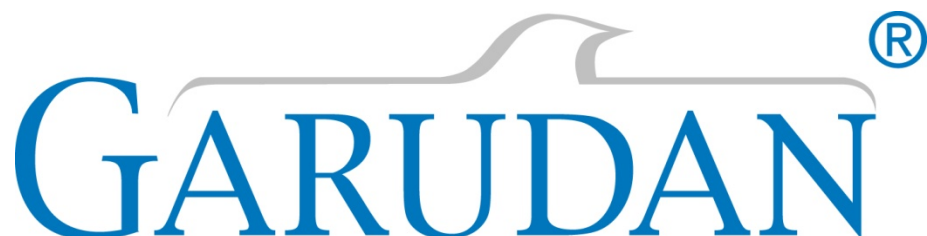# User´s Manual version 04.2018

**GARUDAN GPS/G-1507, GARUDAN GPS/G-2010
GARUDAN GPS/G-3020, GARUDAN GPS/G-3525
GARUDAN GPS/G-4032, GARUDAN GPS/G-6032
GARUDAN GPS/G-6040, GARUDAN GPS/G-10060
GARUDAN GPS/H-1510, GARUDAN GPS/H-2010**

MP00006EN_181206

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VERSION	CREATED ON	APPROVED BY
MP00006EN_181206	06. 12. 2018	Jakub Lžičař

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Content

1. DESCRIPTION OF MACHINE

Picture 1

A   Control switch
B   Key „ON" – turning on the machine
C   Key „OFF" – turning off the machine
D   Key „STOP" – emergency stop
E   Hand wheel
F   LCD touch screen

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2. TURNING ON AND TURNING OFF THE MACHINE

After connection of the machine into electrical power network (230V/50Hz) press control switch A (picture 1). By pressing key B (picture 1) turn on the machine. Wait for starting of software.

During turning off the machine, proceed according to following instructions: press key C (picture 1). By pressing this key you switch off the power supply of the machine. Next step is to close the software by pressing the cross (button A10 chart 7.1) in the upper right corner (it is necessary to do this for saving of all machine settings). Then turn off the machine by pressing the main switch A (picture 1).

After turning off by pressing the main switch A (picture 1) you can turn on the machine again after minimum period of **10 seconds**. If you turn on the machine again before this period, the machine will not start.

3. OPENING OF EXISTING SEWING PATTERN

After machine is turned on and computer running, sewing machine screen will ask operator to select the sewing pattern. It is possible switch between two window styles by parameter 58 Style of pattern open. Default value of parameter 58 is 1 Characters. It is possible select pattern from list of patterns and pattern names can have got numbers and characters in style 1 Characters. It is possible use only three digit number for pattern name in style 0 Numbers.

3.1 Opening of sewing pattern in style characters:
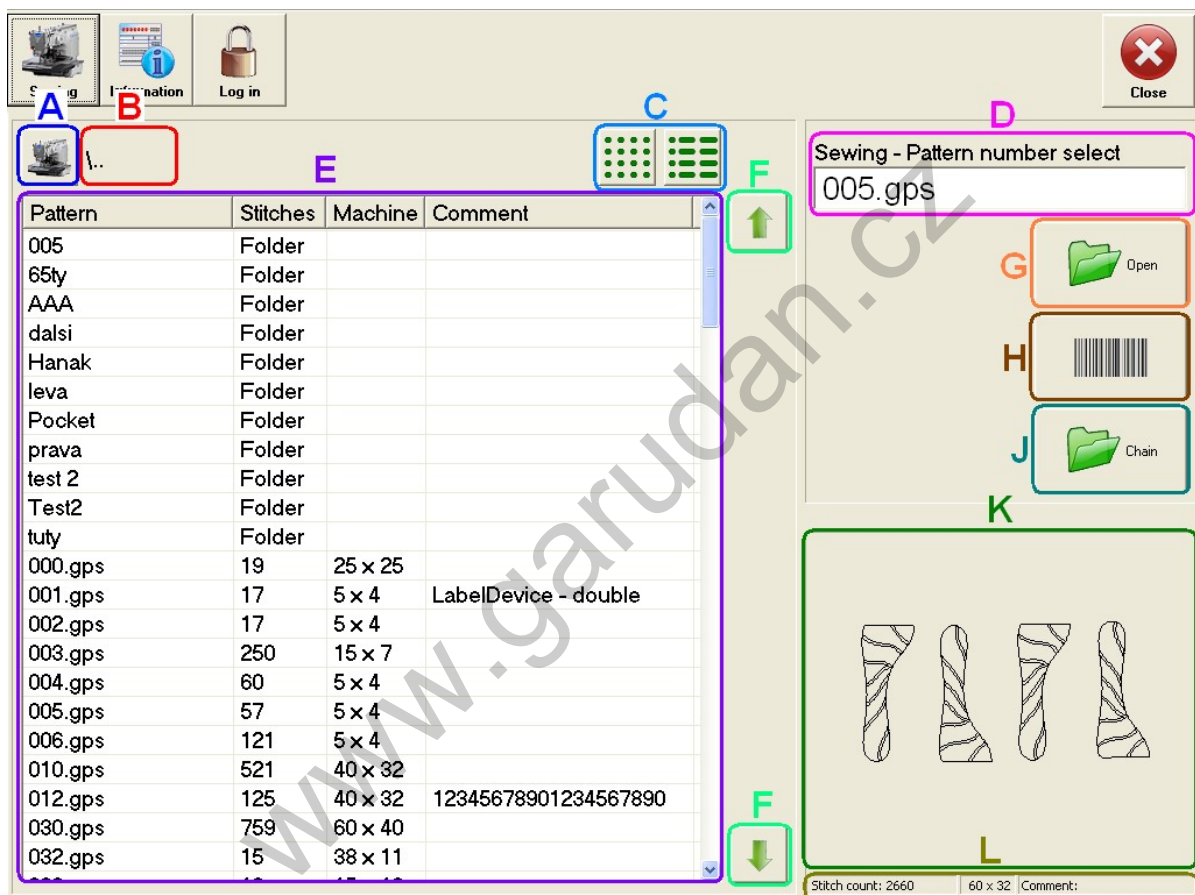
Picture 2: Screen after turning on the machine in style Characters

A - Switch for selection of patterns list between machine and USB pen drive
B – Name of current folder
C – Switch between showing name of patterns and name of patterns with details in patterns list
D – Name of selected pattern
E – List of patterns
F – Arrows to quick find a pattern
G – Open selected pattern
H – Open pattern by barcode
J – Button for chain settings
K – Preview of selected pattern
L – Details of selected pattern

All possible patterns are in list E. Table may contain patterns with details (picture 2) or only list of patterns. It is possible to switch between the styles by buttons C. Table E contains list of folders and patterns. You can select pattern by click. Buttons F are to scroll through patterns and folders. You can open folder or pattern by selection of name by click and press button **Open** (G on picture 2). Name of current folder is in line B on picture 2. Folder „\..“ means root directory. If you want go to lower folder select „..“ in list E, click on button **Open** (G on picture 2). Name of actual selected pattern is in line D on picture 2. Preview of selected pattern is on panel K on picture 2 and information about pattern in bar L on picture 2. Button A can switch to USB pen drive and open pattern directly from USB pen drive. Button J on picture 2 is for Chain mode sewing, you can read more information in chapter 5.1. You can open pattern by barcode by button H on picture 2 (only on machines with barcode reader option).

3.2 Opening of sewing pattern in style numbers:
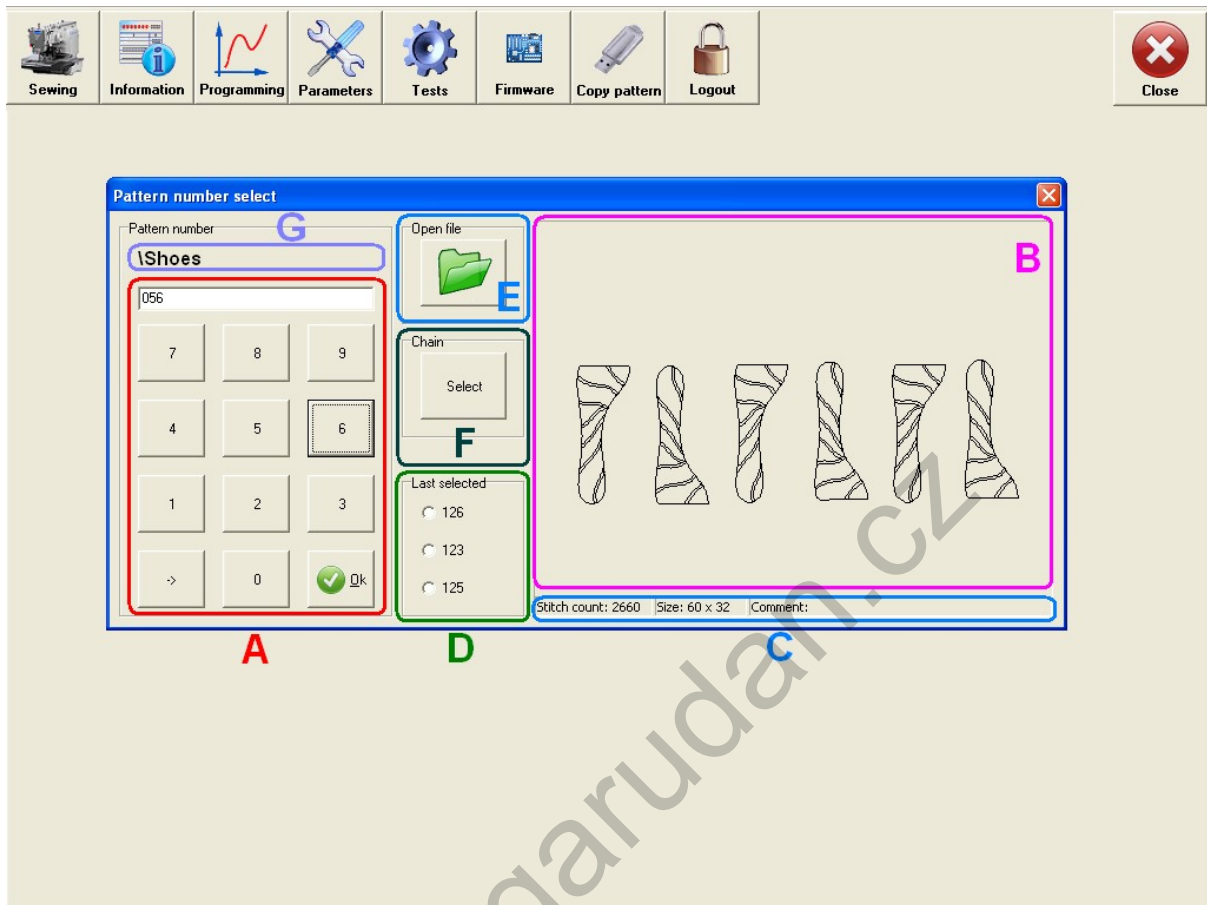
Picture 3: Screen after turning on the machine in style Numbers

There are 3 possible ways how to select the pattern. First possibility how to choose the pattern is setting combination of 3 consecutive numbers on the numeric keyboard (see pic.2). Second possibility is to select one of the 3 recently opened patterns via section D (see pic.2). Last option is select the file directly by setting its name – after pressing the button E (see pic.2) dialogue window for selection of file by name will open. During process of selection it is possible to check the preview screen B and information about the pattern C (number of stitches, sewing area and notes). Confirmation of selection is done by OK button. Then the pattern is saved and screen for sewing the pattern appears. The screen is described in more detail in chapter 5.

Button F is used for setting and starting of the operation of pattern chaining. This operation is described in more detail in chapter 5.1.

4. DESCRIPTION OF LCD SCREEN FOR SEWING THE PATTERN
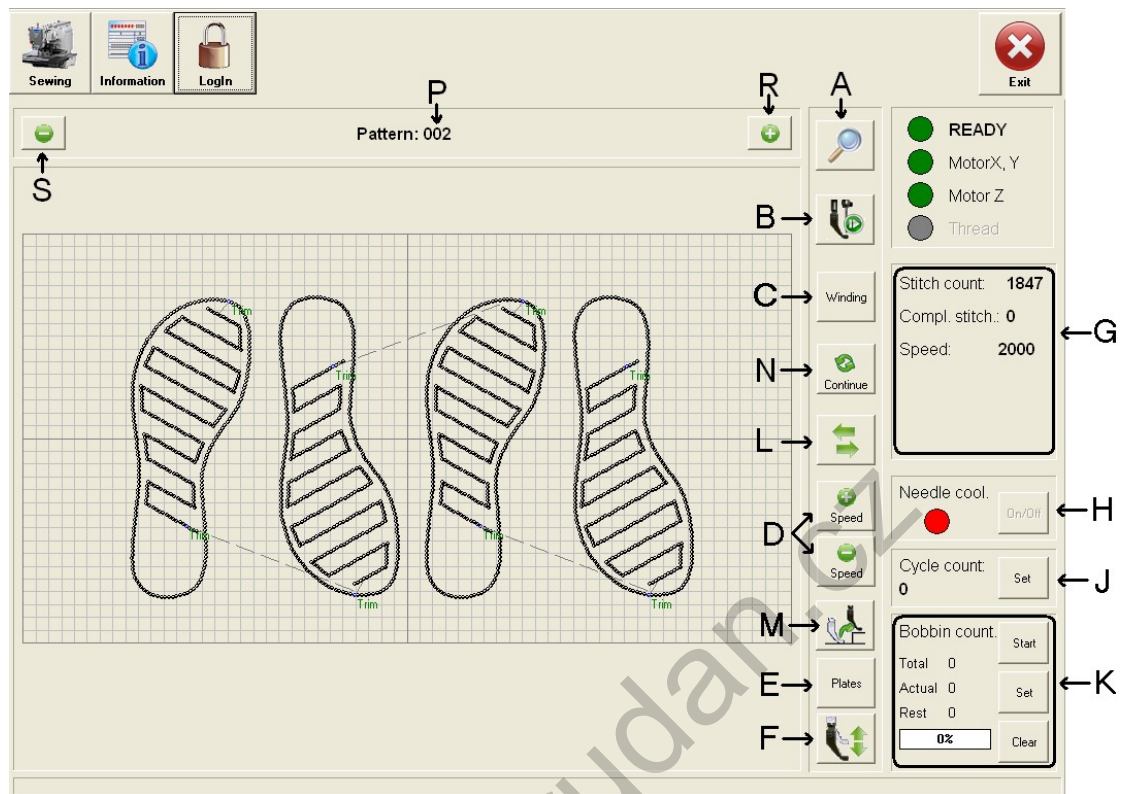
Picture 4: Sewing interface

A   Zoom the pattern
B   Layout of the pattern
C   Winding the bobbin
D   Change of sewing speed
E   Control of feed plates (up/down)
F   Control of presser foot
G   Information about the pattern
- Stitch count – number of stitches in pattern
- Compl. Stitch – number of sewn stitches
- Speed – sewing speed (stitches per minute)

H   Control of needle cooler (ON/OFF)
J   Number of sewn patterns (key SET is for modification of the counter)
K   Information about quantity of lower thread – chapter 5
L   Single-stepping within the pattern – start of sewing from other than starting point of the sewing operation
M   Machines GPS/G - control of High Programmable Presser Foot Function – for set up (only for machines with the option PP)
         – Machines GPS/H - control of High Programmable Presser Foot Function in bottom position

N   Continuous mode – chapter 5.2 (It is possible to use for firmware version 0.25 or higher)
P   Pattern name
R   Step to next pattern in pattern chaining (only in pattern chaining – chapters 4.1, 4.2 a 4.3)
S   Přepnutí Step to previous pattern in pattern chaining (only in pattern chaining – chapters 4.1, 4.2 a 4.3)

4.1 Pattern chaining:

Function of pattern chaining automatically changes sewing patterns in accordance with previously set sequence. It is mostly used when customer requires performing more sewing operations with one sewn material but, at the same time, these operations cannot be performed within one sewing pattern. Following example is typical for use of this function: sewing of first part of material, temporary gluing of second part of material which overlaps the firstly sewn part and subsequent stitching of the two parts together. It is possible switch between two window styles by parameter 58 Style of pattern open.

