

Arundle Optical Instruments
Compact Beverage Can Sectioning Saw

OPERATING & MAINTENANCE MANUAL

Customer: .
Compact Beverage Can Saw Serial No :C.S.

ARUNDLE OPTICAL INSTRUMENTS

Longueville, Pound Lane, Smeeth, Ashford, Kent. TN25 6RJ. England

Tel: +44 (0)1303 813200 Mobile : 07776 251493

email: stevegoble@arundle-optical-instruments.com Website: www.arundle-optical-instruments.com

Table Of Contents.

Chapter 1, Safety Instructions.

Machine Use Disclaimer.....	1-1
About This Manual.....	1-1
Training.....	1-1
De-Commissioning.....	1-1
Safety.....	1-2
Guards & Interlocks.....	1-2
Warning Labels.....	1-2
Saw Guard.....	1-2
Electrical Cabinet.....	1-2
Safety Glasses.....	1-2
Ear Protection.....	1-2
Clothing.....	1-2
Hazardous Areas.....	1-2
Residual Risk.....	1-2
COSH.....	1-2
Safe Handling.....	1-2

Chapter 2, Equipment Specification.

Technical Details.....	2-1
Machine Use Disclaimer.....	2-1
Dimensions.....	2-1
Weight.....	2-1
Electrical Supply.....	2-1
Power requirements.....	2-1
Can Size.....	2-1
Saw Blade Dimensions.....	2-1
Cutting Speed.....	2-1
Construction.....	2-1

Chapter 3, Installation Instructions.

Unpack and Inspect the Equipment.....	3-1
Installation.....	3-2
Positioning.....	3-2
Electrical Installation.....	3-2
Initial Saw Testing.....	3-2

Chapter 4, Operating Instructions.

Seam Fixture.....	4-1
Operating Instructions.....	4-1
Pre-start up checks.....	4-2
Making a cut.....	4-2
Preparing a can for Visual Seam Gauge.....	4-2

Chapter 5, Trouble Shooting.

Ever Day Problems.....	5-1
Saw will Not Start.....	5-1
Rough Saw Cuts.....	5-1
Linear cutting Table Fails To Return Smoothly.....	5-1
Other Problems.....	5-1

Chapter 6, Maintenance Instructions.

General Maintenance.....	6-1
Swarf Removal.....	6-1
Lubrication.....	6-2
Cleaning.....	6-2
Changing the Saw Blades.....	6-2 , 6-3 & 6-4

Chapter 7, Spare parts.

Ordering Spares.....	7-1
----------------------	-----

Chapter 8, Control Data.

Control Philosophy.....	8-1
Description.....	8-1
Control.....	8-1
Control Circuit.....	8-1
Power Requirements.....	8-1
Electrical Circuit Diagram.....	8-1

Chapter 9, Equipment Certification.

Conformity declaration.....	9-1
-----------------------------	-----

Table Of Figures

Figure 1-Beverage Can Sectioning Saw Dimensions.....	2-1
Figure 2-Beverage Can Sectioning Saw Overall appearance.....	3-1
Figure 3 -Beverage can seam fixture.....	4-1
Figure 4-Swarf Collecting Tray.....	6-1
Figure 5-Saw Blade Removal.....	6-3
Figure 6-Beverage Can Slitting Saw Electrical Circuit.....	8-1

Chapter 1

Safety

Instructions

Chapter 1

Safety Instructions

Introduction.....	1-1
Machine Use Disclaimer.....	1-1
About This Manual.....	1-1
Training.....	1-1
Decommissioning.....	1-1
Safety.....	1-2
Guards & Interlocks.....	1-2
Warning Labels.....	1-2
Saw Guard.....	1-2
Electrical Enclosure.....	1-2
Safety Glasses.....	1-2
Ear Protection.....	1-2
Clothing.....	1-2
Hazardous Areas.....	1-2
Residual Risks.....	1-2
COSHH.....	1-2
Safe Handling.....	1-2

Introduction

Machine Use Disclaimer

This machine must NOT be used for purposes other than those for which it has been supplied to the Customer under contract from Arundle Optical Instruments.

