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Mimakl CFX Series Edge Detection Cut



Overview

About the Edge Detection

- Edge detection is a function that detects the edges of a placed workpiece.
- Using the edge detection function allows you to cut accurately even if the workpiece is tilted.
- It is also possible to cut data with registration marks from the back, and media such as cardboard that does not have a clean finish when cut from the front can be cut from the back to achieve a clean finish.

This manual

- This manual explains the operation of the edge detection function.
- Read and fully understand this operation manual before using this machine. It is also necessary to keep this manual on hand.
- Make arrangements to deliver this manual to the person in charge of the operation of the edge detection function.
- Although this manual has been carefully prepared for your easy understanding, please do not hesitate to contact your local distributor if you have any inquiry.
- The contents of this manual are subject to change for improvement without notice.
 Please note.
- If this manual should become illegible due to damage, or is destroyed due to fire or similar reason, purchase another copy of the manual at our sales office.

Symbols

In this document, symbols are used for explaining the contents of cautions on operation. The symbol to be displayed differs depending on the caution content. Understand the meaning of each symbol and use this machine safely and correctly.

Examples of Symbols

Meaning				
<u></u> MARNING	WARNING	Failure to observe the instructions given with this symbol can result in death or serious injuries to personnel. Be sure to read it carefully and use the printer properly.		
△ CAUTION	CAUTION	Failure to observe the instructions given with this symbol can result in minor or medium injuries to personnel.		
\wedge	GENERAL WARNING	This symbol indicates that the items shown need to be noted. Specific notes are drawn in the figure.		
•	GENERAL MANDATORY ACTION	This symbol indicates that the action shown must be executed. Specific instruction is shown in the illustration.		
\Diamond	GENERAL PROHIBITION	This symbol indicates that the action shown is prohibited. Specific action that is prohibited is shown in the illustration.		
(Important!)	IMPORTANT	Important notes for the use of this unit are given with this symbol. Refer to the operation.		
Ť	HINT	Useful information is given with this symbol. Refer to the operation.		
æ	REFERENCE	This symbol indicates the reference page for related contents. Click the text to display the corresponding page.		

CAUTION

EXCEPT FOR THOSE SPECIFIED IN THE WARRANTY REGULATIONS OF MIMAKI ENGINEERING CO., LTD., WE SHALL NOT BE LIABLE FOR ANY DAMAGES (INCLUDING BUT NOT LIMITED TO LOST PROFITS, INDIRECT DAMEGES, SPECIAL DAMAGES OR OTHER MONETARY DAMAGES) ARISING FROM THE USE OR INABILITY TO USE THE PRODUCT. THE SAME APPLIES EVEN IF MIMAKI ENGINEERING CO., LTD. HAS BEEN INFORMED OF THE POSSIBILITY OF DAMEGES.

AS AN EXAMPLE, WE SHALL NOT BE LIABLE FOR LOSS OF MEDIA USING THIS FUNCTION OR INDIRECT LOSS CAUSED BY THINGS CREATED. PLEASE NOTE THAT WE SHALL NOT BE LIABLE FOR ANY CLAIMS FROM THIRD PARTIES.

How to use

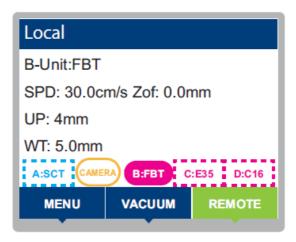
How to set up edge detection cut

Please follow the steps below to use edge detection cut.

This function requires An optional camera unit, the dedicated software OBSCURAS,
 and the application software FineCut/Coat9 or CAMLINK2 for setting edge detection

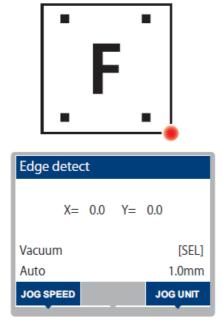
For the backside cutting

- Register marks must be printed on the work.
- Unlike the corner mode in which the origin position is directly specified, the free registration mark requires the origin to be calculated from the registration mark position, which may reduce accuracy.
- If the edge of the workpiece is not straight, the correct inclination cannot be obtained and accuracy may decrease.
- When performing high-precision backside cutting on a large workpiece, we recommend cutting in corner mode using a mark chip.
- 1. Set up the camera in [Option Setup].
 - On the local mode screen, select [MENU].
 Select [Machine Setup] > [TP Detect Setup] > [Mark Detect], then press the [ENTER] key.
 - 2. Press to select [Camera], then press the [ENTER] key.



