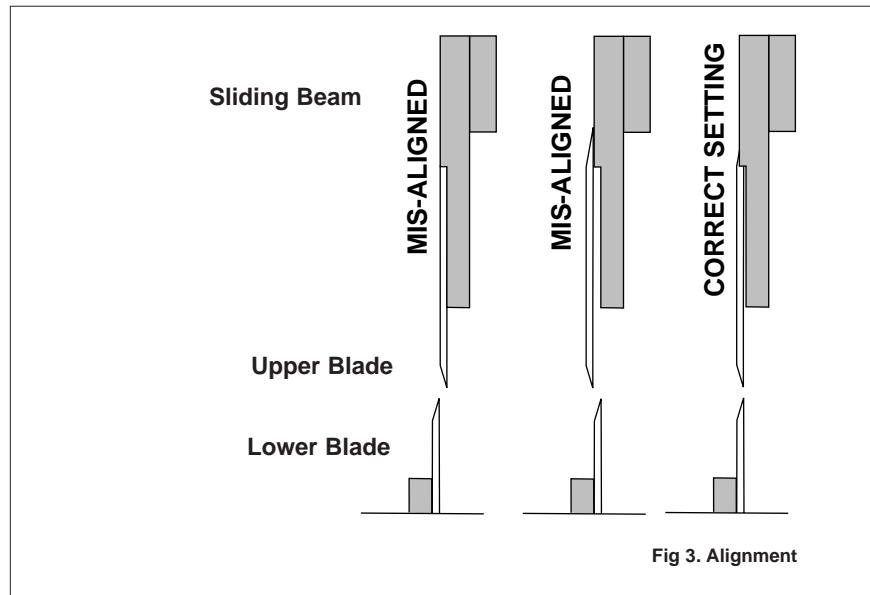


OP1.1 BLADE ALIGNMENT



Note: Study Figure 3 - the Circuit unit is pre-aligned at the factory and should not need adjustment. However, new blades or bearings may cause mis-alignment.

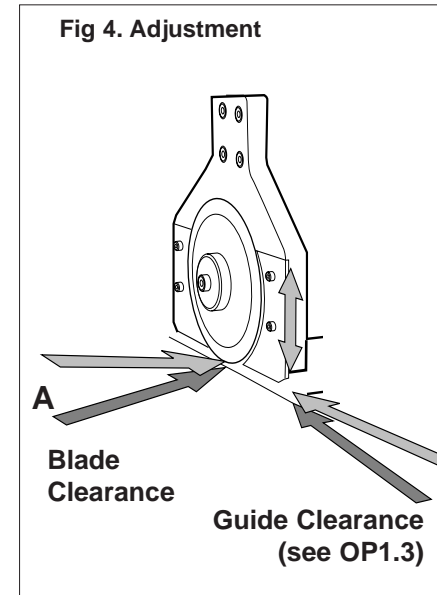
IMPORTANT: ALWAYS SUPPORT PANEL HORIZONTALLY WHILE CUTTING

1. Guides & blades should be vertically aligned above each other.
2. Check the flatness across right hand faces.
3. If there is any mis-alignment of the blade, remove it and clean mounting faces of the shaft and replace.
4. When adjusting blade it is very important the two blades DO NOT TOUCH TOGETHER.

5. Clearance between the blades should be 0.025mm - 0.050mm (see OP1.2).
6. Never twist or tilt panel when operating the slide blade as damage to the blade may occur.

WARNING: GUIDES MUST BE CORRECTLY ADJUSTED TO PCB SCORE DEPTH TO ENSURE CORRECT DEPANELLING POSITION

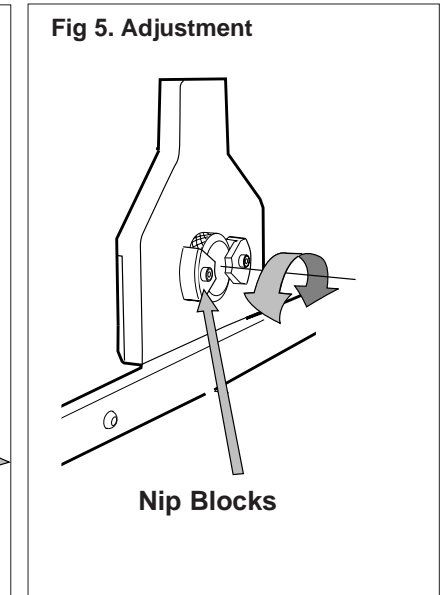
OP1.2 BLADE ADJUSTMENT



Note: Study Figure 4 - the blades are preset at the factory with a blade clearance of 2mm to avoid damage in transit.