4.2 Pattern chaining in style characters:

Machine can store 8 lists of chains with patterns. You can change list by selection in box D on picture 5. There are patterns from current list in table A on picture 5. You can add pattern to list by button B on picture 5. If you press button B on picture 5, window from picture 6 will be showed. You can delete selected pattern from list by button C on picture 5. Pattern can select pressing patterns name in table A on picture 5. You can add pattern by barcode pressing button G on picture 5 (only on machines with barcode reader). Button Apply (E on picture 5) is for activation sewing by current chain list. Button Cancel close window without sewing.
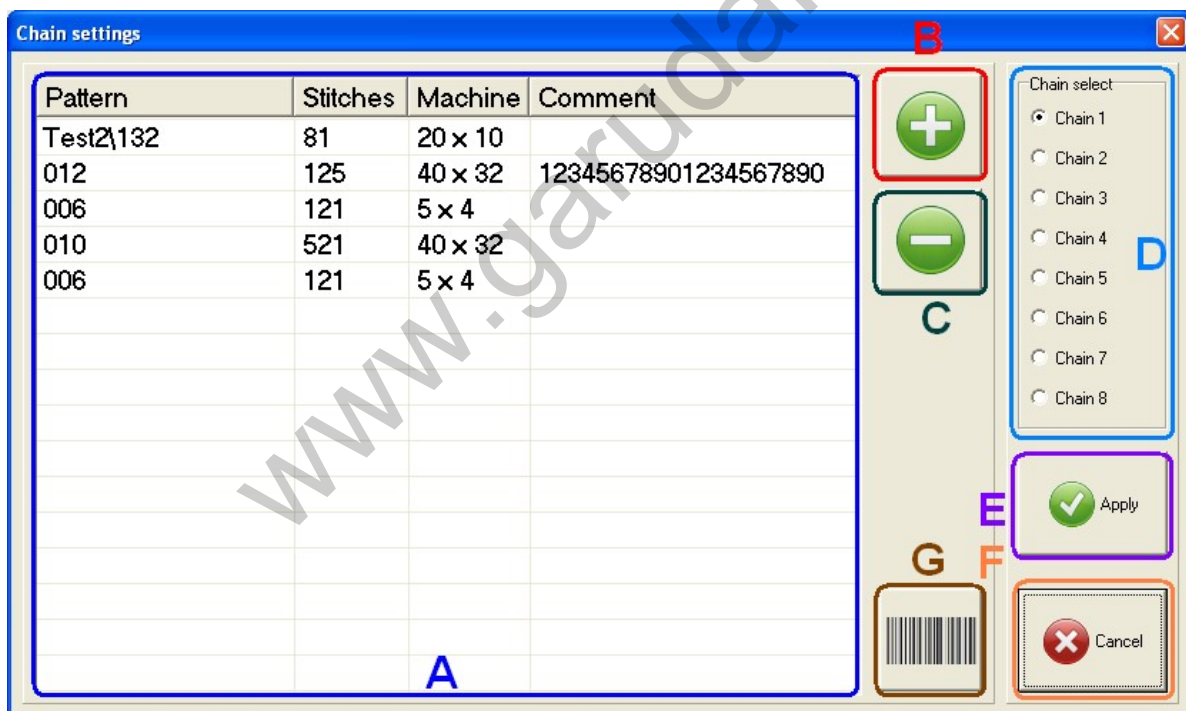
Picture 5: Pattern chaining window

    A – List of patterns in current chain
    B – Add pattern to current chain
    C – Delete selected pattern from current chain
    D – List of chains with patterns
    E – Save and start current chain
    F – Close window without chaining
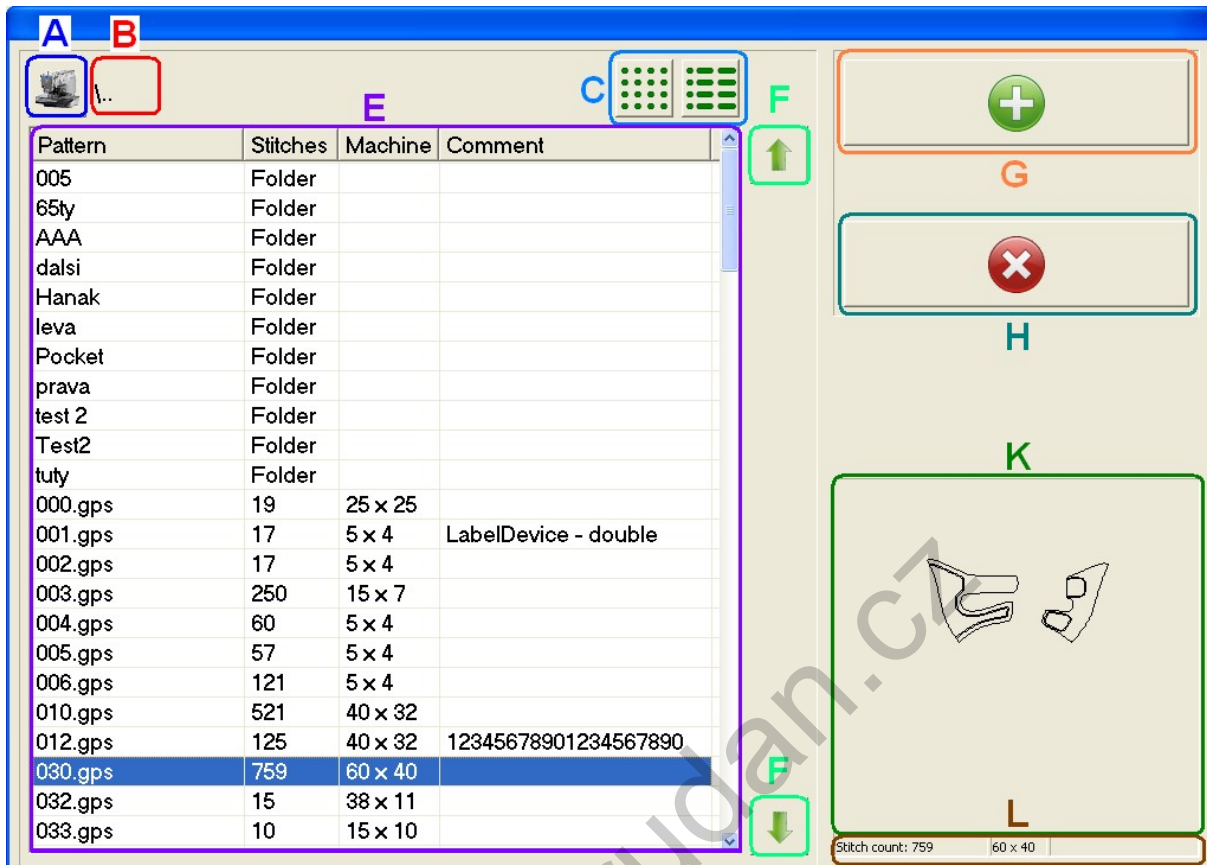
Picture 6: Window for add pattern to chain

A – Switch for selection of patterns list between machine and USB pen drive
B – Name of current folder ("\.." is root folder)
C – Switch between showing name of patterns and name of patterns with details in list
E – List of patterns
F – Arrows to quick find a pattern
G – Add selected pattern to chaining list
H – Open pattern by barcode
K – Preview of selected pattern
L – Details of selected pattern

4.3 Pattern chaining in style numbers:

Pattern chaining is set by pressing the button F on picture 3 during selection of existing pattern (picture 3). It is necessary to define a list of patterns to be chained in the chart A by keyboard B on picture 7. Maximum number of chained patterns is 16 and it is only possible to use patterns with name composed by 3 consecutive numbers. There can be saved in the machine memory up to 8 lists of patterns for chaining at the same time. Selection of chain is made in section C on picture 7 and is confirmed by pushing the button *Apply* (D on picture 7).
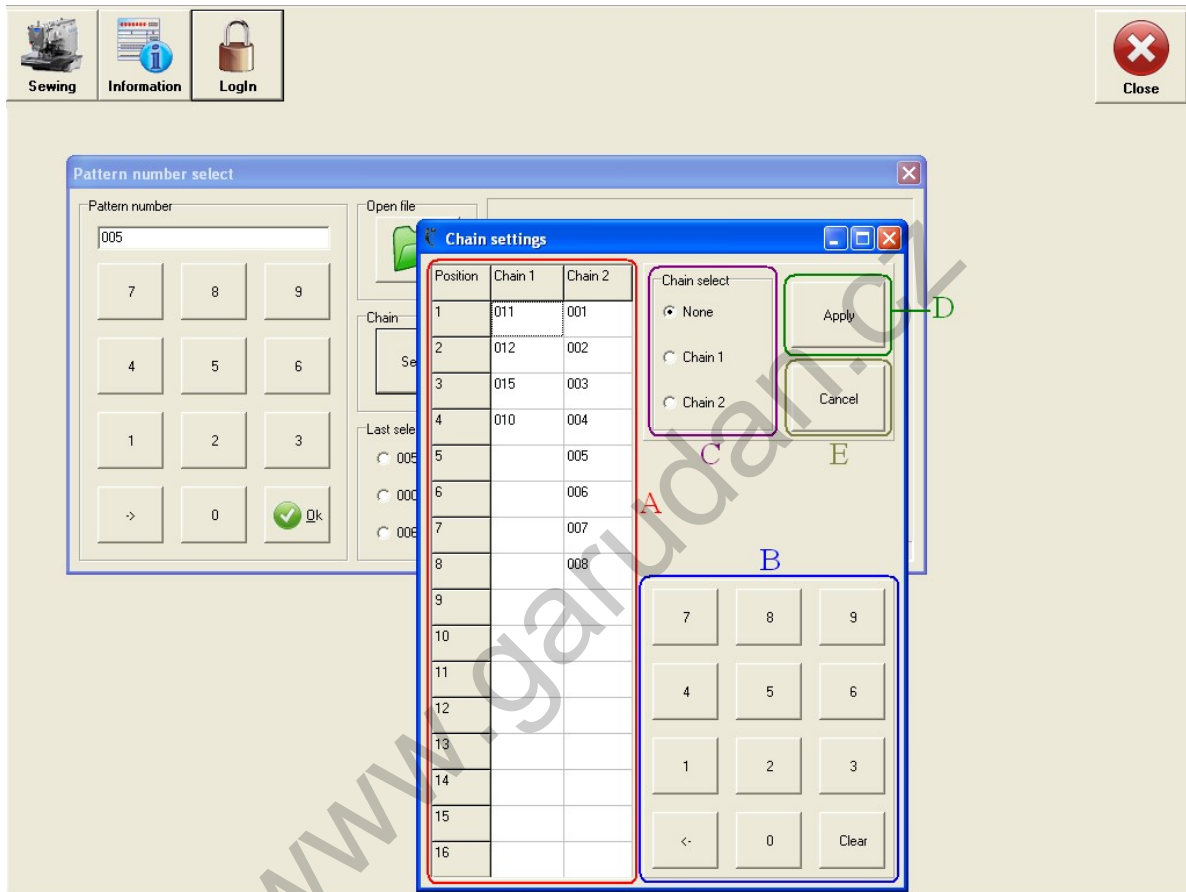
Picture 7: Screen for setting of pattern chaining

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4.4 Setting of continuous mode:

This mode can only be used for firmware version 0.25 and higher. Continuous mode is characterized by automatic start of sewing of the same pattern after previous sewing of this pattern has been finished, without necessity of pushing either the pedal or SEWING START button. Pause between the two operations can be set within the range of 0.1 to 320 sec. This mode is mostly used for operations where the feeding frame consists of more pieces, each of which can be removed and replaced after being sewn without necessity of lifting the feeding frame. However, scope of use of this function is much broader.

Continuous mode is activated by pushing the button *Continue* (A – picture 8) on the screen for sewing. Window B will appear (see picture 8). Red color of circle C indicates deactivation of continuous mode, green color stands for activated continuous mode.

Activation of continuous mode is made by pushing the button *On/Off* (D - picture 8). In next window, it is possible to set time gap between two operations within the range 0.1- 320 sec. While this mode is activated, red color note Continuous running is being displayed on the screen (F - picture 8).

Deactivation of continuous mode is made by pushing the button *On/Off* (D - picture 8) and by setting values for time gap in next window to zero. By simply pushing the button *Close* (E - picture 8) or cross in the upper right corner, function of continuous mode is not deactivated.
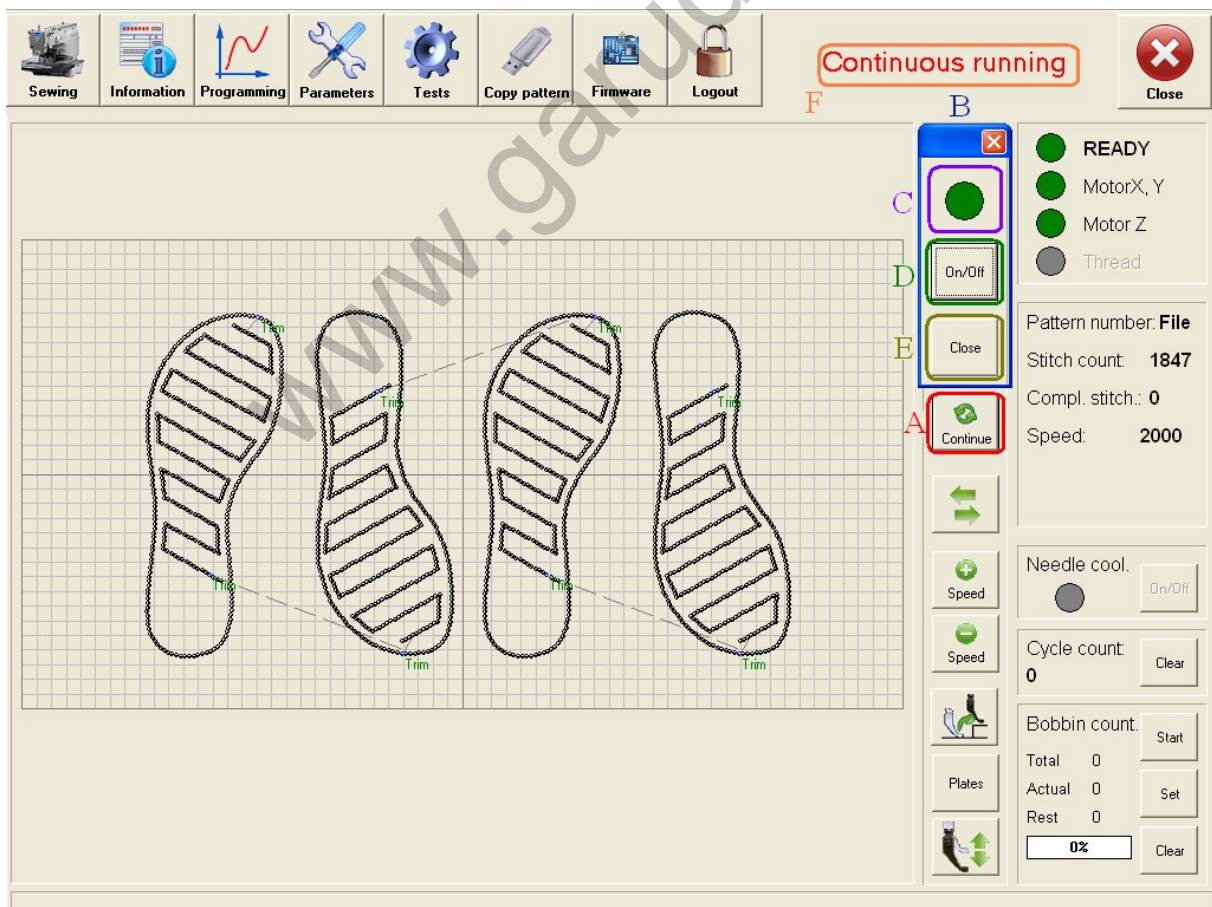
Picture 8: Screen for setting of continuous mode

5.4 Stepping in the pattern:

Stepping in the pattern enables start of sewing from other than starting point of the sewing operation. This function is mostly used if the pattern consists of more sewing sections and operator needs to sew only one of these sections or in case it is necessary to repair (sew repeatedly) only part of the pattern.

