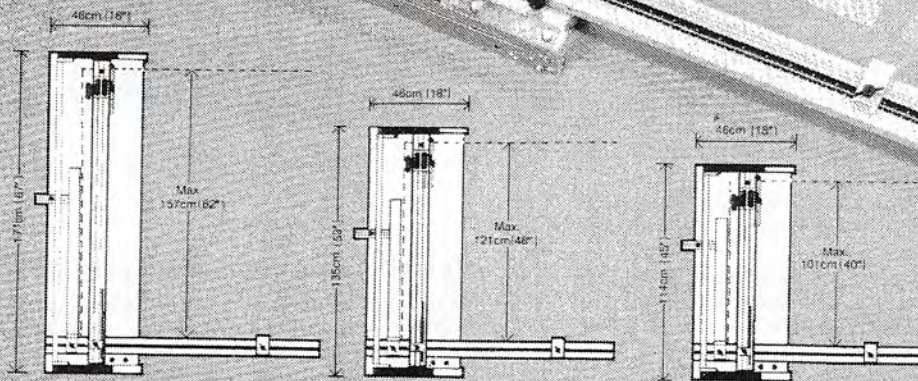


KEENCUT LASER



LASER 1500

LASER 1200

LASER 1000

Mount Cutting Machine INSTRUCTION MANUAL

Please read this manual carefully when you first set up your new laser mount cutting machine. It will save you time!

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Welcome to the world wide family of satisfied users of the Keencut Mount Cutting Machines

The Keencut Laser Mount Cutting Machine is scientifically designed and engineered for professional straight line cutting.

This manual will help you set it up and use it for many years with high speed and precision, and with little effort or maintenance.

But if you need any further advice, just call us.

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Special Features

- Anodised aluminium base will never warp, but will remain flat on any bench.
- Patented recessed slideway for smooth and easy movement of cutter head without side-to-side play.
- Contoured, user friendly cutter head assembly in black anodised aluminium, has low friction bearing which never needs replacement or lubrication.
- The handle - at a mere twist of the wrist - raises the slideway and holds it up by means of support legs for convenient handling of large mountboards with both hands. The handle is attached by spring steel hinges - hence no pivot and no wear.
- Precision stop system.
- Unique bevel blade system which loads to a front mounted stop eliminates depth adjustment when changing blades, irrespective of blade length.
- Keencut 060 blades have an extra thick backing for rigidity, one shallow hollow grind to give the fine cut of a thinner blade, and a second hone for a crisp cut and an extended blade life.
- Adjustable V-groove stop permits accurate V-groove cutting without re-setting.

Precautions

- Do not lubricate the machine
- Do not use any solvent (for cleaning see Maintenance)
- The slideway has been permanently treated with a special low friction material.
- Oil, lubricant or solvent will damage it.
- The cutter blades are sharp. Be careful when handling.

Preparation

Place the machine on a firm surface. The most convenient height is 36 ins or about 90cm for most people.

Operate the machine standing with the squaring arm (8) on your right.

Refer to the Identification of Parts on the insert with this manual.

The squaring arm (8) has been removed for safe transit and must be fitted before the machine can be used. The vertical blade holder (5) has been packed separately.

Fitting the Squaring Arm

Loosen the two locking screws on the squaring arm (8) and slide it onto the keyway on the base as far as it will go (Fig. 1). Tighten both locking screws securely.

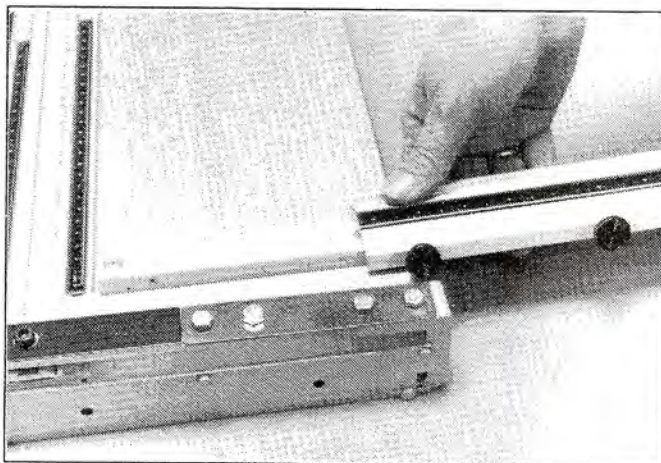


Fig.1.

Fitting and removing the Vertical Blade

The vertical blade is used to cut the outside dimensions of the mountboard. The vertical blade holder (5) should be removed for easier bevel cutting of the aperture.

1. To fit the vertical blade holder (5) loosen the locking screw on its side. Hold it as shown in Fig. 2, and slide the round bolt fully into the cutter head assembly (6), making sure that the small positioning dowel is also correctly located in the cutter head. Tighten the locking screw on the side of the vertical blade holder.
2. To remove the vertical blade holder, loosen the locking screw and slide the blade holder out of the cutter head. Store it safely, with the blade protected.

