5. CONTROL PANEL OF THE SYSTEM

5.1. Screen panel

The control panel of the system CNC836 is solved so that the most possible simple operations without any waste handling procedures with the control element (push-button s) of the panel will be secured for the operators. Below mentioned is the description of them. The function of the individual push-button s is mentioned below in detail. All information on the system condition are displayed on the displaying unit of monochromatic or coloured screen and so it is accessible for the operators. The information layout on the screen is described in this chapter too.

5.2. Push-button s

The system panel CNC836 consists of a field with 7 x 5 push-button s, four push-button s marked with arrows (cursor arrows) and independent two push-buttons START and STOP as well as six so-called software push-button s located below the screen. The push-buttons are divided, in accordance with their function, into some groups. Their meaning is mentioned below. Detailed description of some push-button s is stated in further chapters of this manual.

Tlačítkové pole panelu CNC8x9

+X	+Y	+Z	MAN
-X	-Y	-Z	SEL PRG
+U	+V	+W	SEL BLK
-U	-V	-W	CONT
R /	& %	! „	USER
L 7	I 8	JK 9	MENU
D 4	F 5	Q 6	GRAF
S 1	T 2	P 3	WIN
M 0	N +/-	G .	//
= '	DEL	¿	2nd

↖	↑	↗
←	^ ^ ^	→
↙	↓	↘

START STOP

F1 F2 F3 F4 F5 F6 **Softwarová tlačítka**

Tlačítka k dispozici pro PLC a jiné použití:

