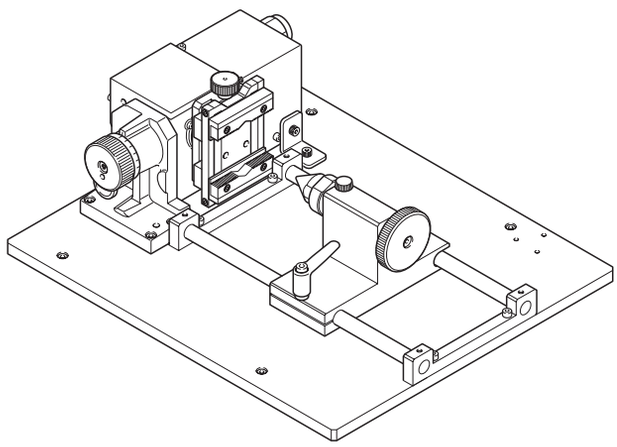
ZCL-40 + MDX-40A

User's Manual



About This Manual

This document is the user's manual for installing and using the rotary axis unit ZCL-40 on MDX_40A (or MDX-40 which is upgraded to MDX-40A).
The way to use the operation panel (VPanel) and the detection method for the center of rotation are different from those when ZCL-40 is installed and used on MDX-40. In addition, some names of the parts indicated on the operation panel are different, and therefore the parts in question are also explained.

This document mainly explains the following items:

- How to use the operation panel (VPanel)
- How to use the rotary center vise and core support
- Preparatory operation for cutting (operation using VPanel)
- Installation of work, setting of origin, start of cutting
- How to adjust the Y, Z origin
- FAQ
- Major specifications

For information on the items not provided in this document, especially those given below, read the user's manual for ZCL-40 or the cutting machine.

- Safety concerns
- How to switch the power on and off and basic operations such as how to start and stop cutting
- Installable work sizes and tools
- Scope of cutting
- Maintenance method

Roland DG Corporation

- To ensure correct and safe usage with a full understanding of this product's performance, please be sure to read through this manual completely and store it in a safe location.
- Unauthorized copying or transferral, in whole or in part, of this manual is prohibited.
- The contents of this operation manual and the specifications of this product are subject to change without notice.
- The operation manual and the product have been prepared and tested as much as possible. If you find any misprint or error, please inform us.
- Roland DG Corp. assumes no responsibility for any direct or indirect loss or damage which may occur through use of this product, regardless of any failure to perform on the part of this product.
- Roland DG Corp. assumes no responsibility for any direct or indirect loss or damage which may occur with respect to any article made using this product.

Contents

Contents 1

Chapter 1 Part Names / How to Use 3

1-1 VPanel 4
- VPanel 4
- Manual Feed of the A-axis 4

1-2 Rotary Center Vise and Tailstock 5
- What is Rotary Center Vise/Tailstock? 5
- Installing or Detaching the Live Center / Center Drill 6

Chapter 2 Preparation for and Performing Cutting 9

2-1 STEP1: Preparation for Cutting 10
- Operations at "STEP1: Preparation for Cutting" 10
- Correction of Z-origin Sensor Position 10
- Setting for the A Origin 12
- Detection of the Center of Rotation 13

2-2 Start Cutting 18
- Loading a Workpiece Less Than 120 mm in Length 18
- Loading a Workpiece 120 mm or Longer in Length 21
- Set the Z Origin 25
- Set the X Origin 26
- Start Cutting 27
- Recovery of Operation from Emergency Stop or Emergency Shutdown 27

Chapter 3 Appendix 29

3-1 Y and Z Origins: Concepts and Fine-tuning 30
- Y and Z Origins: Concepts and Making the Settings 30
- Fine-tuning the Y and Z Origin Points 30
- How to Obtain the "displacement amount" of the Y- and Z-axis Coordinates 32

3-2 What to Do If... 33
- The Machine Doesn't Run. 33
- The Cutting Location is Not As Intended. 33
- In Multiple-surface Cutting, Differences in Levels Occur at Seams. 33
- Responding to an Error Message 33
- Main Specifications 34

Company names and product names are trademarks or registered trademarks of their respective holders.

Copyright © 2009 Roland DG Corporation

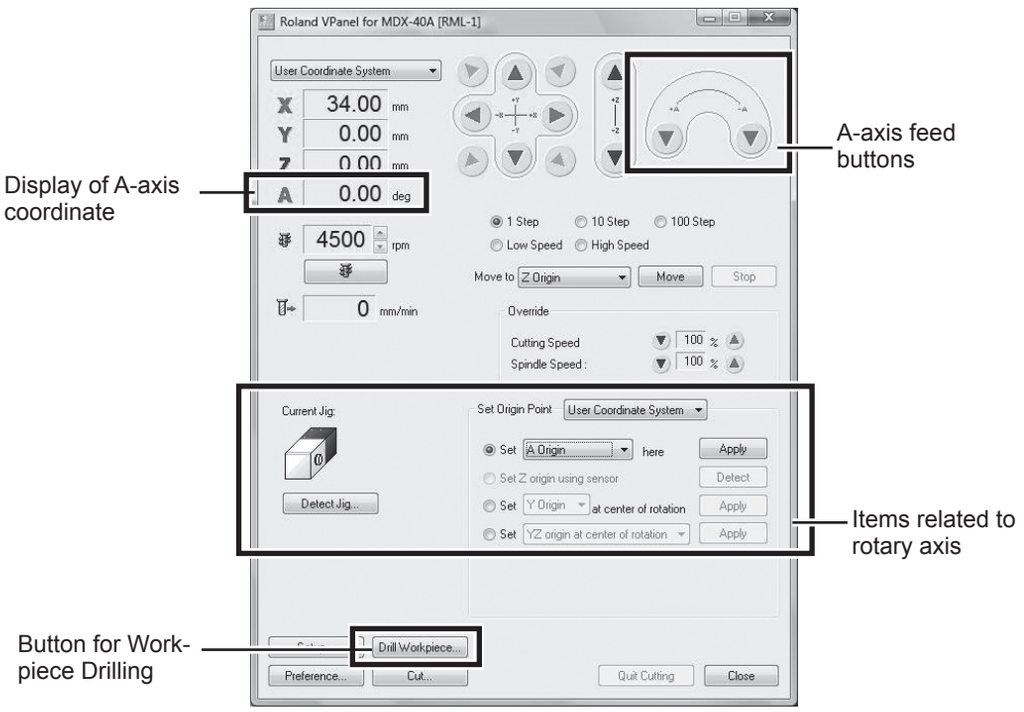
http://www.rolanddg.com/

Chapter 1
Part Names / How to Use

1-1 VPanel

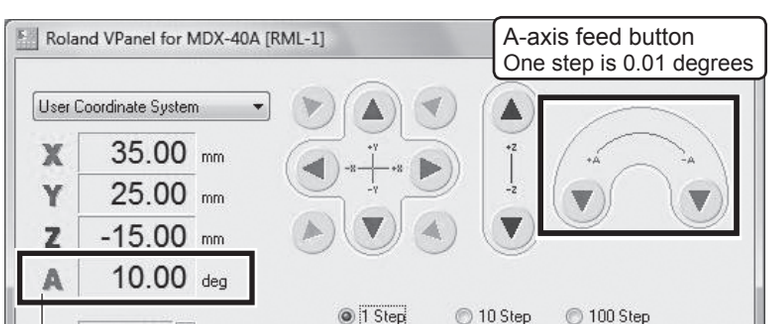
VPanel

On MDX-40A, the operation panel which is used on the computer screen is called "VPanel." Installing the rotary axis unit enables you to perform operations for items that involve the rotary axis unit. For other items, refer to the user's manual for the modeling



Manual Feed of the A-axis

In the same way as for the X, Y, and Z axes, perform this using VPanel. Installing the rotary axis unit enables the use of "A-axis feed button" of VPanel.



A-axis Operating Range
±99999.999°
Note: Infinite turning is not possible

A-axis coordinate
VPanel is indicated as " ° (degree) = deg".

1-2 Rotary Center Vise and Tailstock

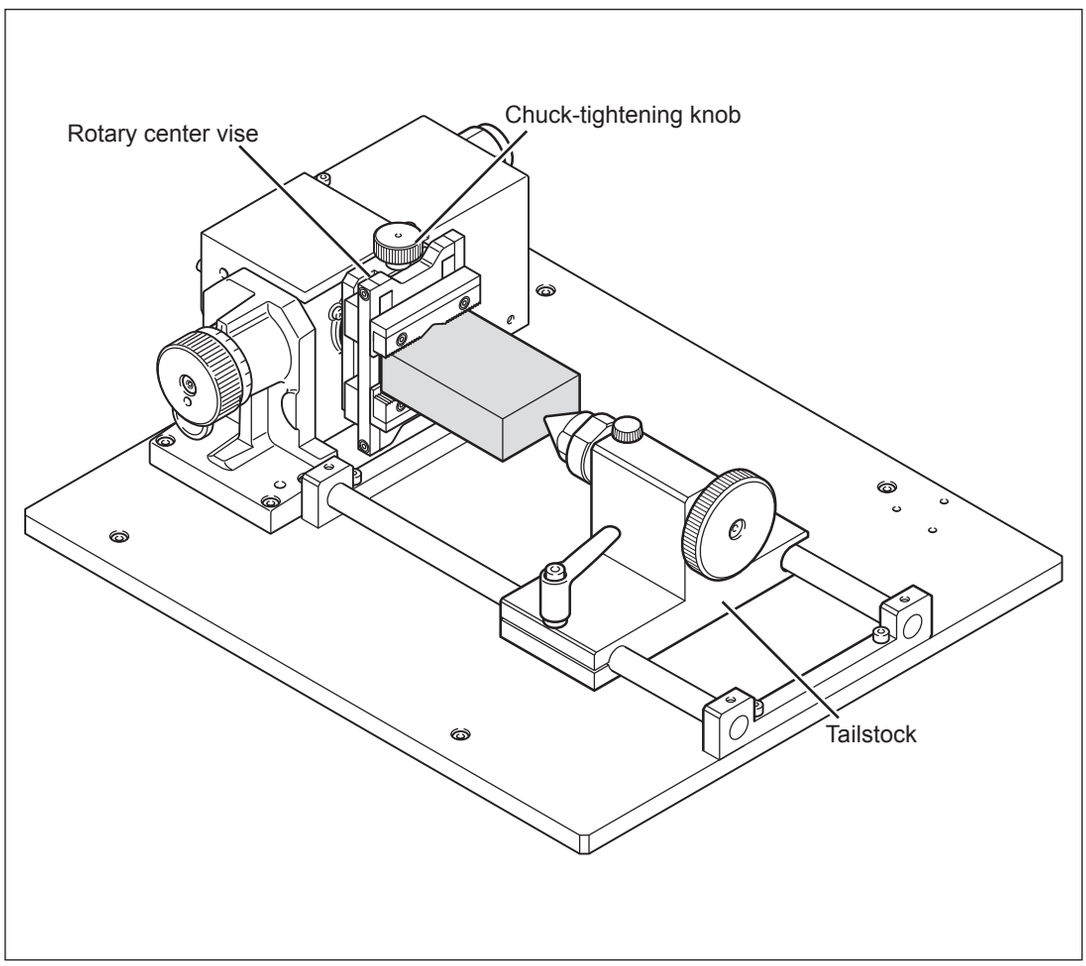
What is Rotary Center Vise/Tailstock?