Failure to use the machine for the purposes as described in the Contract nullifies any warranty claim or injury claim that could arise as a result.

About This Manual

This manual provides a reference for daily use and maintenance. Carefully read ALL procedures before beginning any operation or maintenance activity.

With the introduction of the Machinery Directive 91/368/EEC (from January 1st, 1995) within E.C. and E.F.T.A. countries, some parts of this manual will be supplied in the language of the end user PROVIDED the unit is for use within an E.C. or E.F.T.A. country.

Chapters 1 to Chapter 4 inclusive (Safety, Equipment Specification, Installation Instructions & Operating Instructions) will be translated into the language of the end user in order to comply with the said Machinery directive.

Chapters 5 to Chapter 9 (Trouble Shooting, Maintenance Instructions, Spare Parts, Control Data and Machine certification) will be NOT be translated, but will still be supplied in English and bound with the translated Chapters.

An English copy of the entire manual will also be supplied. Should you desire the English Chapters of the manual to be translated, please contact Arundle Optical Instruments for price and delivery.

Training.

Arundle Optical Instruments training programs enhance the operational capabilities of the equipment, and reduce downtime.

An investment in training assures maximum productivity from the equipment.

Arundle Optical Instruments recommend that all Operators and Maintenance personnel are trained to the required competency by (A.O.I) or by a responsible employee before they attempt to operate / maintain the equipment. (A.O.I)

are pleased to offer this Service to our Customers.

A typical training course would cover the following topics :

- Safety
- Principles Of Operation
- Equipment Set Up
- Equipment Use
- Equipment Cleaning
- Change Over Procedures
- Routine Maintenance & Lubrication
- Fault Finding

NOTE : All electrical installation and electrical maintenance activities on this equipment MUST be carried out by suitably qualified electricians.

De-Commissioning

Should you require to de-commission the equipment as supplied under Contract from (A.O.I), please contact us at the address shown on the front cover of this manual. A.O.I are pleased to offer this Service to our Customers.

Safety Guards & Interlocks

This piece of equipment is guarded to prevent injury to operators. DO NOT attempt to run this equipment with any guards or panels removed (or incorrectly fitted) or with any of the safety interlocks overridden (either mechanically or electrically). Serious personal injury will result in failure to observe this instruction.

Warning Labels

Warning labels are attached to the equipment in the following positions and MUST be observed :

Saw Guard

DO NOT SWITCH SAW ON UNLESS THIS GUARD IS COVERING BLADE

Electrical Cabinet

WARNING DISCONNECT THE MAINS SUPPLY BEFORE REMOVING THIS COVER

Safety Glasses

Industry approved safety glasses should be worn at all times while operating or maintaining any part of the equipment.

Ear Protection

Industry approved ear protection should be worn at all times while operating or maintaining any part of the equipment.

Clothing

Ensure that protective clothing is worn correctly at all times. DO NOT wear loose garments that could become entrapped in the equipment.

Hazardous Areas

The area around the SAW BLADE(S) is considered to be a hazardous area.

Residual Risk

There is a residual risk to the Operator or the Maintenance Personnel if care is NOT taken when carrying out tasks around the saw blades.

COSHH

All oils and lubricants recommended for use on the equipment, as supplied under contract, are suitable for the purpose for which the equipment was supplied.

The oils and lubricants are safe for use under the Terms and Conditions of Substances Hazardous to Health (COSHH) Act, 1988.

All lubricants used on this equipment must be handled in compliance with the Product Safety Data Sheets enclosed at the rear of this chapter (if applicable) .

Safe Handling

The Arundle Optical Instruments beverage Can Seam Sectioning Saw can be safely carried by one person.