Setting screen for stepping is opened after pressing the button A (see picture 9). Menu offers possibility to make single steps forward (C – picture 9) or backwards (B – picture 9). Setting screen can be closed by pushing the button *Close* (D – picture 9). Stepping can be performed in single stitches by pushing the button *Stitch*, in 5 stitches by pushing the button *5 stitches*. By pushing the button *Jump* start of sewing can be moved to the beginning of next sewing section distinguished by jump and by pushing the button *Trim* start of sewing will be moved to the end of current section closed by trimming.
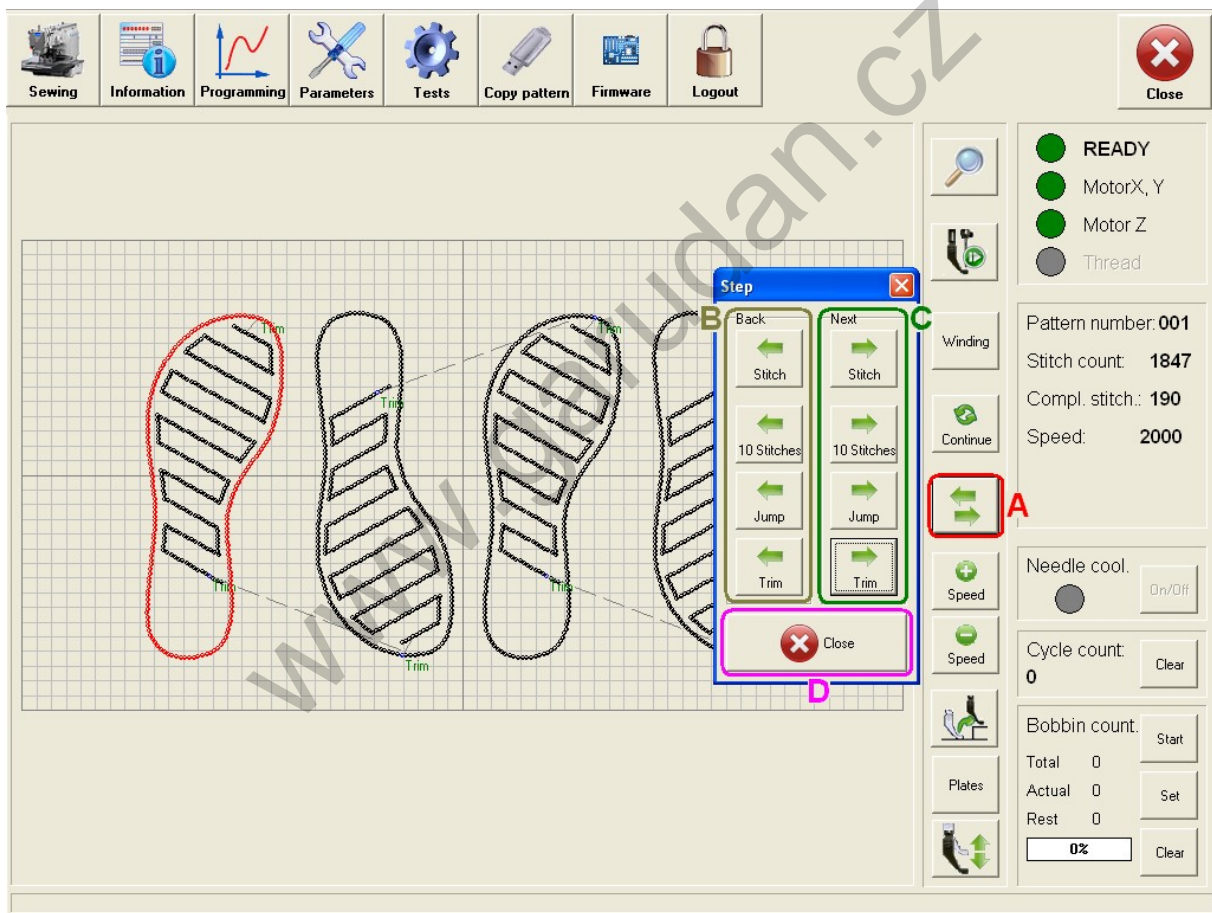
Picture 9: Screen for setting function of stepping

5. MONITORING OF LOWER BOBBIN

For this function we have two ways: 1. we don´t know the number of patterns which we need to sew at full bobbin and 2. we know the number of patterns which we need to sew at full bobbin.

We don´t know the number of patterns

a) insert full bobbin in the bobbin case of the hook
b) press key *Start* – the key automatically changes to *Stop*
c) sew the patterns and see the amount of the counter (*Actual*) and wait till the bobbin is empty
d) press key *Stop*
e) value from *Actual* have been replaced by *Total* minus 1
f) now replace the bobbin and you can sew
g) at sewing you can see increased number of sewn patterns at current bobbin (*Actual*) and also you see decreased value of rest of patterns (*Rest*).
h) when the value *Rest* is 0, the value *Actual* is equal with *Total*. The machine is blocked and you can see message about empty bobbin. Press key *Ok*.
i) by pressing *Ok* you set monitoring of lower bobbin again and continue

We know the number of patterns

1. insert full bobbin in the bobbin case of the hook
2. press key *Set* and set the number of patterns which we are able to sew at full bobbin. Confirm by pressing *Ok*.
3. adjusted value was replaced by value *Total*.
4. sew and you can see increased number of sewn patterns at current bobbin (*Actual*) and also you see decreased value of rest of patterns (*Rest*)
5. when the value *Rest* is 0, the value *Actual* is equal with *Total*. The machine is blocked and you can see message about empty bobbin. Press key *Ok*.
6. by pressing *Ok* you set monitoring of lower bobbin again and continue

Iterative setting of monitoring you can make anytime by pressing key *Clear*.

By pressing key *Set* you can change the value *Total*.

By pressing key *Set* and changing the value *Total* at 0 you turn off the monitoring.

6. MAIN ICONS

These icons are used for basic commands. These icons allow changeover between individual modes of machine (sewing, editing, testing…). The machine is always in general mode after start up of machine and it only allows opening and sewing created patterns and showing information about machine. Reasonable icons you can see in the picture 10.

Picture 10: Main icons in general mode

Besides the general mode there is also service mode. This mode extends possibilities of working. These possibilities are:
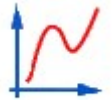
- creation and editing of patterns

- saving of patterns to the machine

- settings the parameters of machine

- testing interface

- interface for changing the firmware of control board

Picture 11: Main icons in service mode

For entering service mode press the icon A7 – **Log in**. After that you can see the screen where you have to set the access code (default value is **110585** for older version of software or **67976** for new version of software) and confirm by pressing OK. If you put the correct code, selection of main icons will be extended by icons A3-A6. Log out from service mode is done by pressing icon A8 – **Log out**. Value of service mode code is possible set by parameter 50 Mechanic password. Value of pattern programming code is possible set by parameter 59 Edit password (default value is 110585).

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6.1 Description of main icons:

Button	Indication	Description
Sewing	A1	Switch over to mode of sewing
Information	A2	Information about machine (type, serial No.,…)
Programming	A3	Switch over to mode of creating pattern (possible to use only in service mode)
Parameters	A4	Settings of machine (possible to use only in service mode)
Tests	A5	Test of machine (possible to use only in service mode)
Firmware	A6	Information about firmware with possibility of update
Log in	A7	Log in to service mode
Log out	A8	Log out from service mode
Copy pattern	A9	Copying the patterns from USB pen drive to the machine and from the machine to USB pen drive.
Close	A10	Closing of the software and saving of machine setting.
Erase bar.	A11	Barcode library – It is possible erase pair barcode + pattern number. Barcode reader is optional device.

7. DESCRIPTION OF SCREEN FOR CREATING PATTERNS AND BUTTONS
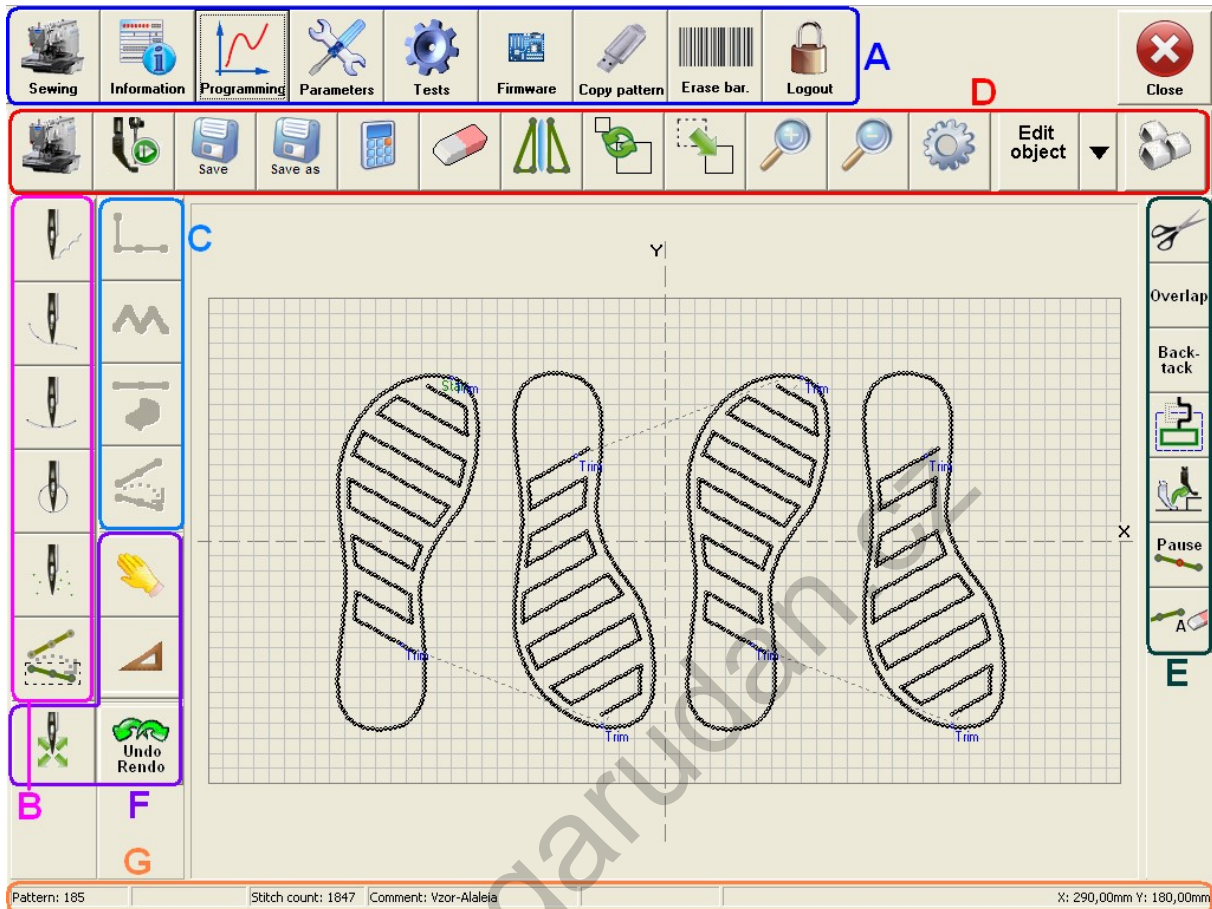
Picture 12 Pattern programming interface

Main programming screen consists of following icons:

- A - Main icons – these are for basic operations with files
- B - Icons of curves – by these you can select required type (shape) of inserted data (line, curve …)
- C - Sewing icons – by these you can select required type of stitch (straight stitch, zigzag stitch)
- D - Tool icons – setting of editor and operations with all area
- E - Special icons – special commands (trimming, backtacking …)
- F - Other icons – ruler, route mode …
- G - Information bar – Bar with pattern number, stitch count, comment, distance, in route mode there is actual position (**X** and **Y**), distance between actual position and lasted added point (**dX** and **dY**) and distance between current position and first point of object (**dX0** and **dY0**)

For editing or creation of the pattern it is necessary to be in service mode (chapter 6).

7.1 Icons of curves:

By these icons you select required type (shape) of inserted data (line, curve …).

Button	Indication	Description
	B1	LINE
	B2	CURVE
	B3	ARC – arc is made by inserting 3 points
	B4	CIRCLE – circle is made by inserting 3 points (each circle is separate object)
	B5	SINGLE – inserting of single stitches
	B6	Finish object – by this function you finish creating object. this function can calculate number of stitches

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7.2 Sewing icons:
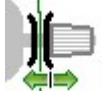
Button	Indication	Description
	C1	NORMAL stitch
	C2	ZIG-ZAG stitch
	C3	REVERSE stitch
	C4	JUMP – part of object without sewing. this you can make only in part which is marked as LINE

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7.3 Tool icons:

Button	Indication	Description
	D1	Simulation of sewing the pattern
Save	D2	Save the pattern – you can´t change the name of pattern
Save as	D3	Save as – you can change the name of pattern
	D4	Recalculate stitches
	D5	Clear stitches
	D6	Mirror – add symmetric data to pattern based on axis X or Y or last point
	D7	Resize the pattern – sewing are will be the same, only the pattern will be resized
	D8	Move
	D9	Zoom
	D10	Zoom

⚙	D11	Settings of editor and parameters of pattern – chapter 8
Edit object ▾	D12	Edit the pattern - you can edit finished part of pattern, down arrow is for choice of object, sub object, point or stitch modification – chapter 7.6. to 7.9
	D13	By this key you switch over to inserting points by the help of coordinates
	D14	By this key you switch over to inserting points by the help of touch screen
	D15	Picture on background, chapter 10.8.
	D16	Import data from GPS or DXF files, chapter 10.9.
	D17	Open current pattern for sewing
	D18	Rotation with pattern by angle
	D19	Lock automatic calculation of stitches on curves and lines. Disable automatic calculation of stitches in pattern programming process on edited (changed) curves and lines.
	D20	Unlock automatic calculation of stitches on curves and lines in pattern programming process.

7.4 Special icons:

Button	Indication	Description
	E1	Trim – add command for trim
	E2	Clamp – add command for rotation of rotary frame
Overlap	E3	Overlap
Back Tack	E4	Back-Tack
	E5	PP device – the command for change the height of presser foot
Pause	E6	Pause – by this key you can stop the machine at selected point
A	E7	Order delete – delete all commands (trimming)
	E8	Trim and needle exchange – add command for trim and needle exchange – color of sewing
	E9	Auxiliary tensioner – the command for activate or deactivate auxiliary tensioner (it is necessary switch on in parameter 51)
Signal A	E10	Add command for activate or deactivate Signal A. The signal is for some additional device in sewing process. It is necessary activate by parameter **33 Laser** to value **7 Signal A**.
Signal B	E11	Add command for activate or deactivate Signal B. The signal is for some additional device in sewing process. It is necessary activate by parameter **43 Winding counter** to value **3 Signal B**.

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7.5 Other icons:

Button	Indication	Description
	F1	This function is for moving with screen.
	F2	Ruler – this function is for definition of distances
	F3	Creating patterns by the help of some model – movement with motors, there is current position (**X** and **Y**), distance between current position and last added point (**dX** and **dY**) and distance between current position and first point of object (**dX0** and **dY0**) on information bar.
Undo Rendo	F4	By this function you can make one step back or forward

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7.6 Icons for editing the object:

It is necessary to click on arrow button on left side of button D12 and choose line **Object**.
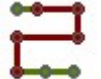
Button	Indication	Description
	G1	By this function you can move with selected object. Turning OFF this function is done by pressing again on this key.
	G2	By this function you can move with selected object by arrows.
	G3	Delete selected object.
	G4	Add moved object with the same shape as original object.
	G5	Add symmetric object based on axis X or Y or last point
	G6	Change the sequence of sewing separate objects
	G7	Change the direction of sewing (start point)
	G8	Change the size of selected object
Integrate object	G9	By this you can merge two objects into one object.
	G10	Display information about object – order number, number of parts of object, sewing speed etc.
	G11	Close menu. There is also possibility of selection and editing objects
	G12	Rotate – rotation of selected object by angle

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Button	Indication	Description
Add copy	G13	Add copy of selected object with offset
	G14	Switch the selection to the previous object (by sewing sequence)
	G15	Switch the selection to the next object (by sewing sequence)

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7.7 Icons for editing the subobject:

It is necessary click on arrow button on left side of button D12 and chooses line **Subobject**.

Button	Indication	Description
	H1	Divide subobject to two parts - make new
	H2	Move with subobject based on start point. Turning OFF of this function is done by pressing again on this key.
	H3	Move with selected subobject by arrows.
	H4	Delete selected subobject.
	H5	Change the sequence of subobject.
	H6	Change the direction of sewing the subobject.
	H7	Display information about subobject – order number, number of parts of object, sewing speed etc.
	H8	Close menu. There is also possibility of selection and editing subobject.
	H9	Selection multiple subobject in one step for editing
	H10	Switch the selection to the previous subobject (by sewing sequence)
	H11	Switch the selection to the next subobject (by sewing sequence)

7.8 Icons for editing the point:

It is necessary click on arrow button on left side of button D12 and chooses line **Point**.

Button	Indication	Description
	J1	Move with selected point. Turning OFF this function is done by pressing again on this key.
	J2	Move with selected point by arrows.
	J3	Delete selected point.
	J4	In selected point you can divide object in two objects.
	J5	At closed objects you can mark the point and this will be start point.
	J6	Close menu. There is also possibility of selection and editing points.
	J7	Switch the selection to the previous point (by sewing sequence)
	J8	Switch the selection to the next point (by sewing sequence)

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7.9 Icons for editing the stitch:

It is necessary click on arrow button on left side of button D12 and chooses line **Stitch**.