Rotary center vise

This part is called "workpiece chuck" in the user' manual for ZCL-40. It is indicated as "rotary center vise" for VPanel used on MDX-40A. A jig to secure workpiece with two tabs. This jig can secure both of the square and round materials in place. Using manual feed to orient the chuck-tightening knob to face upward beforehand can make this task easier to accomplish.

Tailstock

You use the tailstock to help secure the workpiece (the material being cut) in place. You use it in combination with the live center and the center drill.



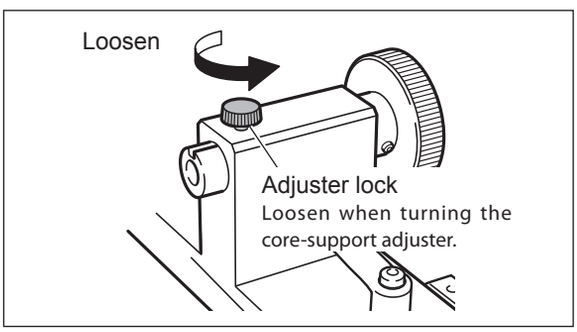
Installing or Detaching the Live Center / Center Drill

This section describes how to install/remove the live center and center drill. This figure shows the state when the live center is in use. However, the center drill can be installed/removed by the same method as the live center.

Installing

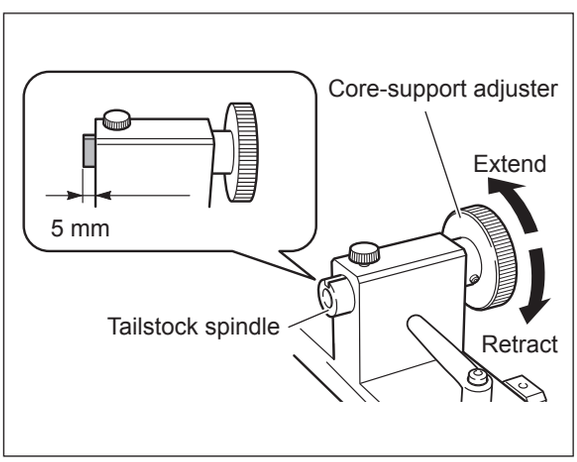
Procedure

❶



Loosen the Adjuster lock.

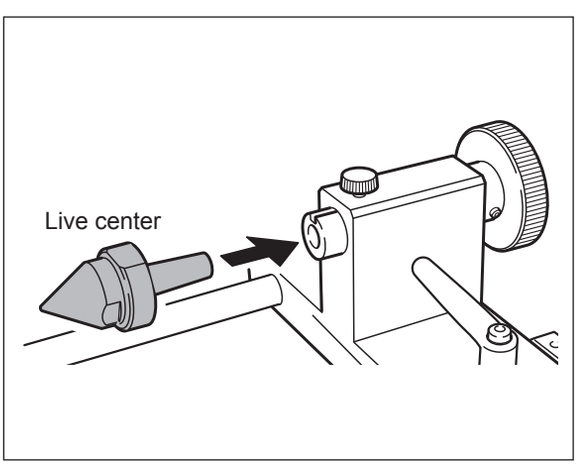
❷



Turn the core-support adjuster and protrude the tailstock spindle about 5 millimeters (0.197in.).

If the tailstock spindle is not protruded enough, it cannot be inserted all the way.

❸

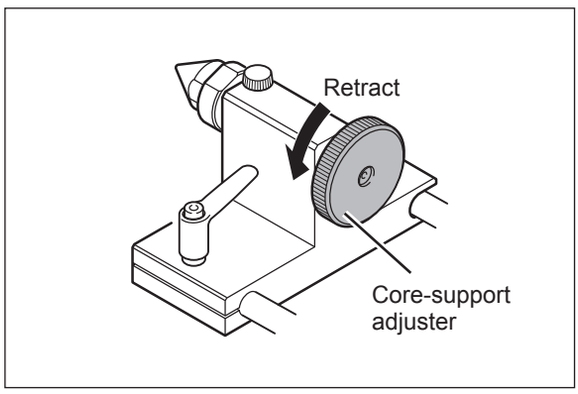


Insert the live center (or the center drill) into the hole of the tailstock spindle.

Detaching

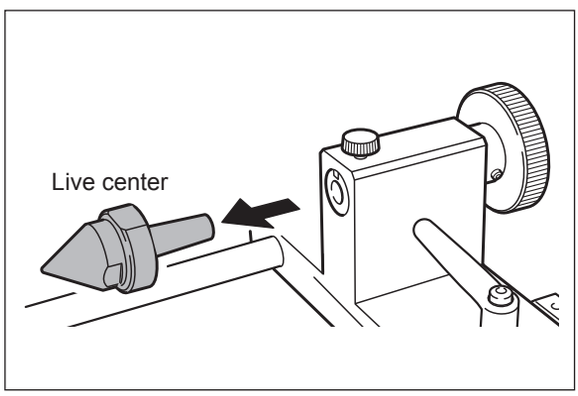
Procedure

❶



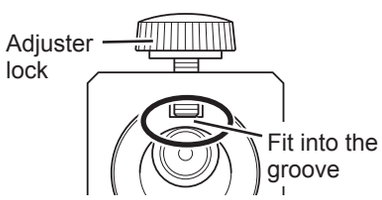
Turn the core-support adjuster and retract the tailstock spindle.

❷



Remove the live center (or the center drill). Retracting the tailstock spindle all the way makes the removal easier.

Point



The core-support adjuster may run idle and it may not be possible to remove the live center. In this case, the end of the adjuster lock is dislocated from the groove of the tailstock spindle. Adjust the position so that the end of the adjuster lock fits into the groove of the tailstock spindle, and then turn the core-support adjuster.

Chapter 2
Preparation for and Performing Cutting

2-1 STEP1: Preparation for Cutting

Operations at “STEP1: Preparation for Cutting”

“2-1 Preparation for Cutting” is the operation which needs to be done when this machine is used for the first time or reinstalled. It is not necessary to perform all of the following operations after the first cutting. Follow the explanations of each item and perform each operation at an appropriate time.

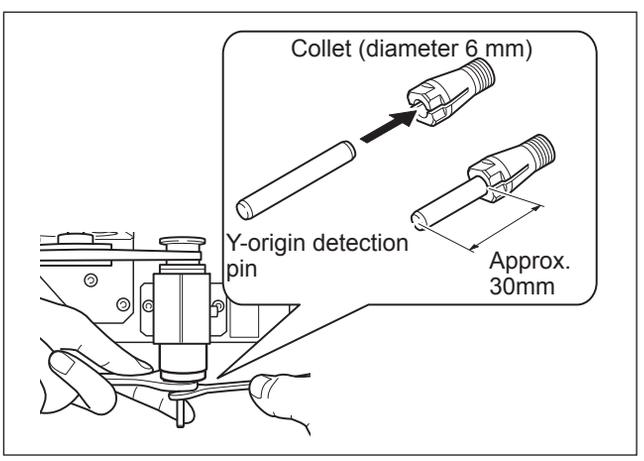
Correction of Z-origin Sensor Position

⚠WARNING **Never inadvertently touch the operation panel while performing this task.**
Unintended operation of the machine may result in injury.

Z-origin sensor is used to measure the tool length when setting the Z origin. In this case, because the tool needs to be placed at the center of the sensor, correct any error, which occurs per machine. Perform this operation when using this machine for the first time after purchase and whenever reinstalling it.

Procedure

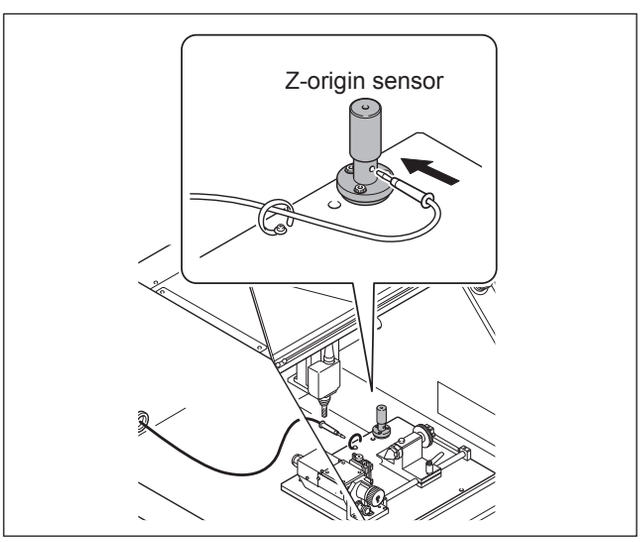
❶



Open the front covers and install Y-origin detection pin.

Install the Y-origin detection pin in a way that approx. 30mm of the tip protrudes. If the detection pin is protruded excessively, detection operation may fail. The installation method is the same as the cutting tool. Refer to the user's manual of the modeling machine. Also, use the collet with a 6-millimeter (0.236 in) diameter that is included with the modeling machine.