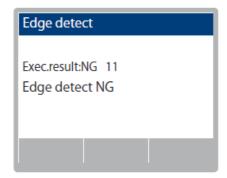
- 2. Set up edge detection operation.
 - For details on settings, refer to the FineCut/Coat9 or CAMLINK2 instruction manual.
 - Refer to the FineCut/Coat9 or CAMLINK2 instruction manual.
- 3. Set up a work with the top surface facing up.
- 4. Set up FineCut/Coat9 or CAMLINK2, then start output.
 - For details on settings, refer to the FineCut/Coat9 or CAMLINK2 instruction manual.

- For surface cut:
 - 1. Cutting is arranged.
 - 2. In [Plotter Out], set up [Edge detect].
 - 3. Click [Output].
- For the backside cutting:
 - 1. Cutting is arranged.
 - 2. Execute [Detect Mark].
 - 3. In [Plotter Out], set up [Reverse Cut Mode].
 - 4. In [Plotter Out], set up [Edge detect].
 - 5. In [Plotter Out], set up [Register Mark Setting].
 - 6. Click [Output].
- 5. The machine automatically switches to jog mode.
- 6. Press to align the LED pointer with the lower right (edge origin) of the work.
 - For the backside cutting: The [Edge detect] screen appears.



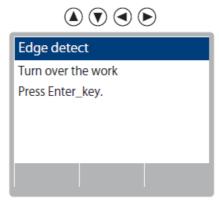
- 7. Press the [ENTER] key to perform automatic edge detection.
 - Edge detection starts from the bottom right-hand corner of the workpiece and, if normal detection is achieved, the workpiece edge is detected sequentially in one X- or Y-axis location or in one XY-axis location each.
 - If a corner is missing or cannot be detected normally, the corner position is automatically calculated by detecting two locations in each of the X and Y axes (when corner and X, Y axis detection is specified) if detection is specified for both X and Y axes.

- If the edge of the workpiece is not straight, the correct inclination cannot be determined and accuracy may decrease.
- For surface cut: After detection, cutting begins.
- For the backside cutting: After detection, continue to step 8.
- If edge detection fails: An error screen is displayed.
- An error number and message is displayed.
- Press the [ENTER] key to return to jog mode.
 - *The following explains the case of backside cutting.





- 8. The machine switches to the mark origin setting.
 The [Mark Origin Detection] screen appears.
- 9. Press () to move the LED pointer to the mark origin, then press the [ENTER] key.
- 10. Detect the mark origin.
- 11. Retract the head to the upper right.

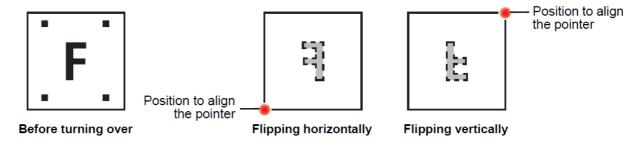


The head is retracted regardless of operation settings.

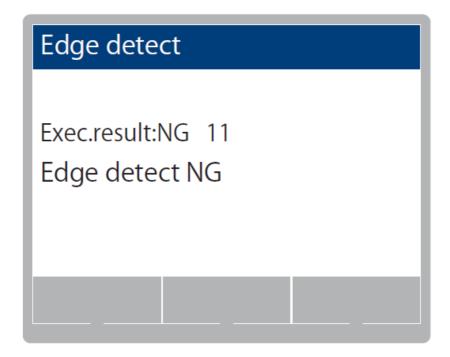
- After the head retraction, the vacuum turns off.
- To pause operation, press the [END/POWER] key.
- The [Edge detect] screen appears.
- 12. Flip the work over.

Flip the work over in the direction set in [Reverse Cut Mode] of FineCut/Coat9 or CAMLINK2.

- 13. Press to move the LED pointer to the following position, then press the [ENTER] key.
 - If the work is flipped horizontally: Lower left
 - If the work is flipped vertically: Upper right



- Edge detection begins.
- After detection, cutting begins.
- If edge detection fails: An error screen is displayed.
- An error number and message is displayed.
- Press the [ENTER] key to return to jog mode.



Troubleshooting

Issue		Corrective action			
The edge detection result is NG.					
(1) Check the condition of the workpiece.					
1.	The work is thick and the e cut surface (side) is not vertical (slanted).	When the work is inverted for backside cutting to det ect the edge, there will be a misalignment between t he corner and the registration mark position. • When using backside cutting, use a mark chip. "B ackside Cutting Using Mark Chips" on page 9			
2.	The edge is broken.	The edge cannot be determined. • When using backside cutting, use a mark chip. "Backside Cutting Using Mark Chips" on page 9			

(2) Check the firmware version.