Button	Indication	Description
	K1	Add stitches behind the selected point. Turning OFF of this function is done by pressing again on this key.
	K2	Move with selected stitch. Turning OFF of this function is done by next press on this key.
	K3	Move with selected stitch by arrows.
	K4	Delete selected stitch.
	K5	Display information about selected stitch – order number, number of parts of object, sewing speed etc.
	K6	Move of the command to other stitch (pause etc.)
	K7	Close menu. There is also possibility of selection and editing stitches.
	K8	Selection multiple stitches in one step for editing
	K9	Switch the selection to the previous stitch(by sewing sequence)
	K10	Switch the selection to the next stitch(by sewing sequence)

8. SETTINGS

Settings are showed by pressing icon D11 (picture 13). This setting is also shown at creating the new pattern.
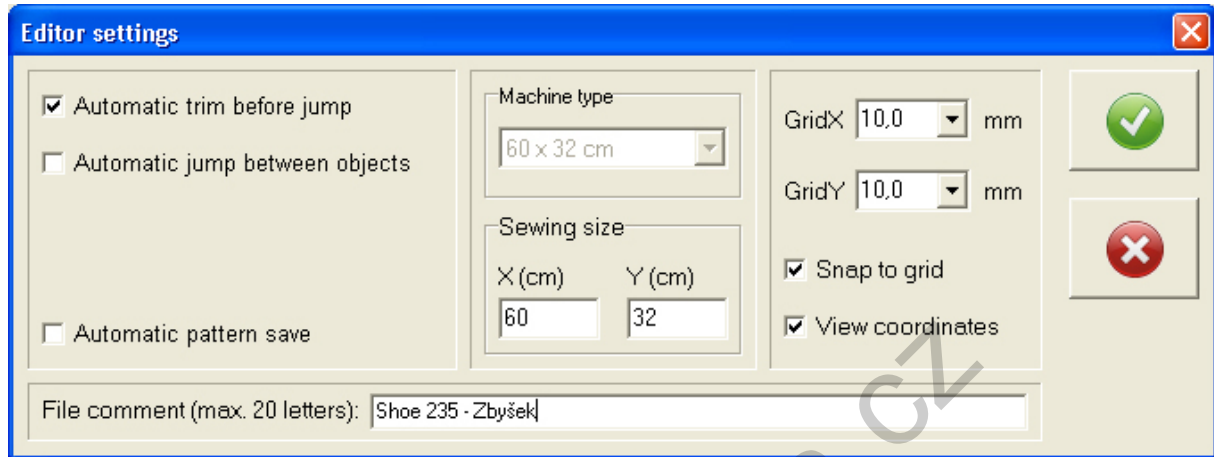
Picture 13 Pattern programming interface settings

Automatic trim before jump – If it is checked, editor will add trim before every JUMP.

Automatic jump between objects – If it is checked, editor will add jump between objects.

Sewing size – You can set smaller size of sewing area.

Snap to grid – Sewing data will be snap to grid in creating a pattern.

View coordinates – Show coordinates in grid.

File comment (20 characters) – You can set short comment of pattern. For example it can be name of customer, size of shoe or model name.

9. OPERATIONS WITH PATTERNS

Operation with pattern is possible only in service mode – chapter 6

9.1 Creating the new patter:

While at picture 14 press icon A3 for opening window with patterns for programming. Write name of pattern which you want to create into array **Pattern number** and confirm by pressing icon **OK**. Window **Editor setting** is opened and we can set parameters (chapter 9 picture 13). Into array **File comment** you can write comments about file (20 characters) and confirm by pressing green icon **OK**.

If parameter 58 Style of pattern open is set to 1 Characters, you will create new pattern by button **New** M (on picture 16). Name of new pattern will be text from box D on picture 16. If box D is empty, window for name setting will be showed.

9.2 Opening of saved pattern for further editing (software to version 1.60):

Press icon of **Programming** (A3) and then screen as shown in picture 11 appears. Press **Open file** (B) to open directory **pattern**. All saved patterns are shown in new window (C). Press any name of pattern and information about pattern is shown (D) - number of stitches, sewing area and preview. Press **Open** (E).

Or you can press **Programming** (A3) and choose pattern by pattern number, similar way as in chapter 3.
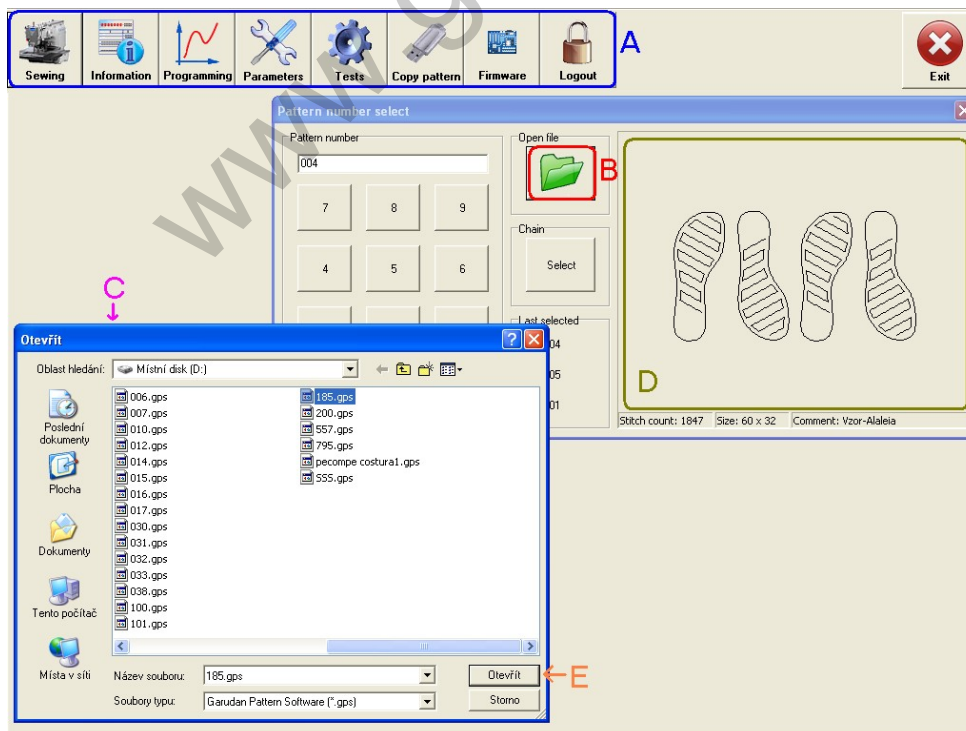
Picture 14: Pattern opening

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9.3 Opening of saved pattern for further editing (software from version 2.00):

Parameter 58 Style of pattern open is set to 0 Numbers. Press icon of **Programming** A3 and then appears screen for selection of pattern from list of patterns as shown in picture 15. Select pattern or directory from table B and press *Open file* F to open the pattern or to open (change) directory. You can also double click on pattern name in directory from table B for opening the pattern. Current pattern is shown in window A.

Or you can press **Programming** A3 and choose pattern by pattern number or list of recently used patterns, in similar way as in selection of pattern for sewing described in chapter 4.

Name of the selected directory or pattern is marked by E. Overview of the selected pattern with the basic information and parameters you can find under M. Press G for deleting selected pattern or empty directory.
For making new directory press line H to display the keyboard and after pressing H it for the second time you can write in the line. You can write name of new folder through keyboard and create new directory by pressing K. You can't make two directories of identical name in one file. Press J for making new pattern.
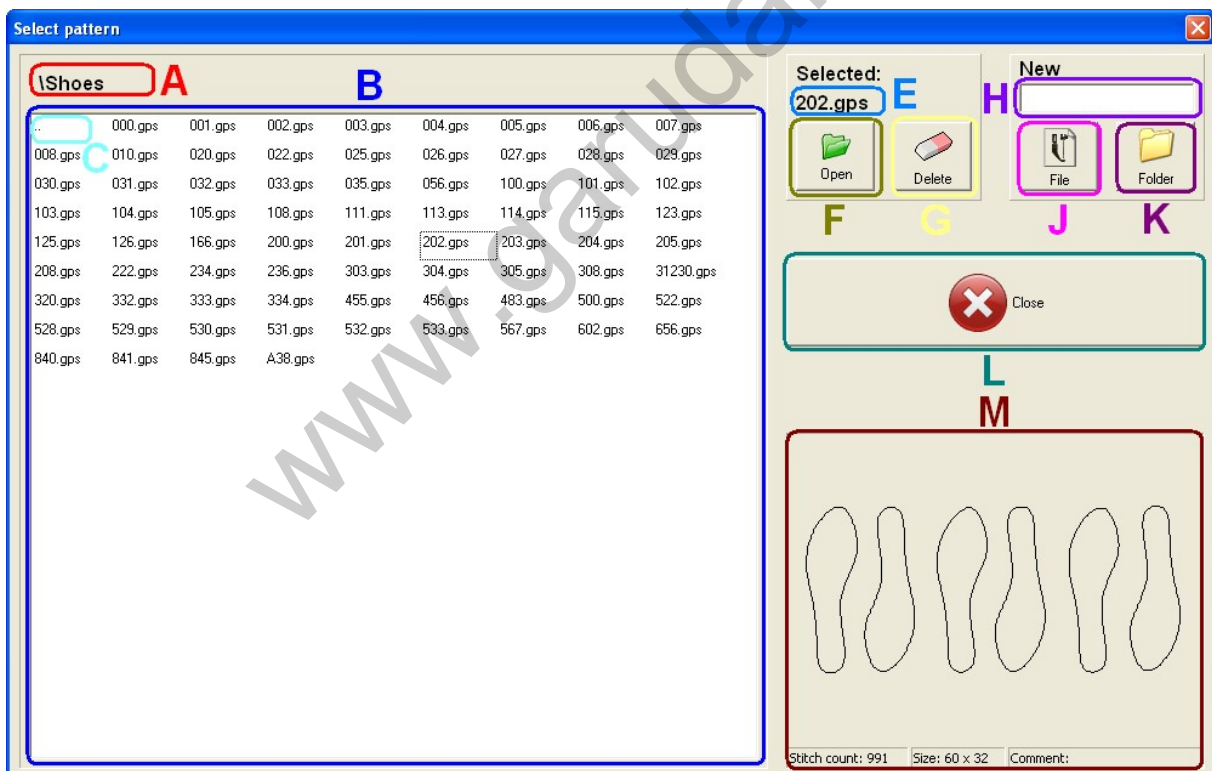
Picture 15: List of saved patterns

If parameter 58 Style of pattern open is set to 1 Characters, you will see picture 16 to open the pattern. All possible patterns and folders with patterns are in table E on picture 16. Buttons F are to scroll through patterns and folders. It is possible to switch between the styles of table E by buttons C. You can select pattern by click on pattern name in table E. You can open folder or pattern by selection of name by click and press button *Open* (G on picture 16). Name of current folder is in line B on picture 2. Folder „\..“ means root directory. If you want go to lower folder select „..“ in list E, click on button *Open* (G on picture 16). Button A can switch to USB pen drive and back to sewing machine. Name of actual selected pattern is in line D. Button **New** M open or create pattern with name from line D. Button **New** N open or create folder with name from line D. If line D is empty, you will see window with keyboard for name setting. Selected folder or pattern is possible delete by button **Delete** P. Preview of selected pattern is in panel K and pattern details are in box L.
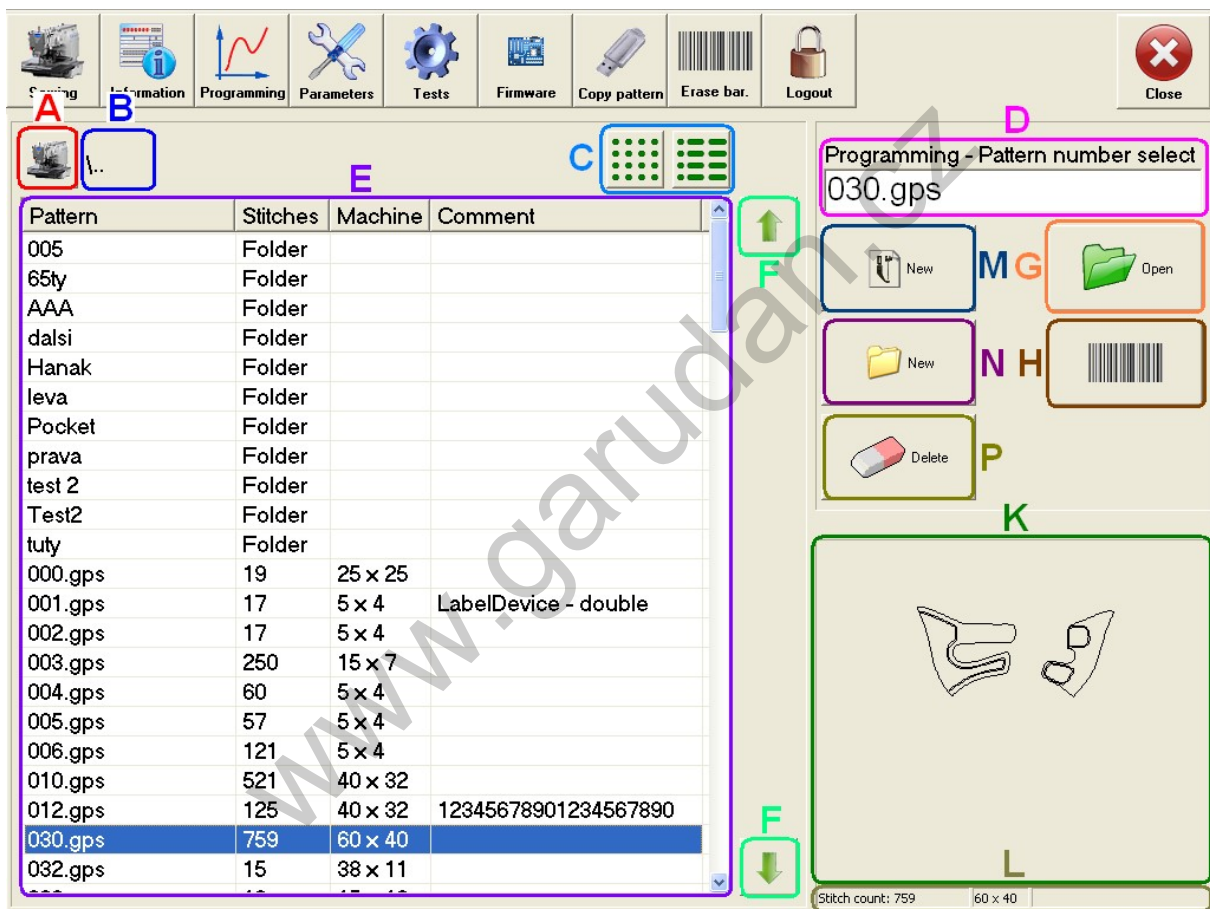
Picture 16: List of patterns

9.4 Saving pattern:

Modified pattern can be saved by pressing icon D2 (pattern will be overwritten by new data). If you want to change the name press icon D3 and enter new number (3 characters).

9.5 Deleting pattern:

Any pattern can be deleted by following sequence of operations. Firstly, open the pattern you want to delete. Push the button *Clear stitches* D5 and then push the button *Save* D2. By saving the empty pattern, this pattern will be deleted.

9.6 Copying pattern from and to SUB pen drive:

Před kopírováním je nutné připojit USB flash disk do USB zásuvky v přední části šicího stroje. Klikneme na tlačítko *Copy pattern/USB kopírování* A9 tím se zobrazí obrazovka pro kopírování vzorů (obr. 17). V případě, že se zobrazí chybové hlášení o tom, že USB disk nebyl detekován, je třeba vyčkat několik sekund a znovu kliknout na tlačítko *Copy pattern/USB kopírování* A9.

Before you start to copy any pattern it is necessary to connect USB pen drive to USB port in front part of the sewing machine. Push the button *Copy pattern* A9. Screen for copying patterns will be displayed (pic. 17). If there appears error message about failure in detection of USB pen drive, it is necessary to wait a few seconds and then press again the button *Copy pattern* A9.

Copying from sewing machine to USB pen drive: Existing patterns saved in the machine are displayed in window C (see pic. 17). Choose the file you want to copy in window C (it must be in blue frame just like the file 002.gps on pic. 17), then choose folder on USB pen drive to which you want to copy the file in window E and press button *From machine to pen drive* A (pic. 17). Selected file will be copied to USB pen drive. In window D you can see the new file was added to USB pen drive.

Copying from USB pen drive to sewing machine: Window E (pic. 17) displays directory structure of USB flash disc. Listing of the items can be done by double click on the requested directory. Files included in the folder are displayed in window D. Choose folder with file you want to copy in window E, click on this file in window D (it must be in blue frame) and push the button *From pen drive to machine* B (pic. 17). Selected file will be copied to machine. In window C you can see the new file was added to the machine.