The upper & lower blades should never make contact with one another to avoid damage. The blade clearance should be set between 0.025mm and 0.050mm as follows:

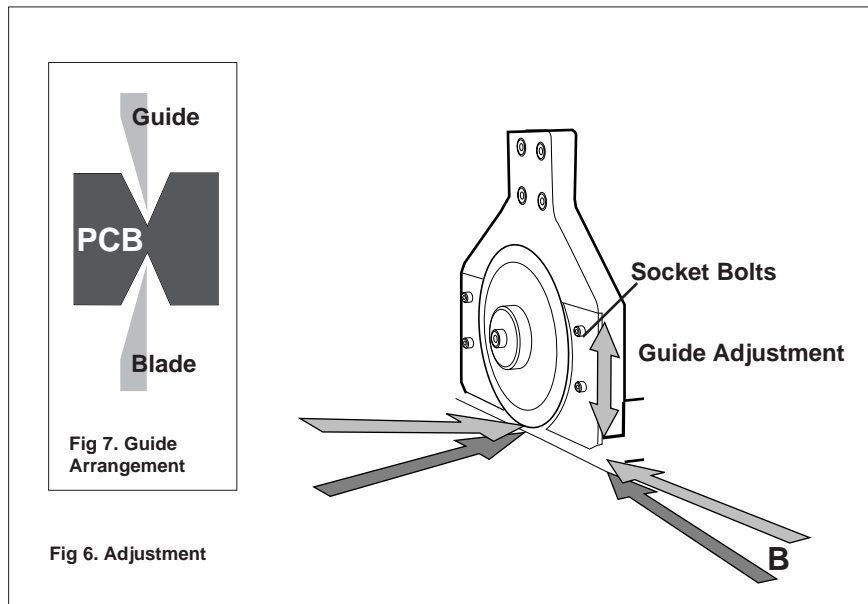
1. Select a feeler gauge (0.025mm up to 0.050mm, alternatively a sheet of 80gsm paper could be used).
2. Slacken two socket bolts securing the nip blocks.
3. Rotate the knurled wheel clock-wise to decrease clearance "A" and anti-clock wise to increase it.



4. Insert feeler gauge and adjust wheel accordingly.
5. Tighten socket bolts.

WARNING: DO NOT FORCE the Upper Blade in an anticlockwise direction over its widest setting - Damage to the Blade will occur!

OP1.3 GUIDE ADJUSTMENT

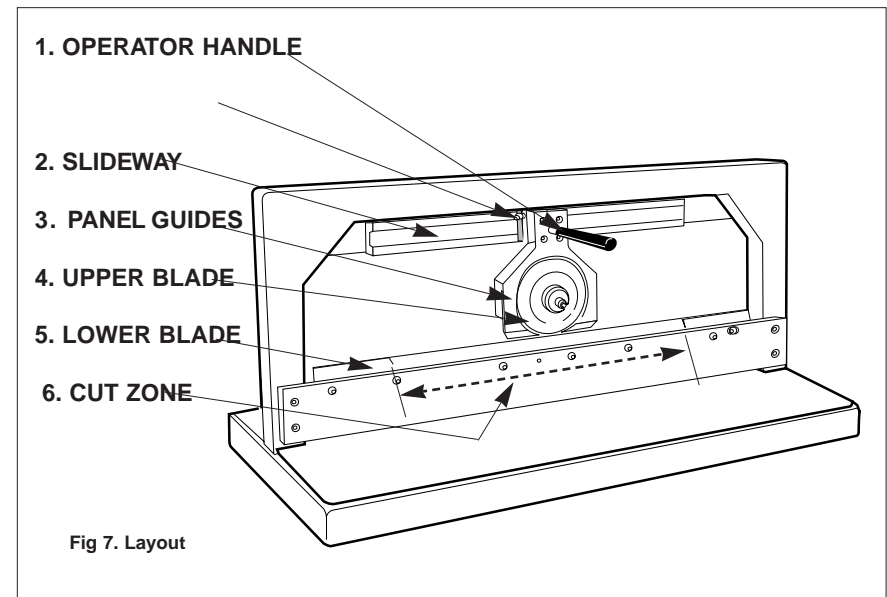


Note: Study Figure 6 The Guide Clearance requires setting whenever the score web thickness alters. The Guides utilize the score channel to direct the panel thro the Blades.
Lower Guides are preset at the factory and do not require adjustment.

WARNING: DO NOT FORCE the Upper Blade in an anticlockwise direction over its widest setting - Damage to the Blade will occur!

1. Follow the Quick Reference Guide (Section SY 3.2).to calculate the Guide depth requirement.
2. Select the required thickness feeler gauge from the calculations.
3. Slacken two socket bolts securing each of the top guide plates.
4. Insert feeler gauge and adjust plates accordingly.
6. Tighten socket bolts.