Specifications

	LASER 1000		LASER 1200		LASER 1500	
Max. Card Length:	40"	101cm	48"	121 cm	62"	157 cm
Cut Length:	38"	96 cm	46"	116 cm	60"	152 cm
Base Dimensions:	45" x 18"		53" x 18"		67" x 18"	
	114 x 46 cm		135 x 46 cm		171 x 46 cm	
Recommended Blade:	Keencut 060		Keencut 060		Keencut 060	
Net Weight:	7.5 lbs.	17kg	8.5 lbs.	19kg	10.5 lbs	23 kg

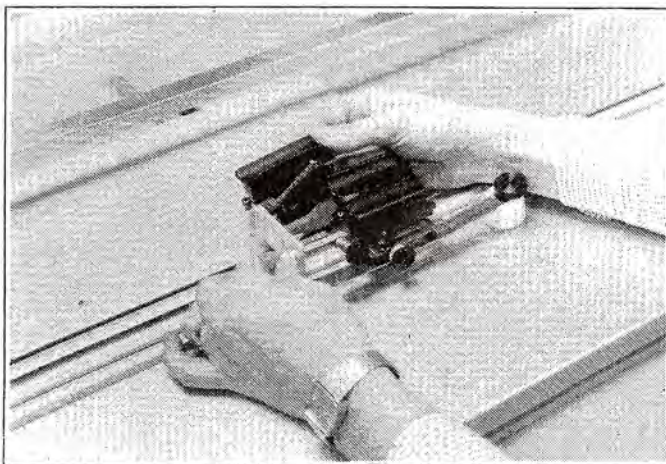


Fig. 2

Imperial (Inch) and Metric Scales

To change from Imperial (inch) to Metric measurements, vice-versa, it is only necessary to reverse the end-of-cut scale (11). To do this, tighten the locking screw on the end-of-cut stop (12) so that this stop is set accurately to the zero position on the scale. Then slide it back so that the end-of-cut stop (12) again accurately shows the zero position.

The scale is held in the slideway by friction. It will remain in the position you have set unless it is physically moved.

All the other scales show Imperial (inch) and Metric measurements and need not be reversed.

Preparing a slip sheet

A slip sheet is required only for bevel cutting. Its purpose is to support the thin facing of the mountboard during cutting, to ensure that it is cut cleanly.

It is made from a piece of mountboard which should be 5-6 ins (10-15cm) wide and a little longer than the mountboard to be cut. When it becomes scored it can be moved slightly and eventually replaced.

A slip sheet need not be used for vertical cutting, unless the outer edges are to be visible.

Checking the mountboard sheets for squareness

Never assume that the mountboard sheets, as supplied by the manufacturer are perfectly square.

Check this by placing each corner of the sheet in the right angle between the slideway (19) and the squaring arm (8). If it does not fit precisely, trim the sheet, using the vertical blade as described on page 5.

Calibration and adjustments

The scales of the Keencut Laser Mount Cutting Machine have been carefully adjusted and calibrated, before leaving out factory, for a mountboard thickness of 1250 microns, such as the test cards supplied with the machine. If you are using mountboard of this thickness, the settings will not have to be re-adjusted unless, that is, they have been disturbed during transit. It is, therefore, advisable to check them in any case.

For different mountboard thicknesses the calibrations of the blade depth and border width scales must be re-set in order to take full advantage of the precision of the machine.

Vertical blade depth adjustment

The vertical blade is used to cut to the outside dimensions of the mountboard. It should just cut through the mountboard, and do so cleanly.

The tip of the blade should protrude about 1/32" or 1mm through the mountboard, but not more. A deeper setting - with more of the blade in the cut - would mean more friction, and hence a greater cutting effort.

1. To check this, make a test cut with the vertical blade - without a slip sheet - using the correct cutting method described on page 5. Look to see whether the tip of the blade, when fully depressed, protrudes correctly below the cut in the mountboard, and that a clean cut has been made.

2. Turn the depth adjustment screw at the back of the blade holder in the appropriate direction:

- Clockwise to increase the depth
- Anti-clockwise to decrease the depth.(Fig.3)

Repeat the above until you have the correct blade depth and a clean cut.

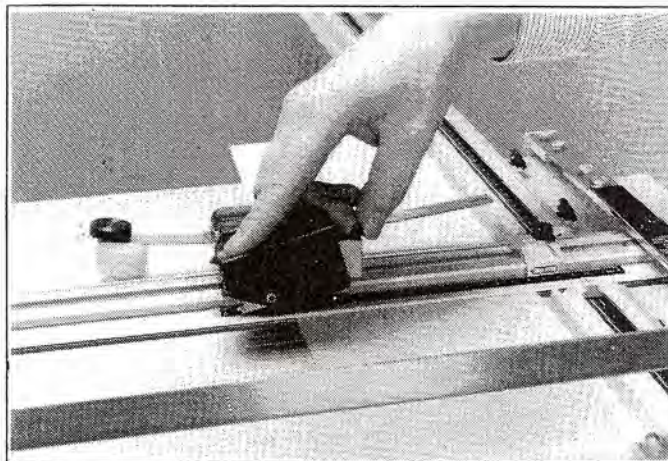


Fig. 3

Calibrating the squaring arm scale

This scale gives the outside dimensions of the mount. To check the calibration proceed as follows with the vertical blade holder in position. No slip sheet should be used.

1. Set the squaring arm stop (7) to an arbitrary setting. Slide the margin guide (15) and the end-of-cut stop (12) as far as possible from the centre of the base.
2. Place a piece of mountboard sheet in the cutting position, as described on page 5, with the mountboard against the stop. Make a vertical cut in the manner described on page 5 and remove the mountboard from the machine.
3. Measure the exact distance from the newly cut edge to the right edge of the mountboard. This measurement should be precisely the same as the reading on the squaring arm scale (9) at the squaring arm stop (7).
4. If the two measurements are not the same, re-calibrate the squaring arm scale (9) by sliding it within the squaring arm (8) until the reading coincides exactly with the above measurement of the mountboard.

Do not move the squaring arm stop (7).

The squaring arm scale is held on the squaring arm by friction. It will remain in the position you have set, unless it is physically moved.

5. Make another test cut, as above, to confirm that the scale is correctly calibrated.

Bevel blade depth adjustment

The bevel blade is used to cut the aperture in the mountboard. It is, therefore, important to have a clean and tidy cut.

