RDS

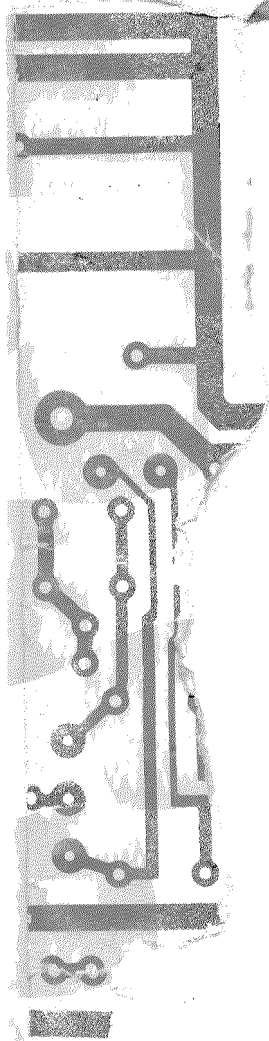# COUNT CONTROL
RD 70-70

INSTALLATION &
OPERATING INSTRUCTIONS

COUNT CONTROL
RD 70-70

INSTALLATION & OPERATING INSTRUCTIONS

CONTENTS

COUNT CONTROL
RD 70-70

INSTALLATION & OPERATING INSTRUCTIONS

LIST OF ILLUSTRATIONS

PACKING LIST

REF. NO.	COMPONENT DESCRIPTION	QUANTITY
S/HU/139-6-020	RD 70-70 Count Control Head Unit	1
S/FIXING/015	Harting 6 way Male to Male Connector – Grey	1
S/FIXING/024	In-Line Connector	2
S/CBL/199-2-003	Sensor Extension Cable	1
	Operating Instruction Book	1
	Installation Instruction Book	1
	RDS Sticker	1
	Warranty and Guarantee (UK only)	1 of ea
INSTRUMENT/KIT :	Instrument Kit – 12v	1
S/CBL/199-2-009	Power Connection Lead	1
S/CBL/TIE/001	6" Cable Ties	25
S/FSNR/940506	No. 8 x 5/8" Self Tapping Screws	2
WLG/AUD/ALARM :	Audible Alarm Kit	1
S/SNR/ADB/002	Audible Alarm c.w. cable	1
S/FSNR/940506	No. 8 x 5/8" Self Tapping screw	1
PROP/SHAFT/KIT1 :	SSM/Snr/Kit/Saddle	1
S/SNR/SSM/002	Shaft Speed Sensor – Cylindrical	1
S/BKT/199-2-007	Sensor Mounting Bracket	1
S/MGNT/CRRY/003	Saddle Mounted Magnet Carrier	1
S/FIXING/006	Hose Clip	1
S/FSNR/940103	¼" UNF x 1" Hex Set	1
S/FSNR/940401	¼" UNF Full Nut	1
S/FSNR/940301	¼" Spring Washer	1

with all fittings for
tramlining

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S/FSNR/940506	No. 8 x 5/8" Self Tapping screw	1
CUT/OUT/KIT/001 :	Override – Pull Type	1
S/CUT/OUT/001	Alternative Cut Out Switch	1
S/CBL/101-1-004	Cut Out Switch Connecting Cable	1
S/FIXING/024	In-line Connector	2
S/FSNR/940506	No. 8 x 5/8" Self Tapping Screws	2