When lifting the equipment ensure that good lifting practices are observed at all times. When carrying the equipment, ensure that the saw guard is in the correct position and that the power lead is detached from the equipment or are NOT in a position where they may hinder the carrier i.e. hanging down.

Chapter 2

Equipment Specifications

Chapter 2

Equipment Specification

Technical Details.....	2-1
Machine Use Disclaimer.....	2-1
Dimensions.....	2-1
Weight.....	2-1
Electrical Supply.....	2-1
Power Requirement.....	2-1
Can Size.....	2-1
Saw Blade Dimensions.....	2-1
Cutting Speed.....	2-1
Construction.....	2-1

Technical Details

Machine Use Disclaimer

This machine must NOT be used for purposes other than those for which it has been supplied to the Customer under Contract from Arundle Optical Instruments.

Failure to use the machine for the purposes as described in the Contract nullifies any warranty claim or injury claim that could arise as a result.

Dimensions

300 mm (11.81") Long x 230 mm (9.055") Wide x 210 mm (8.367") High

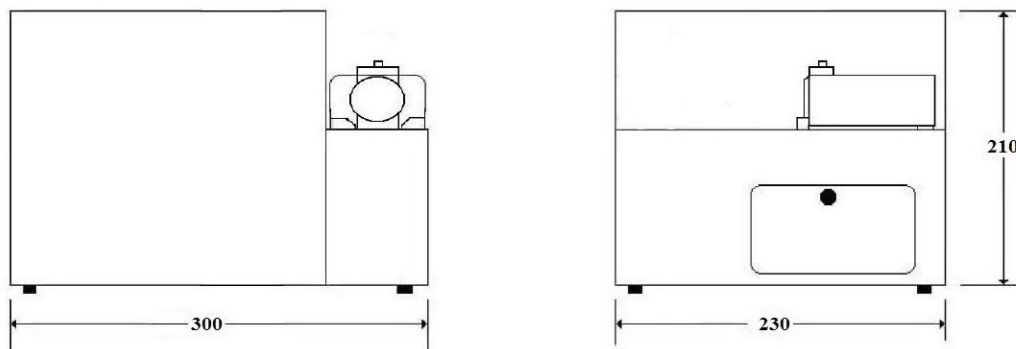


Figure 1 -Arundle Optical Instruments Beverage Can Seam Sectioning Saw Dimensions.

Weight

Approximately 11Kg (24.2 lbs)

Electrical Supply

The unit is supplied for the following electrical supply :
230 / 250 Volt, 1 Phase, 50 Hz

Power Requirement = 1 kV A, Please check Electrical Specification Plate fitted to unit to confirm.

Supplied Seam Cutting Fixtures.

202 Super end and 200 end for beverage cans.

Saw Blade Dimensions

100 mm OD x 22mm ID x 0.5mm Thick x 300 teeth.

Cutting Speed

1,350 R.P.M. (Revolutions Per Minute) for Beverage cans.

See " **CONFORMITY DECLARATION** " for type supplied, (See Chapter 9)

Construction

Stainless Steel cabinet, all other components are of dural clear anodised.

Chapter 3

Installation Instructions

Chapter 3

Installation Instructions.....	3-1
Unpack & Inspect	3-2
Installation	3-2
Positioning	3-2
Electrical Installation	3-2
Initial Saw Testing	3-2

Unpack And Inspect The Equipment

After unpacking, examine the equipment for obvious damage, such as dents.

Check the contents of the packing against the delivery note to ensure no parts are left in the packing e.g. spare blades.

Inspect any separately packaged components for obvious damage.

The unpacked Beverage Can Seam Sectioning Saw should look similar to that shown in Figure 2 below :



Figure 2 -Beverage Can Seam sectioning Saw Overall Appearance

To Inspect the internal components for any damage, open the right hand side compartment by unscrewing the two knurled thumb screws and removing the swarf container, next release the latches at the front and rear that retain the right hand side compartment and lift off,taking care NOT to touch the saw blades .