POS G	KOR R									
KOR &	KOR D									

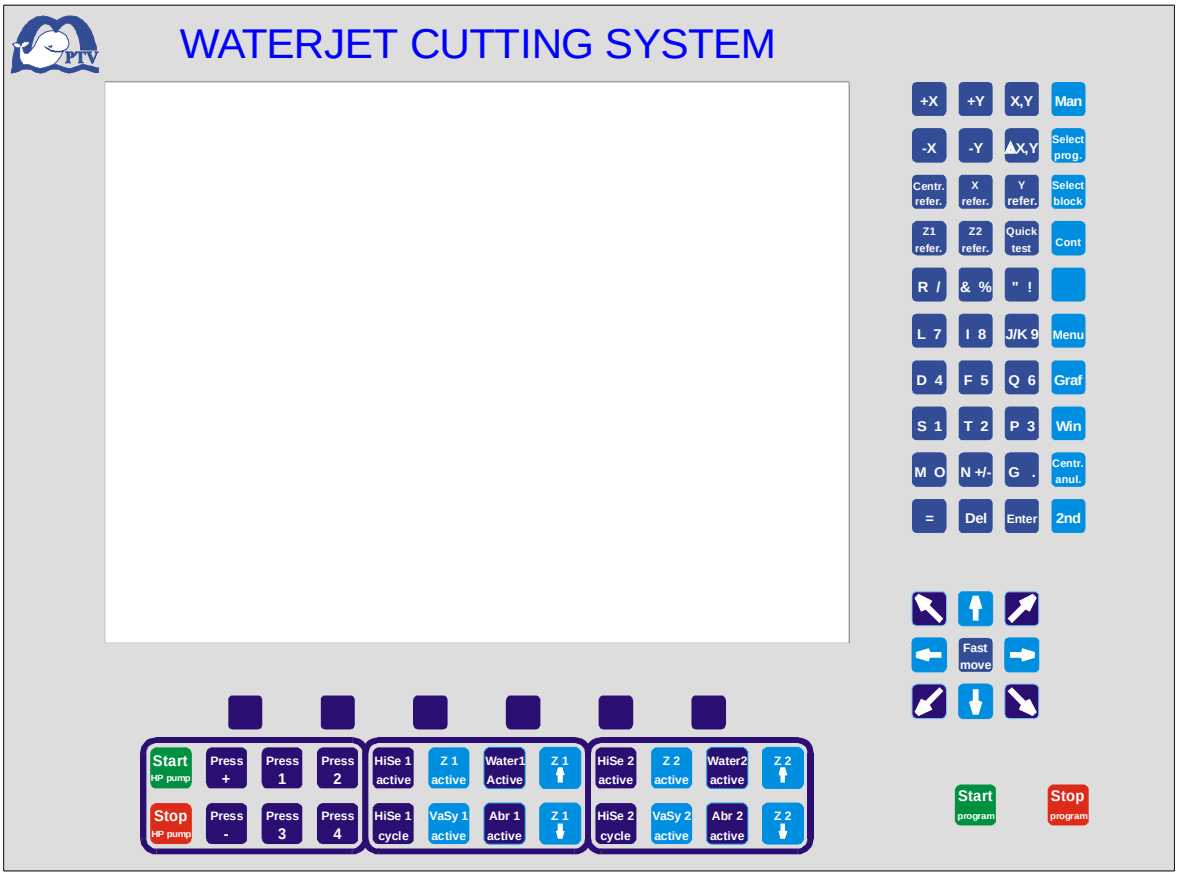
Push-button field of the panel CNC859

The system panel CNC846/856 consists of the field with 5 x 8 push-button s, other push-button s (cursor arrows and START and STOP) are the same as with CNC836 but the push-button s START and STOP are located above the each other and not next each other).

