

# 8 Cutting Printed Material

Making stickers and the like involves cutting around figures that have already been printed.

With the CX-24/12, sensors on the cutting carriage read guide marks printed on the material (crop marks) and use these to align the positioning for printing and cutting.

You use the program to lay out the crop marks before creating the design.

## 8-1 Using Crop Marks

In order for the crop marks to be able to be read by the CX-24/12, the conditions below must be met.

### - Data-creation Program

Use a drawing or PostScript program compatible with the CX-24/12.

Data from bitmap programs that work chiefly with images cannot be output with the CX-24/12.

The program must have functions that let you designate specific points as the reference for printing, and also that let you freely move such designated points.

### - Printer

Use a laser or inkjet printer.

Depending on the printer, however, the CX-24/12 may be unable to read printed crop marks.

A resolution of 720 dpi or higher is required.

Printers that smudge solid areas during printing produce crop marks that cannot be read.

### - Materials

Use material that can be printed by a laser or inkjet printer and that meets the following conditions.

Material type:       : Laser printers -> High-quality paper, coated paper, art paper, or PET  
                               Inkjet printers -> High-quality paper or coated paper

Material thickness: about 0.2 mm

Color                 : White

Crop marks on laminated material cannot be read.

If the CX-24/12 cannot read crop marks or if printing and cutting are misaligned even when all the conditions have been fulfilled and operations have been carried out correctly, the cause may be one of the following.

- Program accuracy

- Printer accuracy

- Expansion or contraction of the material due to ambient temperature or humidity

When unaffected by these factors, the alignment accuracy of the CX-24/12 is as follows.

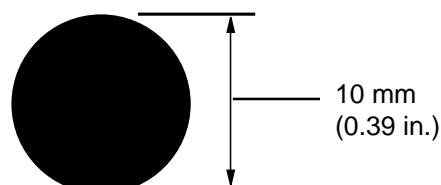
±3 mm (0.12 in.) or less with 500 mm (19-5/8 in.) or less of movement distance in the material-feed direction

## 8-2 Shape and Layout of Crop Marks

### ■ Shape of Crop Marks



Crop marks that can be read by the sensors must be circular and have a diameter of 10 mm.

For the color density, specify 100% black.



## ■ Crop Marks and Figure Layout

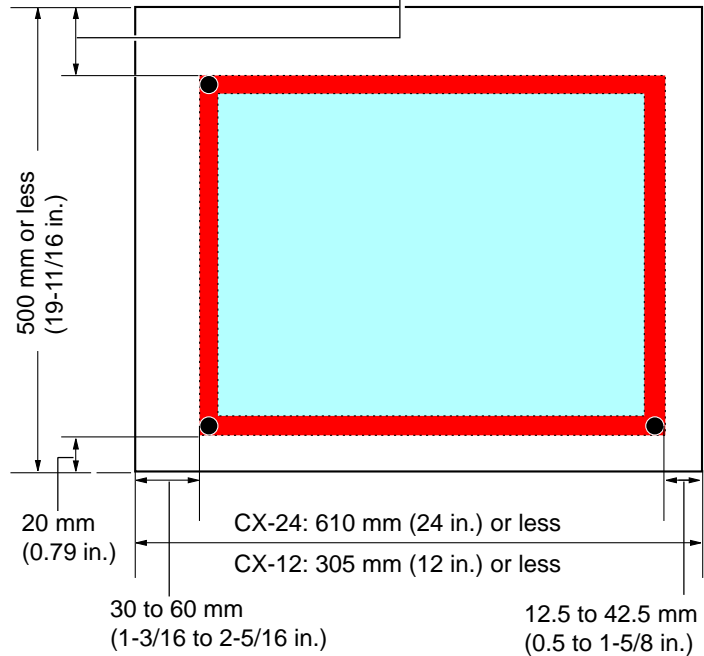
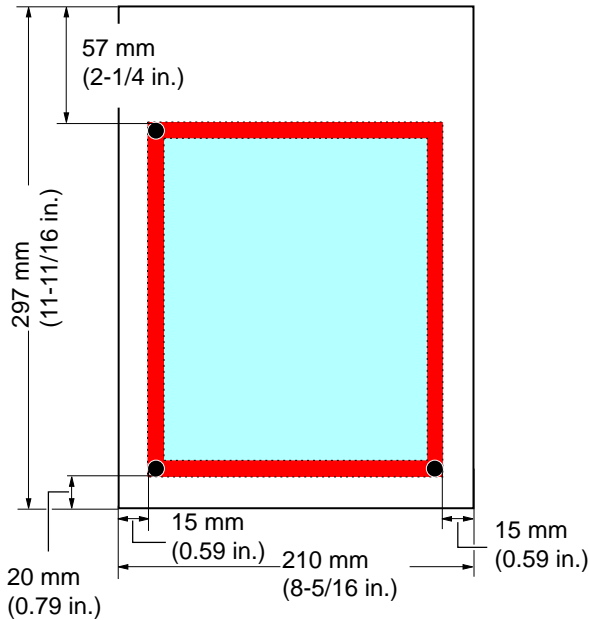
Place the crop marks at three locations, as shown in the figure below.

