9. INTERACTIVE ENTRIES INTO THE TABLES

Interactive entries into the tables accelerate and simplify the entry because it is not necessary to select the table modes and to enter the values by the editor but it is possible to perform the entry in the manual modes directly and, sometimes, from the automatic modes. To make the entry interactively into all below mentioned tables the following rules shall be followed:

In the table the movement along the row is performed by means of the cursor arrows, the next row or previous one may be reached by means of the "arrow up and down", for the down direction also ENTER push-button may be used. If failed to enter any valid value in the first row (table No.), no down movement will be approved. The flashing cursor determines the position on which the entry will be performed. It is possible to correct the values in the table on the screen arbitrarily, the entry into a file and a memory will be performed by pressing down the ENTER push-button on the last row of the form appeared on the screen only. If required to exit any entry without modifying the entry into a file or memory, press the same push-button by which the table was called out i. e. either D or & or F or R (or by eventual pressing down of 2nd in front of this character).

9.1. Interactive entry of the starting point displacement for lathes

The work method e.g. at a lather with the revolving turrets requires a higher number of functions to displace the starting points for the individual tools. The system CNC836 has only 7 G functions to displace the starting points. So, length corrections, & function programmed were used for these purposes which are similar in principle.

Automatic entry into the correction table for a selected tool:
This method of the entry into the correction table is used in the case only when the setting procedure of corrections for the individual tools is performed on the lathe directly.

The automatic entry is performed in the manual mode (MAN or TOC). The condition is to reset the length corrections or to select the correction table which consists of zero corrections. &0 shall be programmed, which disengage the length corrections. The &0 function may be entered e. g. in the RUP mode or simply by starting CA (central cancellation) which is the most suitable and the most simple method. Any other possibility to do it is to program &1100 Dxx where the zero corrections are loaded in the correction table No. xx.

In the MAN mode the Txx tools shall reach the defined position (e. g. contact of the tools with the workpiece) and the D push-button shall be pressed down. In the right window, the table for interactive entry (see the figure) is appeared. The entry will be performed into the

table of the co-ordinate which was selected in the MAN mode (when pressing down of the D and no co-ordinate was selected, the error message will be issued).

Interaktivní zápis	Interactive entry
do tabulky délkových korekcí	into the length correction table.
Přepíše korekci zvolené souřadnice dle zadané polohy	It overwrites the correction of the selected co-ordinate in accordance with the position selected.
Zadej polohu od nuly	Enter the position from zero
Posun kursoru	. cursor displacement
Na posledním řádku = zápis do tab.	on the previous row = entry into the table
D = ukončení bez zápisu	D = finish without any entry into the table

The required table No. is entered, usually equal to the tool No. Furthermore the distance from zero may be entered in the case when the tool position is not correct and the "zero" value will be required. E. g. a borer may reach the so-called "workpiece" contact i. e. the place in which "zero" is required for this tool. In this case, the distance from zero will not be entered and displayed zero is "approved" only. If tool is not in contact with material, distance to material, measured e.g. by means of the scale into the "distance from zero" will be entered. After approving, the indication data (i. e. true position) added by eventual "distance from zero" will be entered into the correction table under entered number D automatically.

The distance from zero is used mainly in the X axis where the start (zero) lays in the spindle axis. By means of a tool (e. g. knife), the workpiece circumference will be reached. The workpiece diameter is known (to be measured by the slide calliper). The half of the diameter, i. e. radius, is to be entered into the item "distance from zero" (to checkup the X axis the double, i. e. the diameter is displayed).

The entry into the correction table is performed gradually (with the disengaged length correction &) for all tools. Entered corrections for the individual tools may be inspected in the file TAB0.KOR. The entry is also performed in the table stored in the system memory.

Indication switching-over in accordance with the selected tool:
Usage of the entered values of the displacement is activated by programming of the control function &1100. Selecting Dxx, the values are appeared which are related to the given No. of a tool.

It is recommended to program the block with the addresses Dxx and Txx simultaneously.

Example of the part programs for a lathe:

% 1	
N05 G90 G54 G95 & 1100	"absolute programming, engagement of starting point and feed for a revolution, engagement of length corrections".
N10 D1 T1	"the tool No. T1 in accordance with the table No. 1 is selected".
N20 M3 S1000 M7	"the speed is started, the cooling is put into operation".
N30 X-10 Z55 G01 F100	