❷

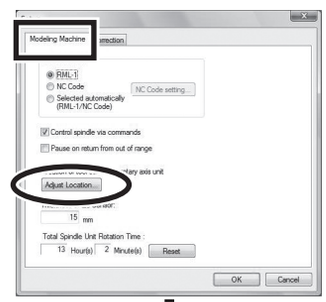


Make sure to insert the sensor cable to Z-origin sensor, and close the front cover.

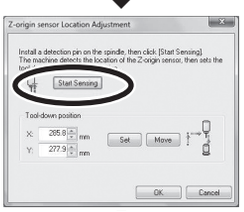
❸

Click [Setup] in VPanel.
The [Setup] window appears.

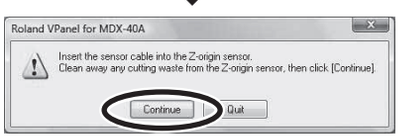
❹



Click [Adjust Location] on the "Modeling Machine" tab.
The "Tool-sensor Location Adjustment" window appears.

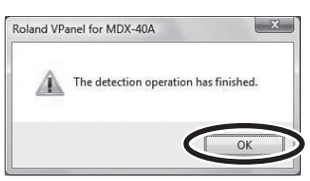


Click [Start Sensing].

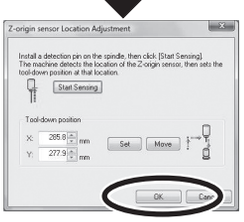


Make sure that the Z-origin sensor is inserted into the sensor cable and no cuttings are accumulated on the Z-origin sensor, and then click [Continue].
Start correction of Z-origin sensor position.

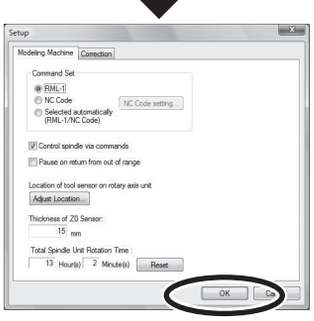
❺



When the window shown in the figure appears, click [OK].



Click [OK].



Click [OK].
Correction of Z-origin sensor position is completed.

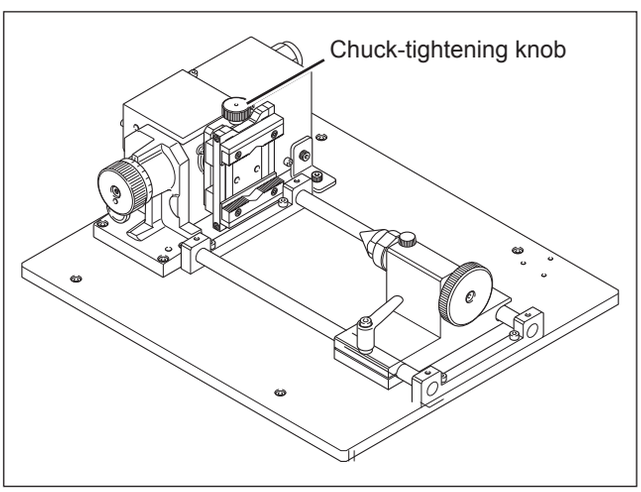
Setting for the A Origin

⚠WARNING **Never inadvertently touch the operation panel while performing this task.**
Unintended operation of the machine may result in injury.

There is no standard operating procedure for setting the position of the A origin. The position of the A origin can be set freely in this machine. In this section, the position of the A origin is set so that the chuck-tightening knob is located above the A origin. This is to make the chuck-tightening knob easier to handle when mounting the workpiece.
This operation must be performed when using the machine for the first time after purchase.

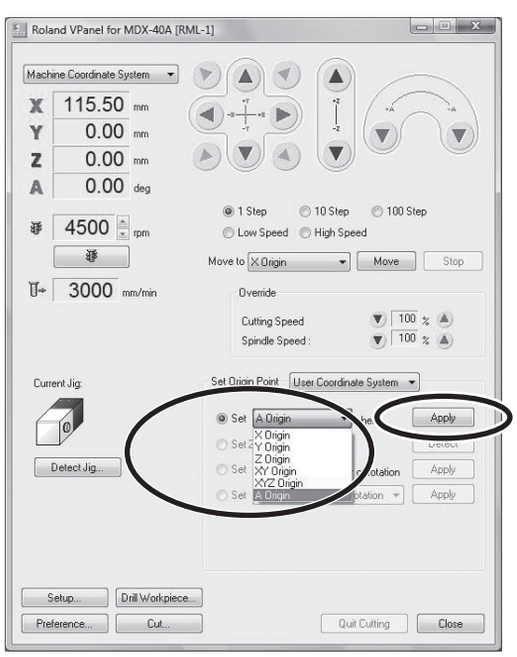
Procedure

❶



Rotate the A-axis by manual feed so that the chuck-tightening knob is above the A origin.

❷



Select “Set [A origin] here” in the VPanel and click [Apply] button.
The start position of the A origin has now been set.

Detection of the Center of Rotation

⚠WARNING **Never inadvertently touch the operation panel while performing this task.**
Unintended operation of the machine may result in injury.

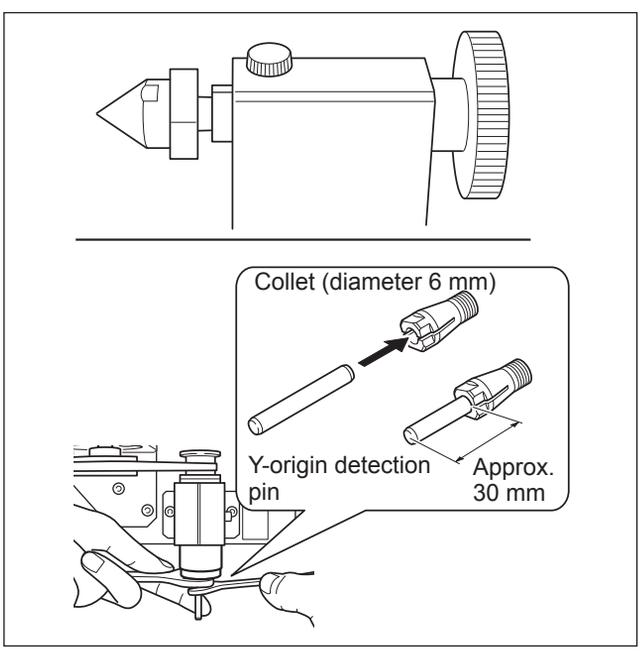
Detect the center of rotation of the A-axis, and set the Y origin on the axis of the center of rotation.

- ○ Perform this operation when using this machine for the first time after purchase and whenever reinstalling it. Changes in temperature and the like can cause mechanical misalignment. Therefore, it is recommended to perform periodic detection.
- ○ Large Y-origin sensor, Y-origin detection pin, Z origin sensor are clean and free of any buildup of cutting waste or the like. Any buildup on these may prevent correct response by the sensor and make correct detection of the jig location impossible. In some cases, such buildup may result in injury or damage.

Note: The small Y-Origin sensor is not used, when ZCL-40 is installed on MDX-40A (or MDX-40 which is upgraded to MDX-40A).

Procedure

❶



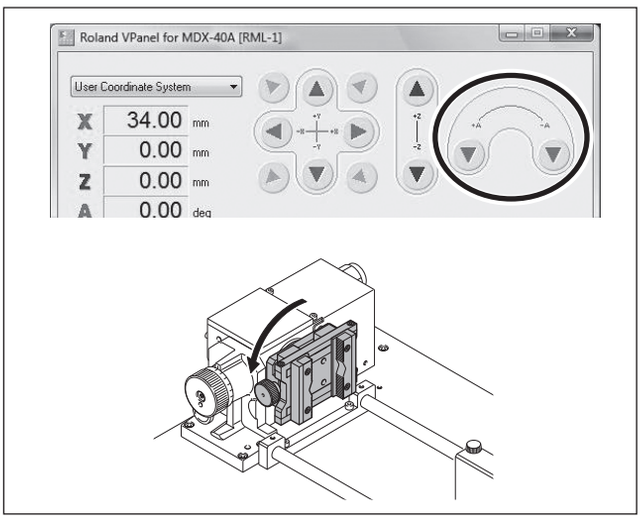
Open the front cover, and mount the live center on the core support.

☞ P. 6, "Installing or Detaching the Live Center / Center Drill"

If the Y-origin detection pin has not been installed, install the pin.

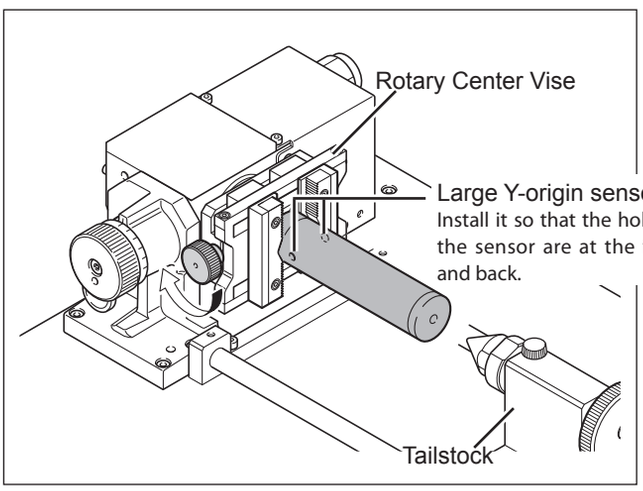
Install the Y-origin detection pin in a way that approx. 30mm of the tip protrudes. If the detection pin is protruded excessively, detection operation may fail. The installation method is the same as the cutting tool. Refer to the user's manual of the modeling machine. Also, use the collet with a 6-millimeter (0.236 in) diameter that is included

❷



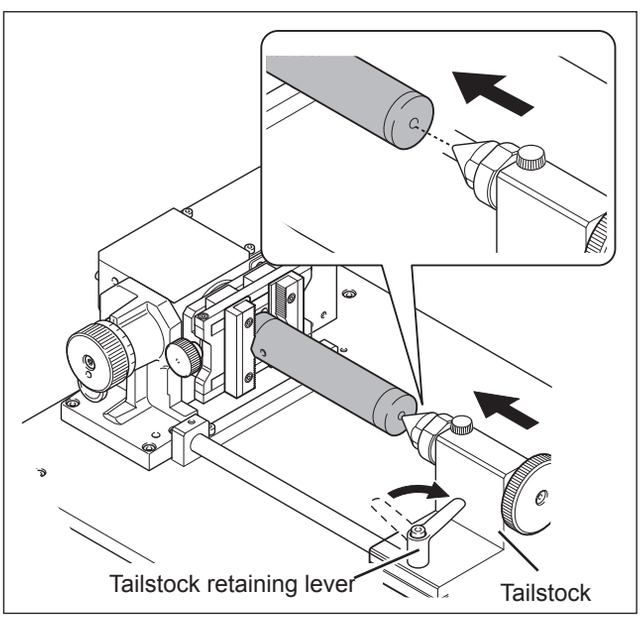
Move the chuck tightening knob of the rotary center vise by manual feed until it is positioned directly to the side.