Fig. 1   Head Unit Fascia
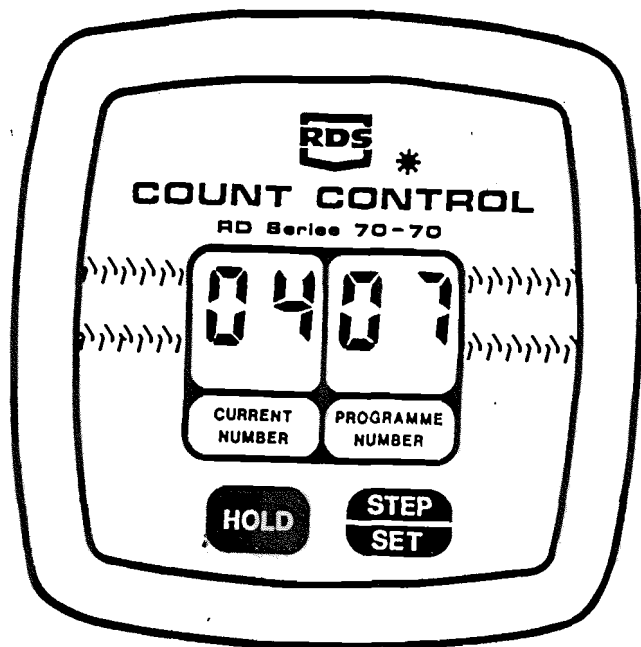
INSTALLATION & OPERATING INSTRUCTIONS

A.   INTRODUCTION

The RD 70-70 Count Control instrument will count and display the number of any recurring event. A pre-determined number of events can be programmed onto the display and an alarm can be actuacted when the number of events reaches that pre-determined number.
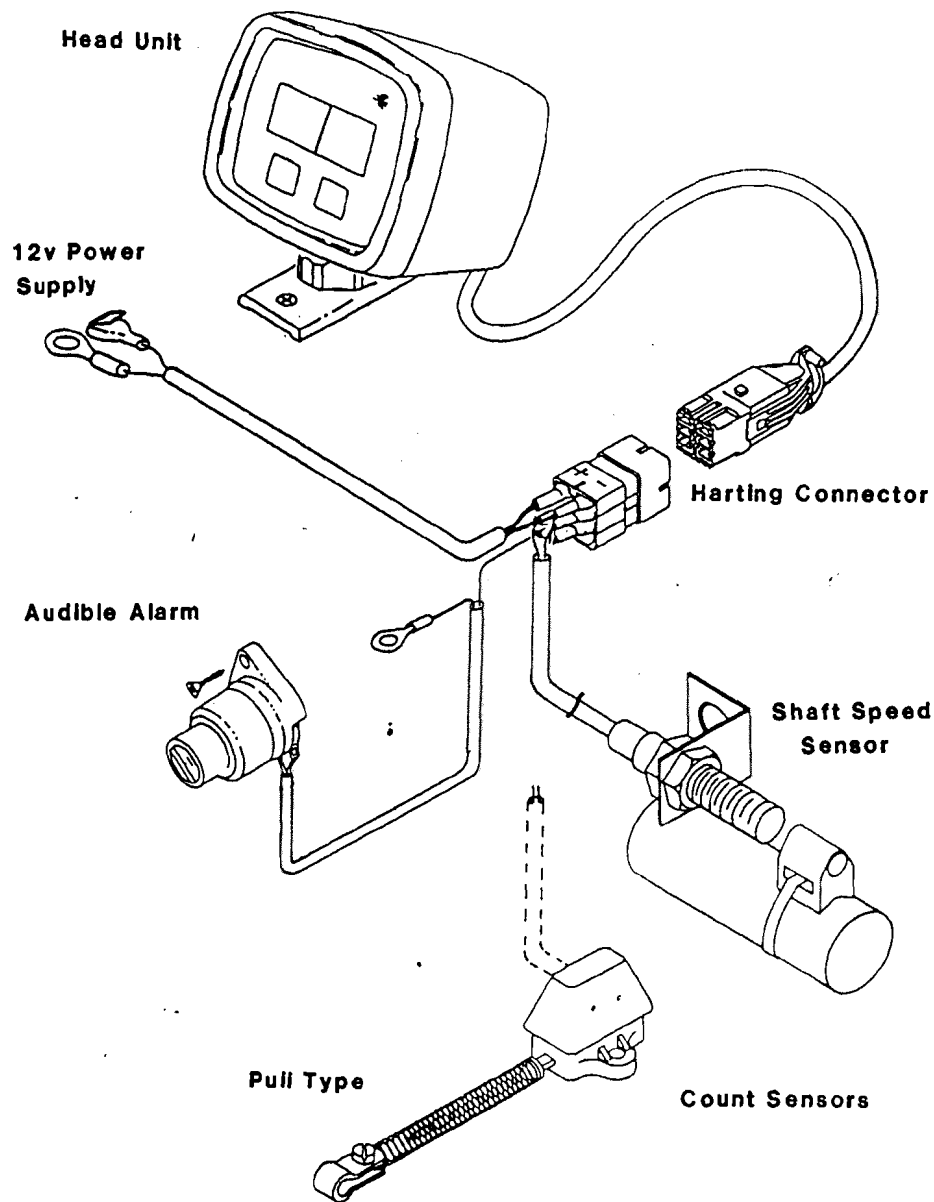
Typical applications for the Count Control are:

i)   Tramline bout alarm for a grain drill

ii)   Bale Wrap counter for round bale wrapping machine.

The Count Control system is comprised of:

i)   The Count Control head unit.

ii)   A pulse sensor which can be -

      a) A pull type switch
      b) A magnetically operated reed switch

iv)   An audible alarm

v)   An alarm output

Fig. 2 General Arrangements

Head Unit

12v Power Supply

Audible Alarm

Harting Connector

Shaft Speed Sensor

Pull Type

Count Sensors

B. INSTALLATION

i) The Instrument Kit

The instrument pod can be situated in any position convenient to the operator. It can be fixed in front of the operator on the dashboard or suspended from the cab roof.

The pod orientation can be altered by removing the Pozidrive screw from the rear of the instrument, carefully withdrawing the inner pod and turning it through 90° or 180°. The cable should be re-routed underneath the fixing strap and the pod re-assembled taking care not to pinch the cable when the fixing screw is tightened.

Before fixing it is recommended to remove the foot of the instrument by completely undoing the friction nut at the base of the instrument. The foot can then be installed using the two self-tapping screws. These require 3.5mm (9/64") holes. The instrument should be re-mounted on its foot. Secure the friction nut to hand tightness only.
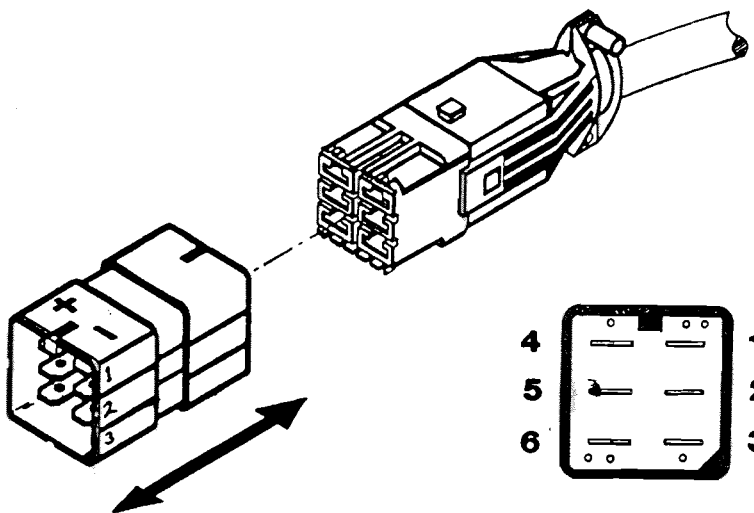
ii) The Cable Connections

(a) The 'Harting' Connectors

The instrument is fitted with a flying lead terminating one or two six-way female 'Harting' connectors.

All cable connections are made at a six-way Male-Male Harting connector shell which plugs into the flying lead connector.