When satisfied, close the compartment using the latches to lock into position and replace swarf container.

The equipment is quality inspected then carefully packed at A.O.I. If there is any damage to the equipment or separately packaged components, contact Arundle Optical Instruments at the address on the cover of this manual immediately.

Installation

Positioning

The Beverage Can Seam Sectioning Saw should be positioned in area of good light and free from excessive vibration or moisture.

Ensure that adequate ventilation is observed (leave at least a 100 mm [4"] gap around machine) failure to observe this may cause the motor to overheat and cause premature component failure.

Electrical Installation

Check the plate on the cabinet for correct voltage details.

Wire suitable plug to the cable of the Beverage Can Seam Sectioning Saw, ensuring that the correct colour wire is fitted to the appropriate connector or plug e.g. brown to live, blue to neutral, green / yellow to earth.

The plug should be fitted with a 5 amp fuse.

Initial Saw Testing

Having connected the Beverage Can Seam Sectioning Saw to the electrical supply carry out the following tasks in the order stated below :

Ensure suitable eye and ear protection is being worn.

Check that the right hand compartment is secure using the toggle latches at the front and the rear.

Ensure that the electrical supply to the Beverage Can Seam Sectioning Saw is turned "ON" at the wall socket and ~~ON~~ at mains switch left hand side of front of motor cover.

Place can onto cutting support fixture on the linear table, hold in momentary switch on top right hand side of motor cover and holding can down and wait until blades rotate.

NOTE; The initial start up of motor is required to energise the motor system and is slightly slow. Once energised subsequent operation is all most instantaneous.

Holding the can in position on the linear cutting table with your right hand, hold in the momentary switch with your left hand, then slide the can towards the saw blade[s]) once, motor has started and cut the can.

When the cutting table is returned to original position motor and can removed the motor will automatically switch off.

Having successfully completed the above, the Beverage Can Seam Sectioning Saw is now ready for use.

Chapter 4

Operating Instructions

Chapter 4

Operating Instructions

Beverage Cans	4-1
Operating Instructions.....	4-1
Pre-Start Up Checks	4-2
Making a Cut	4-2
Preparing a Can For Visual Seam Gauge	4-2

Seam Fixtures.

Arundle Optical Instruments Seam cutting fixtures are manufactured to support the internal chuck angle during cutting and are pre-cut for the correct cutting position and are factory set to the unit.

NOTE : If the can does not fit on to seam fixture, visually inspect for defects.
NEVER FORCE THE CAN ONTO THE FIXTURE.

Beverage Cans.

Beverage cans are cut horizontally, necked beverage cans produce a hard section at the point where the body wall is reduced to form the neck (this causes a work hardened radius).

To minimise excessive blade wear the table movement is restricted by an adjustable stop located under the blade cover to stop the possibility of cutting through this point.

NOTE; For economy it is recommended that ONLY the blade use for viewing purposes is replaced with a new blade.



Figure 3 -Beverage can seam fixture.

Note:

Some beverage cans are produced with strengthening ribs formed on the necked section, in this case blade life will be considerably reduced, (there is no solution to this problem).

Changing the Seam Fixtures.

Changing from one seam fixture to another is simple, undo M5 cap head screw with retained washer 1 to 2 turns, remove seam fixture, clean out channel of any swarf with a brush, insert required seam fixture and re-tighten the M5 cap head screw.

Operating Instructions

Pre-Start Up Checks

Before starting ensure the following :

Ensure suitable eye and ear protection is worn.

That the saw guard is covering the blades.

Check that the cutting compartment is shut correctly and is locked in position using the toggle latches.

Ensure that the electrical supply from wall socket to the Beverage Can Seam Sectioning Saw is "ON".

Ensure that the Beverage Can Seam Sectioning Saw motor system has been energised as previously described in (Chapter 3, page 2).

Making a Cut

Now follow the procedure listed below :

Evacuate the contents of the can \ cans. (Never section can whilst full).