 : Printable area  : There must be no soiling and no figures other than crop marks within this area.

For A4 size (portrait)

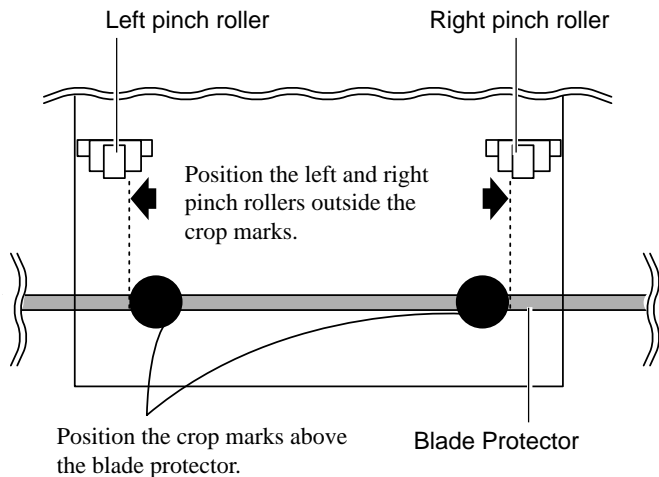
For sizes larger than A4

55 mm (2-3/16 in.) or more



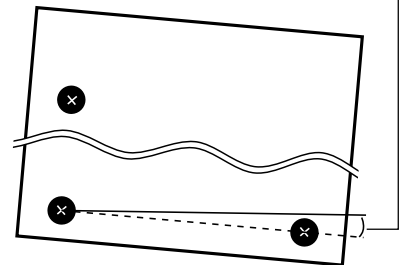
## 8-3 Loading the Material

Load the printed material on the CX-24/12 so that the crop marks are positioned as shown below.

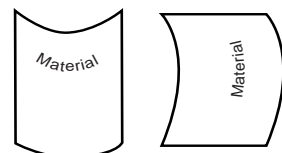


When the left and right crop marks are slanted 5 degrees or more with respect to the direction of movement of the cutting carriage, or when they are displaced by 15 mm (0.59 in.) or more in the direction of material feed, the crop marks cannot be detected.

X: the center of the crop marks



Material may warp when printed on the printer. Do not use material that has warped as shown in the figure. It may not be possible to read the crop marks. In such cases, correct the warping of the material before you load it on the CX-24/12.



## 8-4 Performing Operations Using Crop Marks

This section describes how to perform output. The operating environment described below is used in the examples.

Data-creation program: Adobe Illustrator 8.0 for Windows

For detailed information on how to use Illustrator, refer to the user's manual or program help for Illustrator.