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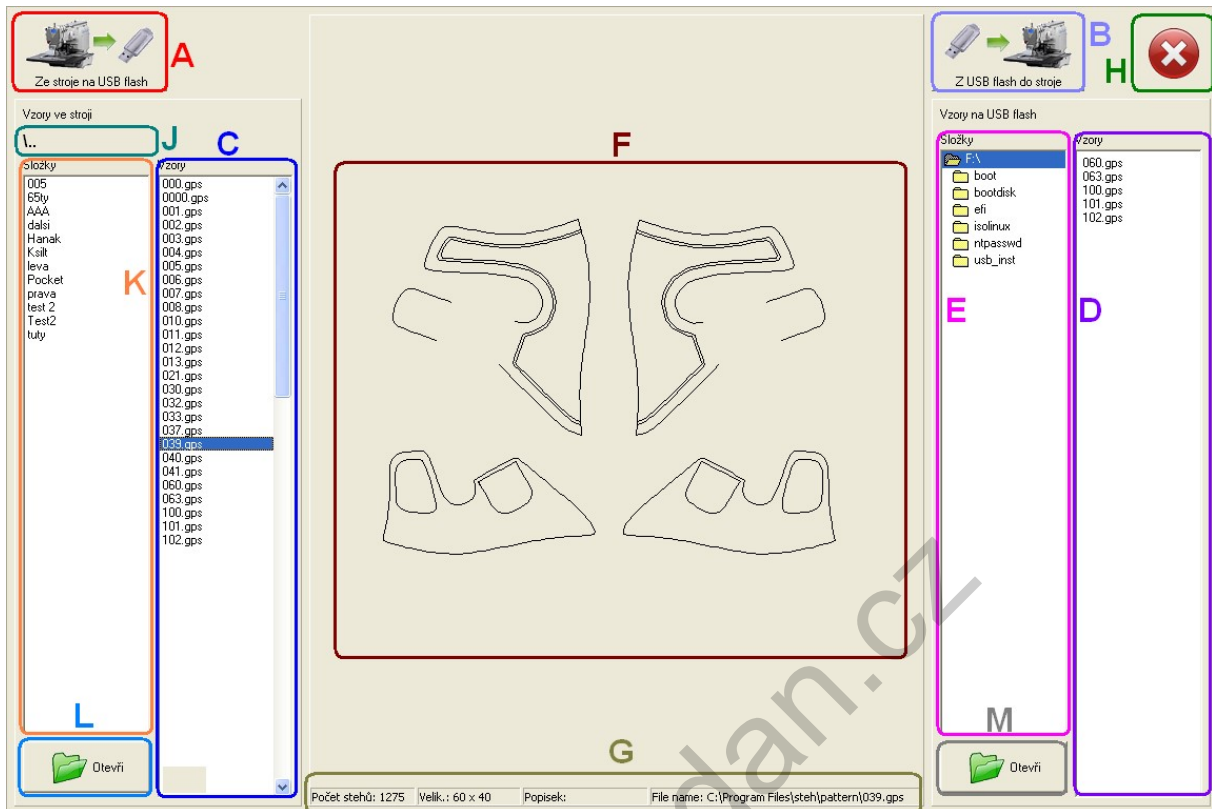
Obr. 17: Obrazovka kopírování vzorů

A – Button for copying from machine to USB pen drive
B – Button for copying from USB pen drive to machine
C – Window with list of files saved in machine
D – Window with list of files in respective folders saved on USB flash disc
E – Directory structure of USB flash disc
F – Preview of selected pattern
G – Information about selected pattern
H – Button for closing the screen for copying patterns
J – Current folder in machine (path to folder, „\..“ is root folder)
K – List of folders in current folder
L – Button for open selected folder in machine
M – Button for open selected folder in USB pen drive

10.CREATING PATTERN

10.1 Insertion of curves and data:

You can create the pattern by the help of lines (icon B1), curves (B2), arcs (B3), circles (B4) and stitches (B5). Into these you can insert straight stitch (icon C1) or zigzag stitch (C2).

At first select type of curve by pressing icon B1, B2, B3, B4 or B5. Then select type of stitch by pressing icon C1, C2 or C3. If you select straight stitch you have to set stitch length and sewing speed. If you select zigzag stitch you have to set stitch length, stitch width and sewing speed. After this you save zigzag stitch on the curve. If you select reverse stitch you have to set number of repeating and type of stitch (line or zigzag).

Now press on the place where you want to start sewing. By next pressing places (points) you create the pattern. You can sew lines, curves, arcs or circles. If you don´t finish the object by pressing icon B6, start point is always in the place where previous object was finished.

10.2 Insertion (deletion) of trimming function:

The trim you insert at the end of object (subobject) by pressing icon E1. Firstly, select required object. Press icon D12 and select object by pressing on it (the object will turn red). Then press icon E1 (trim). In place of trim there will be written TRIM. Trim can be inserted automatically at the end of object (by pressing icon B6). This function you have to set in settings (chapter 8).

Trimming function can be deleted by pressing icon E7. Select the object (subobject) where the trim is activated and press icon E7. **Attention:** this function deletes all special commands (backtack, climbing device, etc.). If you require maintaining these functions you have to set them again.

10.3 Insertion (deletion) of command for setting of presser foot height (for series GPS/G):

Command for setting of presser foot height can only be used on machines equipped with this optional device (PP). Pneumatic equipment enables machine to change height of its presser foot in defined position. Thus operator can sew parts of one pattern with various thicknesses of material smoothly and without any interruption in positions where the thickness changes. It is possible to set two different heights and switch between them by the help of command saved in the pattern.

For insertion of command for change of presser foot height, proceed according to following instructions: open list for selection by pressing arrow next to D12 and choose item *Point*. This way list of individual points is activated. Click the point for change of presser foot height on the screen. Selected point will turn red. Then click on E5 to connect the command with the selected point. There opens window where you choose the point at which height of presser foot should go *Up* or *Down*. After confirmation you can see selected point marked with inscription PP-Up or PP-Down.

Deletion of command is realized the same way as deletion of command for trimming – by the button E7 (see chapter 10.2).

10.4 Insertion (deletion of command for setting of presser foot height (for series GPS/H):

Command for setting of presser foot height can be used on all models of series GPS/H. Presser foot mechanism controlled by step motor enables machine to change height of its presser foot in defined position. The operator can sew parts of one pattern with various thicknesses of material smoothly and without any interruption in positions where the thickness changes. It is possible to programmed precise steps and corrections in the height of presser foot for any selected position during sewing, also in correlation with the machine speed.

For insertion of command for change of presser foot height, proceed according to following instructions: open list for selection by pressing arrow next to D12 and choose item **Point**. This way list of individual points is activated. Click the point for change of presser foot height on the screen. Selected point will turn red. Then click on E5 to connect the command with the selected point. Then the window is opened where you choose height of presser foot in mm. After confirmation you can see selected point marked with inscription PP + Up or PP-Down, indicating increase or decrease of presser foot height in mm.

Deletion of command is realized the same way as deletion of command for trimming – by the button E7 (see chapter 10.2) or by setting the change of presser foot height at 0.

10.5 Creating pattern in routing mode:

This mode is mostly used for patterns where we have template and know in advance exact sewing route. By the help of arrows we create a shape of sewing, gradually saving points of the pattern. Firstly, we choose type of sewing section by buttons B1 to B5 (line, curve, etc.), type of stitch by C1 to C4 (straight, zigzag etc.). By the button F3 we select mode of creating pattern by routing. In case the pattern is still empty, machine will move to the middle of sewing area (position 0;0). If any data have already been entered, machine will move to position of last stitch. In case we want to change type of sewing section or type of stitch it is necessary to close the window with arrows by the button *Close*, select required type of sewing and call out arrows again by the button F3.

Window for routing (picture 18) consists of arrows for movement of feed plate C, numeric keyboard for setting length of step A, keyboard for quick choice of length of step B and button *Add point*. Red point D indicates current position within the sewing area, black circle E indicates position of added point in the object. Coordinates F stand for following values: **X** and **Y** indicate current position, **dX** and **dY** indicate difference of value between current position and last added point, **dX0** and **dY0** indicate difference between current coordinates and initial point of the object.

Besides creating of patterns, routing mode can also be used for editing patterns or individual stitches. This function is described in chapters 10.6. and 10.7.
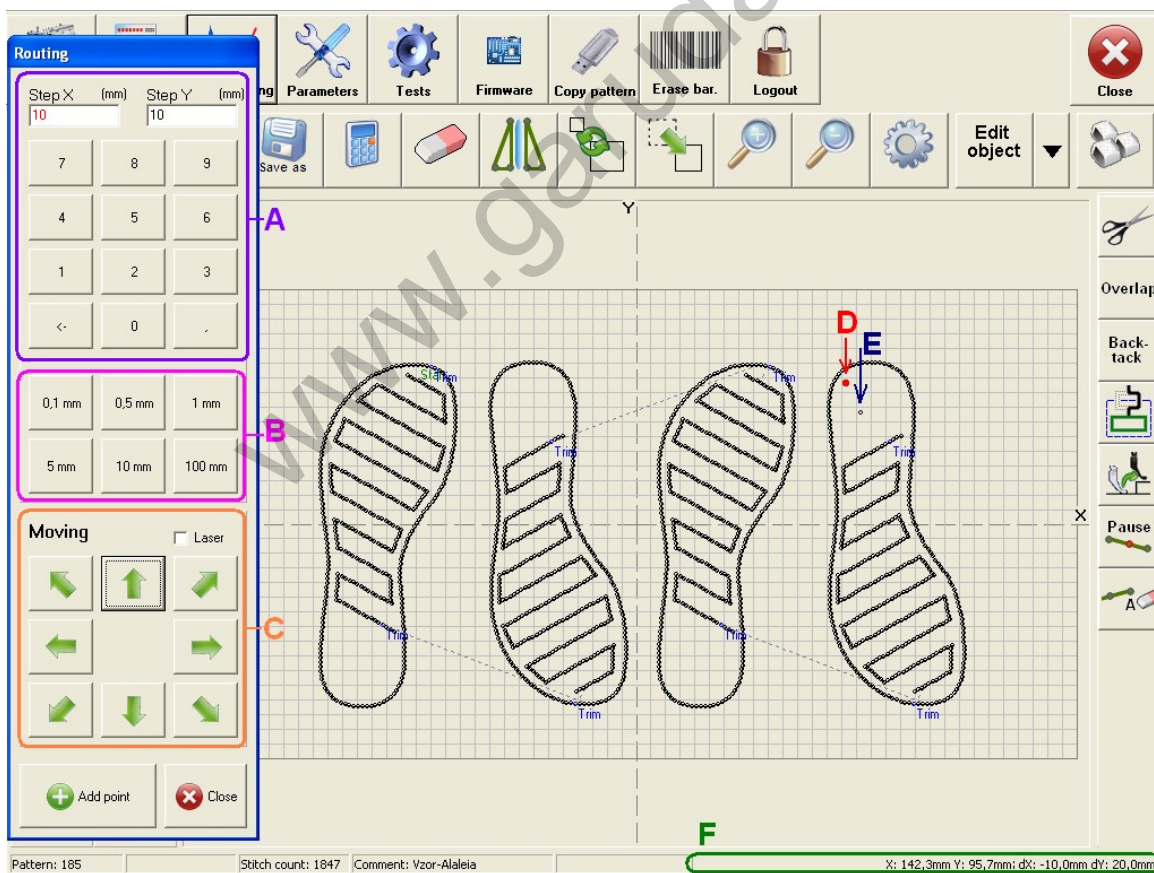
Picture 18: Screen for creating pattern in routing mode.

10.6 Editing of points in routing mode:

Editing of points in routing mode can be done by pushing down arrow of the button D12 and selecting the item **Point**. Next step is to click on routing mode (button F3) and screen for editing of points will appear – see pic. 15.

A – Switch between edited points – 1 point forward/backwards, 10 points forward/backwards, jump to next **and** jump to previous part

B – Add new point – new point is added next to selected point and exact position of th**e** point is chosen.

C – Move selected point – enables movement of selected point by arrows by defined length of step.

D – Setting of step length – active only during active movement of the point

E – Arrows for movement of point – active only during active movement of the point

F – Selected point – currently selected point is marked in red color

G – Command delete – delete commands on selected point (trim, backtack…)

H – Pause – The command to stop sewing at selected point

J – Auxiliary tensioner – The command for activates or deactivates auxiliary tensioner

K – Move and rotate selected object by two points

L – Move and rotate pattern (all objects) by two points

Close – used for closing window of stitch editing
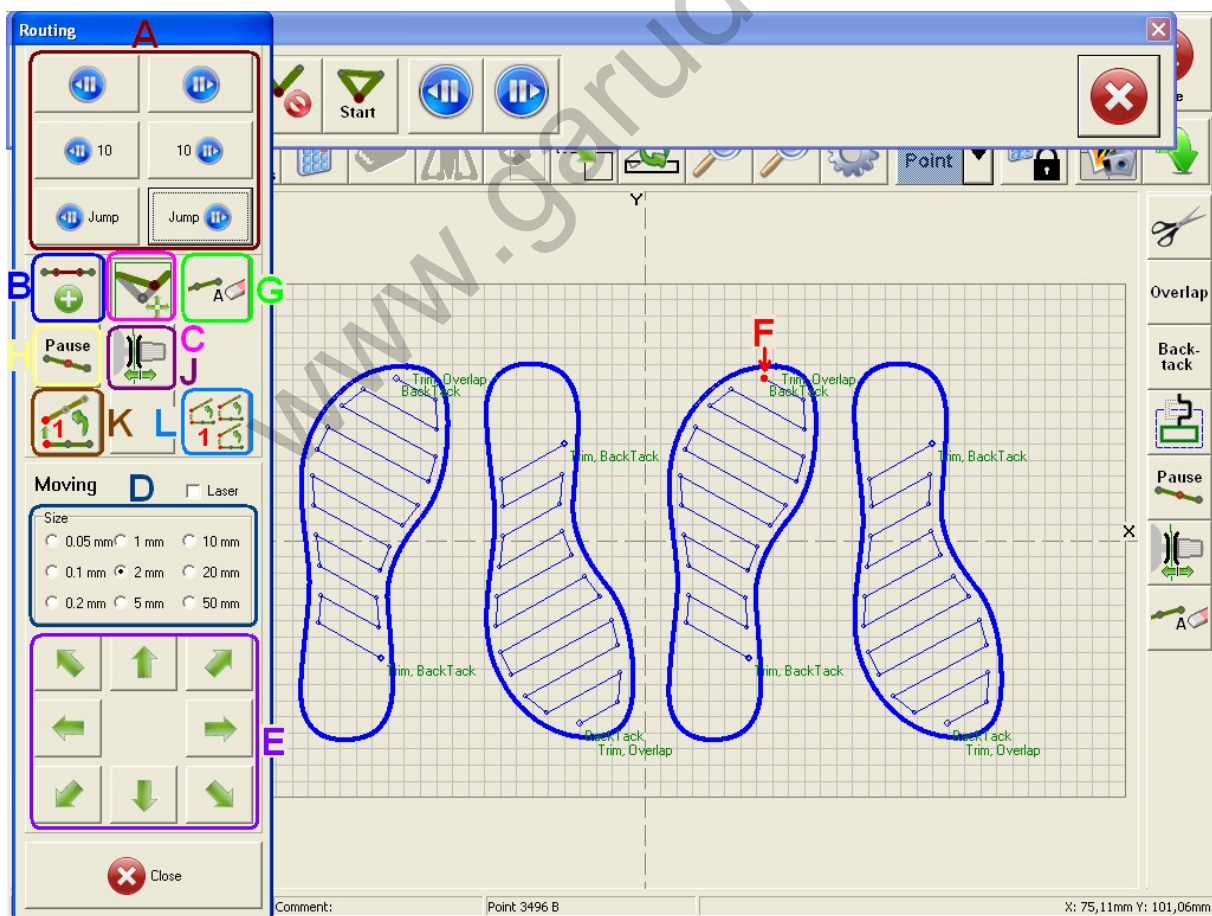
Picture 19: Editing of points in routing mode

10.7 Editing of stitches in routing mode:

For editing of stitches in routing mode it is necessary to click on the down arrow of button D12 and select the item *Stitch*. Next step is to click on routing mode (button F3) and screen for editing of stitch will appear – see pic. 16. If the object or its part is moved or deleted, source data of the pattern are re-calculated which will cancel all modifications performed during editing of stitches. For this reason it is recommended to edit stitches only at the end to make final adjustment of the whole pattern.

A – Switch between the stitches – 1 or 10 stitches forward and backwards or switch to following or previous JUMP

B – Addition of stitch – new stitch is added next to the selected stitch and automatically switches into moving mode so the operator can choose required position of the new stitch.

C – Movement of selected stitch – enables position change of selected stitch. This is done by direction arrows while length of step is defined.

D – Movement of special command – enables movement of command of inverting clamp, presser foot lift or pause code to another position in the pattern.

