6.2.3 AUTOMATIC TOOL LENGTH MEASUREMENT†

When a tool mounted on the spindle is manually brought to a position where the tool tip makes contact with the reference surface for Z-axis, and the WRITE & RETRACT button is pushed, the following operations are performed by the control.

a. The distance between the set Z-axis home position and the reference surface is stored automatically in the memory having the currently specified correction number.
The difference between tool touch position and base position can be set by parameter.

b. Increase the correction number by 1, in preparation for the next writing.

c. Return the tool to the Z-axis home position.

1. Measuring method

a. Mount a tool on the spindle, and move it to a Z-axis position which is to be set as the home position. Any position may be set as the home position, but for facilitating tool changing process, the tool changing position may be set up as the home position.

b. Select the manual operation mode (RAPID, JOG, HANDLE or STEP) using MODE SELECT switch.

c. Push the function key [OFS].

The offset number specified previously and related data are displayed.

d. The page covering tool offset values specified the tool offset number keyed in will be shown. The specified number is shown by cursor

e. Push the MEASUREMENT button when the motion stops. MEASUREMENT lamp lights and the current position of Z-axis will be set as home position.
(The button is effective only in the manual operation mode and while the [OFS] key is selected.

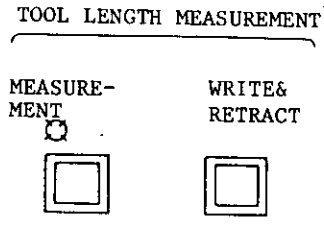

Fig. 6.24

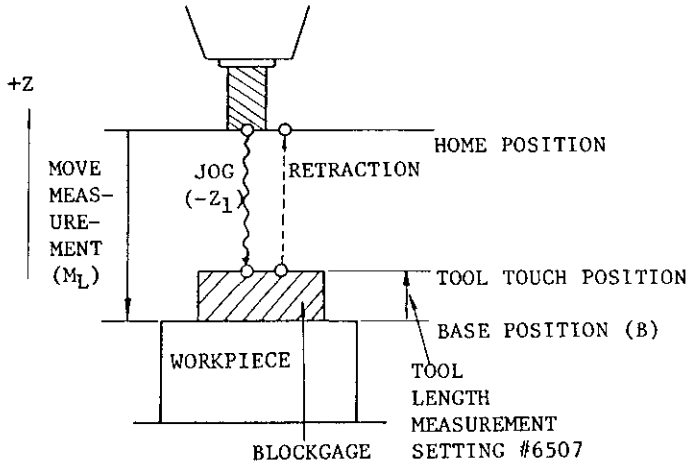

Fig. 6.25

Home position is the point where measurement starts. Measurement is made with the point temporarily determined as coordinate 0.

Note: To display the home position as coordinate 0, reset the position referring to 4.3.4.1. Measurement after resetting will be made in the offset mode.

f. Set the tool to the tool touch position by controlling Z-axis manually. Tool touch position is the position specified arbitrarily based on the base position (machine workpiece surface). The difference between tool touch position and base position is set in advance in setting #6507 ("1" = input unit). The difference is regarded as thickness of block gage. Write it in plus value.

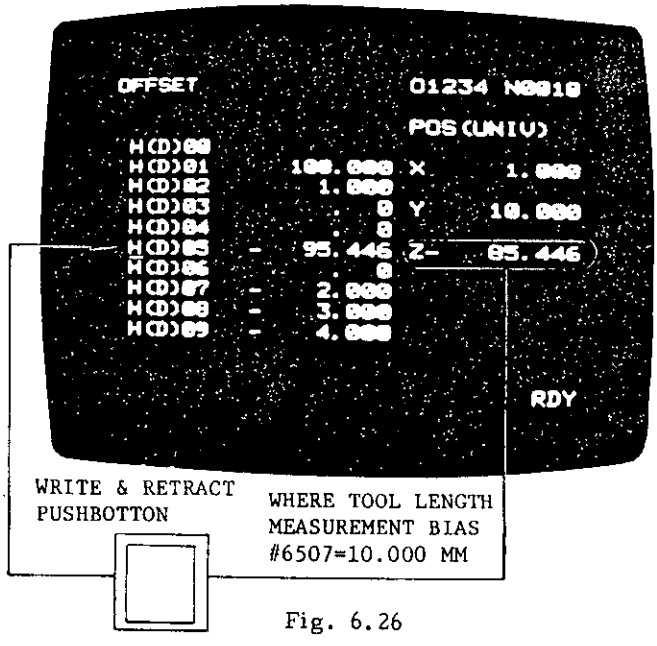

Fig. 6.26

The figure above shows the value in the offset number 05.