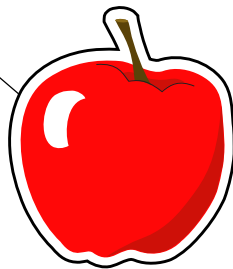
The explanations here assume that you are already familiar with the basic operation of Illustrator.

Material Size : A4



How to lay out figures for cutting


Cutting around a figure

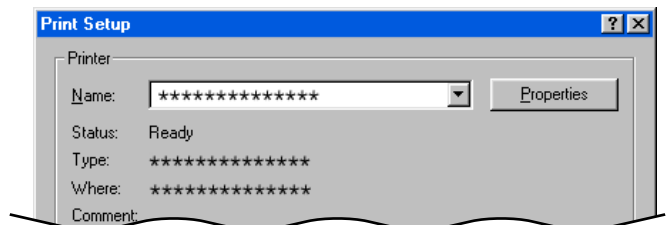
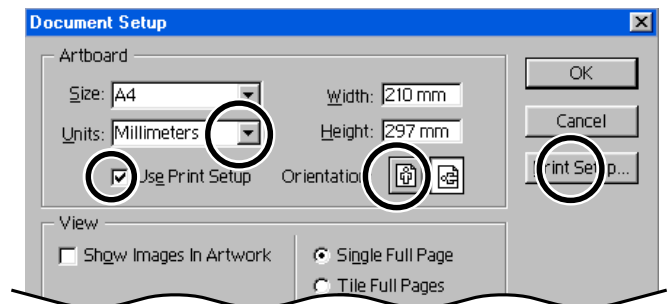


Cutting inside a figure



### ■ Creating Data and Printing the Material

- 1 From [File] menu, click [Document Setup].  
The [Document Setup] dialog box appears.
- 2 For [Units], choose [Millimeters].
- 3 Select the [Use Print Setup] check box, and for [Orientation], click .
- 4 Click [Print Setup].  
The [Print Setup] dialog box appears.
- 5 Choose the driver name for the output printer.  
Click [Properties].  
The [Properties] dialog box appears.
- 6 For the material size, choose [A4] and [Portrait], then click [OK].  
The [Print Setup] dialog box appears.



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**7** Click [OK].  
The preview window appears.

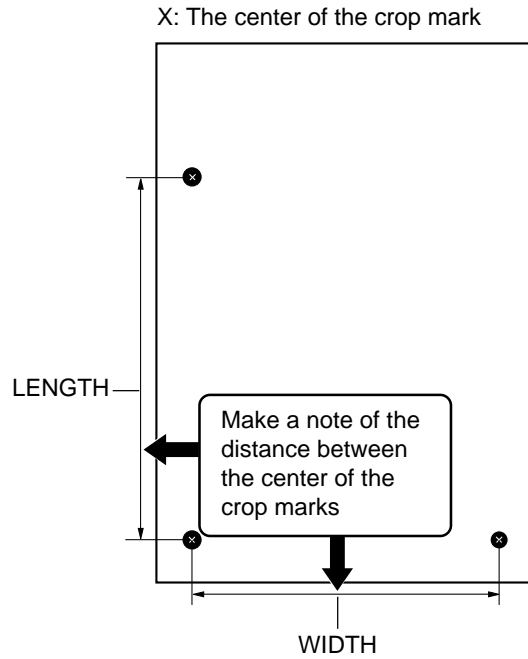
**8** This example uses the layout and positioning of crop mark for A4-size material. For detailed information, refer to "8-2 Shape and Layout of Crop Marks - [Crop Marks and Figure Layout.](#)"  
At this time make a note of the distances between the crop marks specified in the figure at right.

For A4-size material, these are as follows.