Fig.3 Cable Connections - Count Control

Cable		Colour	Terminal
Power Supply +12v		Brown	4
	Ov	Blue	1
Count Sensor		Blue	2
		Brown	5
Audible Alarm		Brown	3
		Blue	Ov
Continuous output		YELLOW GREEN.	6

The individual cables must be coupled to the shell correctly. Orientation is identified by a chamfered corner and a groove. It will be easier to identify the connections by fitting the connection shell onto the flying lead first. The plain end of the shell is towards the instrument, the label towards the vehicle.

b) Power Cable (CB 199-2-009)

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

Connect the female push on terminals to the 'Harting connector shell, blue to terminal 1(Ov), brown to terminal 4(+12v).

The other end of the cable must be connected to the vehicle power supply by fitting the piggyback connector (brown lead) to a spare terminal in the vehicle fusebox, or piggyback onto the lowest rated fuse, or by picking up a terminal on the back of the ignition switch. Ensure that the terminal selected is one which comes live when the ignition is switched on.

Connect the ring terminal under any convenient bolt head. Ensure that this area is clear of rust and paint and is a good, clean earth connection.

iii) The Count Sensor

Two types of sensor are normally supplied with the Count Control.

a) One is a pull type switch for use on linkages. The switch is made when it is pulled and will advance the display by one digit each time it is pulled.

Fig. 4(i) Count Sensor Pull Type
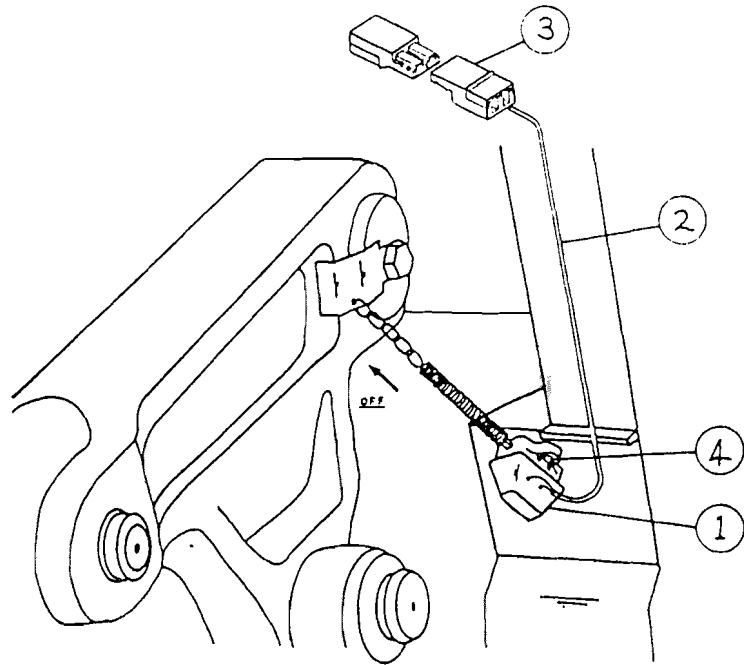
CUT/OUT/KIT/001 : Override Switch - Pull Type

1. S/CUT/OUT/001   Override Switch - Pull Type
2. S/CBL/101-1-004 Cut-Out Switch Connecting Cable
3. S/FIXING/024   In-line Connector
4. S/FSNR/940506   No. 8 x 5/8" Self Tapping Screws

Be careful that the spring is not over-extended when the implement is operated and that there is no possibility of the switch being crushed when the implement is returned into work.

It may be helpful to use a length of chain to take up any excessive movement.

The Override Cable is the twin-core cable with female terminals at both ends. Cut the terminals from one end and bare the ends of the wire.

Connect the Override Cable to this switch by removing the rubber protection cap from the switch, puncturing the two cable access holes and passing the wires through the cap, into the screw pillars. Packing the cap with grease or petroleum jelly will protect the terminals from corrosion. The other end of the cable should go to terminals 3 and 6 of the grey connector

In Line Connector (S/FIXING/024)

If a quick mate connector is required in a two-core cable, e.g. rear of tractor cab, the In Line Connector may be used.