❸



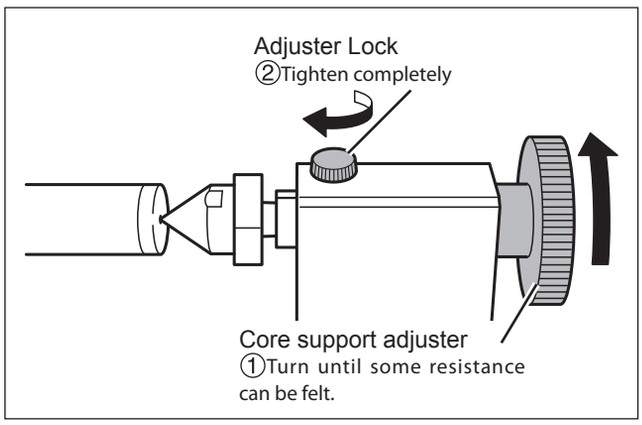
Install the large Y-origin sensor to the rotary center vise.

❹



Loosen the tailstock retaining lever, move the tailstock, and make the end of the live center hit against the hole on the center of large Y origin sensor.
After bringing it against the hole, tighten the tailstock retaining lever.

❺



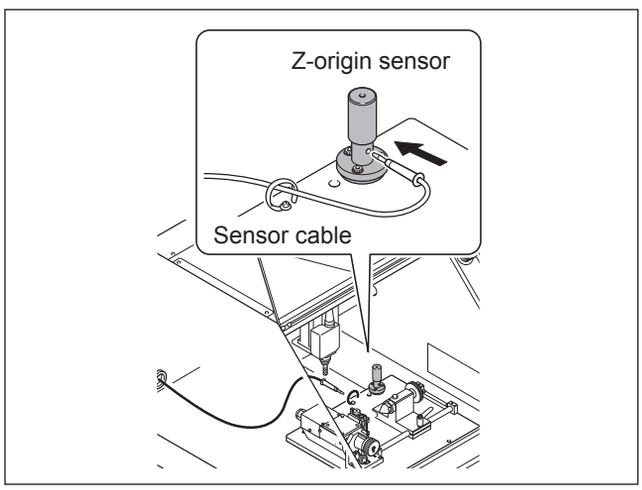
①Turn the core support adjuster towards the arrow direction until some resistance can be felt.

If the adjuster is turned excessively, the tailstock spindle etc. may deform, which deteriorates the cutting accuracy. Exercise caution.

②Tighten the Adjuster lock completely.

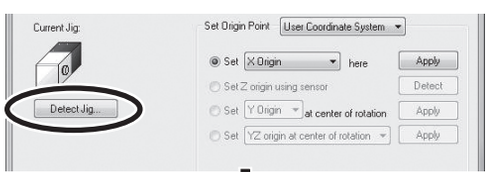
Make sure large Y origin sensor is attached securely so that it is loosened even when an operator tries to move it by hand.

❻



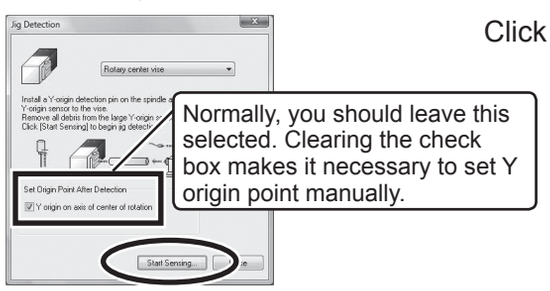
Insert the sensor cable to Z-origin sensor.

❼

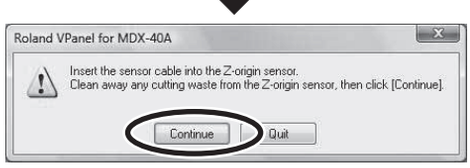


Close the front covers, then in VPanel, click [Detect Jig].

The "Jig Setting" window appears.



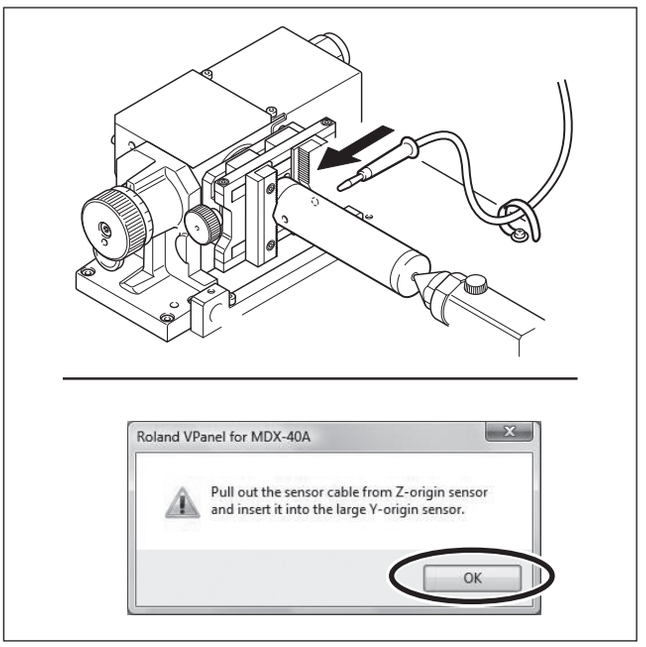
Click [Start Sensing].



Make sure that the Z-origin sensor is inserted into the sensor cable and no cuttings are accumulated on the Z-origin sensor, and then click [Continue].

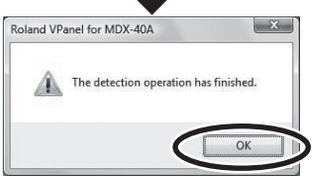
Detection of the location of the jig starts.

8

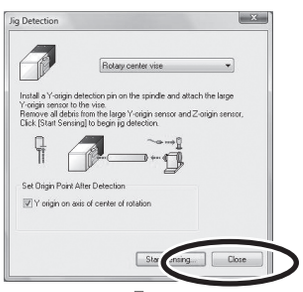


Detach the sensor cable from the Z-origin sensor and insert it into the hole on the back of the large Y-origin sensor.

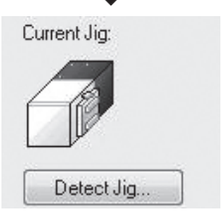
Click [OK].



When the window shown in the figure appears, click [OK].

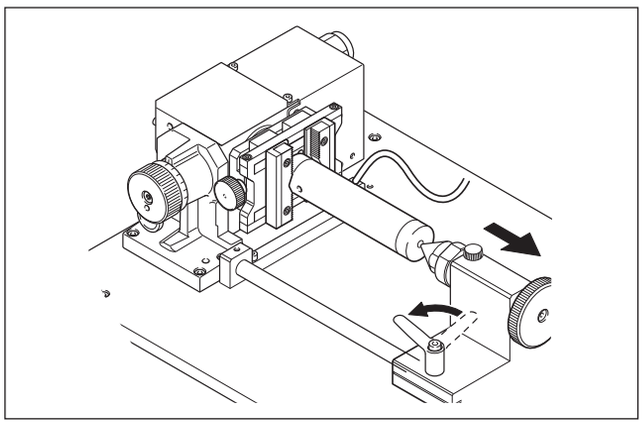


Click [Close].



In the illustration for "Current Jig" on the VPanel, a rotary center vise is displayed.

⑨



Open the front cover.
Turn the tailstock retaining lever to move the tailstock.

⑩ Remove large Y-origin sensor, Y-origin detection pin, live center.
Detection of the center of rotation is complete.

2-2 Start Cutting

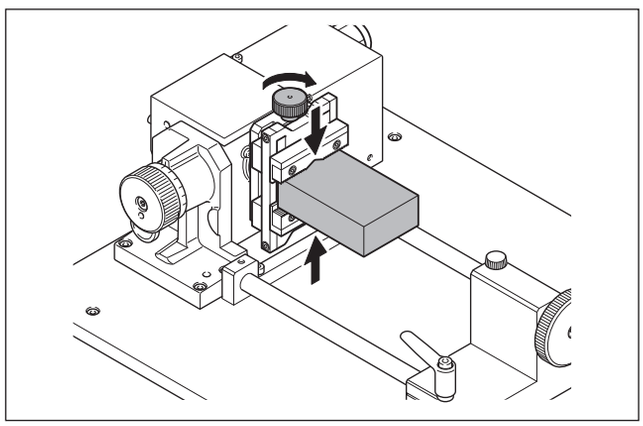
Loading a Workpiece Less Than 120 mm in Length

⚠WARNING **Never inadvertently touch the operation panel while performing this task.**
Unintended operation of the machine may result in injury.

The mounting method varies according to the length of the workpiece you're loading. When you're loading a workpiece measuring less than 120 mm, follow the steps below.

