and hold the ‘Percent speed drop’ switch (ref. Fig. 1)

Display shows the percentage below the stripping rotor ‘no-load’ speed at which the alarm sounds.



2 Adjust the value.

NOTE Run the stripping rotor at normal ‘no-load’ speed.



3 Hold until display changes, then release. *Auto-calibration start.*

Auto-calibration finished.



NOTE It is not necessary to repeat the ‘auto-cal’ procedure if the speed drop percentage is subsequently re-adjusted. The instrument will automatically re-calculate the new alarm speed, however it will need repeating if the stripping rotor speed is adjusted.

Total reset

If for some reason the data in the instrument is corrupted or the display shows ‘*PraG*’ then the instrument must be totally reset.

1 Switch power off.

2 Press and hold all three control switches.

3 Switch power on.

4 Release all switches.

All instrument settings should be returned to the factory-set values. If the display shows ‘*PrDG*’ again, the instrument may be faulty and must be returned to the manufacturer for inspection and repair.

Head Unit

Location in cab

The instrument should be situated in the combine cab in any position convenient to the operator, such as in front of the driver, on the dashboard or suspended from the cab roof or corner pillar.

Do not position the instrument where it may obstruct the operators view or use “of existing controls.

Fixing the instrument pod

The pod foot can be positioned below, on top of, or on either side of the instrument.

To change the pod orientation,

1 Remove the large ‘pozi-drive’ ‘screw from the rear of the pod.

2 Withdraw the inner head unit and turn through 900 or 1800. It may be necessary to re-route the cable underneath the fixing strap.

3 Re-assemble the pod and head unit, taking care to locate the cable grommet in the cable slot.

To fix the pod foot,

1 Remove the instrument pod completely from the pod foot, by undoing the large nut at the base of the instrument.

2 Fix the foot using two No. 8 x 5/8" countersunk self-tapping screws. These require two 3.5mm (9/64") holes.



Do not over tighten the fixing screws.

3 Re-mount the instrument pod to the foot.



Do not over tighten the fixing nut.

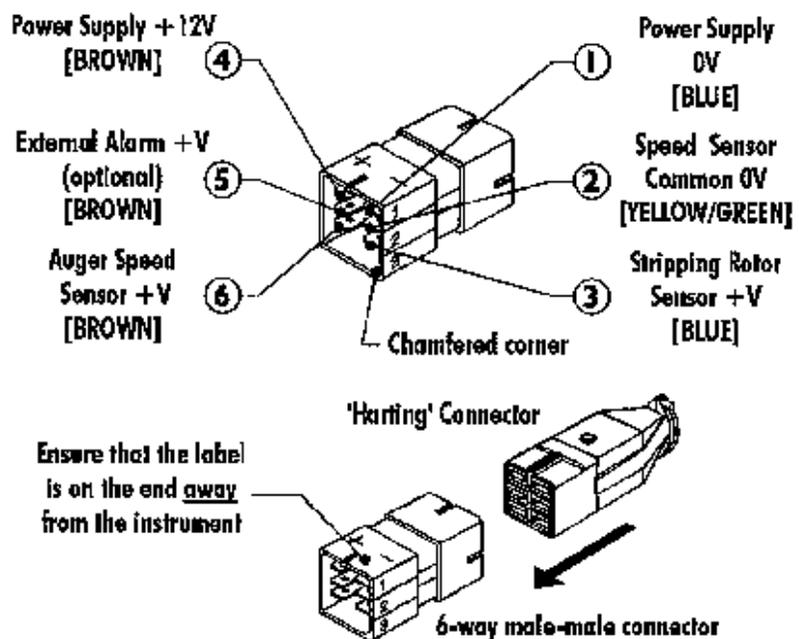
'Harting' Connector

The head unit is supplied with a flying lead terminating in a 6-way connector plug. Cables are connected to a mating 6-way male-male connector shell, to create a quick release connection between the instrument and the vehicle. This allows the head unit to be easily transferred to another vehicle.

A label on the connector identifies each terminal. Orientation is identified by a **chamfered corner** and a groove.

NOTE It will be easier to identify the connections by fitting the connector shell onto the flying lead before installation. The labelled end is fitted furthest away from the flying lead.

Fig. 2 Instrument connections



Power supply

Use the two-core cable supplied with female push-on connectors at one end, a ring and a piggyback at the other end.

1 Connect the blue wire to terminal 1 and the brown wire to terminal 4 of the shell connector.

2 Connect the piggyback connector to ci +1 2v terminal at a switched, fused point on the vehicle electrical system. This may be at the fuse box or on the back of the ignition switch.



5 amp maximum fuse rating.

3 Fix the ring terminal under any convenient bolt head.

NOTE Ensure a good earth connection. Check the bolt is fixed to an integral part of the vehicle chassis, free of paint, rust, grease etc.