To ensure this, you must always have a slip sheet and a very sharp blade when cutting bevel mounts.

Adjustment of the bevel blade depth is necessary whenever the thickness of the mountboard is changed.

The tip of the blade should barely cut into the slip sheet - about 1/32" or 1mm. A deeper setting would again increase the cutting effort and possibly cause hooking at the start of the cut.

1. To check this, place a slip sheet and a piece of mountboard in the cutting position, as described on page 5, with about 1" or 2.5cm of the mountboard protruding to the left of the slideway. Slide the cutter head up the slideway beyond the edge of the mountboard.
2. Depress the bevel blade holder (24) fully and draw the cutter head towards you until the blade almost touches the edge of the mountboard. Look to see how far the blade has penetrated into the slip sheet. If this is correct, as above, complete the cut in the manner described on page 5 to confirm that the blade cuts cleanly.

3. If the blade requires adjustment, loosen the bevel blade locking screw on the side of the cutter head by half a turn, using the 3mm Allen key. Pull back the blade.
4. Turn the depth adjustment screw (fig 4.) at the front of the cutter head in the appropriate direction:
 - Clockwise to decrease the depth
 - Anti-clockwise to increase the depth.
5. Move the blade forward as far as the stop. Tighten the blade locking screw, but do not over-tighten. Repeat the above until you have the correct blade depth and a clean cut.

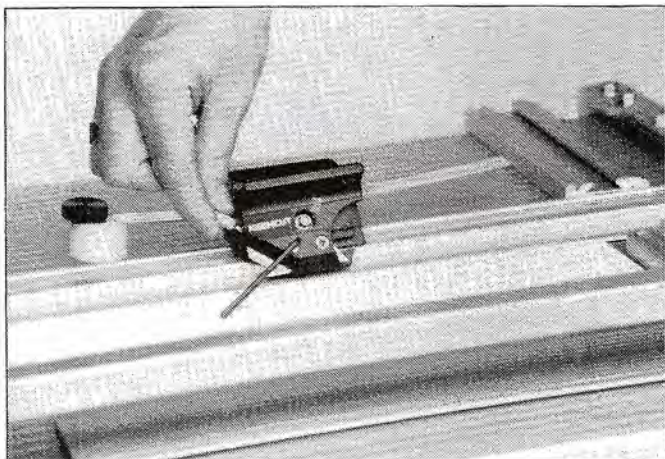


Fig. 4

Calibrating the border width scales

These are:-

- The start-of-cut gauge scale (23)
- the end-of-cut scale (11)
- the margin guide scale (14).

They give the width of the borders of the mount. They must be re-calibrated whenever the thickness of the mountboard is changed. This is necessary because of the geometry of the bevel, and to take full advantage of the precision of the machine.

To check - and, if necessary re-calibrate - these scales, proceed as follows, using the correct setting and cutting methods described.

1. Slide the squaring arm stop (7) fully to the right.
2. Set the margin guide stop (15), the end-of-cut stop (12) and the pointer of the start-of-cut indicator (2) to give any arbitrary reading on their respective scales, such as 2 ins or 5 cm. When setting the start-of-cut indicator move the start-of-cut scale (23), releasing and then locking it by turning the start-of-cut locking screw (3) on the side of the indicator. **Do not, at this stage, loosen the indicator locking screw (4) ABOVE indicator.**
3. Using a slip sheet, place a piece of mountboard in the cutting position, as described on page 5 with its edges firmly against the margin guide (18), the squaring arm (8) and the back squaring arm (16).
4. Bring the start-of-cut gauge into firm contact with the top edge of the mountboard as described on page 5 and make a test cut with the bevel blade as far as the end-of-cut stop (12).
5. Take the mountboard from the machine and measure the following distances **on the face** accurately with a steel rule (Fig. 5):
 - from the start of the cut to the top edge; this should be precisely the same as the reading of the pointer of the start-of-cut indicator (2).
 - from the end of the cut to the bottom edge; this should be precisely the same as the reading on the end-of-cut scale (11).
 - from the cut to the right hand edge; this should be precisely the same as the reading on the margin guide scale (14) at the margin guide stop (15).
6. If the reading on the start-of-cut scale (23) is not precisely the same as the corresponding measurement on the mountboard, re-calibrate the scale by loosening the indicator locking screw (4) above the start-of-cut indicator.
Do not loosen the start-of-cut locking screw (3) on the SIDE of the indicator.

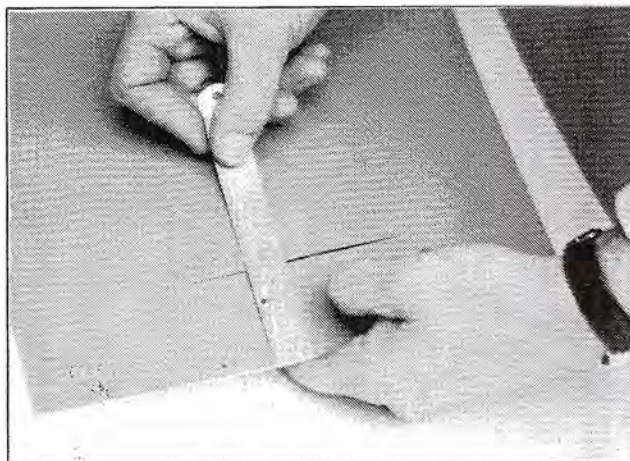


Fig. 5

Move the start-of-cut indicator until the scale reading at the pointer coincides exactly with the above measurement. Tighten the indicator locking screw (4).