E – Adjustment of step length of stitch movement – active only during actual movement of the stitch

F – Direction arrows for movement of stitch – active only during actual movement of the stitch

G – Selected stitch – selected stitch is indicated by red and bold point

H – Pause – The command to stop sewing at selected stitch

J – The command for change the height of presser foot

K – Auxiliary tensioner – The command for activates or deactivates auxiliary tensioner

L – Command delete – delete commands on selected point (trim, backtack…)

M – Delete selected pattern
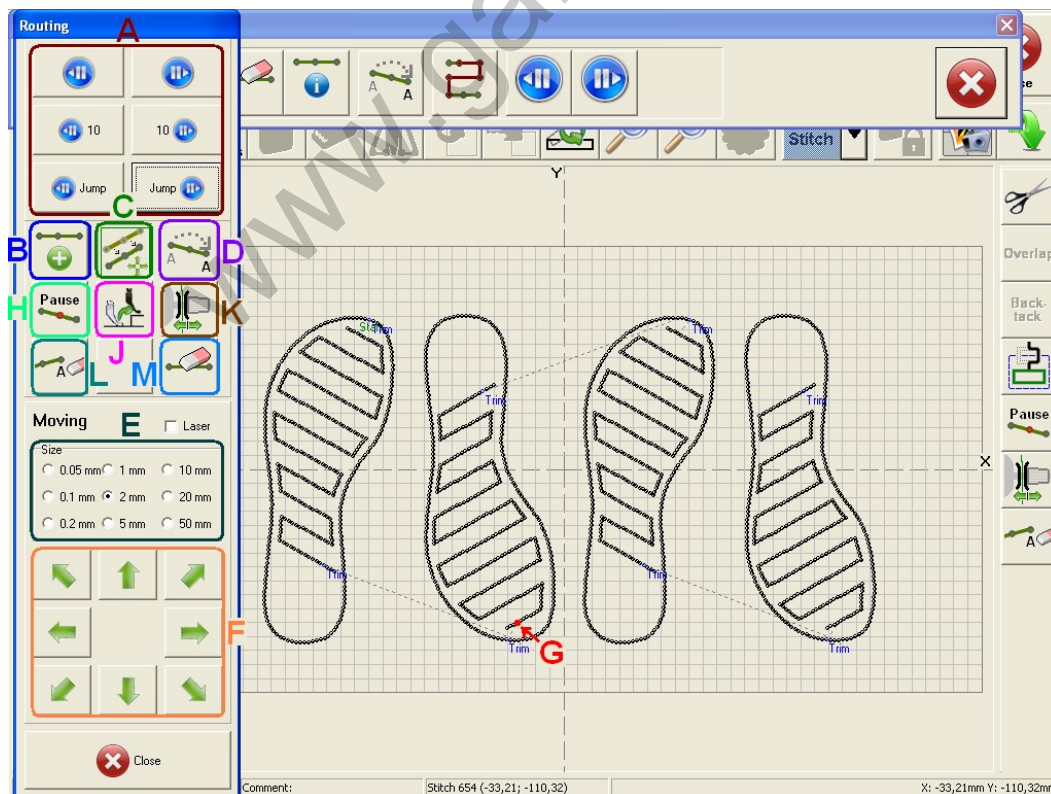
Picture 20: Editing of stitches in routing mode

10.8 Background picture:

Button D15 enables to display required picture (or photo) on the background of pattern editing process and create pattern by routing the sewing line of the picture. It is recommended to use this function with mouse and keyboard connected to the machine.
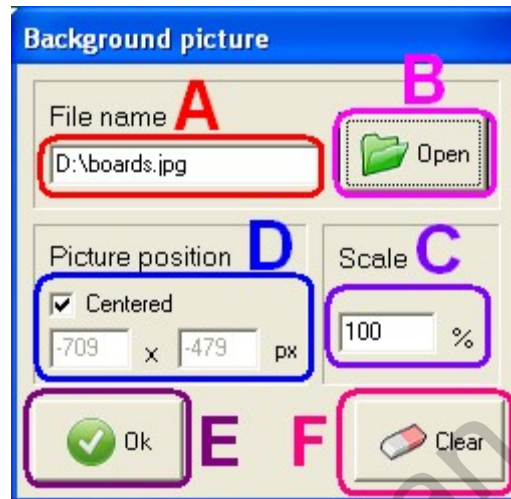
Picture 21: Window of setting background picture

A – Name and route of selected file with picture.
B – Selection of file with picture
C – Size of the picture in % for adaptation of the picture to sewing dimensions.
D – Changing of the picture position in the window
E – Confimation of picture selection and setting, it closes the window for setting of picture display
F – Cancel of picture selection and display

10.9 Direct import of DXF data to the machine:

USB enables direct import of DXF format (Autodesk Drawing Exchange Format) to the machine and its conversion to sewing data (curves). It is recommended to use this function mouse and keyboard connected to the machine. For making more difficult patterns is recommended to use GPS-01 software on external computer.

Click D16 for import and then select file. After choosing name of the file, select layer which is required to be imported. If you don't choose any layer, all layers will be imported. If selected file includes blocks, an offer of selection of imported blocks appears. Only one block can be imported in one step. If you select icon C1 (straight stitch) or C2 (zigzag stitch) before clicking on D16, data and sewing speed for selected type of stitch are imported. If you don't select anything, there are imported data for standard straight stitch sewing with length stitch 3mm and sewing speed 1500 spm.

11.SIMULATION OF PATTERN

After creating new pattern it is recommended to check the whole route of the sewing without the needle to be sure that there will be no clash between needle, presser foot and feed plate. Simulation is activated by button D1, which can be found either on the screen for sewing or on the screen for creating pattern. If the machine is in service mode, it is possible to modify position of individual stitches by direction arrows. Window for simulation of pattern is on the picture18 and enables operator to perform following functions:

A – Previous stitch – moves position of needle to previous stitch

B – Simulation of sewing – simulates sewing operation stitch by stitch according to predefined speed

C – Next stitch – moves position of needle to following stitch

D – Measuring of sewing operation – indicates current position of simulation within the whole pattern. X/Y coordinates and number of current stitch are displayed on the right side

E – Jumping – enables operator to jump by 10 stitches forward to next JUMP or backwards to previous JUMP (JUMP is section of pattern without sewing)

F – Size of step for modification of stitch position

G – Direction arrows for modification of individual stitches

H – Last simulated stitch – current stitch is marked in bold and red point at the end

J – Plates – change position of feed plates

K – Laser – used for activation/deactivation of laser pointer (only for machines equipped with this option)

L – Presser foot – Change position of presser foot
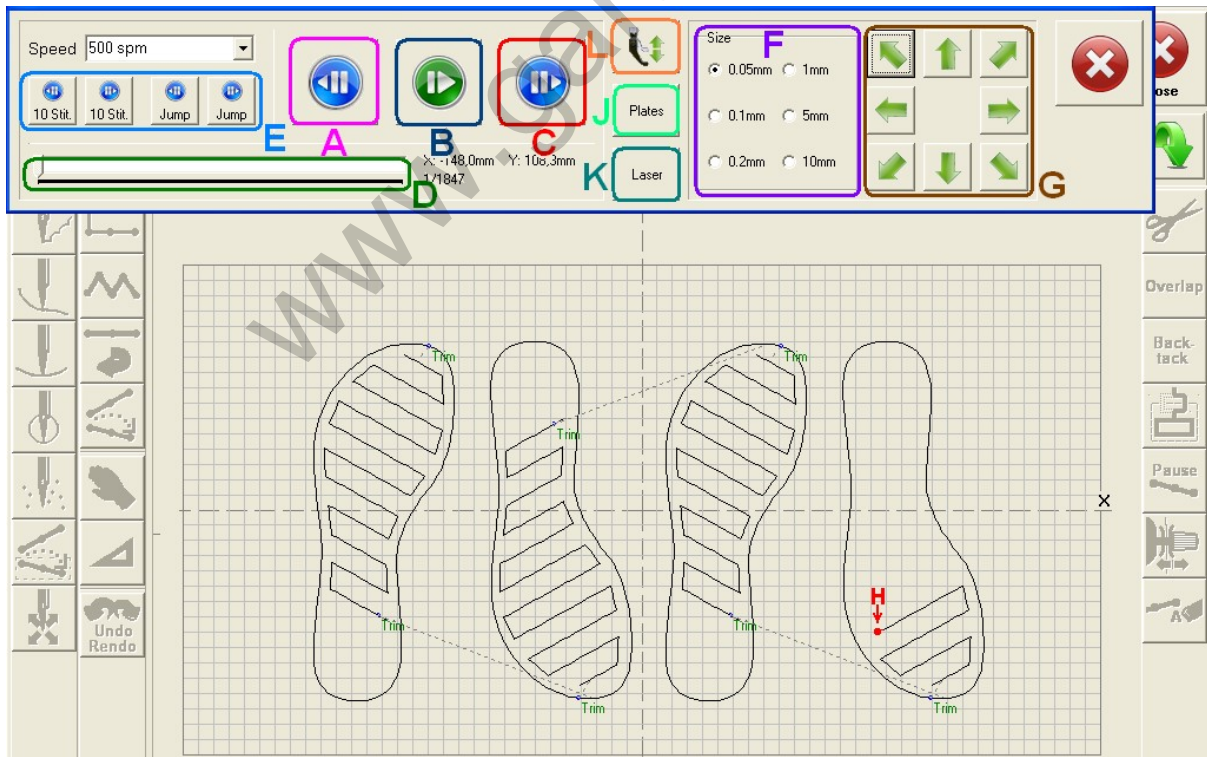
Picture 22: Simulation of pattern

12.PARAMETERS OF MACHINE

Parameters of machine you can set in Parameters mode. This mode you can activate only if the service interface is active (chapter 6). By pressing key A4 – Parameters you switch over to this mode. The window of this mode is made by three parts. On left side there is the list of parameters. These parameters you can set by pressing on menu bar (combo box) or set concrete numeric value by the help of keyboard on the right side. In the middle of the screen there is the scheme. This scheme is for settings two options of sewing speed acceleration. On right side there is the keyboard B for setting of numeric values of machine. Setting is done by pressing the parameter. When the parameter turns red you can set the value by the help of keyboard. After that you can confirm changes by pressing **Save and Apply** on right side of the screen. If you don´t press this key changes won´t be saved and activated. Right green arrow A switches to next page of parameters.

Parameters are possible to backup or restore to USB pen drive or to memory of machine. Backup and restore functions are under button **Backup or restore param** (button C on picture 23).

Picture 23: List of parameters

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12.2 Parameter list:

01	Machine move to origin after finish	Machine moves to origin point after pressing button 'STOP' and key Cancel
0 Disable		Machine moves to the start point after pressing key Cancel. (this setting of parameter is default for models GPS/G-1507, GPS/G-2010, GPS/G-3020, GPS/G-3525, GPS/H-1510 and GPS/H-2010)
1 Enable		After pressing key Cancel machine moves to the centre of the frame (point 0,0) and then to the start point. (this setting of parameter is default for models GPS/G-4032, GPS/G-6032, GPS/G-6040 and GPS/G-10060)
2 Disable PP down		Machine moves to the start point after pressing key Cancel and feed plate stays in bottom position.
3 Enable PP down		After pressing key Cancel machine moves to the centre of the frame (point 0,0) and then to the start point and feed plate stays in bottom position.
4 Return		Machine moves to the start point after pressing key Cancel in same way as sewing.
5 Return PP down		Machine moves to the start point after pressing key Cancel in same way as sewing and feed plate stays in bottom position.

02	Trim after emergency stop	After pressing button 'STOP' machine makes trimming automatically.
0 Auto trim		Machine makes trimming before stopping machine after pressing button 'STOP'
1 Manual trim		After pressing button 'STOP' machine stops. After pressing button 'STOP' again or pressing key Trim machine performs trimming (default setting)

03	Sewing speed acceleration	Sewing speed acceleration
0 Slow start 0		200, 400, 600, 800, 1000, max. speed
1 Slow start 1		300, 500, 700, 900, 1200, max. speed
2 Slow start 2		400, 500, 800, 1000, 1200, max. speed
3 Slow start 3		500, 600, 900, 1100, 1300, max. speed (default)
4 Slow start 4		500, 500, 500, 800, 1000, max. speed
5 Slow start 5		500, 1000, 1400, 1700, 2000, 2500, max. speed
6 User def. 1		User adjustable line 1
7 User def. 2		User adjustable line 2

04	Transfer starting angle (°)	
-200 to 200		Position of needle in which the movement of feed plate is started. (default is 0)

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05	Operation of feed plate	
0 Disable		The frame is permanent in lower position. It is not possible to control the feed plate.
1 Auto open		After sewing and positioning the feed plate is automatically lifted (default)
2 Hold		After sewing and positioning the feed plate is in lower position but you can control it by pedals.
3 Open before		After sewing feed plate is lifted and goes to start position.
4 Sew down		The frame is permanent in lower position. It is not possible to control the feed plate.

06	Feed plate type	
0 Simple feed plate		One feed plate (default setting for model GPS/G-3020)
1 Two feed plates		Two feed plates – left and right (default setting for models GPS/G-1507, GPS/G-2010, GPS/H-1510 and GPS/H-2010)
2 Upper and bottom		Two feed plates – upper and bottom (default setting for model – GPS/G-3525, GPS/G-4032, GPS/G-6032, GPS/G-6040 and GPS/G-10060)
3 Label device		Machine has device for sewing labels (optional device).
4 Holding jump		Machine has two holders for fixation material in jump moving.
5 Pocket device		Machine with device with two sizes of pocket holder. Timing is by parameters PA06, PA07 a PA09.

07	Feed plate Check	
0 Disable		The control position of the feed plate is disabled.
1 Enable		The control position of feed plate is enabled. Before sewing the system of machine checks if frames are in bottom position. If feed plate is not in bottom position, the sewing is not possible (default).
2 Active		Before sewing the system of machine checks if frames are in bottom position. If feed plate is not in bottom position, feed plate is lowered by machine.

08	Signal of pedal 1 (left)	
0 Disable		No function for left pedal.
1 Start sewing		By pressing the pedal machine is sewing (default)
2 Left feed plate		By pressing the pedal you can take control of left or upper feed plate.
3 Right feed plate		By pressing the pedal you can take control of right or bottom feed plate.
4 Both feed plates		By pressing the pedal you can take control of both feed plates.
5 Label device		Label device is commanded by pedal (it is necessary to set parameter **06 Feed plate type** to value **3 Label holder**).

09	Signal of pedal 2 (middle)	
0 Disable	No function for middle pedal (default setting for models GPS/G-3020, GPS/G-3525, GPS/G-4032, GPS/G-6032 and GPS/G-6040)
1 Start sewing	By pressing the pedal machine is sewing
2 Left feed plate	By pressing the pedal you can take control of left or upper feed plate (default setting for models GPS/G-1507, GPS/G-2010, GPS/H-1510 and GPS/H-2010).
3 Right feed plate	By pressing the pedal you can take control of right or bottom feed plate.
4 Both feed plates	By pressing the pedal you can take control of both feed plates.
5 Label device	Label device is commanded by pedal (it is necessary to set parameter **06 Feed plate type** to value **3 Label holder**).

10	Signal of pedal 3 (right)	
0 Disable	No function for right pedal.
1 Start sewing	By pressing the pedal machine is sewing.
2 Left feed plate	By pressing the pedal you can take control of left or upper feed plate.
3 Right feed plate	By pressing the pedal you can take control of right or bottom feed plate (default setting for models GPS/G-1507, GPS/G-2010, GPS/H-1510 and GPS/H-2010).
4 Both feed plates	By pressing the pedal you can take control of both feed plates. (default setting for models GPS/G-3020, GPS/G-4032, GPS/G-6032 and GPS/G-6040)
5 Label device	Label device is commanded by pedal (it is necessary to set parameter **06 Feed plate type** to value **3 Label holder**).

11	Operation of presser foot	
0 Always down	The presser foot is always in lower position.
1 Sew down	The presser foot is down only in sewing (default)
2 Trial down	The presser foot is down in sewing and also in jumping (section without sewing) and in PAUSE code function.

12	Down timing of presser foot	
0 With start	The presser foot is going down at the start of sewing (default)
1 With feed	The presser foot is going down together with the frame

13	Thread broken detector	
0 Disable	OFF (default)
1 Enable	ON

14	Number of broken detection	
1 to 1020	Number of stitches of thread break detection (default value is 2)	

15	Trim	
0 Disable	OFF
1 Mechanical trim	Mechanical trim (magnetic or pneumatic) (default)
2 Heat trim	Heat trim – thread is trimmed by heat
3 Pneumatic trim	Direct pneumatic trim mechanism. (Default for machines GPS/G-3525 and GPS/H series)
4 Stepper cam	Machine with trim cam is moved by stepper motor. (Default for GPS/H-0504)

16	Thread tensioner	
0 to 800	The position of needle for opening pneumatically controlled tensioner after trimming (default value is 100)	

17	Operating time of wiper (ms)	
1 to 1020	Operating time of wiper (default value is 80)	

18	Returning time of wiper (ms)	
1 to 1020	Returning time of wiper (default value is 150)	

19	Presser foot descending time (ms)	
1 to 1020	Presser foot descending time (default value is 152)	

20	Presser foot ascending time (ms)	
1 to 1020	Presser foot ascending time (default value is 152)	

21	Decelerate stitch	
2 to 15	Number of stitches which are sewn by trimming speed before trimming (default value is 2)	

22	Decelerate speed (SPM)	
200 to 500	The speed of motor of needle at trimming (default value is 400)	

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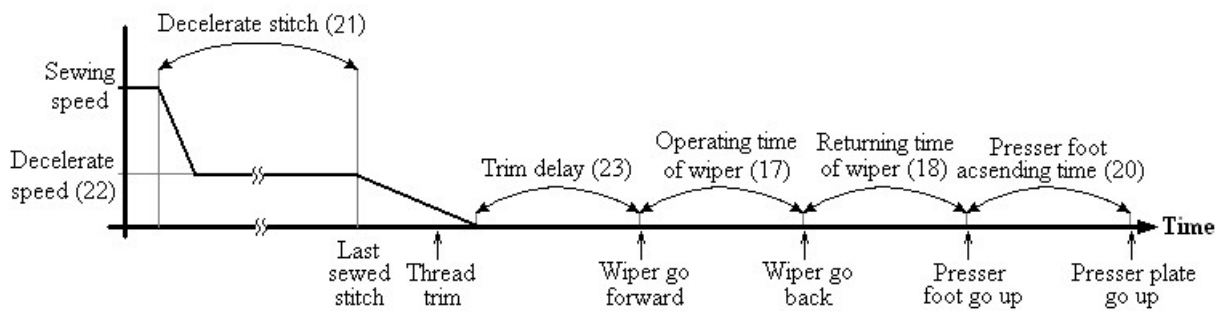
23	Trim delay (ms)	
52 to 1020	Trim delay (default value is 52)	

24	Blocking after trim (ms)	
0 to 1024	Time of blocking the motor of needle after sewing/trimming (default value is 100)	

25	Reverse angle (°)	
0 to 90	Reverse angle of the motor of needle after sewing/trimming (default value is 0)	

26	Up stop position (°)	
-180 to 180	Up stop position angle (default value is -35)	

27	Trim time limit (10ms)	Protection of trimming
100 to 1600	This function is for protection of trimming solenoids. When the time for closing of solenoid is longer, machine reports an error message (default value is 200)	

28	Wiper time limit (10ms)	Protection of wiper
100 to 1600	This function is for protection of wiper solenoids. When the time for closing of solenoid is longer, machine reports an error message (default value is 200)	

29	Jump speed (1/min)	
10 to 400	Speed of movement in JUMP parts of the pattern. (default 100)	

30	Low pressure detect	Low pressure detector
0 Disable	OFF – the detector is not installed (default)	
1 Enable	ON	

31	Needle cooling	
0 Disable	OFF – needle cooling is not installed (default)	
1 Enable	Needle cooling is installed but it is necessary to activate this function in sewing interface.	
2 AutoSwitchOn	Needle cooling is installed and automatically is started at the start of sewing.	
3 Product fixer	Product fixer is device for fixation of sewing material before sewing. Signal is active before sewing. In sewing process is signal disabled.	