1. Prepare to secure the workpiece.

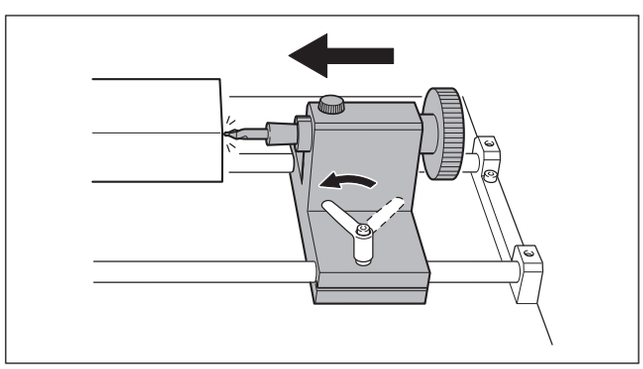
❶



Open the front cover.
Use the rotary center vise to secure the workpiece in place.
Secure the workpiece (the material to cut) in place firmly, so that it doesn't slip or wobble. Move the position of the vise by manual feed to a position where the chuck-tightening knob is positioned above to make the operation easier.

❷ Mount the center drill on the tailstock.
☞ P. 6, “Installing or Detaching the Live Center / Center Drill”

❸



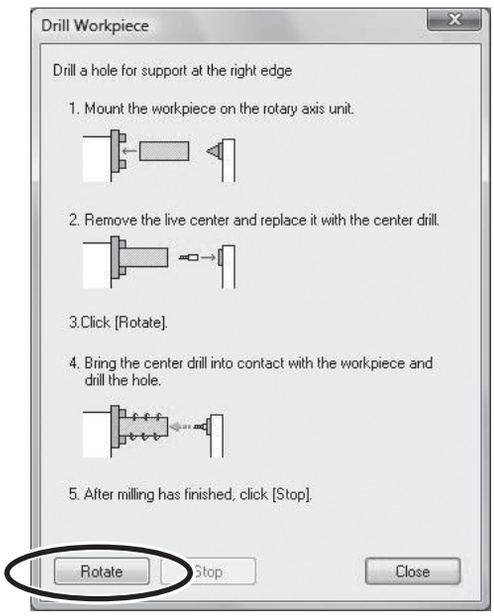
Bring the blade of the center drill against the surface of the workpiece and secure it.
Loosen the tailstock retaining lever and move the tailstock. When the position of the tailstock is determined, tighten the tailstock retaining lever.

2. Drill a hole for retaining the workpiece.

❶

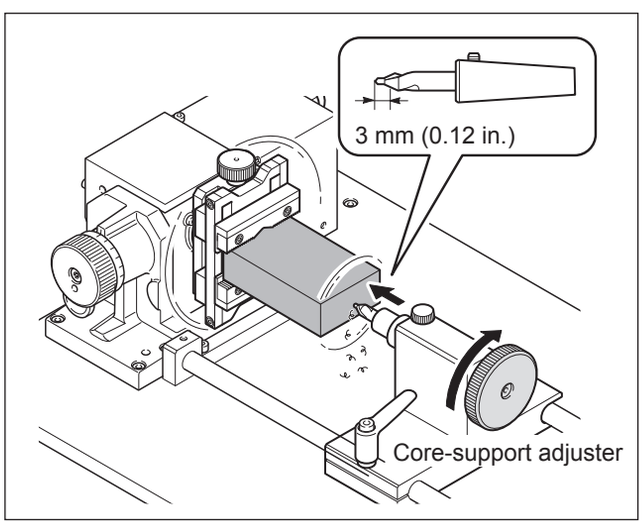
Click [Drill Workpiece] on the VPanel.
The “Drill Workpiece” dialog box appears.

❷



Click [Rotate].
The rotary axis starts to turn.

❸

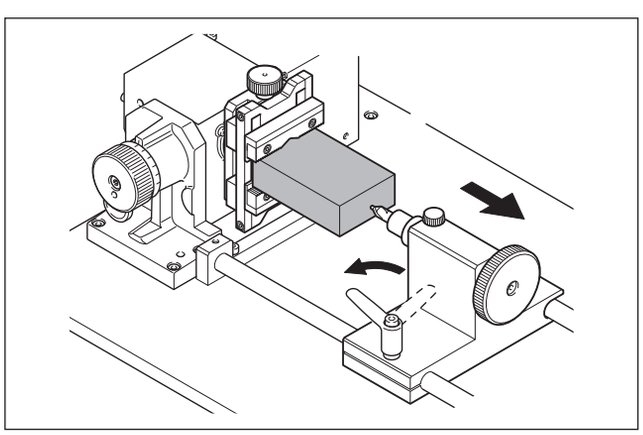


Turn the core-support adjuster slowly to drill the hole by center drill., and mount the center drill on the tail-stock.
Cut in about 3 millimeters (0.12 in.) from the blade tip.

❹

Click [Stop].
The rotation stops, then click [Close].

❺



Detach the center drill from the work-piece.

❻ Remove the center drill from the tailstock.

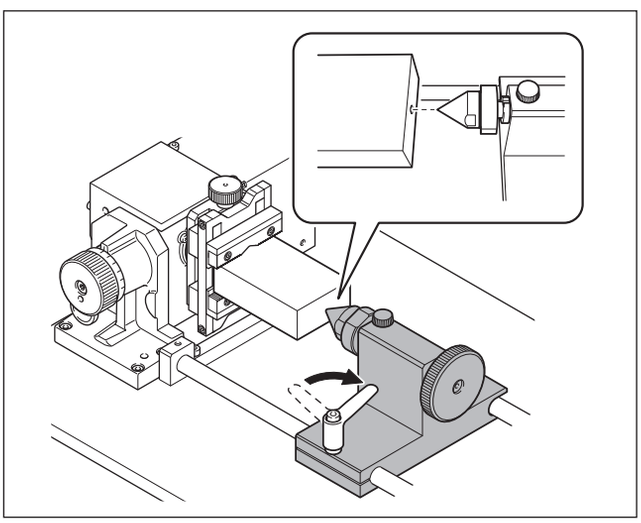
☞ P. 6, “Installing or Detaching the Live Center / Center Drill”

3 Use the live center to secure the workpiece.

❶ Mount the live center on the core support.

☞ P. 6, “Installing or Detaching the Live Center / Center Drill”

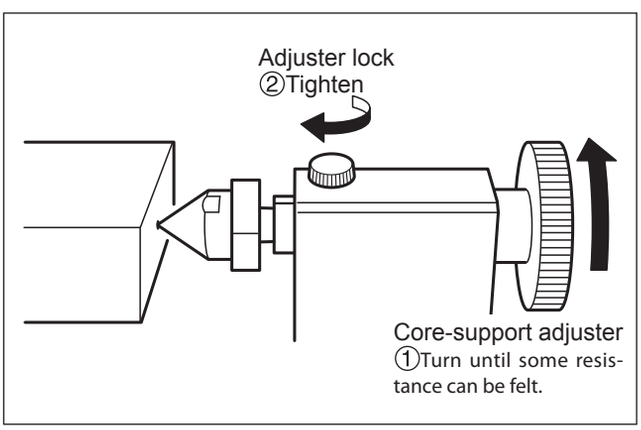
❷



Bring the tip of the live center against the hole that was made by the center drill, and secure the tailstock.

Loosen the tailstock retaining lever and move the tailstock. When the position of the tailstock is determined, tighten the tailstock retaining lever.

❸



①Turn the core-support adjuster towards the arrow direction until some resistance is felt.

If the handle is turned excessively, the tailstock spindle etc. may deform, which deteriorates the cutting accuracy. Exercise caution.

②Tighten the adjuster lock completely.

❹ Operate the VPanel to rotate the A-axis and check the status of the workpiece.

OK: The workpiece and the live center rotate in the same way.

⇨The workpiece was secured. Proceed to "Set the Z Origin".

NG: Only the workpiece rotates, but not the live center.

⇨The workpiece is not secured. Loosen the adjuster rock once, and next turn the core-support adjuster. And then tighten the adjuster rock.

Loading a Workpiece 120 mm or Longer in Length

⚠WARNING **Never inadvertently touch the operation panel while performing this task.**
Unintended operation of the machine may result in injury.

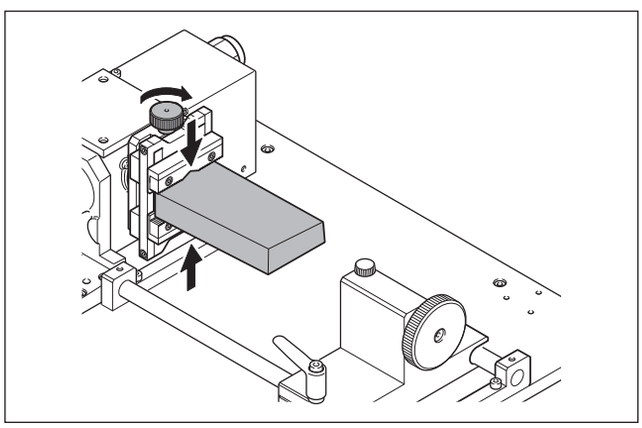
When you're loading a workpiece measuring 120 mm or longer, follow the steps below.

1. Prepare to secure the workpiece.

❶ Open the front cover. Mount the center drill on the tailstock.

☞ P. 6, “Installing or Detaching the Live Center / Center Drill”

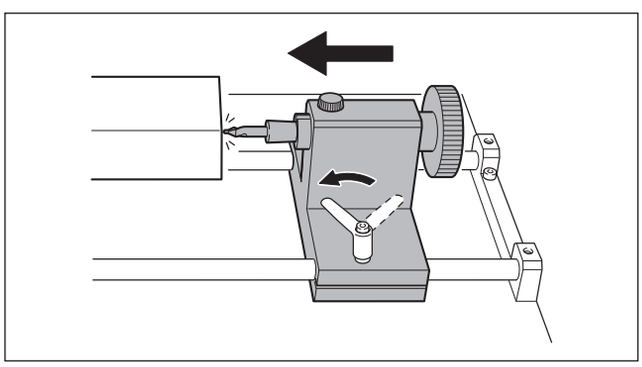
❷



Use the rotary center vise to secure the workpiece in place.

Secure the workpiece (the material to cut) in place firmly, so that it doesn't slip or wobble. Move the position of the vise by manual feed to a position where the chuck-tightening knob is positioned above to make the operation easier.