7. If the reading on the end-of-cut scale (11) is not precisely the same as the corresponding measurement on the mountboard, re-calibrate the end-of-cut scale by sliding it within the slideway (19) until the reading at the end-of-cut stop (12) coincides exactly with the above measurement (fig 6). **DO NOT** move the end-of-cut stop.
8. If the reading on the margin guide scale (14) is not precisely the same as the corresponding measurement on the mountboard, re-calibrate the margin guide scale by sliding it within the slideway (19) until the reading at the margin guide stop (15) coincides exactly with the above measurement. Do not move the margin guide stop.
The end-of-cut scale and the margin guide scale are held on the slideway and the back squaring arm by friction. They will remain in the position you have set, unless they are physically moved.
9. Make another test cut, as above, to confirm that all these scales are correctly calibrated.

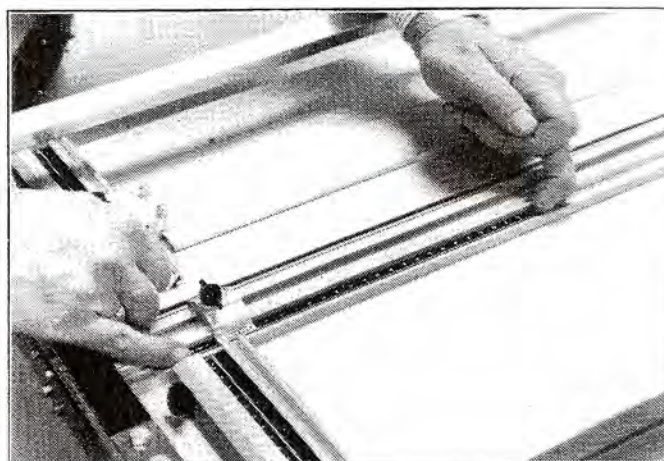


Fig. 6

Cutting a mount

To cut mounts accurately, cleanly and speedily, we recommend that you always use the cutting methods described below:

Operating the hold and lift mechanism

The handle (17) is used to raise the slideway (19) to admit or release the mountboard, and to lower it to hold the mountboard in place. Always *turn* the handle rather than lift it, so that the support legs (22) hold up the slideway and leave both your hands free. A little practice in using the handle will prove invaluable, particularly when handling large mountboard sheets.

Never press down on the handle when cutting. This will only tend to raise the centre of slideway and lose the clamping action. The handle is carefully balanced to give perfect clamping without any pressure.

Vertical cutting the outside dimensions

1. Fit the vertical blade holder (5) to the cutter head (6), first checking that the vertical blade is sharp.
2. Loosen the locking screw on the margin guide stop (15) and the end-of-cut stop (12) and slide these stops as far as possible from the centre of the base.
3. Set the squaring arm stop (7) accurately on the squaring arm scale (9).
Some thought as to which dimension to cut first reduces scrap.
4. Place a piece of mountboard under the slideway (without a slip sheet), with one edge firmly against the squaring arm (8) and the other edge against the squaring arm stop (7).
5. Depress the vertical blade holder (5) fully with the right hand (Fig. 7) and, maintaining a steady pressure, draw the cutter head assembly smoothly towards you until it comes up against the end-of-cut stop (12). It is quite normal to make a number of cuts on very thick boards or when cutting several boards. You can cut up to six boards together.
6. Re-set the squaring arm stop (7) on the squaring arm scale (9) to the other desired dimension of the mount, and turning the mountboard 90°, repeat the steps 4 and 5 for the outer edge.

Bevel cutting the aperture

1. Remove the vertical blade holder (5) from the cutter head assembly (6). Check that the bevel blade is sharp.
2. Slide the squaring arm stop (7) as far as possible to the right.
3. Loosen the start-of-cut locking screw (3) (Fig. 8) on the side of the start-of-cut indicator (2), and set the pointer of the indicator accurately on its scale (23), to the desired border width. **Do not loosen the indicator locking screw (4) above the indicator.**