Please update the firmware to version 2.0 or later.

 The capture position will be inward, reducing the r eflection of the sides, and detection may be possib le.

Image taken at 5mm inside

The sides of thick work (s uch as flutes on the sides of cardboard or honeycomb work) are refl ected in the captured ima

ge, which results in NG.





Image taken at 5mm inside

Since FW ver2.0 and later, the image is taken fro
m the inside of the work, so printed matter may be
captured. Please be careful not to include printed
matter in the image as this may cause false edge d
etection.

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	CCI	10
		15

Corrective action

Edge detection cut is misaligned

1.

If there are printed objects or lines other than the edg e in the shooting range, they may be mistaken for the edge.Please position the print so that it is 40 mm inside the edge. Or, cover the shooting range with a t hin medium.



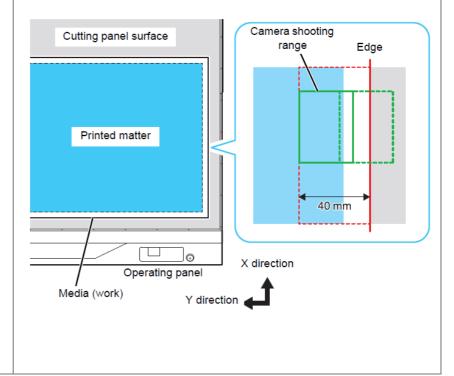


[Edge detection position] The position is 400 mm in the X direction (vertical) and 300 mm in the Y direction (horizontal) from the corner.

There is a color difference

within 40 mm from the ed
ge.

- The shooting range is 40 mm inward from the edg
 e, and multiple shots are taken.
- Camera angle of view: 40 mm vertical, 30 mm hori zontal

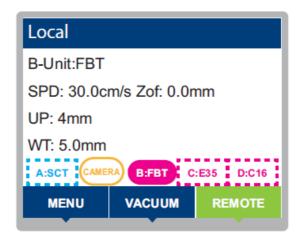


Backside Cutting Using Mark Chips

Use this function when edge detection backside cutting cannot be performed normally. This function can be combined with data ID codes.

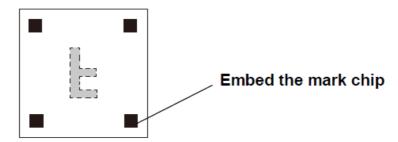
Also refer to the instruction manuals of "FineCut/Coat9" or "CAMLINK2".

- To embed the mark chip required in backside cutting, the work must be at least 3 mm thick.
- 1. Set up a work.
- 2. Detect the mark origin.
- 3. Press the [REMOTE] key.
 - The machine switches to remote mode.



- 4. Send data from the host computer.
 - Cutting begins automatically after the data is received.
- 5. Cut the diagonal of the register mark.
- 6. After cutting is finished, retract the head to the upper right.
 - The head is retracted regardless of operation settings.
 - After the head retraction, the vacuum turns off.
 - To pause operation, press the [END/POWER] key.
- 7. Flip the work over vertically and embed the mark chip.
 - Flip the work over in the direction set in [Reverse Cut Mode] of FineCut/Coat9 or CAMLINK2.





- 8. Press the [ENTER] key.
 - Turn the vacuum on. (If it was off before head retraction, it remains off.)

- Switch to jog mode for mark origin detection.
- 9. Detect the mark origin.
 - Switch to remote mode after mark origin detection.
 - After the mode is switched, cutting begins automatically.
- 10. After cutting is finished, retract the head to the upper right.
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Frequently Asked Questions

What should I do if the edge detection is not working properly?

If you are facing issues with edge detection, ensure that the camera setup is correct and that the workpiece is placed properly with the top surface facing up.

Additionally, check the settings in FineCut/Coat9 or CAMLINK2 for any discrepancies.

Can edge detection be used for materials other than cardboard?

Yes, edge detection can be used for various materials beyond cardboard. Ensure proper setup and alignment for accurate cutting results.

Documents / Resources



Mimakl CFX Series Edge Detection Cut [pdf] User Guide
D203932-10, CFX Series Edge Detection Cut, CFX Series, Edge
Detection Cut, Detection Cut, Cut

References

User Manual

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