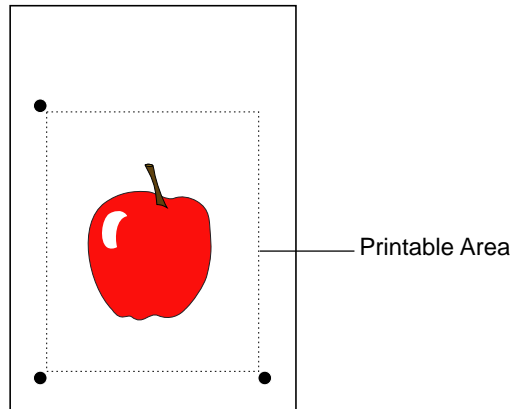
Length direction: 210 mm

Width direction: 170 mm

The values you note down here are required when you make the menu settings for sensing crop marks on the CX-24/12.



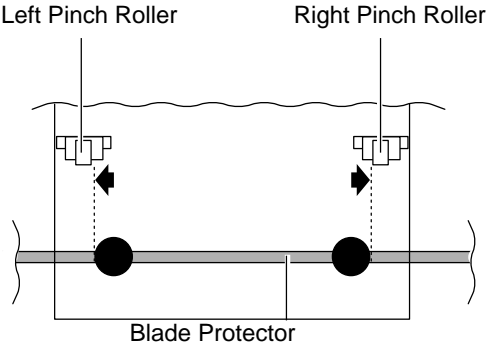
**9** Lay out the figure inside the crop marks.



**10** From [File] menu, choose [Print] to perform output to the printer you're using.

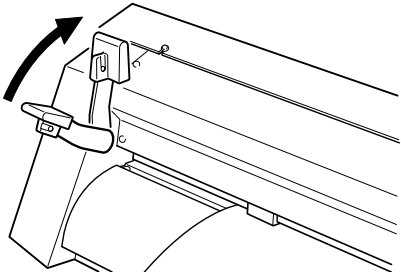
■ Loading Output Material on the CX-24/12

**1** Orient the material so that its long edges are parallel to the material-feed direction of the CX-24/12. Position the crop marks above the blade protector.

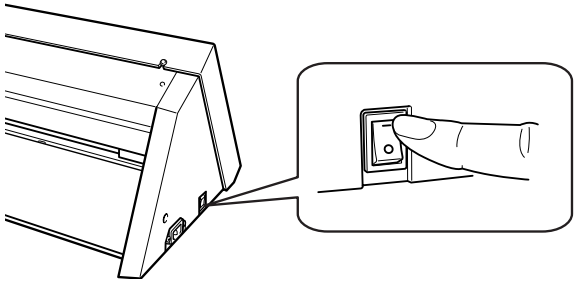


**2** Position the pinch rollers outside the crop marks.

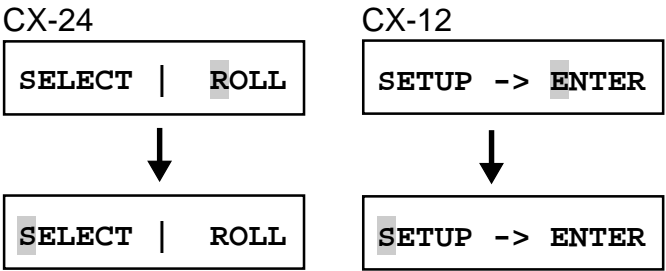
**3** Raise the sheet loading lever to secure the material in place.



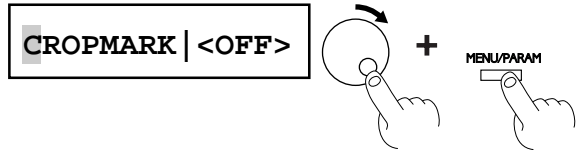
**4** Switch on the power.



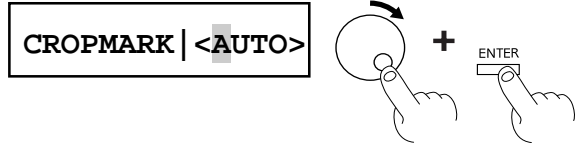
**5** At the screen shown at right, press the [MENU/ PARAM] key to move the cursor.