Locate can to be cut on the Seam cutting fixture.

Place your right hand on the top of the can and your left hand on the momentary button on motor cabinet compartment, then with a smooth action move the can towards the blades.

When the limit of travel has been reached retract the cutting table to the original starting point and remove left hand from the momentary switch, the motor will stop.

Repeat process to achieve the desired number of cuts.

Preparing the Can for visual seam gauge.

Once all cut have been made push in the portion of can between the saw cuts into the body of the can using pliers or tin snips.

Having pushed the portion of the can between the two cuts into the can, ensure that there are no loose pieces or burrs by gently rubbing with enhancing rubber (supplied).

The can may now be placed on a visual seam gauge for analysis.

NOTE : If re-examining an old can that may have developed a tarnished over the cut portions, rub the edges to be inspected with a rubber to enhance outline on visual seam gauge.

Chapter 5

Trouble Shooting

Chapter 5

Trouble Shooting

Every Day Problems.....	5-1
Saw Will Not Start.....	5-1
Rough Saw Cuts.....	5-1
Linear Cutting Table Does Not Return Smoothly.....	5-1

Every Day Problems

The Arundle Optical Instruments Beverage Can Seam Sectioning Saw has been designed, produced and tested to run as Trouble Free as possible, below are a few commonly encountered by Arundle Optical Instruments.

Saw Will Not Start

If the saw will not start check the following:

Check there is electrical supply to the Beverage Can Seam Sectioning Saw i.e. plugged in and switched on at the mains.

Check that the Beverage Can Seam Sectioning Saws swarf container is fully inserted (there is a momentary switch , which this activates).

Check that is a can inserted on cutting fixture (proximity sensor positioned under the can body on the cutting table).

Rough Saw Cuts

If the saw is giving poor quality cuts, check the following :

Saw blades are worn. If this is the case, replace with new blade as described in "Changing The Saw Blades" in Chapter 6.

Saw blade has been fitted the wrong way around after changing. If this is the case, re-fit the blade correctly as described in "Changing The Saw Blades" in Chapter 6.

If motor unit has just been replaced, carefully check rotation of saw blades (can will be lifted by blades if motor direction is incorrect). If incorrect, have electrician check wiring to motor unit.

Linear cutting table does not return smoothly.

If the linear table fails to return to fully cover the saw blades [the unit must NOT be operated].

Check guide rods for build up of swarf or other foreign material.

Check that the bearings in the saw guard bracket are not worn.

Check both return springs

Other Problems

If the checks for "Every Day Problems" has NOT cured your problem, we strongly recommend that you contact :

Arundle Optical Instruments,

20 Evans Road,

Highfield Estate,

Willesborough,

Ashford,

Kent

TN24 OUA

England

Tel No : 44 (0)1233 633766 ,Fax No : 44 (0)1233 633766

Mobile:07776 251493, Email: [stevegoble @ arundle-optical-instruments.com](mailto:stevegoble@arundle-optical-instruments.com)

Chapter 6

Maintenance Instructions

Chapter 6

Maintenance Instructions

General Maintenance.....	6-1
Swarf Removal	6-1
Lubrication.....	6-2
Cleaning.....	6-2
Changing the Saw Blades	6-2, 6-3 & 6-4

General Maintenance

Swarf Removal

As cans are cut, swarf will be collected inside the main cabinet in a collecting tray, see figure 4 below.