0.6 LAYOUT



Note: Study Figure 7 and become familiar with the layout of the machine.

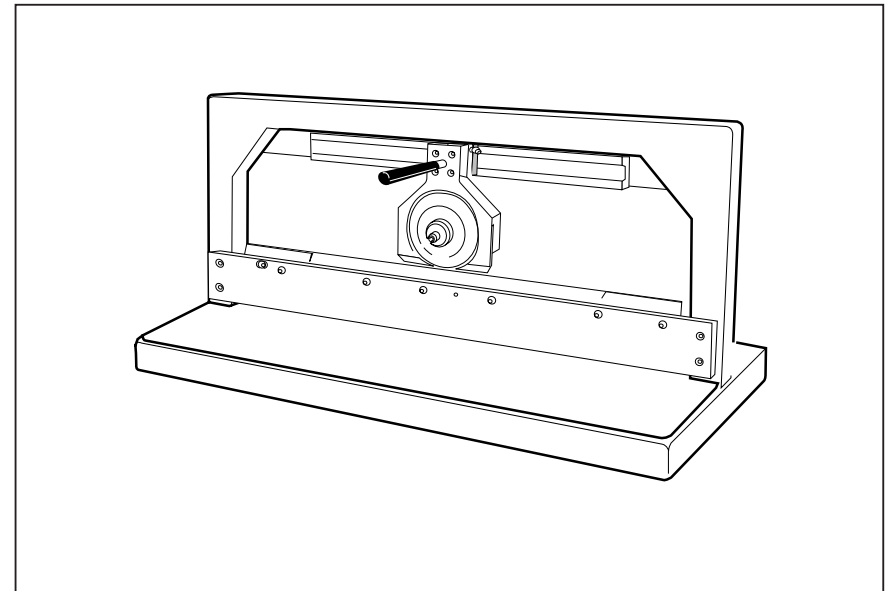
1. Operator handle
2. Slideway
3. Panel Guides. (Adjust if necessary - Section OP1.3)
4. Upper Blade (Sliding blade)
5. Lower Blade
6. Cut zone, lower blade

Blade adjustment is achieved by rotation of a knurled wheel, secured by two nip blocks. (see Section OP1.2)

0.5 SAFETY INSTRUCTIONS

1. Read this instruction manual carefully BEFORE operating the machine. Do not attempt to operate the machine until you are totally familiar with its safe operation.
2. Do not operate the machine with any safety guards or mechanisms removed.
3. Do not tamper or modify any safety guards or devices.
4. Do not place hands near the separator assembly whilst machine is in use.
5. Do not wear loose clothing, jewelry or unrestrained hair styles whilst operating this machine.
6. Always wear appropriate safety equipment when operating this machine.
7. Always wear gloves when adjusting the separators.
8. This machine MUST be operated by only ONE person at a time.

MT2.1 MAINTENANCE



The Circut has been designed for very low maintenance. However, it is vital that regular inspection of the blades and their setting be carried out by the operator

DAILY

1. Check blade condition
2. Rotate Slide Blade slowly and inspect the tip of the blade for warpage or flat spots
3. Check bottom blade for signs of wear/damage.

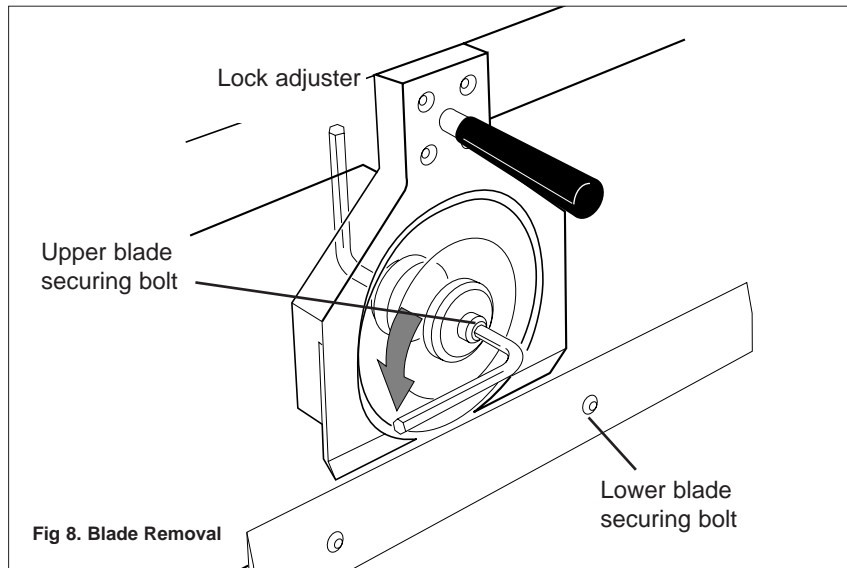
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MONTHLY