Cut the cable and strip back the outer sheath to at least 30mm. Do not strip the individual conductors.

Open the connector cover right out. Place the individual cores in the connector tucking the wire right into the slots below the hinge. Pack the connector with petroleum jelly or grease to protect it from corrosion.

Squeeze the cover closed using a pair of pliers or a vice. Ensure the cover is fully closed and the barbed clips are home.

Prepare and assemble the mating connector in the same way ensuring that when connected, the cable polarity is correct.

b)   Shaft Speed Sensor Kit - The alternative type of sensor is used to count rotations of a shaft.

a. Shaft Speed Magnet - Saddle Mounting.

When there is an exposed portion of the shaft being monitored, the saddle mounted magnet carrier is used. The plastic moulding sits on the shaft and is secured by two nylon cable ties.

If the shaft is likely to be exposed to severe impacts it is advisable to use a hose clip in place of the cable ties.

b. Shaft Speed Magnet - End Mounting (Optional fitting available from RDS).

Where an exposed portion of the shaft is not available it is necessary to fit an end mounting magnet carrier.

In this case the end of the shaft must be drilled with a 5 mm (13/64") diameter hole to a depth of at least 30 mm (1 3/16"). The hole is then tapped using the M6 tap supplied with the carrier. The carrier is then secured using an M6 x 50 stainless steel hex set.

d. Sensor and Bracket.

The sensor and magnets may be installed in a variety of relationships by bending and drilling the bracket to suit. Often it is convenient to use one of the shaft bearing housing bolts to fix the bracket. Follow the guidelines given in Fig. 4.

Alternative sensors are available. Full details on application to RDS Technology Ltd.

Fig. 4(ii) Count Sensor - Shaft
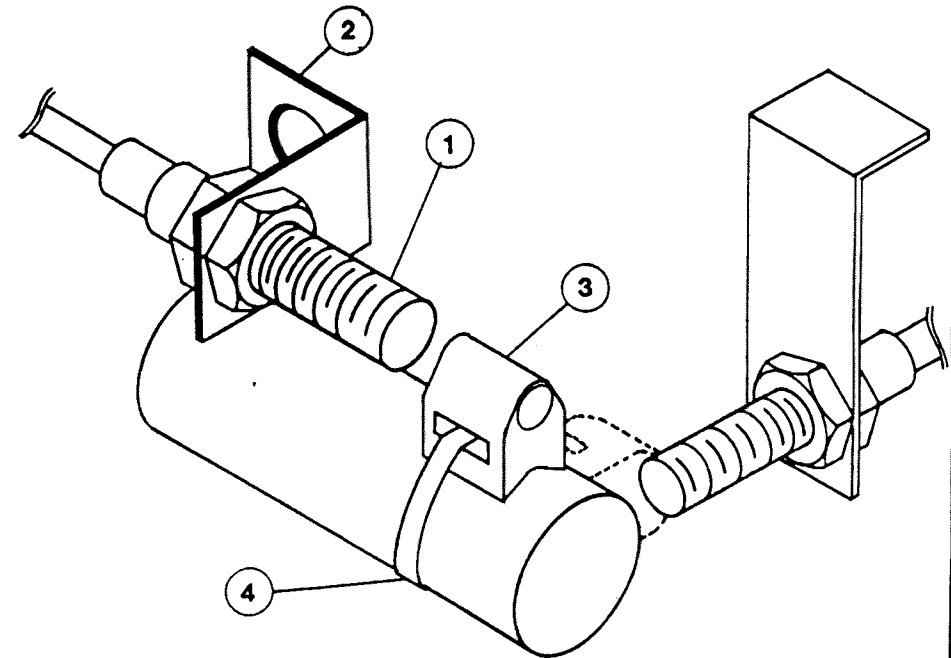
PROP/SHAFT/KIT : Shaft Speed Sensor Kit - Saddle Mounted