32	Hole fix	
0 to 800	The position of needle for opening pneumatically controlled hole fix after trimming (default value is 100)	

33	Laser	Laser pointer
0 Disable	Laser pointer is not installed (default).	
1 Enable	Laser pointer is installed and you can start it by pressing key at tracking or editing the pattern.	
2 AutoSwitchOn 50%	Laser pointer is installed and automatically started at tracking or editing the pattern. By the help of buttons you can turn OFF the laser. Power of laser lighting is 50%.	
3 AutoSwitchOn 75%	Laser pointer is installed and automatically started at tracking or editing the pattern. By the help of buttons you can turn OFF the laser. Power of laser lighting is 75%.	
4 AutoSwitchOn 100%	Laser pointer is installed and automatically started at tracking or editing the pattern. By the help of buttons you can turn OFF the laser. Power of laser lighting is 100%.	
5 AutoSwitchOn 120%	Laser pointer is installed and automatically started at tracking or editing the pattern. By the help of buttons you can turn OFF the laser. Power of laser lighting is 120%.	
6 AutoSwitchOn 2	Needle laser is installed and automatically started at tracking or editing the pattern. By the help of buttons you can turn OFF the laser. Power of laser lighting is possible change by power supply box of needle laser.	
7 Signal A	Set output to Signal A mode. Signal A mode allow to set Signal A level in pattern programming. It is for user's option device. For example: User of machine can use the Signal A for special holder of material.	

34	Programmable presser foot	
0 Disable	OFF – programmable presser foot is not installed (default).	
1 Enable	ON – programmable presser foot is installed.	

35	Reverse angle before wiper (°)	Angle of reverse motor movement before thread wiping
0 to 30	Angle by which needle motor moves back before thread wiping. (default value is 0) (This parameter is available only for firmware 0,25 and higher)	

36	Bobbin counter method	Ways of checking amount of lower bobbin
0 Pallets	Number of pallets is counted. After defined amount of pallets is reached, the machine is blocked and will not enable sewing of following patterns. Unblocking the machine is made by pushing the button on the screen	
1 Stitches 1	Number of stitches is counted. After defined amount of stitches is reached, sewing will stop immediately (machine will stop in the middle of unfinished pattern). For continuation of sewing, it is necessary to push the button on the screen.	
2 Stitches 2	Number of stitches is counted. After machine calculates that there will not be enough thread to be able to finish next pattern with defined amount of stitches, machine will not start to sew next pattern (machine is blocked before start of sewing).	

37	Barcode reader	Ways of working with barcode reader
0 Disable	Barcode reader is not on the machine, its functions are blocked	
1 Manual	Manual – It is necessary to place feed plates manually under barcode reader	
2 Position	Position – Barcode has fixed position on feed plate, machine moves to correct position before start of sewing – position is defined by parameters 38 and 39.	
3 Stay on position	Fixed position- Barcode has fixed position on feed plate, machine starts and finishes sewing operation on position defined by parameters 38 and 39.	
4 Automatic	Automatic – after barcode is loaded, sewing pattern is automatically changed after operator confirms the change	
5 Automatic NoConf	Automatic change without confirmation - after barcode is loaded, sewing pattern is automatically changed	
6 Pallet changer	Exchange of pallet – mode for machine equipped with mechanism for exchange of pallet	

38	Barcode position X (0,1 mm)	Position of barcode X
-½ to ½ sewing range	Coordinates for position X, where barcode is situated. This parameter is only used for machines equipped with barcode reader and for barcode mode 2 or 3.	

39	Barcode position Y (0,1 mm)	Position of barcode Y
-½ to ½ sewing range	Coordinates for position X, where barcode is situated. This parameter is only used for machines equipped with barcode reader and for barcode mode 2 or 3.	

40	Heat trim start position	
0 to 2400	When parameter **15 Trim** is set to value **2 Heat trim**: Position of needle when knife start moving. When parameter **15 Trim** is set to value **4 Stepper cam**: The value is rotation speed of stepper motor in thread trim process (movement speed, when needle has position from parameter **42** to thread trim). Default value for machine GPS/H-0504 is 10. Lower value mean high speed (2 = maximum speed, 25 = minimum speed).	

41	Starting time of thread feeder	
0 to 2000	When parameter **15 Trim** is set to value **2 Heat trim**: Period between start of heating and contact of thread with the heat knife. When parameter **15 Trim** is set to value **3 Pneumatic trim**: Position of needle when knife catch threads. (default value is 500 for shuttle hook and 550 for rotary hook) When parameter **15 Trim** is set to value **4 Stepper cam**: The value is position of needle when knife catch the thread.	

42	Operating time of thread feeder	
0 to 2000	When parameter **15 Trim** is set to value 2 Heat trim: Period between contact of thread with heat knife and release of thread from heat knife. When parameter **15 Trim** is set to value 3 Pneumatic trim: Position of needle when knife cut (trim) threads. (default value 100) When parameter **15 Trim** is set to value **4 Stepper cam**: The value is position of needle when knife start movement for trim the thread. You can set the movement speed by parameter **40**.	

43	Winding counter	Optional equipment for setting of exact amount of thread to be wound
0 Disable	Equipment for adjustable amount of thread is not connected (default)	
1 Enable	Equipment for adjustable amount of thread is connected	
2 Signal B	Set output to Signal B mode. Signal B mode allows setting Signal B level in pattern programming. It is for user's option device. For example: User of machine can use the Signal B for special holder of material.	

44	Thread pulling-out	
0 to 800	Position for activation of thread pull-out	

45	Pattern copy in operator mode	
0 Disable	Operator cannot copy patterns to machine and from machine to USB pen drive. Transfer of patterns is only possible in service mode.	
1 Enable	Operator can copy patterns to machine and from machine to USB pen drive. Transfer of patterns is possible in both modes.	

46	Needle bottom position min.	
10 to 300	Position of needle until which the needle is considered as being above material and where the machine starts to report that needle is inside the material. If thick material is used, it is necessary to lower the value, for light materials it is possible to increase the value (default value is 300).	

47	Needle bottom position max.	
550 to 790	Position of needle until which the needle is considered as being above material and where the machine starts to report that needle is inside the material. If thick material is used, it is necessary to increase the value, for light materials it is possible to lower the value (default value is 550).	

48	Offset X	
From -½ to ½ of sewing area (in 0,01 mm)	Offset of zero point of machine in axis X. This is value of position of zero position sensor n axis X. (default value 0)	

49	Offset Y	
From -½ to ½ of sewing area (in 0,01 mm)	Offset of zero point of machine in axis Y. This is value of position of zero position sensor n axis Y. (default value 0)	

50	Mechanic password	
0 to 99999999	It is possible add new mechanic password for access to service mode. This parameter will be new password for access to service mode. Normal password 67976 will be still operating. Value 0 means that parameter is disabled. (default value 110585)	

51	Auxiliary tensioner	
0 Disable	Auxiliary tensioner (optional device) is not on machine. (Default value)	
1 Enable	Auxiliary tensioner is on machine. It is possible add command in pattern programming.	

53	Label device close time (ms)	
0 to 1020		Parameter is active when parameter **06 Feed plate type** is set to value **3 Label device**. This parameter is time delay necessary for moving label device in horizontal direction (from left to right and from right to left). (default value 300)

54	Label device up time (ms)	
0 to 1020		Parameter is active when parameter **06 Feed plate type** is set to value **3 Label device**. This parameter is time delay necessary for moving label device in horizontal direction (from left to right and from right to left). (default value 100)

55	Thread clam stitches count	Optional device is possible only on machines GPS/H series.
-1		Thread clamp device is not on machine. (default value)
0		Thread clamp device is on machine, but it is disabling. Device finds zero position after switch on of machine only.
1 to 10		Thread clamp device is on machine and it is active. Device finds zero position after switch on of machine. The parameter means count of stitches held the thread after start of sewing.

56	Thread clam timing	
-100 to 100		Parameter is active only when parameter **55 Thread clam stitches count** is set from 1 to 10. Parameter set position of needle for catching the thread.

57	Mode of Pause code	
0 Both upper		When machine stop sewing on pause command, both feed plates will be moved to upper position.
1 Left bottom		When machine stop sewing on pause command, right feed plate will be moved to upper position and left feed plate will stay in bottom position.
2 Right bottom		When machine stop sewing on pause command, left feed plate will be moved to upper position and right feed plate will stay in bottom position.
3 Both bottom		When machine stop sewing on pause command, both feed plates will stay in bottom position.

58	Style of pattern open	
0 Numbers		Older version of patterns opening interface.
1 Characters		Newer version of patterns opening interface (default).

59	Edit password	
0 to 99999999		Password for access to pattern programming. Access to test interface and parameters are denied. (default 110585)

60	Inputs	
0 SC Sewing	Light curtain – If light curtain area is corrupted, only sewing process will be stopped. (default)	
1 SC Level 1	Light curtain – If light curtain area is corrupted, sewing process, feed plates motion or pattern opening will be stopped.	
2 SC Level 2	Light curtain – If light curtain area is corrupted, sewing process, feed plates motion, sewing simulation, pattern programming or pattern opening will be stopped.	
-1 PS Pallet check	Pallet sensors – If parameter **07 Feed plate Check** is set to **1 Enable**, it will not be possible start sewing process without bottom feed plate in machine. It is possible open and close feed plates by pedal, but sewing is not possible.	
-2 PS Active check	Pallet sensors – If parameter **07 Feed plate Check** is set to **1 Enable**, machine will close bottom feed plate automatically in machine, after operator inserts bottom feed plate to machine. Pallet sensors – If parameter **07 Feed plate Check** is set to **2 Active**, machine will close bottom feed plate automatically in machine and will start sewing process, after operator inserts bottom feed plate to machine.	

12.2 List of parameters for exchange of needles:

PN01	Needle changer	
0 Disable	Machine is not equipped with device for exchange of needles. (default)	
1 Enable	Machine is equipped with device for exchange of needles – change of thread color in sewing is possible.	

PN02	Clutch switch off time (ms)	
10 to 10000	Period of delay of clutch switch release. (default value is 10)	

PN03	Needle change time (ms)	
10 to 10000	Period necessary for switching of needle from one to the other position. For switching from first needle to second or vice versa the same value is used (default value is 80)	

PN04	Second wiper	
0 Disable	Machine is not equipped with second wiper/thread holder (default)	
1 Enable	Machine is equipped with second wiper/thread holder	

PN05	Wiper 1 release (ms)	
50 to 500	Time delay, when thread 1 is held by wiper after start of sewing process. (default value is 100)	

PN06	Wiper 2 release (ms)	
50 to 500	Time delay, when thread 2 is held by wiper after start of sewing process. (default value is 100)	

12.3 List of parameters for pocket device:

PA06	Feed plate up time (ms)	
50 to 500		Time delay necessary for movement feed plates to upper position.

PA07	Size change time (ms)	
50 to 500		Time delay necessary for change size of inner feed plate.

PA09	FF fast size change	
0 Disable		Inner feed plate change size only after trim, when sewing is finished.
1 Enable		Inner feed plate change size immediately after command. Inner feed plate can change size in sewing process. It is not necessary do thread trim for change size of inner feed plate.

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12.4   Example of pedal settings:

Machine GPS/H-1510 – two feed plates controlled by two pedals
Machine GPS/G-3525 – two feed plates controlled by two pedals
Machine GPS/G-3525 – upper and bottom feed plate controlled by two pedals
Machine GPS/G-6032 – upper and bottom feed plate controlled by two pedals

Parameter	Value
06 Feed plate type	1 Two feed plates
09 Signal of pedal 2 (middle)	2 Left feed plate
10 Signal of pedal 3 (right)	3 Right feed plate

Machine GPS/H-1510 – two feed plates controlled by one pedal
Machine GPS/G-3525 – two feed plates controlled by one pedal

Parameter	Value
06 Feed plate type	1 Two feed plates
09 Signal of pedal 2 (middle)	0 Disable
10 Signal of pedal 3 (right)	4 Both feed plates

Machine GPS/H-1510 – label holder device

Parameter	Value
06 Feed plate type	3 Label device
09 Signal of pedal 2 (middle)	5 Label device
10 Signal of pedal 3 (right)	4 Both feed plates

Machine GPS/G-3525 – upper feed plate controlled by pedal and bottom plate is opened automatically when pattern is exchanged
Machine GPS/G-6032 – upper feed plate controlled by pedal and bottom plate is opened automatically when pattern is exchanged

Parameter	Value
06 Feed plate type	2 Upper and bottom
09 Signal of pedal 2 (middle)	0 Disable
10 Signal of pedal 3 (right)	4 Both feed plates

13. TESTS OF MACHINE
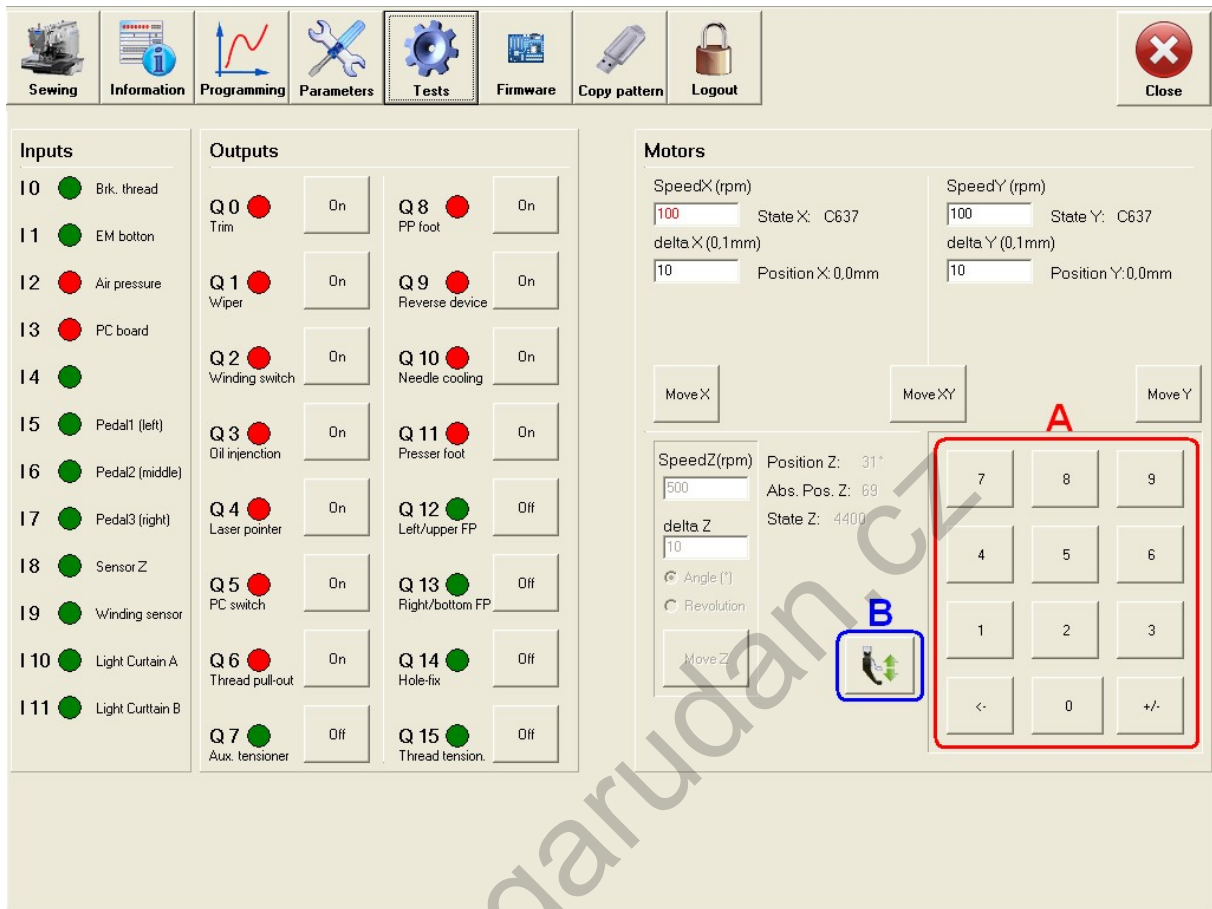
Picture 25: Testing interface

Testing interface is used for identification of errors in machine connection, especially during assembly or service interventions. Testing interface displays statuses of all inputs, enables control of all outputs and testing of motor movements. After switching to testing mode machine will automatically move to sensors of zero position. Functions of individual inputs and outputs are described in chart 1 and chart 2. Machines with exchange of needles include additional board, functions of inputs and outputs are described in table 3 and table 4.