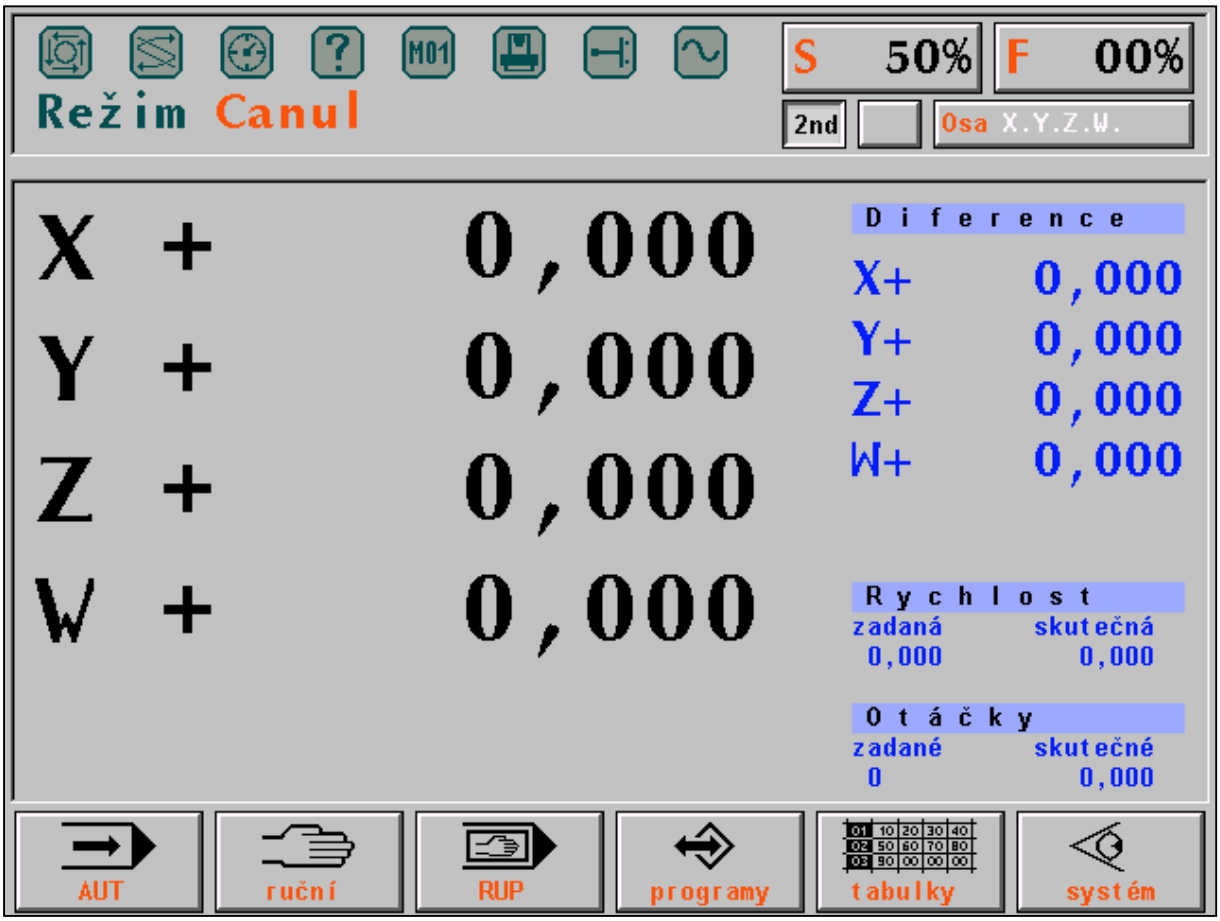
Meanings of the push-button s

- **software push-button s** perform the function regarding to actually displayed graphical or text symbol located in the lower part of the screen. The software push-button s are situated below the screen and they are not marked with any inscription. In the text of this manual these push-button s are marked sometimes as F1 up to F6 generally. F1 is the left edge push-button below the screen. F6 is the right edge push-button also located below the screen.
- **push-button s +X, +Y, + Y, +U, +V, +W, -X, -Y, -Y, -U, -V, -W** (also A, B, C) are the names of co-ordinates and they have the meaning the **movement start** in the relevant axis and relevant direction in the MAN and JOG modes. In other cases (editor and RUP mode) they have the meaning of the sign-free co-ordinate name. Push-button names of the co-ordinates are specified by the actual configuration for a given machine.
- **Push-button field** to enter addresses, digits, signs and decimal points. It is used mainly in the RUP mode and during the editing procedure, seldom during any other modes. If a push-button is provided with two marks located below each other, this push-button has two meanings. The switching-over procedure is performed by the 2nd push-button (secondary function).
- **MENU push-button** is designed to select the basic mode menu.
- **HELP push-button** – after pressing down this push-button , the interactive help with the short description of the menu push-button meanings is displayed in the right window which are active now. Pressing down this push-button again, the help is cancelled.
- **WIN push-button** serves to select the indication. By means of this push-button it is possible to select any other screen format than default one in every time.
- // **push-button** is designed to select the CANUL (central cancellation) mode.
- **2nd push-button** – by means of this push-button , second function of these push-button s having two meanings is selected. The status of this push-button is indicated in the right part of the mode window permanently (see below).
- **Arrow push-button** – four push-button s marked by arrows re the cursor push-button s used to edit, indication selection etc. With two-axis machines (e.g. lathes) they may be configured for manual mode for a travel in the relevant direction.
- **START and STOP push-button s** are designed for automatic and manual mode.
- **MAN push-button** – push-button to switch the so-called auxiliary manual travels rapidly. It allow the travel in axes without any change of the original mode. Do not confuse them with MAN software push-button (see Description of Manual Modes).
- ^^^ **push-button** – it is the push-button usable in the MAN („manual feed“) mode only. If pressed down and held simultaneously with the co-ordinate push-button , the relevant co-ordinate is moved by rapid feed.
- **“_|” push-button** – the ENTER key has the meaning of confirmation push-button of the row end when editing, selecting the indication and confirming in the query windows.

- **DEL push-button** – (DELETE). It is designed to delete erroneously loaded values in the RUP mode or the editor.
- **= push-button** – this push-button is used to write in the parametric programming in the editor. For details on parametric programming see the "PROGRAMMING MANUAL".
- **space push-button** is used to separate the individual addresses in the editor visually. By the parameter No. $06 in the configuration file CNC836 may be set in the case when the 2nd push-button shall be pressed before pressing the space push-button . If the second character, mentioned in the parameter, is M, the space on a common push-button shall be situated with the = character down. If mentioned any other character the space on the common push-button shall be situated with the = character up. The down location has a certain advantage consisting of the possibility to write in several space after each other the editor without the necessity to press-down the 2nd push-button again.



5.3. Displaying unit



The whole screen surface is divided into the basic areas (windows): MODE, FORMAT and MENU. In the following figure, the MODE window in the upper screen part is illustrated. The FORMAT window is situated in the middle part and MENU window is located in the upper part of the screen.