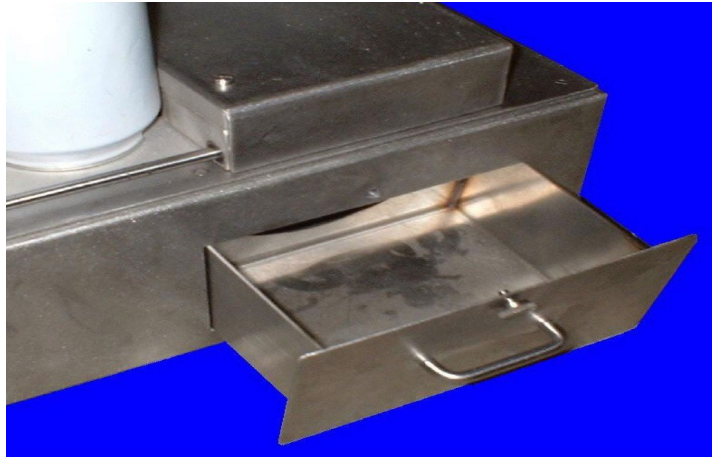


Figure 4-Swarf collecting tray.

Although the amount of swarf is dependent upon how often the Beverage Can Seam Sectioning Saw is used, we strongly recommend that the collecting tray be cleared of all swarf on a weekly basis.

The removal of swarf will increase the working life of the Beverage Can Seam Sectioning Saw.

To remove the swarf collecting tray from the main cabinet ensure the following :

Ensure suitable eye protection is worn and follow the procedure listed below :

Unscrew thumb screw on the right hand side of cabinet then slide collecting tray out and remove swarf to appropriate waste bin.

Re insert collecting tray into aperture and tighten thumb screw back into position.

Lubrication

The Arundle Optical Instruments Beverage Can Seam Sectioning Saw has been designed so as to utilise Lubrication Free components.

The motor requires no lubrication.

The bearings that carry the cutting table slide on guide rods are linear ball bushings.

These have a seal to prevent the ingress of foreign matter, if linear movement appears to be STICKY, clean guide rods and place a spots of light oil on to the guide rods in a position where moving the table backwards and forwards will allow oil to penetrate the bearings.

Arundle Optical Instruments recommend the complete replacement of linear ball bushings and guide rods should components wear excessively).

Cleaning

The top plate can cutting table slide and guide rods should be cleared of any swarf deposits on at least a daily basis.

Changing The Saw blades.

The frequency of saw blade(s) replacement is dependent upon the material being cut, the thickness of material being cut and how often a can is being cut.

This being the case, no exact time scale may be given for saw blade replacement.

However, a good indication of when a saw blades are worn is that the cut produced, consistently produces a poor image quality on the visual seam gauge.

Prior to changing the saw blade(s) in the main cabinet ensure the following :

Ensure suitable eye and ear protection is worn.

Ensure that the electrical supply to the Beverage Can Seam Sectioning Saw from the socket is OFF, or the power lead is removed from the rear of the instrument.

Now follow the procedure listed below :

Remove swarf collecting tray from right hand side of the cabinet by unscrewing the thumb screw and sliding outwards.

Release the toggle latches on the front and rear of the cabinet.

Lift off the cutting table section to allow access to the blades.

WARNING!

TAKE CARE NOT TO INJURE YOUR HANDS WHEN REMOVING THE SAW BLADE (S) !

The saw blade(s) may now be replaced.

Unscrew the 2 off M5 cap head screws from the blade support using the 4 mm AF T-Allen key.[supplied].

Next using 2 off 24 mm A/F spanners on to arbour body flats and end nut, unscrew end nut and remove.

Remove end cap and first blade.

Remove spacer and second blade.

Clean faces of spacer and end cap before replacing blades.



Figure 5 -Saw Blade Removal.

Before fitting the replacement saw blade(s), clean out any metal swarf that may have by-passed the swarf collection container.

The replacement saw blade(s) may now be fitted.

Ensure that the saw blade(s), spacer and cap are replaced in the correct order and that the saw blade is the correct way around.

Re-fit nut,tighten and replace blade support ensuring that arbour rotates freely.

Replace cutting table cover and secure with toggle latches.

Replace swarf tray and secure with thumb screws.

NOTE: For economy it is recommended that ONLY the blade which cuts the viewing surface is replaced with a NEW blade and the blade in the best condition previously removed is used to produce the waste material cut.

NOTE: If the blade has been fitted the wrong way around, the saw blade will cut poorly and emit a different sound to usual.