**6** Turn the dial to display the setting at right. Press the [MENU/PARAM] key.



**7** Turn the dial to choose [AUTO], then press the [ENTER] key. Turning the dial while in the state shown at right sequentially displays the menus for detecting crop marks.



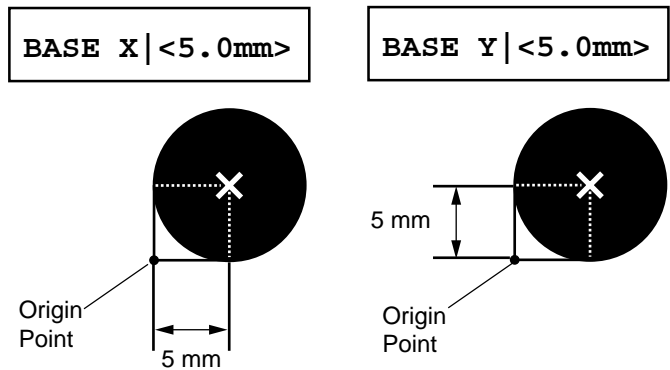
Refer to the following for making the menu settings. For information on how to make the menu settings using the control panel, refer to "4-3 Turning on the Power - ■ Making Menu Settings with the Control Panel."

\* The values set at the menus for BASE X, BASE Y, WIDTH, and LENGTH are stored in memory even after the power is switched off. This means that when you use other data that has the crop marks laid out at the same locations, you don't need to redo the settings.

The CX-24/12 detects the centers of the crop marks it reads, and uses these as a reference to set the origin point for cutting.

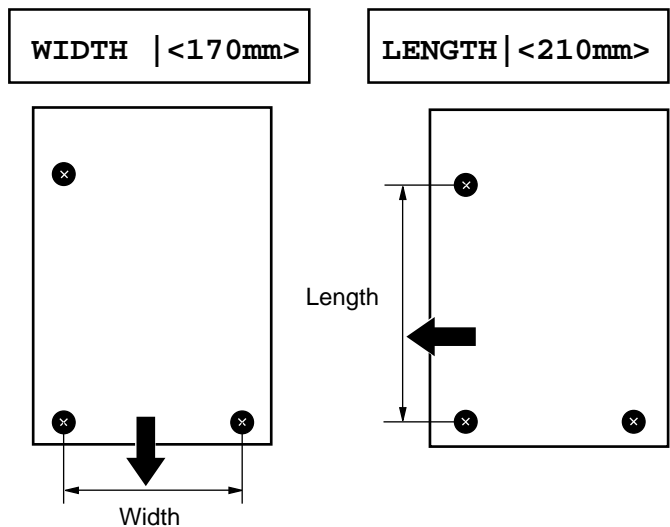
Specifying the same value as the radius of the crop marks at the menus for BASE X and BASE Y causes the origin point to be set at the location in the figure at right.

In this example, set the values to 5.0 mm (the radius of the crop marks) for each menu setting.

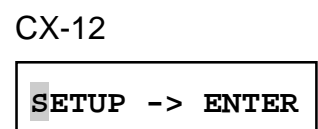
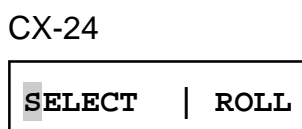


Use the display menus to enter in the CX-24/12 the distances between crop marks (width and length) laid out using the data-creation program.

The distance between two crop marks is detected from the center of one circle to the center of the other. In this example, A4-size material is loaded, so set WIDTH to 170 mm and LENGTH to 210 mm.



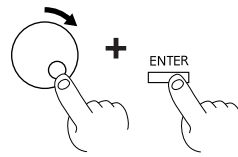
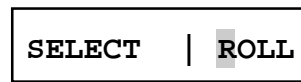
**8** After making the menu settings in step 7, turn the dial counterclockwise to display the value shown at right. Press the [MENU/PARAM] key.