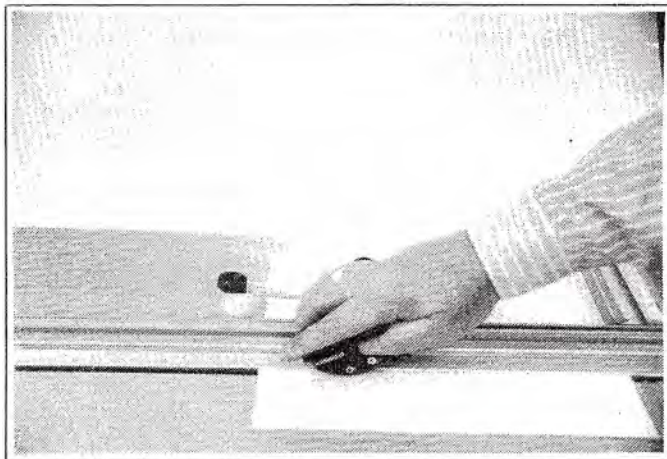


Fig. 7

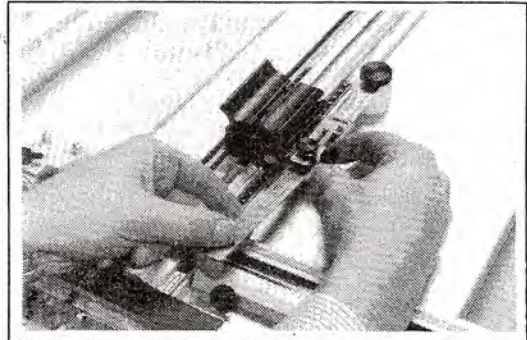
4. Set the end-of-cut stop (12) (Fig. 9) accurately on the end-of-cut scale (11) to the desired border width.
5. Set the margin guide stop (15) and the margin guide clamp (21) accurately on the margin guide scale (14) to the desired border width.
6. Raise the slideway (19) by turning the handle (17) so that the support legs (22) hold the slideway clear of the base. **Using a slip sheet**, place the mountboard **face down** under the slideway, with its edges firmly against the margin guide (18), the squaring arm (8) and the back squaring arm (16). Lower the slideway by turning back the handle.
7. Move the cutter head (6) up the slideway past the top edge of the mountboard. With your left hand press down on the start-of-cut gauge (1) so that it touches the base, and draw the cutter head towards you until the white block of the start-of-cut gauge (1) comes up against the edge of the mountboard (Fig. 10).
8. Keeping the start-of-cut gauge firmly down in this position, depress the bevel blade holder (24) fully with your right hand so that the blade cuts into the mountboard. Release the start-of-cut gauge and, maintaining a steady pressure on the bevel blade holder, draw the cutter head smoothly towards you until it comes up against the end-of-cut stop (12).

9. Turning the mountboard 90° anti-clockwise, repeat the above steps 6 to 8 to cut the other three edges of the aperture.

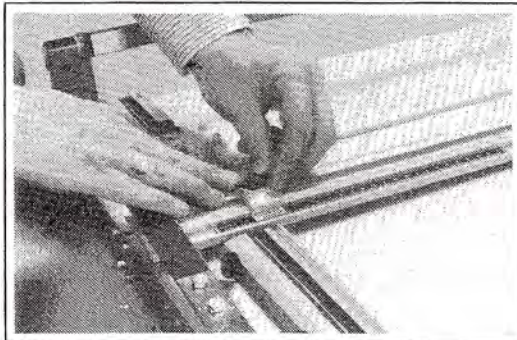
In the case of over-cut on the face of the mountboard, check the accuracy of the scale setting. Also check the mountboard sheet for squareness, as described on page 3. (Over-cut on the back is normal due to the geometry of the bevel cut.)

When cutting a mount with unequal borders, it is useful to mark the required width of each border near the corresponding edge on the back of the mountboard. Then, when bevel cutting, you set the start-of-cut gauge, the end-of-cut stop and the margin guide to the width nearest to it at each cut. It is, of course, necessary to re-set the dimensions on the scales for each cut.

Fig. 8 ▶



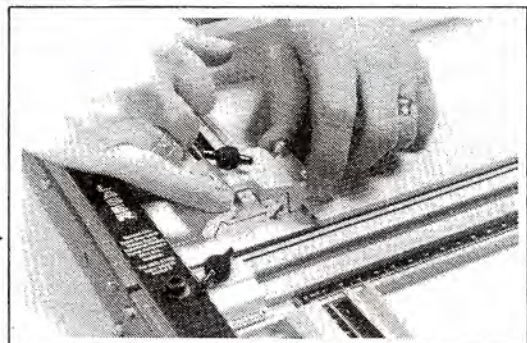
◀ Fig. 9



◀ Fig. 10



Fig. 11 ▶



Cutting a V-groove

The V-groove stop (13) has been set in our factory to give a V-groove of the same width as the normal bevel cut on a 1250 micron mountboard. If a different thickness of mountboard is used, or if a wider or a narrower V-groove is required, the V-groove stop (13) must be moved to the left or to the right respectively. It is loosened and tightened with the 3mm Allen key. (Fig. 11)

1. Draw a line across the back of the mountboard for later orientation of the fallout and bevel cut as for a normal mount.
 2. Remove the mountboard and the fallout from the machine and set the margin guide stop (15) against the V-groove stop (13).
 3. Reverse the fallout and place it **face up** in the cutting position, firmly against the margin guide (18).
 4. Position the cutter head so that the tip of the bevel blade is just beyond the top edge of the fall out and depress the blade holder. It is important that the bevel blade should cut into the edge of the fallout whilst the cutter head itself is stationary on the slideway. Only after the blade holder has been fully depressed, draw the cutter head towards you to complete the cut.
 5. Repeat steps 3 and 4 to bevel cut the other three edges of the mountboard.
 6. Replace the fallout in the mount so that the line you have drawn on the back matches, and tape the mount and the fallout together securely along the cut.
 7. Re-set the start-of-cut gauge, the end-of-cut stop and the margin guide to the desired final border width. (The setting in step 1 fixed the distance of the groove line from the outside edge of the mountboard.)
- Do not leave trimmings lodged under the slideway.

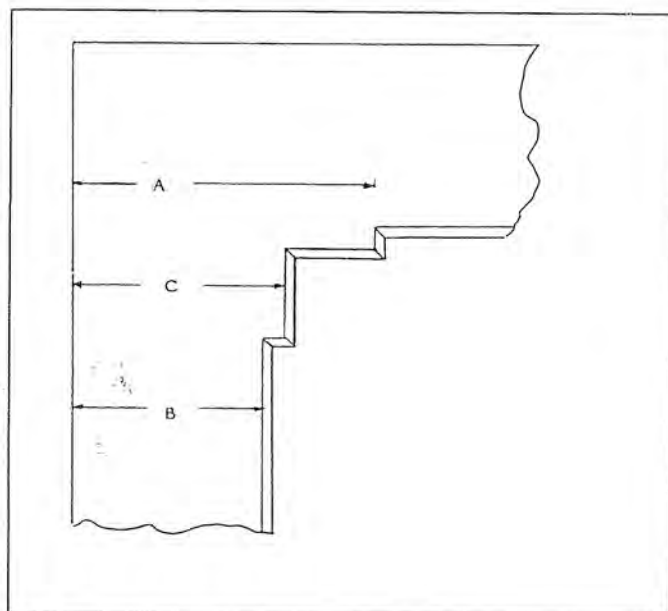


Fig. 13

Offset Corner Mounts

Single offset – (Fig. 12)

1. Set the margin guide to dimension A, and the start-of-cut gauge and the end-of-cut stop to dimension B. Bevel cut in the normal way.
2. Set the start-of-cut gauge and the end-of-cut stop to dimension A, and the margin guide to dimension B. Bevel cut in the normal way.