❸

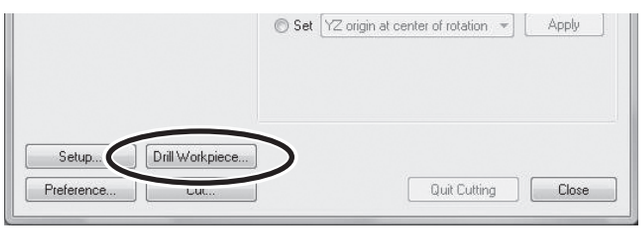


Bring the blade of the center drill against the surface of the workpiece and secure it.

Loosen the tailstock retaining lever and move the tailstock. When the position of the tailstock is determined, tighten the tailstock retaining lever.

2. Drill a hole for retaining the workpiece.

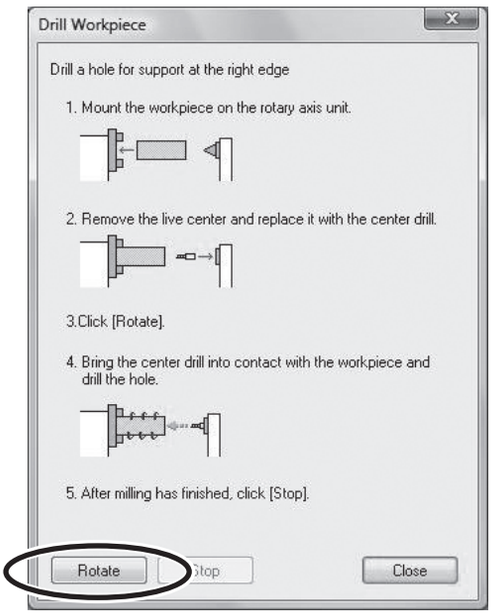
❶



Click [Drill Workpiece] on the VPanel.

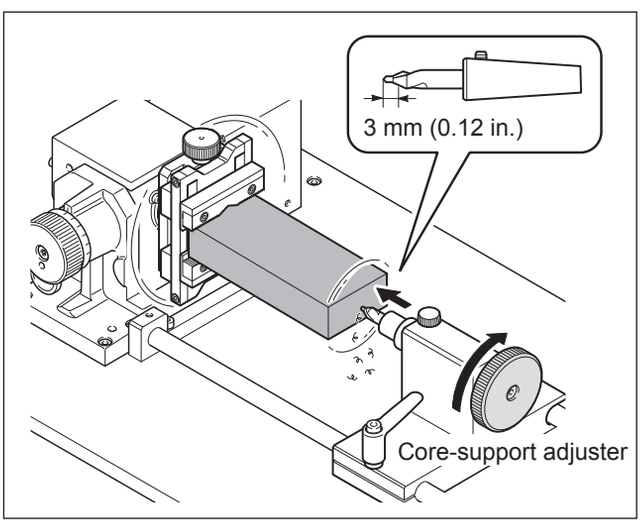
The “Drill Workpiece” dialog box appears.

❷



Click [Rotate].
The rotary axis starts to turn.

❸

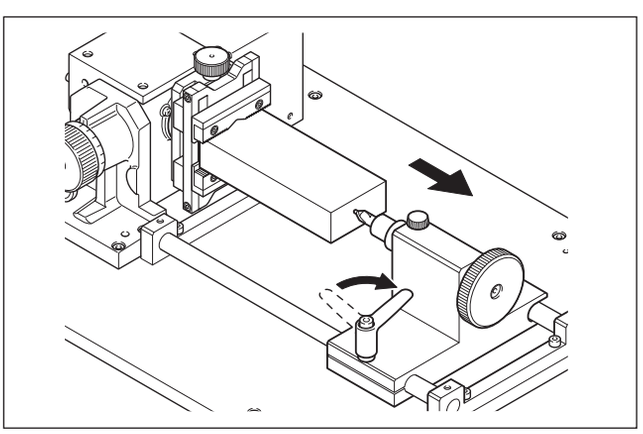


Turn the core-support adjuster slowly to drill the hole by center drill.
Cut in about 3 millimeters (0.12 in.) from the blade tip.

❹

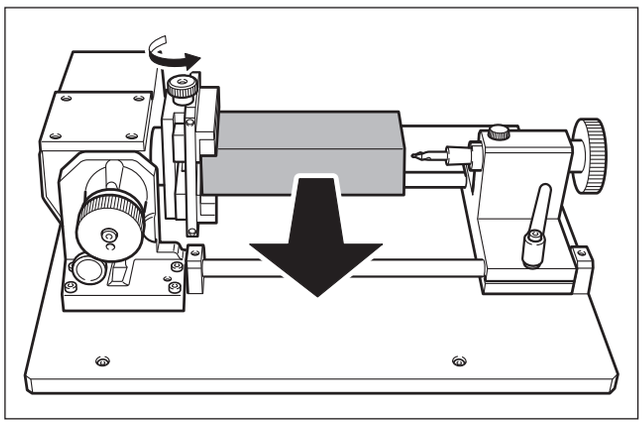
Click [Stop].
The rotation stops, then click [Close].

❺



Detach the center drill from the workpiece.

❻



Detach the workpiece temporarily.

❼ Remove the center drill from the tailstock.

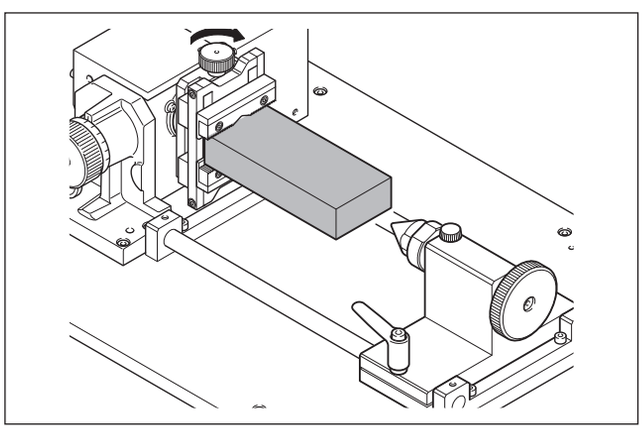
☞ P. 6, “Installing or Detaching the Live Center / Center Drill”

3 Use the live center to secure the workpiece.

❶ Mount the live center on the core support.

☞ P. 6, “Installing or Detaching the Live Center / Center Drill”

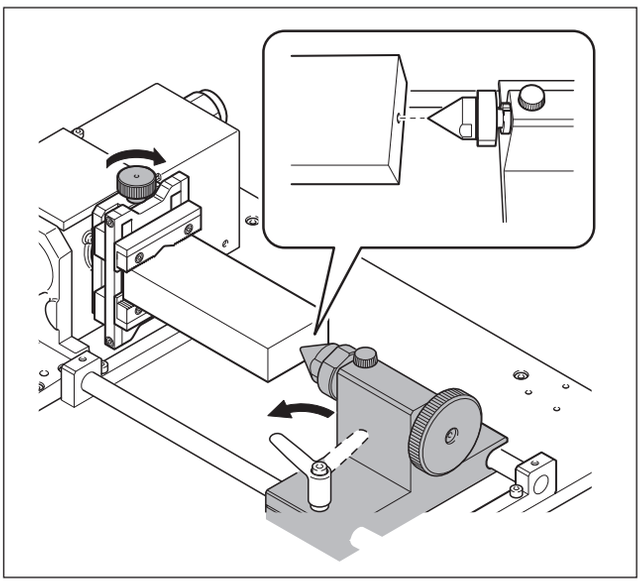
❷



Lightly secure the workpiece with the rotary center vise.

At this point, loosely tighten so that the workpiece can still be moved manually.

❸



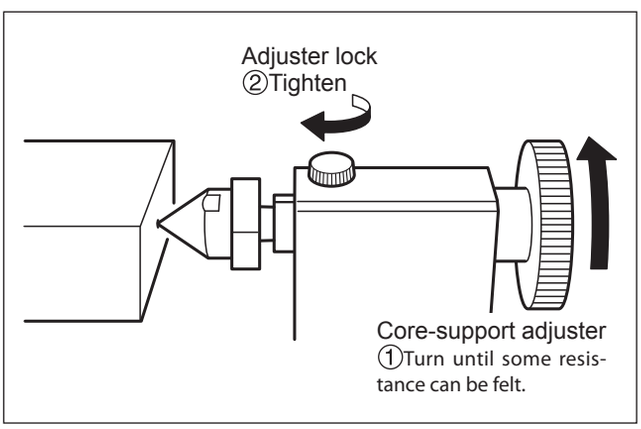
Bring the tip of the live center against the hole that was made by the center drill, and secure the tailstock.

Loosen the tailstock retaining lever and move the tailstock. When the position of the tailstock is determined, tighten the tailstock retaining lever.

Point

Once the workpiece is removed, the hole drilled by the center drill and the tip of the live center may not line up. If the positions are not aligned, do not use force to align the positions, but adjust the position of the workpiece. If the positions are aligned by force, accuracy may be reduced when processing.

❹



①Turn the adjuster lock towards the arrow direction until some resistance is felt.

If the handle is turned excessively, the tailstock spindle etc. may deform, which deteriorates the cutting accuracy. Exercise caution.

②Tighten the adjuster lock completely.

❺ Secure the workpiece firmly.

Secure the loosely tightened workpiece firmly.

❻ Operate the VPanel to rotate the A-axis and check the status of the workpiece.

OK: The workpiece and the live center rotate in the same way.

⇨The workpiece was secured. Proceed to "Set the Z origin".

NG: Only the workpiece rotates, but not the live center.

⇨The workpiece is not secured. Loosen the adjuster rock once, and next turn the core-support adjuster. And then tighten the adjuster rock.

Set the Z Origin

⚠WARNING **Never inadvertently touch the operation panel while performing this task.**
Unintended operation of the machine may result in injury.