1. Check Upper & Lower Blade & Guides for adjustment or wear
2. Check Blade bearings for play. No appreciable float should register
3. Clean & grease slideway
4. Check blade to blade calibration (parallel)

MT2.2 BLADE REPLACEMENT

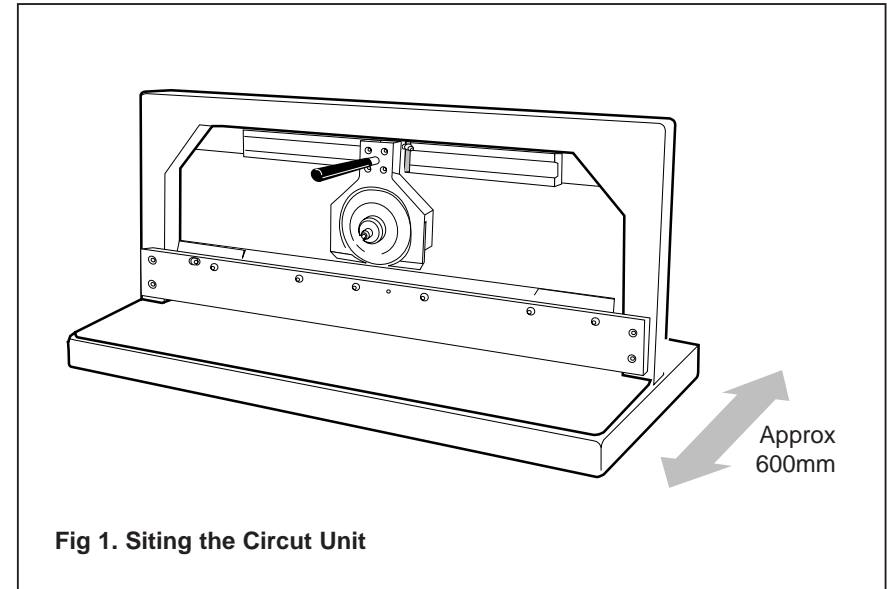


WARNING:SEPARATOR BLADES ARE VERY SHARP & DELICATE! HANDLE WITH CARE

1. Remove the upper blade by installing a 6mm hex key in the centre of the adjuster wheel and a similar key in the blade-side socket securing centre bolt.
2. Loosen upper blade adjuster nip blocks and rotate the Knurled wheel anticlockwise until the hub is upper most (when the blade is installed it will provide the widest gap)
3. Reset Upper Blade (see OP1.2)
4. See section MT2.4 for Lower Blade Adjustment

NOTE: Worn or Reground blades will be different sizes to new items - it is important not to force a new blade onto its hub whilst an old blade is still in position on the opposite hub

0.4 INSTALLATION



1. Uncrate the Circuit machine and position it on a workbench with sufficient work space around it (see figure 1).
2. Ensure all components are present (See Check List Section 0.3)
3. Consideration should be made for stacking space adjacent to the unit for panels and separated pcb's
4. Read & fully understand the safety & operating instructions within this manual before using the machine.

0.3 CHECK LIST

The following equipment has been packed and checked before despatch.

Uncrate the Circuit CAREFULLY! Do not handle Circuit roughly
Ensure that all of the equipment is unwrapped from its individual packaging before discarding the packaging.

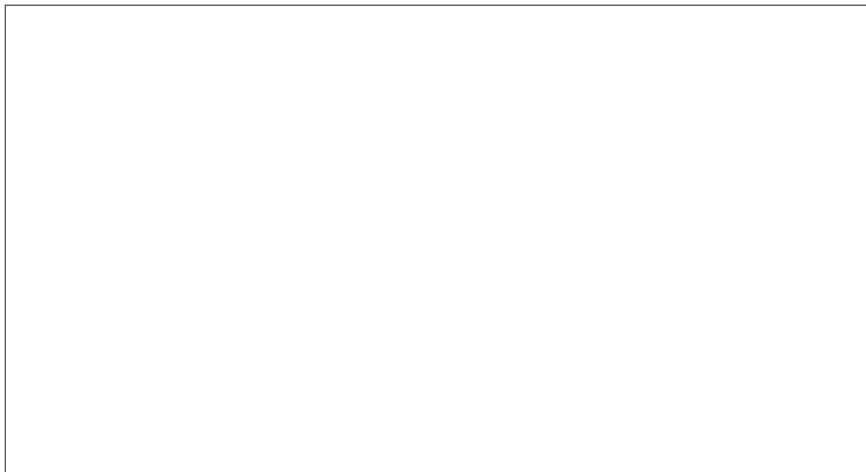
IMPORTANT NOTICE

The guarantee on this equipment will be invalidated if damage occurs either through negligence, mishandling or incorrect installation.