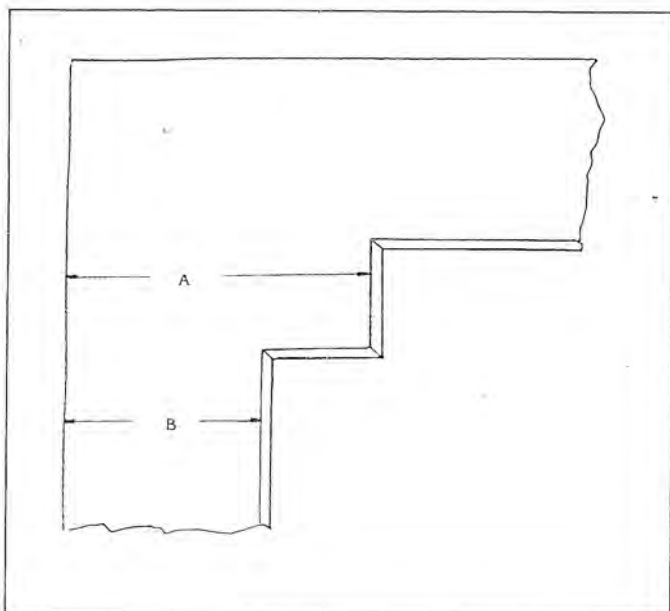


Fig. 12

Double Offset – (Fig. 13)

1. Follow steps 1 and 2 above, as for a single offset mount.
2. Set the margin guide, start-of-cut gauge and end-of-cut stop to dimension C. Make all four bevel cuts in the normal way.

Roman Arch Mounts (See fig. 14)

1. Using the Keencut Rondo oval/circle machine, cut a circle whose centre is at a distance A from one edge of the mountboard and on its centre line. The diameter of this circle will depend on the desired size of the arch.
2. Now using the Keencut Laser, set the margin guide to dimension A, and the start-of-cut gauge and end-of-cut stop to dimension B. With the mountboard face down, make bevel cut No. 1.
3. Set the margin guide and end-of-cut stop to dimension B and the start-of-cut gauge to dimension A. Turn the mountboard by 90° clockwise and make bevel cut No. 2.
4. Set the margin guide, the start-of-cut gauge and end-of-cut stop all to dimension B. Turn the mountboard by 90° clockwise and make bevel cut No. 3.
5. Leave the margin guide and the start-of-cut gauge set at dimension B, and set the end-of-cut stop to dimension A. Turn the mountboard by 90° clockwise and make bevel cut No. 4, to complete the aperture.

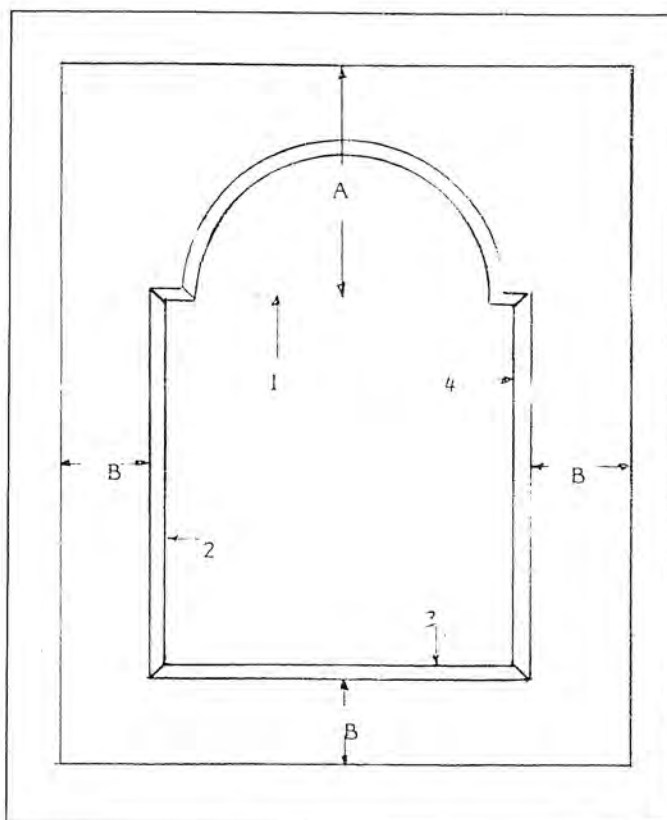


Fig. 14

Oriental Mounts See Fig. 15.

1. Using the *Keencut Rondo* oval/circle machine, cut a circle in each corner of the mountboard, with the centre at a distance A from the edges. The diameter of these circles may vary to suit the mount design.