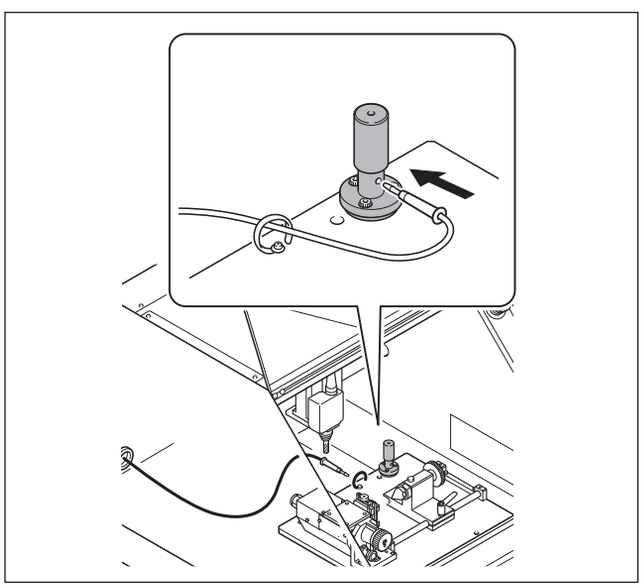
⚠CAUTION **Never needlessly touch the tip of the center drill or the live center.**
Doing so may result in injury.

Detect the length of the tool (protrusion length) and set the Z origin to the center of the rotary axis (the center of A-axis). Not necessary to set for each processing. However, when the tool is replaced or the extension length is changed, be sure to perform this operation.

Procedure

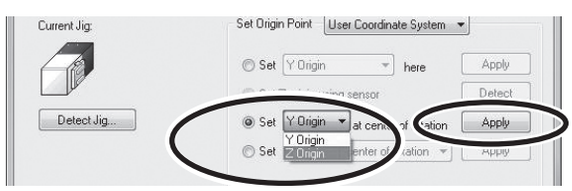
❶ Remove the detection pin and install the tool for cutting.
For installation of the tool, refer to the user's manual of the modeling machine.
Adjust the amount of tool extension to match the size of the workpiece and the cutting depth. Depending on the amount of tool extension, the tool may encounter interference with the rotary axis unit or the workpiece. Exercise caution. For more information, see the user's manual for ZCL-40.

❷

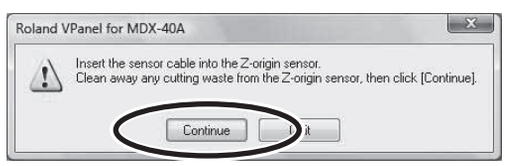


Insert the sensor cable into the Z-origin sensor.
Close the front cover.

❸

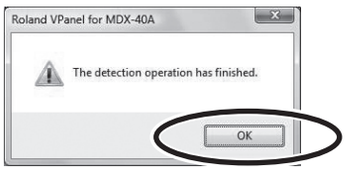


Select the [Set the position of "Z origin" to the center of rotary axis] on the VPanel and click [Apply] button.

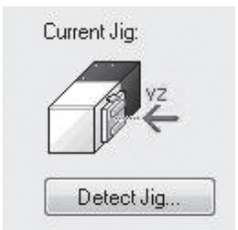


Make sure that the Z-origin sensor is inserted into the sensor cable and no cuttings are accumulated on the Z-origin sensor, and then click [Continue].
The tool moves and descends to the position where it touches the Z-origin sensor.

❹



When the window shown in the figure appears, click [OK].



The Z origin (and Y origin) has been set at the center of rotary axis (the location shown by the red arrow at the illustration of the rotary center vise on the VPanel). The Z origin has now been set.

Set the X Origin

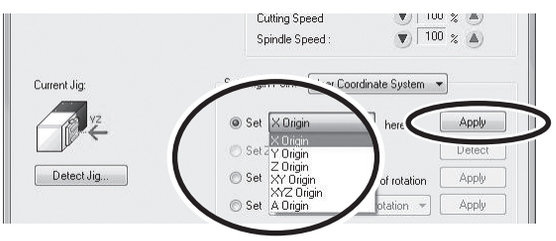
⚠WARNING **Never inadvertently touch the operation panel while performing this task.**
Unintended operation of the machine may result in injury.

Set the X origin based on the corresponding cutting data. The X origin differs according to the cutting data. Therefore, decide the origin based on the corresponding data.

Procedure

❶ Move the end of the tool to the position where an operator wants to set the X origin.
Set the X origin so that neither the tool nor the spindle strikes the rotary center vise during cutting.

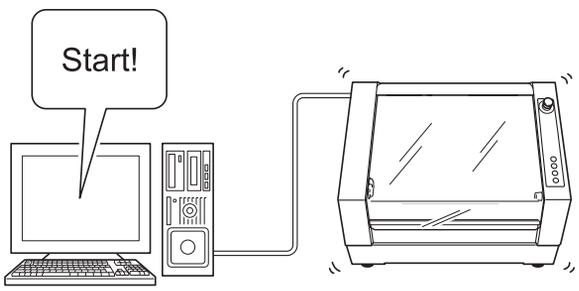
❷



Select [Set “X origin” here] in the VPanel and click [Apply] button.
The X origin has now been set.

Start Cutting

Confirm that all the preparations and origin setting that are necessary for cutting are completed. Send the cutting data from the computer and start cutting.



NOTE: For information about creating cutting data, refer to the documentation for the program you're using to create the data.

Recovery of Operation from Emergency Stop or Emergency Shutdown

If an emergency stop or an emergency shutdown occurs during cutting, remove the tool and the workpiece from the machine. When the operation resumes, initialization is performed on the modeling machine. At this time, the tool and the workpiece may collide depending on the position in which the tool and workpiece stopped, which can cause damage to the machine while restarting.
Refer to the contents displayed in the error message of the VPanel or the user's manual of the modeling machine to find the details of how to resume the operation.

Chapter 3
Appendix

3-1 Y and Z Origins: Concepts and Fine-tuning

Y and Z Origins: Concepts and Making the Settings

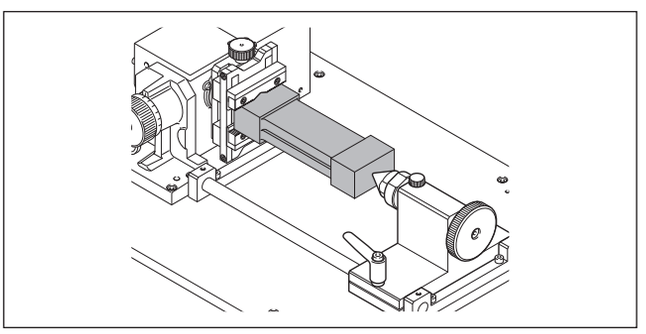
When cutting with the rotary axis, it is common to set the Y- and Z-axis coordinates to the center of A-axis (center of the rotary axis). This is because rotating the A-axis changes the positional relationship between the workpiece and the origin points, making it impossible to know the reference position for cutting.
On this machine, during detection of the jig (rotary center vise) location, the center of the A-axis is detected. The machine is also designed to set the respective origin points for the Y-, and Z-axes at the detected center of the A-axis. Therefore, Y and Z origin can be set to the center of A-axis by setting according to the steps described in "Chapter 2 Preparation for and Performing Cutting.

Fine-tuning the Y and Z Origin Points

To adjust more precisely the position of the A-axis center obtained through "Detection of the Center of Rotation" (p. 13) = Y and Z origin, refer to the method described below.

Procedure

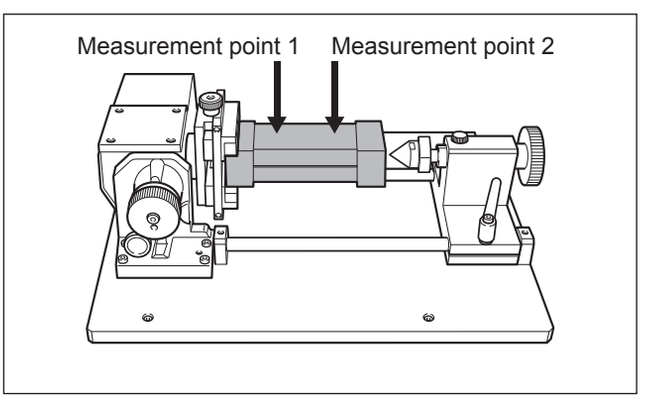
❶



Perform two-surface cutting of rectangular solid workpiece.

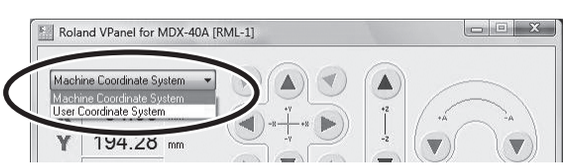
The cut object to be created is for the purpose of checking how much the Y-axis and Z-axis coordinates are displaced. Instead of using a workpiece with a complicated shape, it is better to use a workpiece with a simple shape, with which cutting can be started from both the upper and lower surfaces as the diagram on the left shows.
After cutting is completed, do not detach the workpiece from the rotary center vise.

❷



As the diagram on the left shows, determine two arbitrary measurement points on the same surface of the workpiece and make a mark.

❸



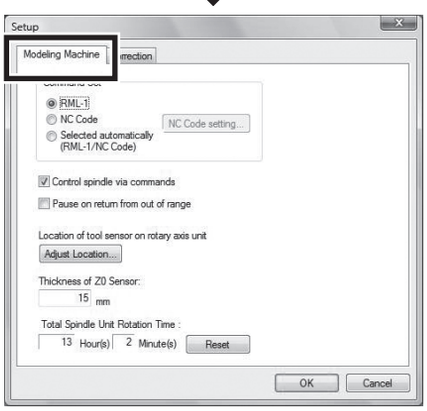
Set the coordinate system to "Machine Coordinate System."

❹ Move the tool to the position above the Measurement Point 1 and record the value of X-axis coordinate.
Move the tool to the position above the Measurement Point 2 and record the value of the X-axis coordinate.

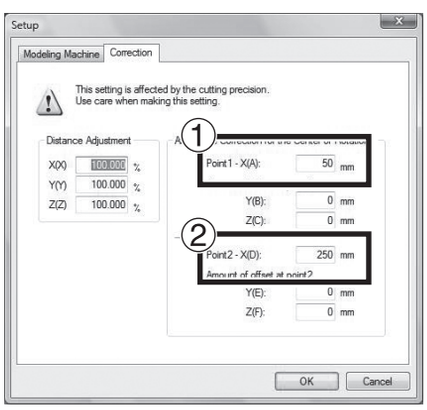
❺ Detach the workpiece.

❻

Click [Setup] button on the VPanel.
The operation setting screen appears.