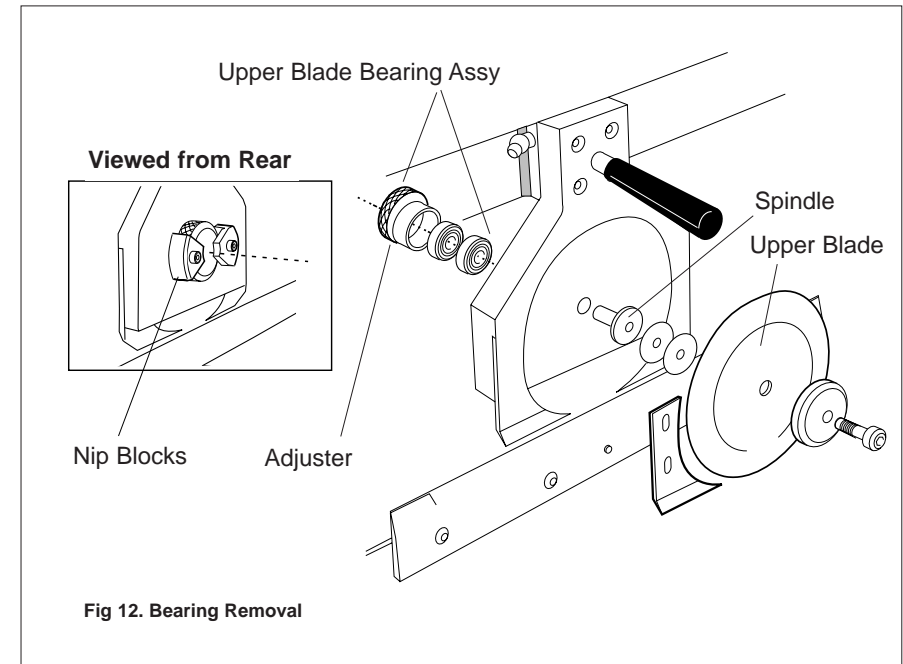
Packing List

- Circuit machine.
- Feeler Gauges
- Set of Allen key tools

Additional items shipped with this consignment



MT2.3 BEARING OVERHAUL



1. Remove Upper Blade
2. Remove Top Blade adjuster Nip Blocks
3. Withdraw Top Adjuster with Spindle and bearings
4. Remove Spindle and use a suitable press tool to press out bearings
5. Installation is the reverse of removal
6. Recalibrate Blade alignment (OP1.1)
7. Reset Blade clearance (OP1.2)

MT2.4 BLADE ALIGNMENT

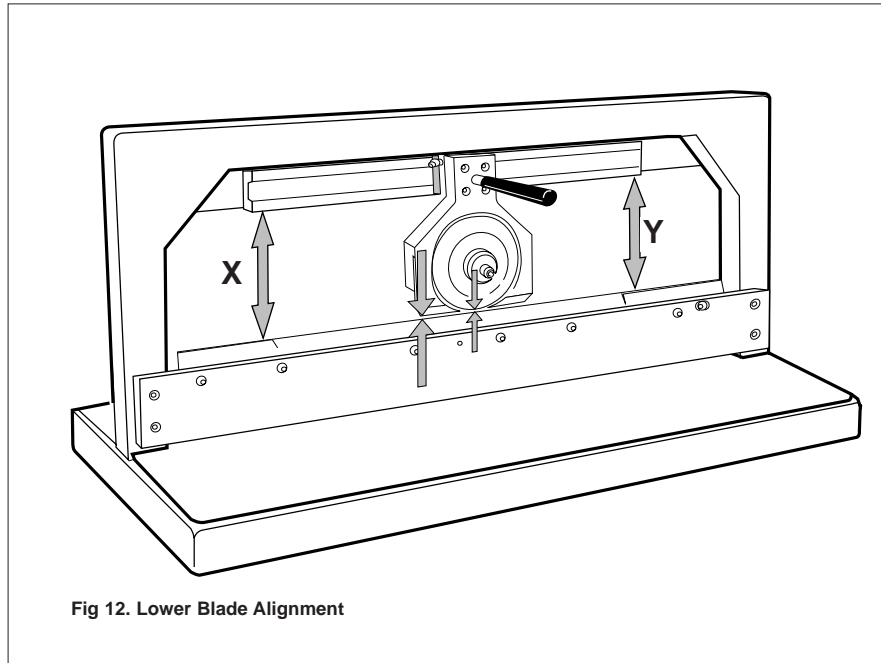


Fig 12. Lower Blade Alignment

1. Lower blade is secured by six 4mm hex socket screws. Remove & withdraw Blade.

7. Replace upper blade.
8. Adjust upper blade to give clearance of 0.025 to 0.050mm (see OP1.2).

NOTE: Remove Upper Blade before installing new Lower Blade

2. Install new lower blade onto centre dowel, locating accentric adjuster at righthand end.
3. Install six screws & lightly tighten
4. Carry out alignment checks (see OP1.1).
5. Moving top blade to X and then Y, use guage to check for same clearance - adjust bottom blade as necessary.
6. Tighten mounting screws when complete.

