2.3.4 4TH AXIS CONTROL†

An additional 4th axis can be incorporated. In this manual, the 4th axis is referred to as α-axis, and represents any of the 6 axes, A, B, C, U, V and W.

2.3.4.1 ROTARY AXIS (A, B OR C AXIS)

The rotary axis is defined as follows.

Table 2.7

Rotary axis	Definition
A axis	Rotary axis parallel to X-axis
B axis	Rotary axis parallel to Y-axis
C axis	Rotary axis parallel to Z-axis

Note: In this manual, any one of the three axes, A, B and C, is referred to as b-axis.

The unit of output increment and input increment for b-axis is "deg." instead of "mm" used with linear axes. For the other respects, the treatments are the same as those in mm. (Metric system)

Even when inch system is selected by parameter, the values for the b-axis remains "deg." unit. The control does not convert b-axis coordinate commands. However, feedrate command F is converted. (Refer to 2.9.3 LINEAR INTERPOLATION)

2.3.4.2 LINEAR AXIS (U, V OR W AXIS)

The linear axes are defined as follows.

Table 2.8

Linear axis	Definition
U-axis	Linear axis parallel to X-axis
V-axis	Linear axis parallel to Y-axis
W-axis	Linear axis parallel to Z-axis

Note: In this manual, linear axes either U, V or W are indicated by c-axis.

The unit output increment and input increment for c-axis is the same as the other linear axes, X, Y and Z. No discrimination is necessary.

When inch system is selected by parameter, input values must be in inches for c-axis.

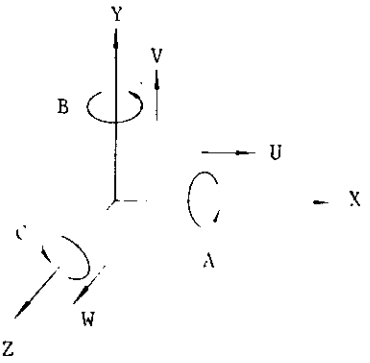

Fig. 2.1 4Th Axis in Right-hand Coordinate System

Table 2.9

	Rotary axis (b)	Linear axis (c)
Least output increment	0.001 deg./ pulse	0.001 mm/ pulse
Least input increment	0.01/0.001 deg.	0.01/0.001 mm
Maximum programmable value	±8388.607 deg.	±8388.607 mm
Rapid traverse rate	deg./min	deg./min
Cutting feedrate	deg./min	deg./min
Manual feedrate	deg./min	deg./min

2.3.5 LEAST INPUT INCREMENT AND LEAST OUTPUT INCREMENT

2.3.5.1 LEAST INPUT INCREMENT

The minimum input units that can be commanded by punched tape or MDI are shown in Table 2.10

Table 2.10 Least Input Increment (#6006D5 = "0.")

	Linear Axis	Rotary Axis†
Metric input	0.001 mm	0.001 deg
Inch input	0.0001 in	0.001 deg

Least input increment times ten can be set by setting parameter #6006D5 at "1."

Input Increment × 10 (#6006D5 = "1.")

	Linear Axis	Rotary Axis†
Metric input	0.001 mm	0.001 deg
Inch input	0.001 in.	0.001 deg

Metric input and inch input can be selected by setting #6001D0.