For testing of motors part described as **Motors** is used. For testing movements of axis X and Y, it is necessary to insert required speed to section **Speed** and required distance to section **delta**. Movement will be activated after pressing button **Move**. **Move X** refers to axis X, **Move Y** refers to axis Y and button **Move XY** moves both motors simultaneously by required distance.

In needle drive motors you can test only correct running of this motor's encoder. During manual movement of wheel it is possible to check gradual change of motor position in item **Abs.Pos.Z**. This position change can be observed until second revolving.

Machines GPS/H series can test presser foot by button B. It is not possible test presser foot by output Q11.

Table 1: Inputs of control board B

Input	Note
I0	Thread break detector, red – connected, green – machine is not connected to detector
I1	Stop button, red – button is pressed, green – button is not pressed
I2	Air pressure detector, red– air pressure is correct, green – air pressure has low level
I3	PC board, red – PC board is switched on
I4	Laser pointer is connected
I5	Left pedal, red – pedal is pressed, green – pedal is in free position
I6	Middle pedal, red – pedal is pressed, green – pedal is in free position or oil level detector for rotation hook
I7	Right pedal, red – pedal is pressed, green – pedal is in free position
I8	Sensor Z, in bottom an upper position of needle input state is changed
I9	Winding counter sensor
I10	Light curtain A or Pallet sensor (GPS/G), Sensor of presser foot step motor (GPS/H)
I11	Light curtain B or Pallet sensor (GPS/G), Sensor of thread clamp step motor (GPS/H)

Table 2: Outputs of control board B

Input	Note
Q0	Trim
Q1	Wiper
Q2	Winding counter switch off
Q3	Oil injection for rotary hook
Q4	Laser
Q5	PC board switch
Q6	Thread pulling-out
Q7	Help thread tensioner
Q8	Programmable presser foot (only on machines GPS/G)
Q9	Reverse device (flip-flop)
Q10	Needle cooling
Q11	Presser foot (only on machines GPS/G)
Q12	Left/upper feed plate
Q13	Right/bottom feed plate
Q14	Hole-fix
Q15	Thread tensioner

Table 3: Inputs of additional board B

Input	Note
J0	Thread break detector needle number 2, red– connected, green – machine is not connected to detector
…	
J12	Sensor of needle number 2 (distant needle, needle on right side)
J13	Sensor of needle number 1 (nearer needle, needle on left side)

Tab. 4: Outputs of additional board B

Output	Note
R0	
R1	Wiper number 2 – second wiper
R2	
R3	
R4	Needles switch off
R5	
R6	
R7	
R8	Needle 1
R9	Needle 2
…	

Table 5: Needle switch positions

Input J12	Input J13	Output R8	Output R9	Active needle
Green	red	active(green)	inactive (red)	needle 1
Red	green	inactive (red)	active (green)	needle 2

14. ERROR LIST

Number	Error	Description
E0001	PLC collision error. (E0001)	PLC module has been stopped during sewing. For repairing you have to turn OFF and then turn ON PC software again.
E0002	PLC state error. (E0002)	PLC module fell into undefined status. For repairing you have to turn OFF and then turn ON PC software again.
E0003	PLC state_old error. (E0003)	PLC module was in undefined status. For repairing you have to turn OFF and then turn ON PC software again.
E0004	PLC state error. (E0004). State timeout	PLC module got stuck in some status. For repairing you have to turn OFF and then turn ON PC software again.
E0005	Error occurred when machine went to home (zero) position. (E0005)	Operator pressed key EM at searching middle point. For repairing you have to turn OFF and turn ON the machine again.
E0006	Error when machine went to start position. (E0006)	Operator pressed key EM at running to start point of sewing after finishing sewing. For repairing you have to turn OFF and turn ON the machine again.
E0007	Error when machine went to start position at first time. (E0007)	Operator pressed key EM at first running to start point of sewing. For repairing you have to turn OFF and turn ON the machine again.
E0008	Error occur when program write to file. (E0008)	Error at saving data to file.
E0009	Needle stop waiting was long - stop error (E0009)	Machine was blocked because waiting for stopping of needle took long time. For repairing you have to turn OFF and turn ON the machine again. Last sewing couldn´t be finished.
E0010	Trim error - trim was blocked (E0010)	Trimming was blocked or pattern has not been finished because some stitch had not been correct. For repairing you have to turn OFF and turn ON the machine again.
E0011	Motor jump or move error (E0011)	There was some mistake in process of simulation. Motors are blocked. For repairing you have to turn OFF and turn ON the machine again. If this mistake will repeat you have to control motors of axis.
E0012	FRAM 2 reading error (E0012)	Error at reading the pattern from inner memory. If this mistake will repeat you have to replace main board.
E0013	FRAM 1 reading error (E0013)	Error at reading the pattern from inner memory. If this mistake will repeat you have to replace main board.
E0014	CAN communication error (E0014)	Main board is not probably connect to bus system CAN or there was failure in control supply voltage 24 V.

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E0015	X-Axis or Y-Axis motor communication error (E0015)	One of motors of axis doesn´t communicate with bus system CAN. You have to check the connection of both motors.
E0016	Y-Axis motor communication error (E0016)	Motor of axis Y doesn´t communicate with bus system CAN. You have to check the connection of motor.
E0017	X-Axis motor communication error (E0017)	Motor of axis X doesn´t communicate with bus system CAN. You have to check the connection of motor.
E0018	Needle motor communication error (E0018)	Motor of needle doesn´t communicate with bus system CAN. You have to check the connection of motor and converter.
E0019	TECO drive error. Please turn off and turn on machine.(E0019)	Motor of needle doesn´t communicate with bus system CAN. You have to check the connection of motor and converter.
E0020	Unsupported or corrupted file! (E0020)	Reading of pattern is impossible because the pattern could be harmed or the pattern has wrong format.
E0021	File "filename".gps doesn't exist. (E0021)	The file you want to open doesn´t exist.
E0022	Sewing machine is probably switched off.\n Switch on machine. (E0022)	Machine is probably turned OFF (motors and control system). Turn ON the machine by pressing key under the table and restart the PC software.
E0023	UART ACK error (E0023)	Error in serial interface communication.
E0024	UART track error (E0024)	Error in memory of pattern.
E0040	Error - low air pressure (E0040)	Low level of air pressure in air pressure input.
E0044	Needle changer is in wrong position (E0044)	Error occurred during needle change process. Check needle change mechanism.
E0045	Advanced unit communication error (E0045)	Communication error between control board B and advanced board B.
E0046	Needle drive voltage error (E0046)	Needle motor inverter voltage error. Check power supply voltage of needle motor inverter (200 – 250 V).
E0047	Presser foot homing error (E0047)	Step motor of presser foot cannot find sensor. Check connection of motor and sensor. Check mechanical impede of motor motion. Check connection of step motor driver. (only on machines GPS/H)
E0048	Catch thread homing error (E0048)	Step motor of catch thread cannot find sensor. Check connection of motor and sensor. Check mechanical impede of motor motion. Check connection of step motor driver. (only on machines GPS/H)

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E0049	Laser is connected in sewing mode (E0049)	Needle laser is connected on needle position and someone start sewing mode on machine. Needle laser cannot be connected in needle bar if machine start sewing mode. Disconnect needle laser from needle bar and power supply before start sewing mode of machine. If needle laser is not connected problem is in power supply unit of needle laser.
E0056	Wrong order for needle change device (E0056)	Wrong order for needle change process – probably noise problem.
Exxxx	*Other*	Undefined report. Update your software.

15.BASIC INTERFACE OF MACHINE

Picture 26: Screen of machine introductory software

After closing of sewing interface basic screen of introductory software will appear (see pic. 22). This interface offers following options to operator: opening of sewing interface again, opening of machine setting interface or switching off the machine.

A – **Sewing** – serves for opening of machine sewing interface – enables operator to control sewing machine. Sewing interface is described in previous chapters.
B – **Settings** – serves for setting of language, monitor or machine software update, see chapter 15.1.
C – **Switch off** – serves for correct switching-off the machine, after pressing this button it is possible to switch off the machine either by main switch or by button OFF (see pic. 1).

15.1 Machine setting:

After pushing the button **Settings** (pic. 26) operator is asked to enter code for opening window for machine setting. It is the same code which is used for entering the machine (number **110585)**. It is possible to make following settings:

- Change interface language – if the translation is incomplete, missing parts will be displayed in English

- Update of machine software – button **Update**, chapter 15.2

- Perform setting of touch screen – button **Touchscreen**, chapter 15.3

Picture 27: window of machine setting

15.2 Machine update:

Update of software in machine can be made in following ways:
- By closing of sewing software.

- By pushing the button **Settings** in introductory software of machine – see picture 26.

- By entering password 110585.

- By connecting USB pen drive with new software to machine – new software must be saved in directory GPSupdate on this USB flash disc.

- By pushing the button **Update** – picture 27.

- Wait for machine restart when following message displays „Please, wait, update is running" (see pic. 28).

- Another restart will follow and start machine with new software.

- If the message from picture 28 is not displayed, update was not performed and it is necessary to repeat the whole procedure.

- Message „USB pen drive is not connected" indicates that USB pen drive was not detected or file necessary for software update was not found.
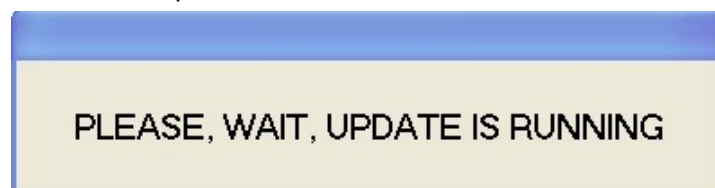
Picture 24: Message with software update status

15.3 Setting of touch screen:
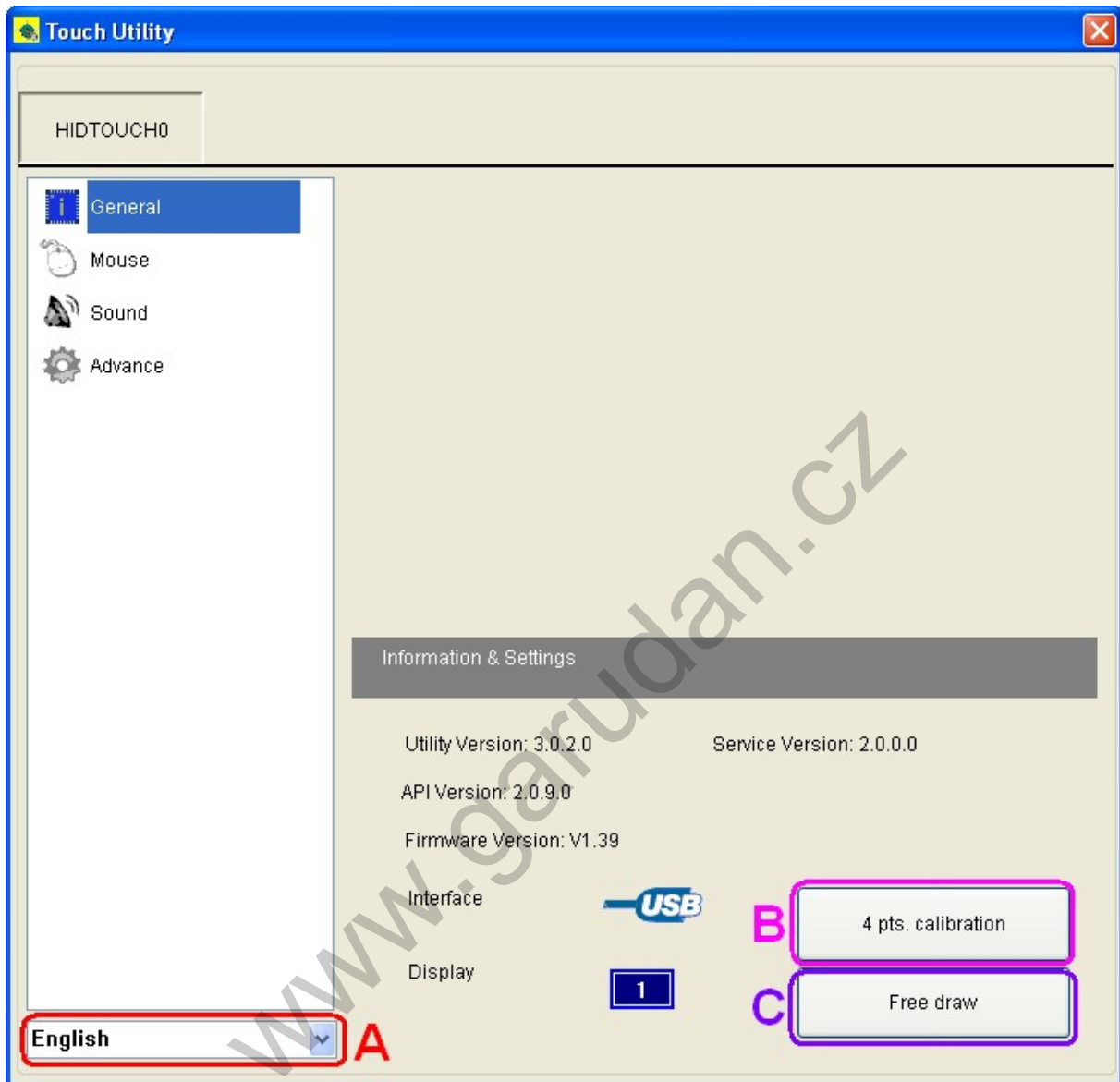
Picture 29: Initial screen for setting of touch screen

It is possible to change user language by choosing required language from menu A (picture 29). If there is problem with calibration of monitor, that is, if pressed point on the monitor is not identical with position of cursor, it is necessary to perform calibration by pushing button B (4 point calibration) and follow instructions on the monitor. If the problem persists, it will be necessary to perform linearization – this function can be found in **Advance** setting as button **9** or **24 pts. linearization**. It is also recommended to turn off function **Auto right click** in the section **Mouse**.

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16.MAXIMUM ALLOWED SEWING SPEEDS

Table 6: Maximum allowed sewing speed for normal stitches

Stroj Délka stehu	GPS/G-1507 2010	GPS/G-3020	GPS/G-3525	GPS/G-3525RH	GPS/G-2527J 4032 6032	GPS/G-4032RH 6032RH 6040 6040RH	GPS/G-10060RH	GPS/H-1510 2010
2,5 mm	2800	2300	2600	3000	2500	2300	1700	2800
3 mm	2800	2300	2600	3000	2500	2300	1700	2800
3,5 mm	2800	2000	2500	2500	2200	2200	1700	2200
4 mm	2500	1800	2300	2300	2200	2200	1500	1900
5 mm	2000	1500	1700	1700	1800	1800	1200	1500
6 mm	1600	1300	1400	1400	1500	1500	1000	1300
7 mm	1500	1100	1100	1100	1400	1400	800	1100
8 mm	1000	1000	1000	1000	1000	1000	700	900
9 mm	900	1000	900	900	900	900	600	800
10 mm	800	900	800	800	900	900	600	800
11 mm	700	800	800	800	900	900	500	700
12 mm	700	800	700	700	800	800	500	700

Table7: Maximum allowed sewing speed for zigzag stitches

Stroj Délka stehu	GPS/G-1507 2010	GPS/G-3020	GPS/G-3525	GPS/G-3525RH	GPS/G-2527J 4032 6032	GPS/G-4032RH 6032RH 6040 6040RH	GPS/G-10060RH	GPS/H-1510 2010
2,5 mm	1800	1500	2000	2000	1600	1600	1100	1800
3 mm	1800	1400	2000	2000	1500	1500	1100	1800
3,5 mm	1700	1300	1600	1600	1400	1400	900	1700
4 mm	1600	1300	1600	1600	1300	1300	800	1600
5 mm	1500	1300	1400	1400	1100	1100	600	1500
6 mm	1200	1300	1200	1200	1100	1100	500	1200
7 mm	1000	1000	1000	1000	1000	1000	400	900
8 mm	800	900	900	900	900	900	400	800
9 mm	700	800	800	800	800	800	400	700
10 mm	700	700	800	800	700	700	400	700
11 mm	600	500	700	700	600	600	400	600
12 mm	600	500	600	600	600	600	400	600