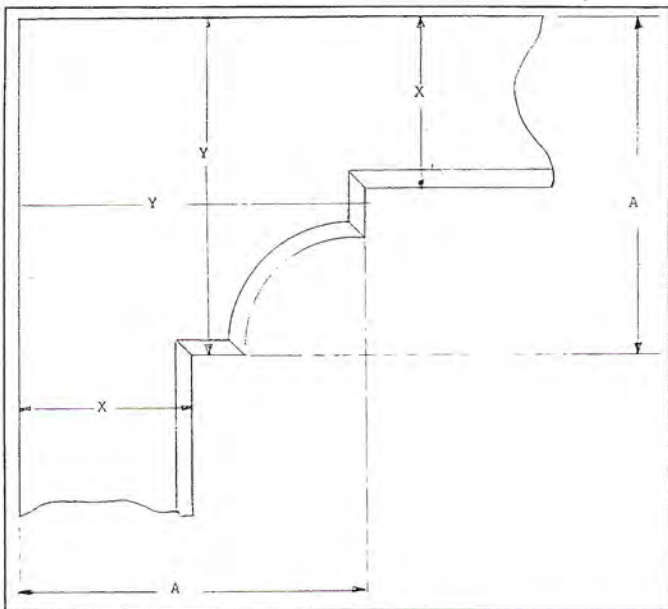


Fig. 15

2. Now using the *Keencut Laser*, set the margin guide to dimension Y and the start-of-cut gauge and the end-of-cut stop to dimension X. Make all four bevel cuts.
3. Set the margin guide to dimension X, and the start-of-cut gauge and the end-of-cut stop to dimension Y. Make all four bevel cuts. Do not leave offcuts lodged under the slideway.

In the example shown A equals Y and Y is twice X. The final border width is determined by dimension X.

Changing the Blades

The blades should be changed regularly to maintain a clean cut. Use *Keencut 060* blades for best results and duration. After cutting more than 15 mounts some deterioration may be experienced.

The same blades can subsequently be used to make a similar number of vertical cuts, as a different part of the blade does the cutting.

Dispose of the blades safely.

Bevel Blade

1. Remove the vertical blade holder (5), with the slideway in the down position.
2. Loosen the bevel blade locking screw on the side of the cutter head by half a turn, using the 3mm Allen key. Slide the blade out of the rear of the cutter head (Fig. 16).

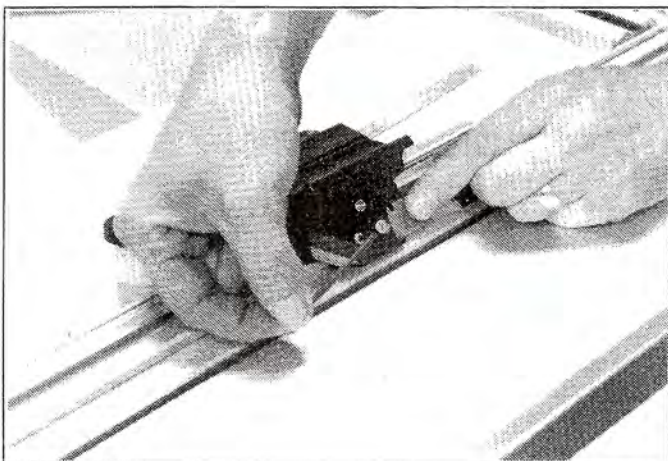


Fig. 16

3. Reverse the blade or – if both ends have been used – replace it with a new one. Slide it behind the blade clamping plate as far as the stop. Tighten the locking screw securely, but do not over-tighten.

Vertical Blade

This must be changed with the vertical blade holder removed from the machine.

1. Loosen the vertical blade locking screw by half a turn using the 3mm Allen key. Slide the blade out of the front of the blade holder (Fig. 17).

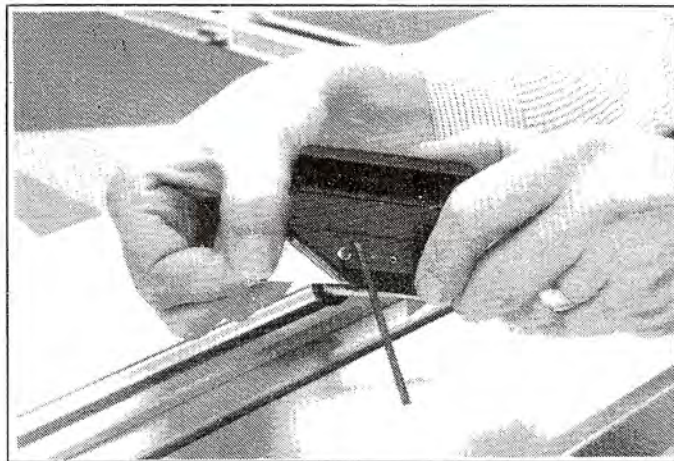


Fig. 17

2. Reverse the blade or – if both ends have been used – replace it with a new one. Slide it behind the blade support in the blade holder as far as it will go. Tighten the locking screw securely, but do not over-tighten.

The depth of the blades will **not** have to be adjusted.

Maintenance

The Keencut Laser has been designed to require virtually no maintenance.

However, during the initial running in period, it may be necessary to adjust the cutter head (6) to eliminate play on the slideway.

Adjusting for head movement

Depress the bevel blade holder. This will give access to two adjusting screws in the body of the cutter head (Fig. 18). Turn the locking screws with the 3mm Allen key – clockwise to tighten the cutter head on the slideway, anti-clockwise to loosen it. Adjust evenly on both locking screws, until there is no play, yet the cutter head still moves easily and smoothly on the slideway.

Cleaning

Clean the mount cutting machine regularly with a clean dry cloth. Should it become very dirty you may use a damp cloth.