0.2 TECHNICAL DATA

Specification

Length	800mm
Width	450mm
Height	430mm
Weight	58Kg

Maximum panel size	600 x 600 (23 x 23 ins)
Panel Clearance -Top	34mm
Panel Clearance -Bottom	28mm
Separator speed	Variable - manual operation
Cutter diameter & angle	120mm @12°
Panel positioning	Ground score guides
Separator depth adjustment	Single action accentric adjuster
Separator positioning	Manual

Electrical supply None



The manufacturer reserve the right to change or alter the specification without notice.

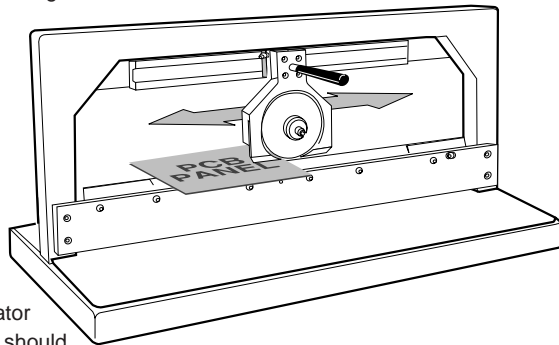
0.1 INTRODUCTION

Design Principles

Circuit 2 has been designed to accurately separate pre-scored, double sided 'V'-cut multi pattern pcb's from master panels. This is an efficient alternative to 'physical' breakout which is time consuming, stress inducing on board & components and ultimately expensive.

Using **Circuit 2** yield per panel will increase dramatically over traditional methods. The benefits are considerable. Assembly of PCBs in multiple panels, either by hand, auto insertion or pick-and-place prior to separation is a great advantage. **Circuit 2** suits the requirements of Printed Circuit Manufacturers who produce an extensive variety of PCBs requiring fine edge 'conditioning' without excessive handling.

Circuit 2 is designed for simplicity and effortless operation, achieving clean-cut results without damaging board or components which are installed. Setting the **Circuit 2**'s separator blades is simple and should be calibrated to the depth of score. (see section OP1.1)



Consideration should be given to the effort required to execute separation dependant on materials, thickness of web and of course the operator. Pre-scored panels are presented to the separator blades via the guides using the score channel to locate in the guides. Ensure the panel does not protrude beyond the working limits of the upper blade. Support the panel horizontally while drawing the upper blade smartly across the panel score.

Construction

The unit consists of a stove enamelled steel chassis with polished stainless steel work table. The separator blades are hardened and ground to 68R providing exceptional capabilities for any pcb material. The bench-top design is supplied ready for installation and set up which can be carried out in less than 15 minutes.

SY3.1 FAULT FINDING

PROBLEM	REASON	SECTION
BLADE DOES NOT ROTATE	<i>Blade warped - Replace</i>	SY3.3
PANELS NOT SEPARATING	<i>Blade depth too shallow Web too thick</i>	OP1.2
INTERMITTENT SEPARATION & ROUGH EDGES	<i>Worn blades</i>	MT2.2
BOARD WILL NOT ENTER GUIDES	<i>Score channel too shallow increase depth of score or adjust guide clearance</i>	SY3.2 OP1.3
BOARD ENTERS GUIDE BUT LABOURS THRO' BLADES	<i>Blade clearance &/or Guide clearance calibration incorrect</i>	OP1.2 OP1.3
BOARD SKEWS THRO' SEPARATOR	<i>Upper & Lower blades not aligned Worn blades</i>	OP1.1 MT2.2
BLADES WILL NOT ADJUST TO THE REQUIRED DEPTH	<i>Blades worn or damaged beyond service - replace</i>	MT2.2

NOTE: DO NOT discard used separator blades until they are certified "beyond serviceable" (See section SY3.3) The Manufacturer operate a re-profile service. Do not use blades which are not reconditioned or manufactured by any other source. OEM components are manufactured & reconditioned using an extremely hard tempering process.