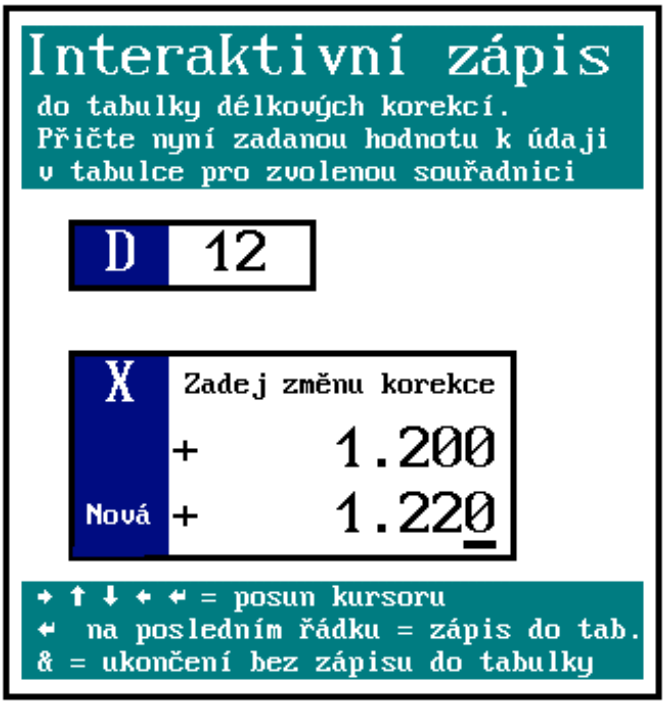
N40 X-20
N100 D2 T2 "the tool No. 2 is selected, the length correction in accordance with the table No. 2 is engaged.

N110 X-15, Z40

Note:
The interactive entry into the correction table is locked for the following cases:
a) if the minus (-) sign in included in the machine constant No. 65
b) if the machine constants No. 164 up to 165 are set in the machine constants (displacement of the tool heads).

9.2. Interactive addition of a value into the correction table

Automatic addition of a value into the correction table:



This function is used in the case only when it is necessary to change the value of the length correction by an entered value e. g. after measuring of a workpiece it is necessary to change the correction by some hundredths mm. Automatic addition (substraction) of a value entered by the operator to the value included in the table may be performed in the manual (MAN) or AUT mode.

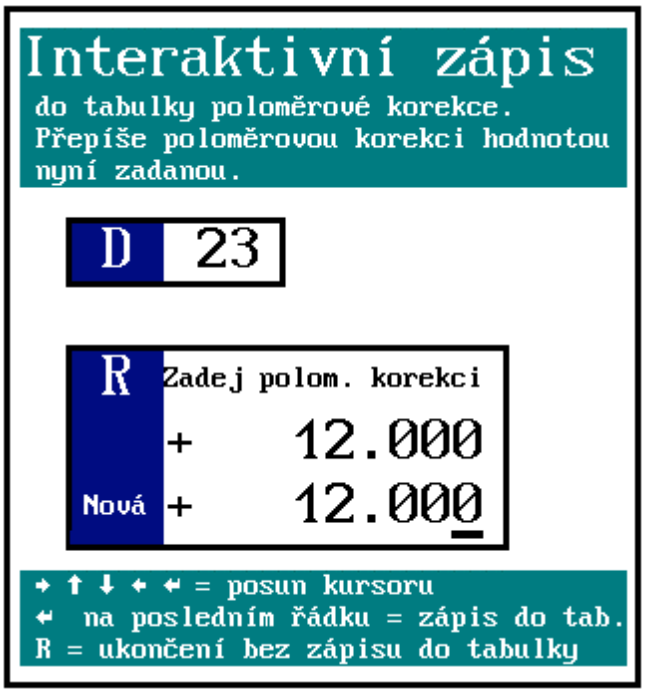
In the MAN or AUT mode the push-button & is to be pressed. If the 2nd flag is not ON, the 2nd push-button shall be pressed before pressing the & push-button . In the right window the table for interactive addition/subtraction is appeared. Required table No. is to be entered which is usually equal to the tool No. Furthermore the axis may be selected by pressing down of the relevant push-button . The X axis is selected as the priority one. Then the value inclusive of the sign which is to be added (plus sign) or substracted (minus sign) from the value already entered in the table. By pressing down of the ENTER or arrow down key, the check data is appeared on the last row which is loaded into the table. By confirming of the ENTER key, the data is loaded into the table. If not required to load this data, press the & or 2nd and & keys in every time. So the return back to the mode will be performed without performing the entry into the table.

Interaktivním zápis do tabulky délkových korekcí. Přičte nyní zadanou hodnotu k údaji v tabulce pro zvolenou souřadnici	Interactive entry into the length correction table. The entered value will be added to the data in the table in the selected co-ordinate.

Zadej změnu korekce	Enter the correction modification
Nová	New
- posun kurzoru - na posledním řádku = zápis do tab. - & = ukončení bez zápisu do tab.	- cursor displacement - on the last row = entry into the table - & = finish without any entry into the table

9.3. Interactive entry of the radius correction into the table

Automatic entry of the radius correction into the system table and the file (e. g. TAB0.KOR(is performed in the manual mode (MAN or TOC).



The window for entering is called up by pressing down of the R push-button . In the right window the table for interactive entry of the radius correction is appeared. Required table No. in the range from 01 up to 00 is to be entered. Pressing down the ENTER push-button or cursor arrow down push-button the window to enter the radius correction will be reached (note: if entered the table No. 00, no transfer into the further entering is allowed).

Required radius correction is to be entered. It is possible to displace the cursor for entering or correcting a digit by means of the cursor arrow to the left or to the right.
After pressing down of the ENTER or arrow down push-button s, the entered value is displayed in the lower window for checking purpose again. Further pressing down of the ENTER (not by means of the arrow down) the entry into the system table as well as into the file is performed.