Carefully close the cutting table, check that the saw blade(s) line up with the corresponding slot(s) in the cutting table.

If the saw blade(s) do NOT line up, check that the saw blade(s), spacer and cap are fitted correctly.

Lock the cutting table back in to position using the toggle latches front and rear.

Re-insert swarf capture container and lock in to position using 2 off M4 thumb screws.

Power may now be re-introduced to the Can Seam Sectioning Saw.

If for any reason, the motor is changed, ensure that after the replacement motor is connected, the saw rotation is checked PRIOR to cutting cans. It is possible for the motor to be wired so that it runs in the reverse direction.

All electrical wiring MUST be carried out by a qualified electrician.

Chapter 7

Spare Parts

Chapter 7

Spare Parts

Ordering Spares.....	7-1
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Ordering Spares

When enquiring about or ordering spare parts, please always state the following information :

The Unit Serial Number

The Part Description

The Quantity Required

If possible, Please send photograph of parts if possible.

All enquiries about service or spare parts should be made to :

Arundle Optical Instruments
20 Evans Road,
Highfield Estate,
Willesborough,
Ashford, Kent TN24 0UA
England
Tel. No : 44 (0)1233 633766
Fax No : 44 (0)1233 633766
Mobile No : 07776 251493
Email: [stevegoble @ arundle-optical-instruments.com](mailto:stevegoble@arundle-optical-instruments.com)

Chapter 8

**Control
Data**

Chapter 8

Control Data	
Control Philosophy	8-1
Description.....	8-1
Control	8-1
Control Circuit	8-1
Power Requirements	8-1
Electrical Circuit Diagram	8-1

Control Philosophy

Description

Beverage can model utilise fine Toothed Saw Blades quantity (2 off) running at high speed, to cut the can in order to expose the cross section of a finished seam.

Control

The Saw is designed to minimise the potential risk to operators.

Features include momentary switch on swarf collecting tray (ensuring when removed power is off to motor unit), there is a proximity sensor to sense the can, NO can no operation.

Circuit also has a momentary switch on the motor cover , which has to be held in for motor to operate.

Control Circuit

24 Volts A.C

Power Requirements.

See Chapter 2 for Electrical Supply details and check electrical specification plate fitted to unit for power requirements.

Electrical Circuit Diagram.

Please see Figure 6 below.