SY3.2 SCORE REFERENCE

Contents

IMPORTANT
 Set Separator blades at 0.025 - 0.50mm Clearance
 Set Guide blades to Web Thickness *Plus* 0.20mm Clearance

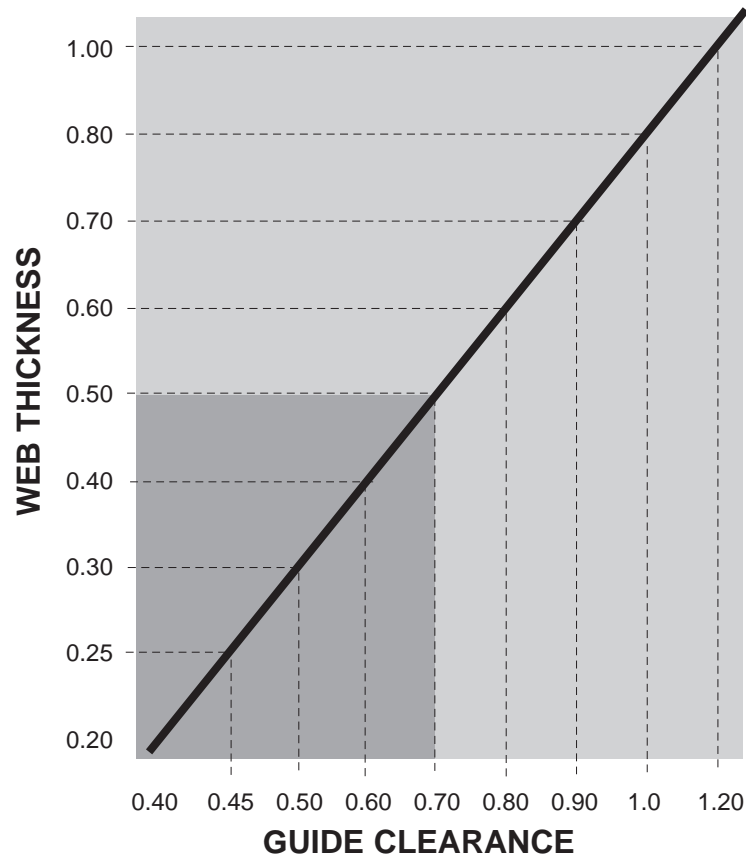


Fig 10. Depth of Blade Reference

Introduction To Circuit (IN 0.0)

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0.3 Check List	6
0.4 Installation Procedure	7
0.5 Safety Instruction	8
0.6 Controls	9

Operating Procedure (OP 1.0)

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1.2 Blade Setting (depth/vertical)	11
1.3 Separator Guide Setting	12

Maintenance Procedure (MT 2.0)

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2.2 Blade Replacement	14
2.3 Bearing Replacement	15
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Systems Support (SY 3.0)

3.1 Fault Finding	17
3.2 Quick Reference	18
3.3 Blade Service	19
3.4 Warranty Clause	19
3.5 Spares List	20

CIRCUIT

V-Cut Depanelling System

Instruction Manual
Operator Manual
Maintenance Schedule
Systems Support



Details about this unit:

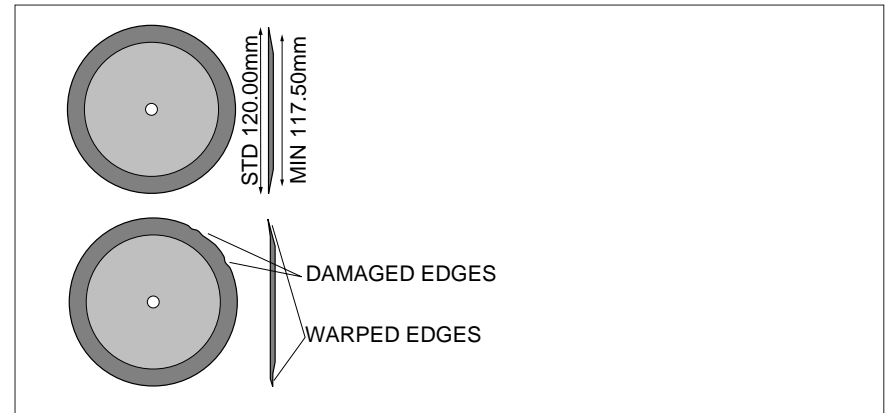
Ref/Serial Number -----

Inspection Date -----

Special Notes regarding this particular unit

Supplied By

SY3.3 BLADE SERVICE



1. With Blade removed measure overall diameter in across 3 points - *note dimensions.*
2. Inspect the edges for damages and mark with an indelible pen
3. Remeasure across diameter at damaged points marked.
4. **If any overall dimms fall below 117.5mm discard the blade**

5. Use a micrometer to check warpage - maximum runout is 0.02mm

SY3.4 WARRANTY

General

Replacement will be furnished of parts found to be defective in workmanship or material, under normal one-shift conditions, within six months from the date of shipment, upon receipt of the defective goods at our factory. All necessary items or equipment furnished by us with this equipment are subject to the warranty issued by, or considered standard practice, by the representative manufacturers and is warranted or guaranteed by us accordingly. There will be a charge for service calls made by our technicians if the calls are proven to be unnecessary due to the failure of your maintenance department to follow corrective measures on problems given during telephone conversations with our engineering department. These charges will be made at our normal service

charge rate.