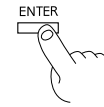
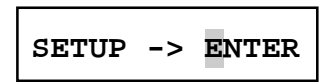
**9** For the CX-24  
Depending on the type of material loaded, choose [PIECE] or [ROLL], then press the [ENTER] key.

For the CX-12  
Press the [ENTER] key.  
The cutting carriage moves to the left and detection of the crop marks starts.

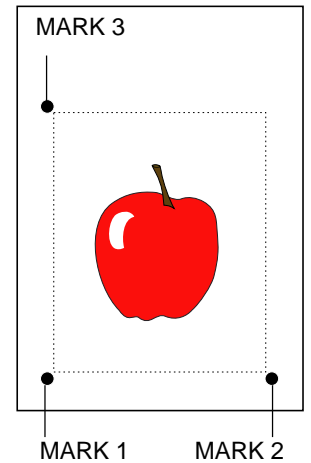
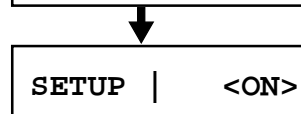
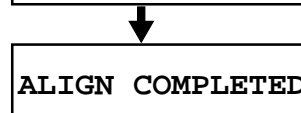
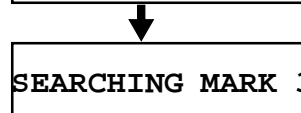
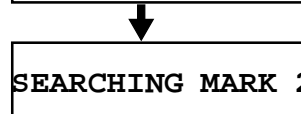
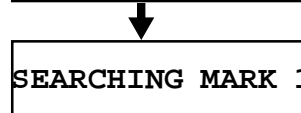
**CX-24**



**CX-12**



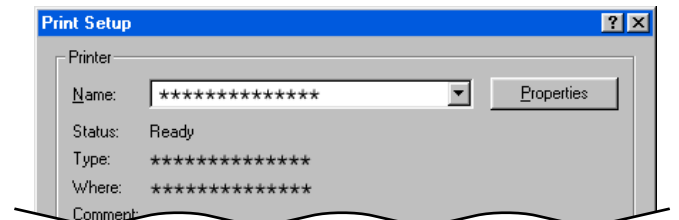
**10** During crop-mark detection, the display sequentially shows the messages at right. When mark detection ends, the message "ALIGN COMPLETED" flashes. When "SETUP | <ON>" appears, data can be received. If any other message appears, it means that reading of the crop marks failed. Refer to "8-5 When Crop Marks Cannot Be Read" and check the content of the data and how the material is loaded.



**Performing Cutting with the CX-24/12**

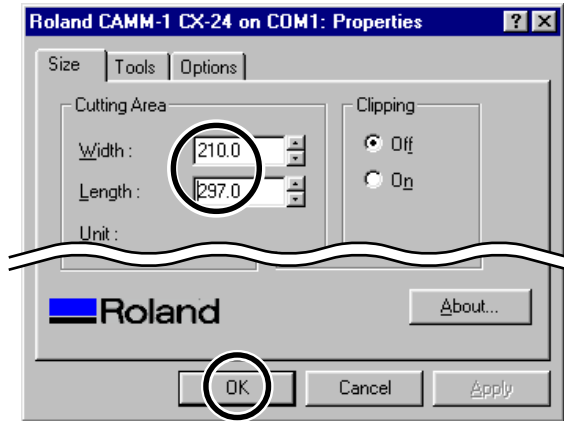
**1** In Illustrator, go to the [File] menu and choose [Print Setup].  
The [Print Setup] dialog box appears.

**2** Choose the CX-24/12 driver as the printer to use for output.  
If you're using the CX-24, choose Roland CAMM1 CX-24.  
If you're using the CX-12, choose Roland CAMM1 CX-12.  
Click [Properties].