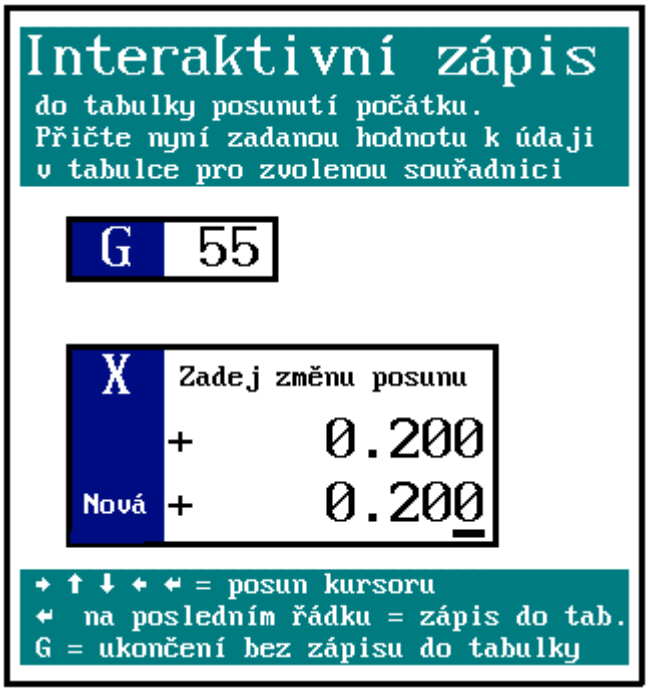
If not required to perform the entry, press the R push-button in every time again. The mode of the interactive entry is to be finished without any entry into the table.
Loaded radius corrections may be checked up in the file TAB0.KOR. The entry into the system table may be checked up in the indication selection (WIN).

Interaktivní zápis do tabulky poloměrové korekce. Přepíše poloměrovou korekci hodnotou Nyní zadanou	Interactive entry Into the table of the radius correction. It overwrites the radius correction by the value now entered.

Zadej polom. Korekci	Enter the radius correction
Nová	New
- posun kurzoru - na posledním řádku = zápis do tab. - R = ukončení bez zápisu do tab.	- cursor displacement - on the last row = entry into the table - R = finish without any entry into the table

9.4. Interactive addition of the starting point displacement

Automatic addition of the starting point displacement into the displacement system table as well as into a file (e. g. TAB0.POS). is performed in the manual mode (MAN or TOC) or in the automatic mode.



The window for entering is called up by pressing down of the G push-button . In the right window the table for interactive entry of the starting point displacement is appeared. Required displacement No. in the range from 53 up to 59 is to be entered. Pressing down the ENTER push-button or cursor arrow down push-button the window to enter the value will be reached (note: if entered no number in the range 53 up to 59, no transfer into the further entering is allowed).

The value to be added to the set displacement is to be entered. By the cursor arrow down or up the cursor for entering or correcting of the values may be displaced. After pressing down of the ENTER push button or arrow down, the value (new) is appeared in the lower window for the checking purposes which is the summation of the entered value with the value stored in the table. .

After pressing down of the ENTER push-button (not by the arrow down) the entry into the system table as well as into the file is performed.

If not required to perform the entry, press the G push-button in every time again. The mode of the interactive entry is to be finished without any entry into the table.

Starting point displacement entered may be checked up in the file TAB0.POS. The entry into the system table is possible to check up in the indication selection (WIN).

Interaktivní zápis do tabulky posunutí počátku.	Interactive entry into the table of the starting point displacement.
Přičte nyní zadanou hodnotu k údaji v tabulce	It adds the now entered value to the table data

pro zvolenou souřadnici	for the selected co-ordinate.
Zadej změnu posunu	enter the displacement change
Nová	New
- posun kurzoru - na posledním řádku = zápis do tab. - G = ukončení bez zápisu do tab.	- cursor displacement - on the last row = entry into the table - G = finish without any entry into the table

9.5. Interactive entry of the starting point displacement

The procedure is the same as described in the previous chapter with the exception that the value to be entered is loaded into the displacement table directly with the position related to the zero point of the machine (the offered value can be changed, of course). This procedure is used in the case when after manual reaching of the certain position this position is to be set to zero by means of the starting point displacement. If confirmed the offered value for the given co-ordinate, the value for selected displacement will be zero in this point. This procedure may be replaced by the pseudo-reference which also sets to zero the position in the given point but in spite of the pseudo-reference the position will not get lost the relation to the machine reference point, the starting point displacement will be activated only.

WARNING:

The addition and the entry into the displacement table may not be, in spite of the entry and addition into the correction table, combined. Which method of the displacement table influencing is approved in the relevant system, is given by the setting of the fourth decade of the machine constant No. 95.

2 and 3 in this decade allow adding, 0 and 1 in this decade allow entry.

Note:

Values in this decade manage the entry into the correction table by means of the function G92 from the part program (see the Programming Manual).