Režim Canul = Canul mode
ruční = manual
programy = programs
tabulky = tables
systém = system
rychlost = speed
zadaná = theoretical
skutečná = actual
otáčky = revolutions
zadané = theoretical
skutečné = actual
diference = difference
osa = axis

MODE window
In the MODE window, the currently selected mode either by text (on the above illustrated figure the CANUL (central cancellation) mode or mainly in a graphical form is indicated permanently. In the right MODE window part, the override status such as %S, %F, 2nd push-button status, displacement status from the programmed path (on the above illustrated figure it is the question of the unmarked push-button) and status of co-ordinates from the point of view of travelling into reference positions are indicated permanently.

In the upper window part, 8 LEDs are illustrated which indicate some statuses of the system. "Lighting" diode is emphasized. The diodes indicate the following statuses:

Description of the indication diodes:

THE SYSTEM RUNS. The diode is ON if the system run i. e. if performed automatic or manual mode.

THE FUNCTIONS NOT FULFILLED. The diode lights if technological functions are in progress. It is ON on the block start and OFF after finishing it. Upon interruption of the block by the STOP push-button , the diode remains ON – the block is not finished. Technological functions in progress may be finished by central cancellation only.

TIME DELAY. The diode is ON during the TIME DELAY programmed by the G04 function.

OPERATION ERROR. The diode indicates unimportant operation error e. g. when loading more digits than allowed for a given address. It gets OFF after the first correct selection.

M01. It is ON if programmed the function with the same name with selected mode AUT/M01.

MACHINE ERROR. It indicates that the machine is not ready for run. This signallizing device is controlled by the PC program.

TERMINAL SWITCHES. The diode indicates the contact with the limiting terminal switch. This indication is added with the relevant error message.

INPOS. If the diode is ON the movement in the co-ordinates is performed. After reaching the position this diode gets OFF. If the diode fails to get OFF after reaching the position by the co-ordinate, the difference (i. e. difference of actual and theoretical positions) is greater than the value set for the machine constant No. 6 or No. 7 or if the co-ordinate fails to reach its position completely. After removing this defect, it is possible to increase the tolerance (if the decreased accuracy may be acceptable) by change of the above mentioned machine constant for erroneous co-ordinate. Furthermore it is recommended to set the zero (drift) correctly for the relevant co-ordinate (to be performed by the service).

FORMAT WINDOW
The format window is located in the middle part of the screen. Information which are indicated here depend on the mode selected. To each mode an default format is assigned

which is appeared after selecting the mode. The operator has the possibility to change the default format by means of the indication selection (WIN).
The format window may be divided in two separate windows by the indication selection with various information displaying in the each window. For detail see the chapter dealing with the indication selection. The format window control is described in the chapter dealing with the indication selection too.

MENU WINDOW
6 so called software push-button are displayed in the menu window. They are controlled by the function push-button s F1 up to F6 located below the screen. Their meanings are alternated in accordance with the text or graphical symbol displayed on the relevant push-button . The description of the software push-button s currently displayed in the menu window may be obtained by pressing down the HELP push-button . The format window is divided into two separate windows with the short description of the current software push-button s displaying on the right window. When pressing down the HELP push-button again, the format will be returned back into its original status.

5.4. Floppy disk drive
The floppy disk drive 3,5" is not a standard part and it is built in the system based on a separate order only. It is suitable if the system is not connected into the DNC network. It is located on the operation panel. When handling the floppy disk drive and floppy disks it is necessary to pay attention to prevent from data damage. It is recommended to remove the floppy disks from the floppy disk drive as soon as the data were loaded into the system and put them into the floppy disk box. Do not move the protection sheet piece and do not touch the magnetic surface of the floppy disks by fingers. It is forbidden to insert other objects than floppy disks into the floppy disk drive.

5.5. Connection to the DNC network
The connection to the DNC network is the most effective data (part programs) transmission method to transmit it from the technologist′s workstation into the control system and vice versa. It is very easy to backup the data and the system tables in the external computer through the DNC network to avoid the data and table losses. The connection of the system to the DNC network is not visible because the interconnection cable is usually led from the rear part of the panel together with the other distributions through the machine inside.