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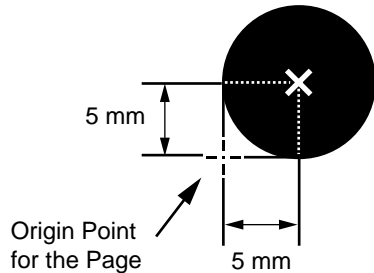
**3** At the [Size] tab, specify a size identical to the printed material as the cutting area. Specifying the same size as the printed material makes it easier to visualize the figure laid out on the material and the cutting location. In this example, for [Width], enter "210 mm," and for [Length], enter "297 mm." Click [OK]. You return to the [Print Setup] dialog box.



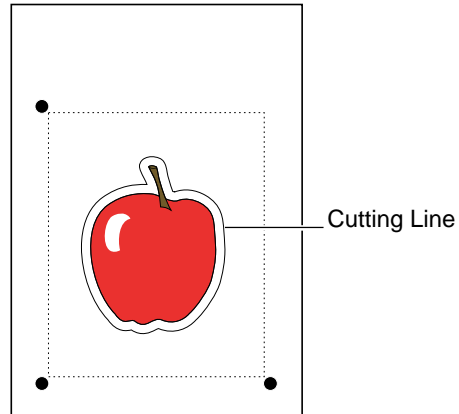
**4** Click [OK]. The preview window appears.

**5** Move the origin point for the page to match the crop mark you laid out at the lower left in "Creating Data and Printing the Material."

In Illustrator's toolbox, choose the page tool (  ) and move the center of the page tool to the location shown in the figure. The origin point for cutting is set at the same location as on the CX-24/12.

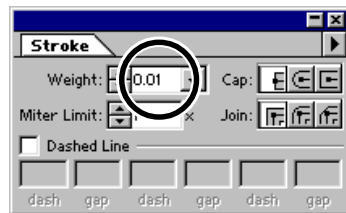


**6** Make the line to cut around the figure.



**7** Select the line you drew in step 6. In the [Stroke] window, for [Weight], enter [0.01] mm, and specify the line for cutting.

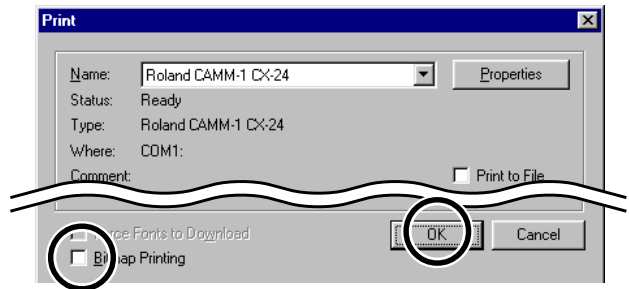
\* The method of specifying the line for cutting differs according to the program. If you're using a program other than Illustrator, specifying [Minimum] for the weight may allow you to select the line for cutting.



**8** From the [File] menu, choose [Print].  
The [Print] dialog box appears.

**9** Clear the [Bitmap Printing] check box.

**10** Click [OK].  
The CX-24/12 cuts the data that has the line you specified for cutting.



If the program you're using has the following features, they may be handy in laying out crop marks accurately.

- Zoom view
- Grid function
- Snap function
- Ability to specify location and size using numerical values

## 8-5 When Crop Marks Cannot Be Read

When the CX-24/12 cannot read crop marks, it displays an error message and pauses operation. If this happens, press any key on the CX-24/12's control panel to move the cutting carriage to the right side. Remove the material, check the following matters, then reload the material.

### MARK 1 NOT FOUND

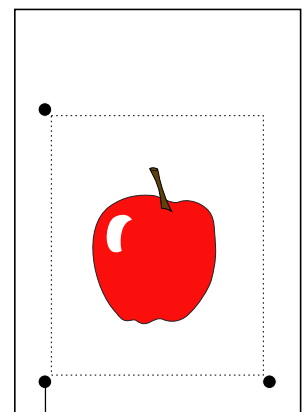
Is the location of the material loaded on the CX-24/12 aligned correctly?  
Refer to "[8-3 Loading the Material](#)" and load the material correctly.