1. S/SNR/SSM/002   Shaft Speed Sensor - Cylindrical
2. S/BKT/199-2-007   Sensor Mounting Bracket
3. S/MGT/CRRY/003   Saddle Mounted Magnet Carrier
4. S/FIXING/006   Hose Clip

iv) Audible Alarm

The audible alarm can be sited anywhere convenient to
the operator. The blue (Ov) lead should be connected
to the vehicle frame and the brown lead to the Harting
connector 3.

v) Alarm Output

A continuous 12v 1 amp output is switched on as the
Current Number reaches the Programme Number. It will
be on until the next event resets the Current Number to
zero or to one.

This output is on terminal 6 of the Harting connector.
If it is to be used to switch a solenoid or actuactor
taking more than 1 amp, an external relay must be
utilised.

Fig. 5 Audible Alarm
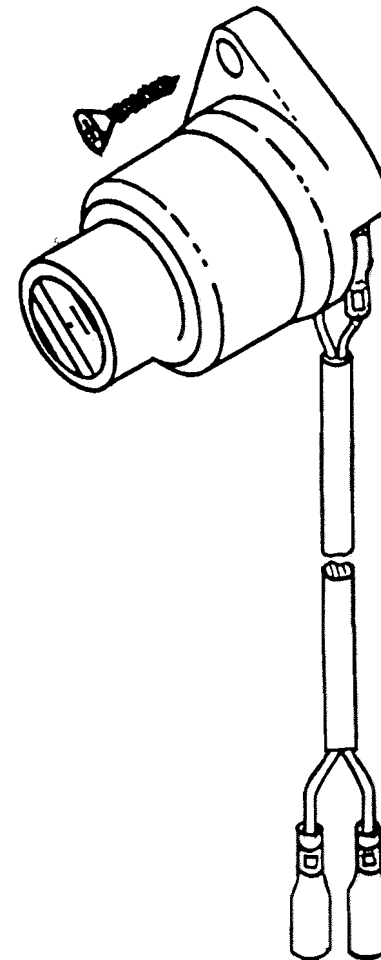
C. OPERATION

i) <u>Step/Set</u>. The Step/Set switch is used to Step On the number displayed on the Current Number display. Pressing the switch once will increment the display by 1. Holding the switch will continue to increment the display.

It is also used in conjunction with the * switch to set the predetermined number of events at which the alarm is activated.

ii) <u>Hold</u>. The Hold switch stops the Current Number display from incrementing when the sensor is operated. When the Hold switch is pressed the display will flash between "HELd" and the normal display. (The Hold switch does not override the manual Step switch).

iii) <u>* Programme Switch</u>. The * switch gives access to the programme mode and allows the predetermined number of events to be set.

   a) Press and hold the *

   The first digit of the Programme Number display will be flashing.

   b) Still holding the *, Press and hold the Step/Set switch. The flashing digit will increment. When the desired number is displayed, release the Step/Set switch. The second digit will now start flashing. Set this number using the Step/Set switch. Release the Step/Set switch.

c) The chevron at the bottom of the display will now be flashing.

   If the event counter should start from zero, set the chevron to the right hand side of the display. i.e. Bale Wrapping.

   If the event counter should start from , set the chevron to the left hand side of the display.

d) Release the * switch and the programmed information will be committed to the instrument memory.

If an error is made in programming, simply release the *, press again and run through the sequence again.

iv) <u>Reset</u>. If it is required to reset the "current number", press and hold the HOLD switch, then press and release the STEP/SET switch. The "Current Number" will go to zero (or).

v) <u>Alarms</u>. When the Current Number reaches the Programme Number the alarm is activated. The displays will flash, the audible alarm will sound for a short time and the continuous v output will be switched on until the next event occurs.

   NB. The output will switch a maximum of amp. Therefore an external relay will be required to operate any solenoid valve or switch gear.