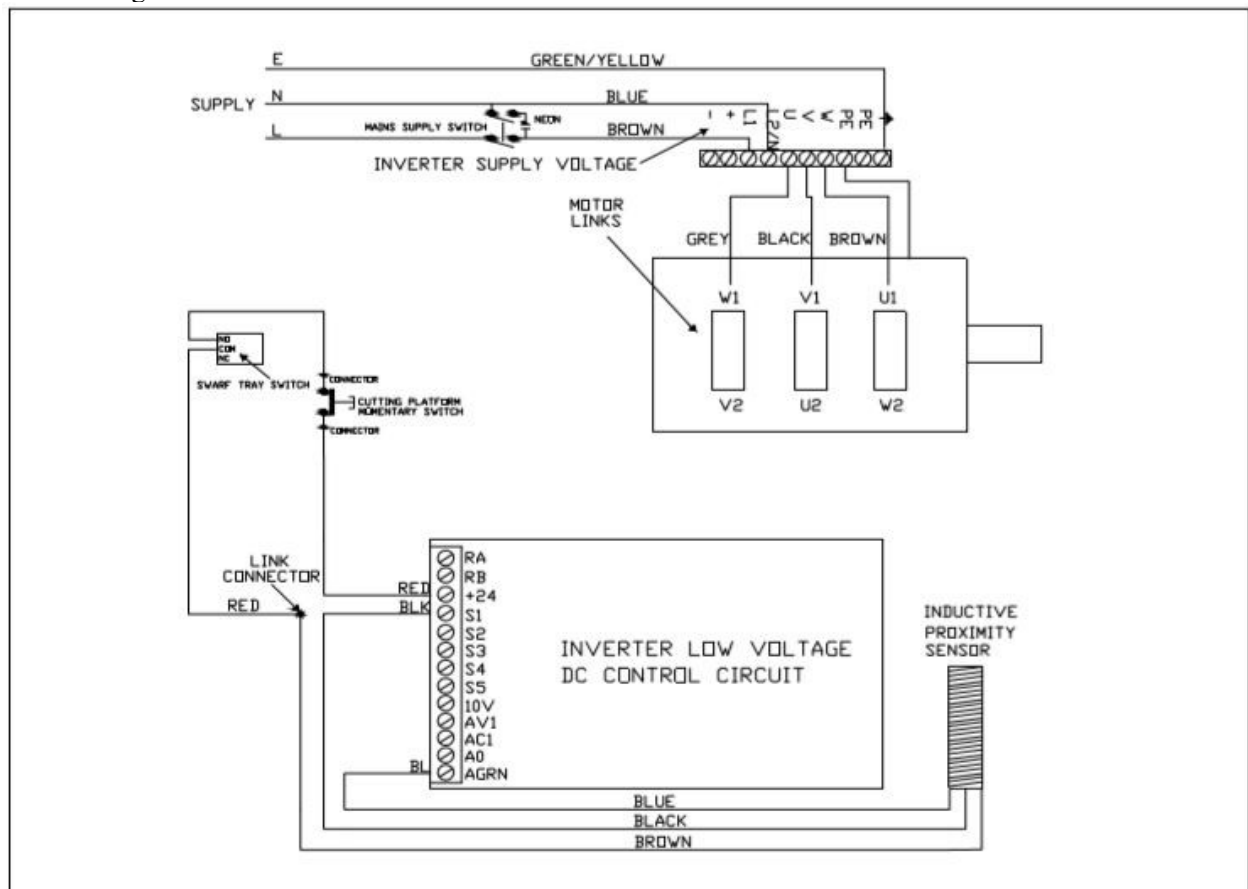


Figure 6 -Beverage Can Seam sectioning Saw Electrical Circuit.

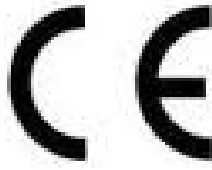
Chapter 9

Conformity Declaration

Chapter 9

Equipment Certification

Conformity declaration.....	9-1
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CONFORMITY DECLARATION

We hereby declare that the following machinery was designed by Arundle Optical Instruments.

MACHINE DESCRIPTION: Can slitting saw for inspection purposes.

MAKE: Beverage Can Seam Sectioning Saw.

TYPE: CS2(S) Twin blade.

SERIAL NUMBER: C.S

MANUFACTURED BY: Arundle Optical Instruments.

SPECIAL FEATURES...**STAINLESS STEEL CABINET**

This Machine has been designed and manufactured in accordance with the following harmonised European standards:

EN ISO 12100-1 : 2003. Safety of Machinery: Basic concepts, general principles of design.

EN60204 part1: 2006. Safety of Machinery. Electrical Equipment of machine.

Specification for general requirements and complies with the requirements of the machinery directive (2006 / 42 / EC).

A technical construction file for the machinery is retained at the following address.

Arundle Optical Instruments, Longueville, Pound Lane, Smeeth, Ashford, Kent. TN25 6RJ. England.

Telephone: +44 (0)1303 813200 Mobile: 07776 251493

Signed:..... Date:.....

Name:.....S.P.Goble..... Position: Partner/Director.....

Being the responsible person appointed by the manufacturer.

ARUNDLE OPTICAL INSTRUMENTS

Longueville, Pound Lane, Smeeth, Ashford, Kent. TN25 6RJ. England

Tel: +44 (0)1303 813200 Mobile : 07776 251493

email: stevegoble@arundle-optical-instruments.com Website: www.arundle-optical-instruments.com