External Alarm (optional)

This can be sited anywhere convenient to the operator, but must be protected from direct rain or hosing. It is secured by a single self-tapping screw.

Connect the brown wire to terminal 5 of the shell connector, and the blue wire, ring terminal under any convenient bolt head.

NOTE Ensure a good earth connection. Check the bolt is fixed to an integral part of the vehicle chassis, free of paint, rust, grease etc.

Shaft speed Sensors

The two shaft speed sensors are identical. They are the black threaded-bodied, cylindrical devices.

They are each operated by a magnet fixed on the rotational part of the machine.

Stripping Rotor Speed Sensor

The Speed Sensor assembly (Fig. 3) is located on the **righthand** end of the header, when viewed from the cab.

Mounting the magnet

The magnet mounts in a '*End-mounted Magnet Carrier*' supplied.

1 Drill and tap a hole M6 x 20mm minimum depth in the end of the shaft.

2 Secure the End-mounted Magnet Carrier to the end of the Stripping Rotor shaft.

Mounting the sensor

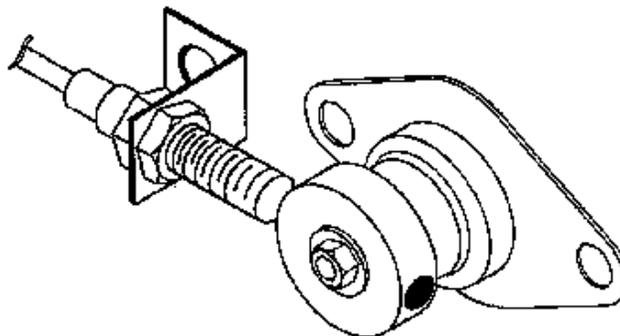
The sensor mounts in a special bracket supplied.

1 Secure and tighten the special bracket in position by fitting behind one of the shaft bearing-housing bolts.

2 Mount the sensor to the special bracket.

3 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.

Fig. 3 Stripping Rotor Sensor assembly



Auger Speed Sensor

The Speed Sensor is mounted on the right hand end of the auger shaft when viewed from the cab.

Mounting the magnet

The magnet is mounted in the end plate of the auger so as to pass the ends of the sensor.

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.

1 Drill a hole 5.5 mm diameter in the auger end-plate.

2 Fit an M6 fibre washer between the magnet and the end plate.

3 Secure the magnet using an M6 Taptite bolt.



Do not overtighten the fixing bolt.

Mounting the sensor

The sensor mounts directly in the auger bearing mounting plate.

1 Drill a hole 12.5 mm diameter in the auger bearing mounting-plate. This hole should be 55 mm forward of the centre line of the auger.

2 Mount the sensor to the end plate.

3 Adjust the sensor position so that there is a gap of 10 to 20 mm between the magnet and the end face of the sensor.

Sensor cable connection

Sensors are connected using three cable sections,

- **A combine** cable with three shrouded female terminals at one end. Routed from the instrument 'Harting' connector to the combine-header coupling point.
- **A header** cable with four shrouded male terminals at one end. Routed from the combine-header coupling point to the sensor cable terminals.
- **Sensor** cables supplied with the sensor units.



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

Fixing header cable

1 Drill a hole 16mm diameter into the box section at the rear of the header.

2 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.

3 Attach the wire to the end of the cable with the four male terminals.

4 Feed the four male terminals into the box section towards the righthand end of the header and pull the cable through, using the wire.

5 Connect the sensor cables to the four male terminals.

Stripping Rotor Sensor	Blue	to Header cable	Yellow/green
	Brown	----- -----	Blue
Auger Sensor	Blue	to Header cable	Yellow/green
	Brown	----- -----	Blue

6 Loop the three cables into an 'S' shape and secure with a cable tie to act as a strain relief.

7 Feed the connections back into the box section and ensure the cables are secured and tidy.

8 Fit a length of ‘Spiroband’ to the header cable to protect it from chafing where it passes through the hole in the box section.

9 Ensure the header-combine weatherproof cable connector is positioned adjacent to the other combine-header electrical/hydraulic coupling points.

Fixing combine cable

1 Route the combine lead tidily up the header trunking and into the combine cab, together with existing cables/hydraulic lines.

2 Connect the three female push-on terminals to the ‘Harting’ connector, following the connection diagram in Fig. 2.

Test The System

1 Ensure that all wiring connections are firmly made.

2 Switch on. The display comes on and the alarm will sound a short single pulse.

3 Run the header mechanism. As soon as the shafts turn, the display will show a shaft speed.



4 Ensure that the speed is displayed correctly.

The instrument is factory set with alarm speeds of 450 r.p.m. for the header and 100 r.p.m. for the auger.

5 Run the machine up to full speed and ensure that both alarm speeds are exceeded.

6 Slow down the machine. As the speed drops below the alarm speed, the audible alarm will sound 6 times and the display will flash.