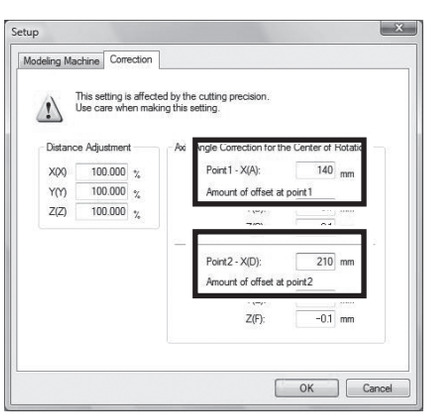


Click the “Correction” tab.

❼ 

Enter the X-axis coordinate at Measurement 1 and 2, which were recorded at step ❹.
①Measurement point 1 ⇨ ”Point1 – X(A)”
②Measurement point 2 ⇨ ”Point2 – X(D)”

❽ Measure how much the Y-axis and Z-axis coordinates are displaced at Measurement Point 1, and 2, which were marked at step ❷.
Refer to “How to obtain the "displacement amount" of Y- and Z-axis coordinates” on p. 32 to find the detailed method of measuring the displacement amount.

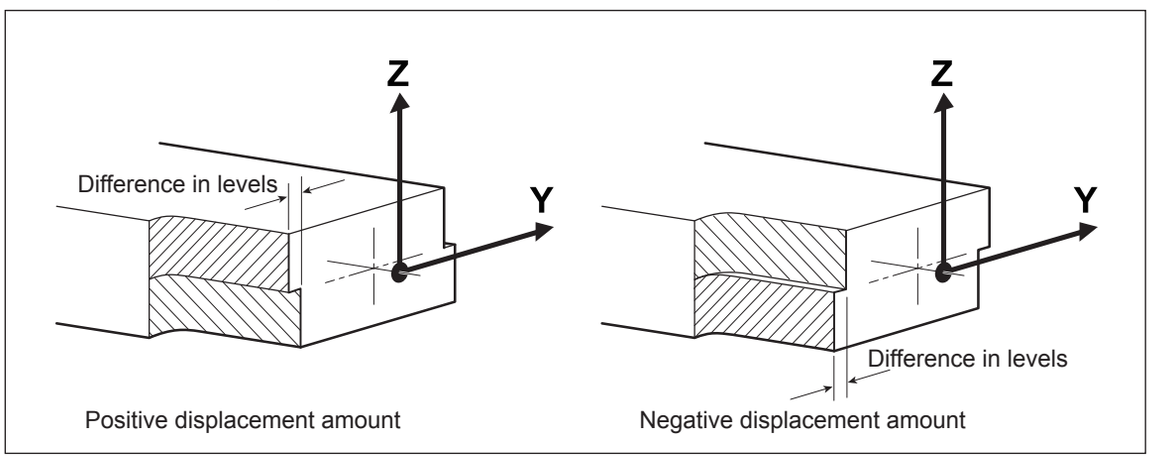
❾ 

Enter the displacement amount of Y- and Z-axis coordinates at Measurement Point 1 and 2.

How to Obtain the “displacement amount” of the Y- and Z-axis Coordinates

Displacement amount for the Y Origin

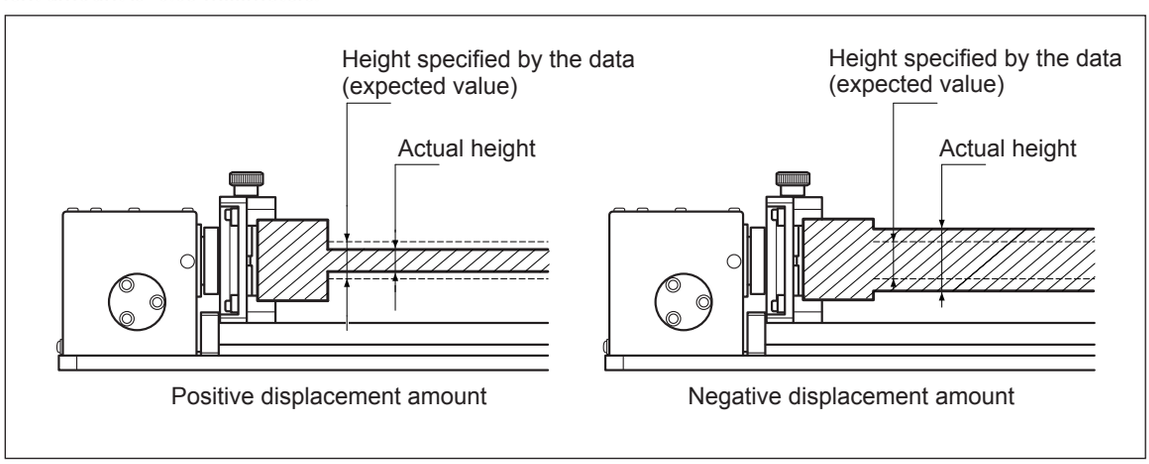
You determine the displacement amount from the difference in levels at the seam produced between the first and second surfaces in two-surface cutting. The estimated displacement amount is one-half the difference in levels. However, be careful to note the sign of the value (plus or minus). As the figure shows, the sign of the displacement amount (positive or negative) changes depending on the direction of the misalignment. As an example, when the difference in levels is 0.2 millimeters, with the upper level misaligned in the positive direction and the lower level misaligned in the negative direction along the Y axis, then the estimated displacement amount is -0.1 millimeters.



Displacement amount for the Z Origin

You determine the displacement amount from the discrepancy between the height specified by the data and actual values for the thickness of the finished result of two-surface cutting. The estimated displacement amount is one-half the discrepancy. However, be careful to note the sign of the value (plus or minus). When the actual value is larger than the height specified by the data value, the displacement amount is negative.

As an example, if data for a height of 50 millimeters yields cutting results that are 50.1 millimeters, the estimated displacement amount is -0.05 millimeters.



3-2 What to Do If...

The Machine Doesn't Run.

Is the rotary axis unit connected to the modeling machine?

Make sure that the cable of the rotary axis unit is connected to the modeling machine. Also, make the cable connection while the power is switched off. Otherwise the unit may not be detected.

The Cutting Location is Not As Intended.

Are the Y and Z origins set correctly?

It is most common to align the Y and Z origins with the center of the A-axis, although this may vary according to the cutting method. Follow the procedure to set the Y and Z origins.

☞ P. 13, "Detection of the center of rotation," p. 25, "Set the Z Origin"

In Multiple-surface Cutting, Differences in Levels Occur at Seams.

Are the Y and Z origins misaligned?

In multiple-surface cutting, the Y and Z origins are set at the center of the A-axis, but mechanical misalignment may occur due to changes in temperature or the like. This misalignment can cause differences in levels. To maintain accuracy, we recommend periodically setting the origins. In addition, fine-tuning is possible manually.

☞ P. 13, "Detection of the Center of Rotation," p. 25, "Set the Z Origin," p. 30, "Y and Z Origins: Concepts and Fine-tuning"

Responding to an Error Message

This section describes the error messages that may appear on the monitor of the computer you're using, and how to take action to remedy the problem. This section describes the messages added by installing the unit. For other messages, see the documentation for the modeling machine.

If the action described here does not correct the problem, or if an error message not described here appears, contact your authorized Roland DG Corp. dealer.

The detection operation was failed.

As for the operation that uses the sensor, which utilizes flow of electricity, the detection operation could not be initiated because of factors blocking the flow of electricity occurred. The following are possible factors that could have occurred. Eliminate these factors, and then retry the operation from the beginning.

- **The sensor cable is not connected.**

  Check if the sensor cable is connected to the Y-origin sensor and Z-origin sensor.

  ☞ P. 10, "Correction of Z-origin Sensor Position," p. 13, "Detection of the Center of Rotation"

- **The protrusion amount of the Y-origin detection pin is too large.**

  Install the Y-origin detection pin in a way that approx. 30mm of the tip protrudes.

  P. 10, "Correction of Z-origin Sensor Position," p. 13, "Detection of the Center of Rotation"

- **Y-origin sensor, Y-origin detection pin, Z-origin sensor, and cutting tool are not clean due to cutting waste etc.**

  If these parts are not free of dust, the sensor does not respond correctly.

If detection still fails even after the above factors are eliminated, mechanical failures such as cable disconnection are considered to be possible causes. In such cases, contact your authorized Roland DG Corp. dealer.

The MDX-40A has performed an emergency stop. A-Limit switch not found.

The initialization failed because the operation of rotary axis was impeded. The following are possible factors that could have occurred. Turn the power off first, eliminate these factors and retry the operation from the beginning.

- **Too much cutting waste.**
- **The size of workpiece is too big.**

If the message persists even after redoing the operation from the beginning, contact your authorized Roland DG Corp. dealer.

Main Specifications

	ZCL-40
Cuttable material	Resins such as chemical wood and modeling wax (metal not supported)
Maximum angle of rotation	±99999.999°
Loadable workpiece size	Items within the range of a 42.5 mm (1-11/16 in.) radius from the center of the rotary axis by long 135 mm (5-3/8 in.) The actual cuttable range is smaller than this.
Workpiece size holdable by rotary center vise	Thickness: 12 to 40 mm
Loadable workpiece weight	0.5 Kg (1.1 lb) (Maximum workpiece moment of inertia 6x10-4 kgm2)
Feed rate	0.02 to 11.79rpm
Mechanical resolution	0.0225 deg.
Rotary-axis tilt angle	0 deg. to 90 deg. (in increments of 15 deg.)
Dimensions	Width x depth x height: 357 × 305 × 129 mm
Weight	6.2 kg
Included items	Y-origin sensors (large and small), Z-origin sensor, Y-origin detection pin (diameter 6 mm), center drill, live center, hexagonal wrench, cap screws (for securing Z-origin sensor), user's manual

When this unit is installed, the X-, Y-, and Z-axis travel path of the MDX-40A (or MDX-40 with the upgraded version of firmware) are as follows.

X, Y, Z: 189.5 x 305 x 60 (mm)

* The range that can actually be cut is limited by the following factors.
- Amount of tool extension
- Interference between the rotary axis unit and the tool or spindle
- Interference between the loaded workpiece and the tool or spindle

Roland

DOC-0797

R1-090707