No claims will be entertained for loss of production whether related to the use or equipment or delivery of equipment or consequential loss or damage to business incurred by the buyer. No allowance will be made for repairs or alterations unless specifically authorised by The Manufacturer.

Exemptions

Drive Belts, Separator blades etc supplied with this machine are not covered by this warranty. This warranty will be invalidated if non- Genuine Parts are used on the equipment.

Important

Always quote the Units Serial Number - found at the front of this manual and on the side of the machine - when ordering parts or service.

SY4.5 SPARE PARTS LIST

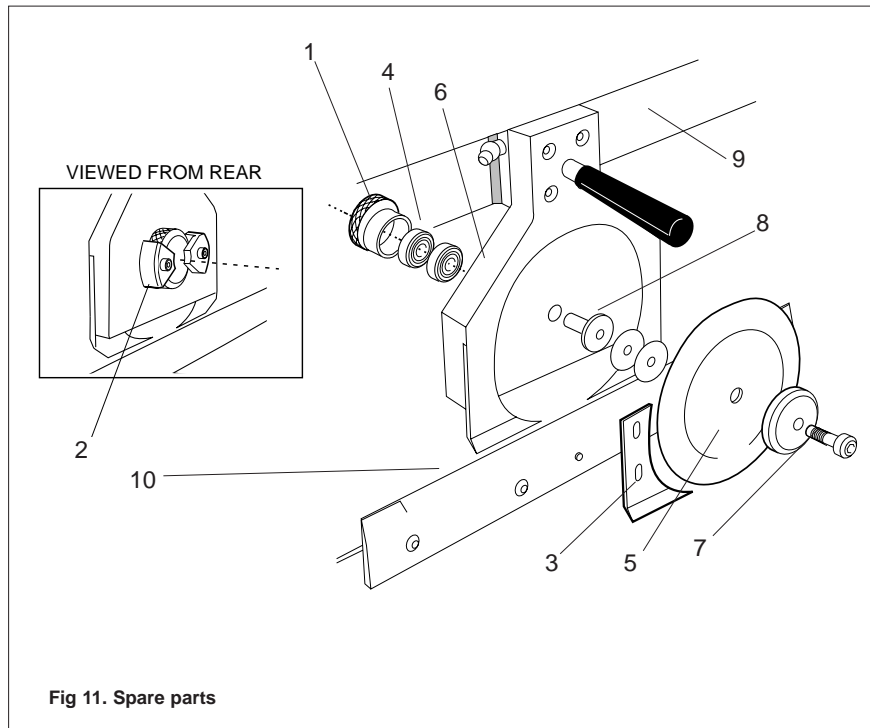
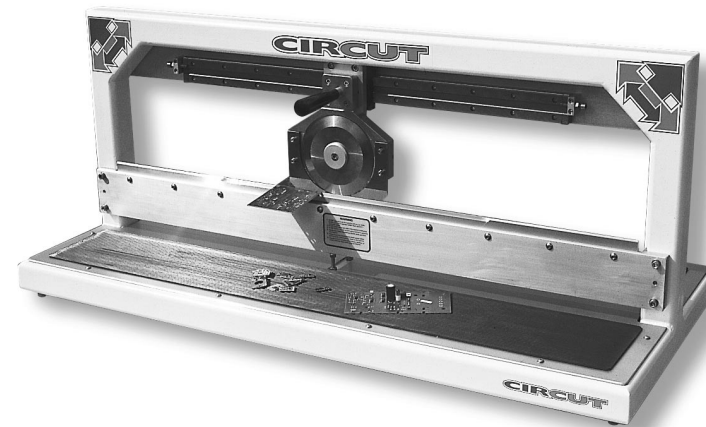


Fig 11. Spare parts

DESCRIPTION	PART NO	QTY
1 KNURLED WHEEL/ ADJUSTER	SP0118	1
2 ADJUST NIP BLOCKS	SP0132	2
3 UPPER GUIDES	SP0116	PAIR
4 IDLER BEARING	SP0142	2
5 SEPARATOR BLADE	SP0112	PAIR
6 BLADE MOUNTING BLOCK	SP0134	2
7 SECURING SCREW	SP0144	2
8 TOP SPINDLE	SP0120	1
9 SLIDEWAY	SP	1
10 LOWER BLADE	SP	1
11 CALIBRATION TOOL (OPTION)	SP	1



CIRCUIT 
Circuit Manually-Operated Depanelling Unit

OPERATORS MANUAL
(INCORPORATING SERVICE, MAINTENANCE
& SPARES SCHEDULES)

MANUAL