Is the load material warped upward?  
Straighten out the warping of the material so that the material lies along the platen of the CX-24/12.

Is the material solid white in color?  
If the material is colored or has patterns, then crop marks cannot be detected.  
Also, even if the material is white, detecting crop marks may not be possible if it has a high gloss.

Are the crop marks faint or printed in a color other than black?  
Print the crop marks over again, specifying black as the color and a density of 100%.

Are the crop marks of the correct size and shape?  
Make each crop mark a circle having a diameter of 10 mm.  
For details, see "[8-2 Shape and Layout of Crop Marks.](#)"  
Crop marks printed using program-specific functions for creating crop marks cannot be detected by the CX-24/12.



MARK 1

Are the layout locations for the marks correct?

Refer to "8-2 Shape and Layout of Crop Marks" to lay out the crop marks correctly. Even when the laid-out locations in the program are correct, output at the correct locations is not possible if [ROTATE] is set to [ON] for the CAMM-1 driver and at the CX-24/12's menu. Enlarging or reducing the size during printing makes the locations where crop marks are output misaligned.

Is the cutting carriage exposed to direct sunlight or intense indoor lighting?

If the sensors on the cutting carriage are exposed to direct sunlight or indoor lighting, crop marks may fail to be detected. Install the machine where it is not exposed to direct sunlight or indoor lighting.

**MARK 2 NOT FOUND**

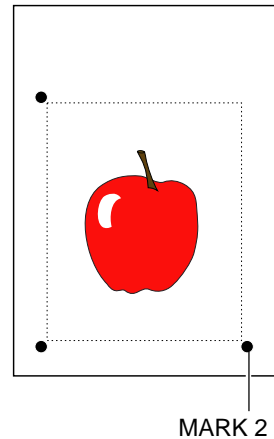
Is the material loaded at an angle?

Are the printing results crooked?  
Crop marks cannot be detected when the angle of a line connecting the centerpoints of mark 1 and mark 2 is slanted by 5 degrees or more or is misaligned by 15 mm or more in the material-feed direction. Check the printing results and load the material correctly, referring to "8-3 Loading the Material."

**MEDIA MISALIGN**

**ANGLE TOO BIG**

Do the distances between crop marks specified by the program match the distances specified on the CX-24/12?  
Make sure the distances between crop marks set in the program and on the CX-24/12 are identical.



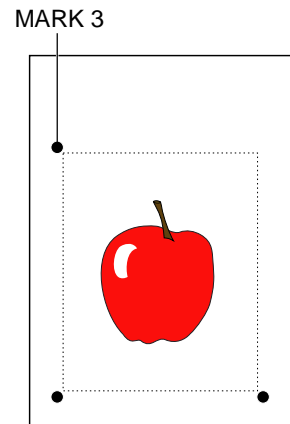
**MARK 3 NOT FOUND**

Are the crop marks laid out at the correct locations?

If the angle formed by the two lines connecting the centerpoints of the three crop marks is not 90 degree, the crop marks cannot be read. Crop marks cannot be read if the distance between crop marks in the material-feed direction is 500 mm or more. Refer to "8-2 Shape and Layout of Crop Marks" to lay out the crop marks correctly.

**WIDTH TOO BIG**

**ANGLE TOO BIG**



## 8-6 When the Printing and Cutting Locations Are Misaligned

When the locations of printing and cutting are misaligned even though detection of crop marks by the CX-24/12 ended correctly, one of the following may be the cause.

Was an origin point specified in the program when outputting the data to the CX-24/12?

The origin points specified with the program are different during printing and during cutting.

Refer to "8-4 Performing Operations Using Crop Marks - ■ Performing Cutting with the CX-24/12" and align the locations of the origin points specified with the CX-24/12 before you send the cutting data.

Was the size aspect changed between printing and cutting?

Enlarging or reducing the size when printing or when cutting makes it impossible for the crop marks to be read.

Perform output at a size identical to the size of the design.