**But never use a solvent
And never use a lubricant**

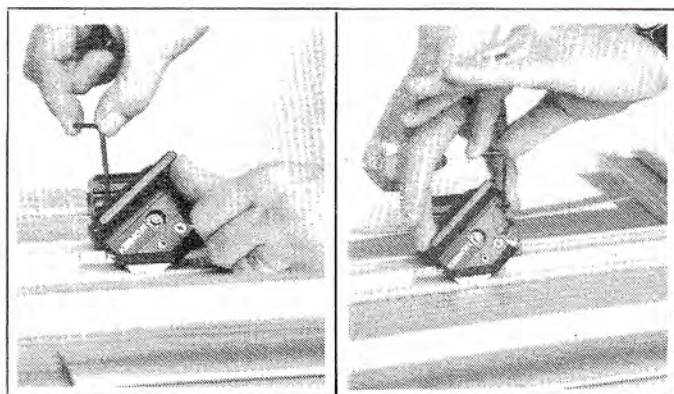


Fig. 18

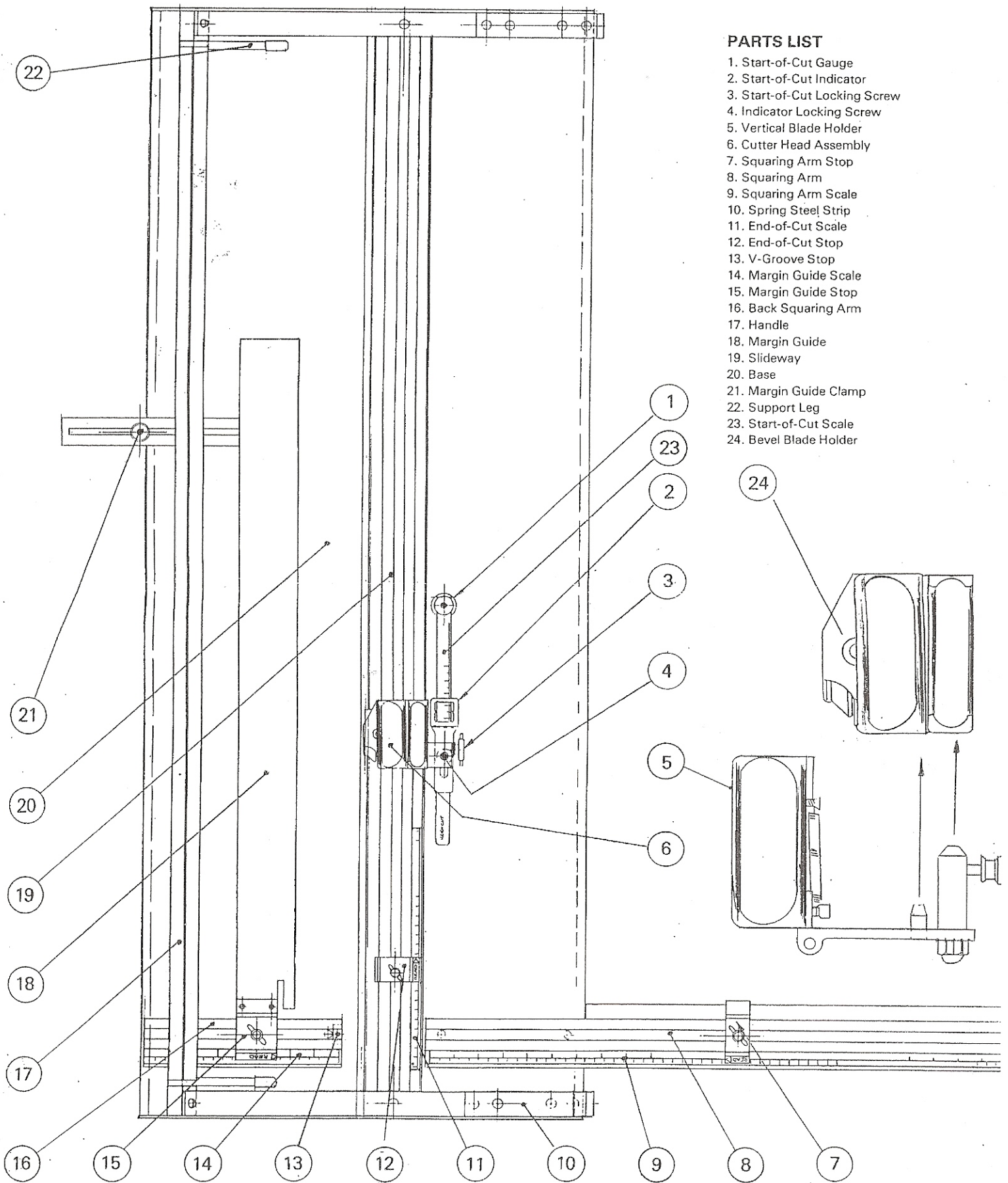
Fault Finding and Remedy

With normal care, your Keencut Laser will give you years of trouble free use. However, in the case of minor problems, we show the causes and remedies below.

Fault	Cause	Remedy
Frayed mount surface	Blunt blade	Change blade end or blade (Page 7)
	Worn slip sheet	Turn slip sheet over or renew it
Distortions at start of cut (Hooks)	Blunt blade	Change blade end or blade (Page 7)
	Blade depth too great	Adjust blade depth (Page 3)
	Movement of cutter head on sideway	Adjust for head play (Page 7)
Erratic cutter head movement	Dirty slideway	Clean slideway (Page 7)
	Movement of cutter head on sideway	Adjust for head play (Page 7)

PARTS LIST

1. Start-of-Cut Gauge
2. Start-of-Cut Indicator
3. Start-of-Cut Locking Screw
4. Indicator Locking Screw
5. Vertical Blade Holder
6. Cutter Head Assembly
7. Squaring Arm Stop
8. Squaring Arm
9. Squaring Arm Scale
10. Spring Steel Strip
11. End-of-Cut Scale
12. End-of-Cut Stop
13. V-Groove Stop
14. Margin Guide Scale
15. Margin Guide Stop
16. Back Squaring Arm
17. Handle
18. Margin Guide
19. Slideway
20. Base
21. Margin Guide Clamp
22. Support Leg
23. Start-of-Cut Scale
24. Bevel Blade Holder



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