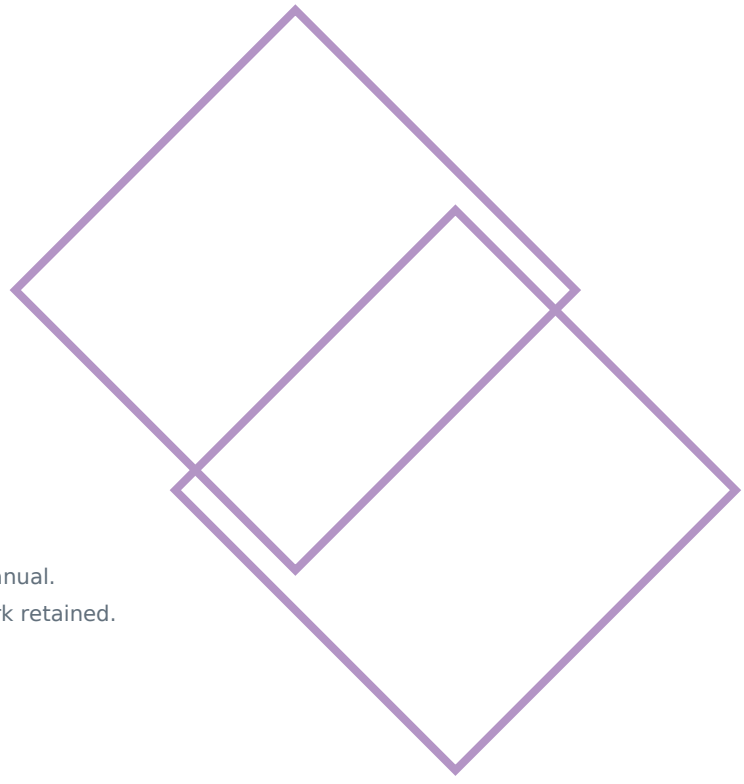
NEW GENERATION OF INTELLIGENT SEWING MACHINES

HIKARI

H9VIIA Series

Electrical Control Instruction Manual

Intelligent lockstitch sewing machine



ENGLISH VERSION | V1.00

Translated from the supplied Chinese electrical-control manual.
Original parameter values, display codes and panel artwork retained.

HIKARI (SHANGHAI) PRECISE MACHINERY SCIENCE AND TECHNOLOGY CO., LTD.

Preface

Thank you for choosing our product. This manual provides the operating instructions required for this system. Read the manual carefully before using the product so that you can use it correctly.

1. The contents of this manual may change without notice as the product is improved.

2. If you have any questions during use, or comments on our products or services, please contact our after-sales service department.

About this English version

The Chinese instructions have been translated in full and reorganized for English readability. Parameter numbers, ranges, increments, defaults, access levels and fault/display codes follow the supplied source. Panel symbols and QR artwork reproduce the original hardware and branding.

S, OK and S/Enter refer to the same confirmation key shown on the panel. A short press means press and release; hold means keep the key pressed. Key combinations mean press the named keys together. Source ambiguities are listed in Appendix A.

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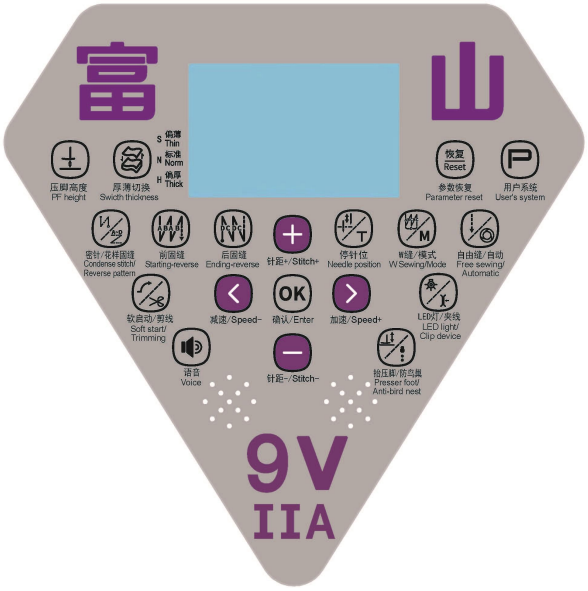
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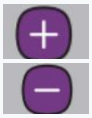
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1. Control-panel keys



Original control-panel artwork. Use the translated key names below to identify each function.

Key	Function	Operation
	Parameter setting	Press P briefly on the sewing-setting screen to open the parameter screen and display Level I parameters. Hold P to open the password screen. After entering the correct maintenance password, the source key table specifies pressing P to display Level I and II parameters. The detailed password procedure specifies S/OK; see Appendix A.
	Confirm / S	Confirms a selection. Hold to display thread-clamp force; the LCD shows "[_3]". Press again to exit. When the screen is locked, tap this key to unlock it.
	Left / right and speed	In free sewing, Left decreases speed and Right increases speed. Press S in free sewing to enter the "3333" backtack stitch-count setting; Left/Right move the cursor. In fixed-stitch and pattern settings, Left/Right switch between displayed fields.
	Plus / minus	In normal sewing, adjusts stitch length. Changes the value in a displayed field (press S in free sewing to enter the fields). Also changes parameter values and pattern-editing values.

Control-panel keys (continued)

Key	Function	Operation
	Start backtack	Cycles through start backtack / double start backtack / quadruple start backtack / off. Shortcut: P + Start backtack opens pedal mode (P201).
	End backtack	Press briefly to cycle through end backtack / double end backtack / quadruple end backtack / off. Hold for 3 seconds to cycle through P181-P190 compensation settings. Shortcut: P + End backtack opens presser-foot enable (P25).
	Needle stop / teaching	Press briefly to select needle-up or needle-down stopping; default is needle down. In fixed-stitch sewing, P + T enters teaching mode. In free sewing, hold P + T for more than 3 seconds to enter service/test mode.
	Voice	Press briefly to adjust voice volume (P130). Hold to turn the voice function on or off (P90).
	Free sewing / automatic trigger	Press briefly to select free sewing. Hold to toggle automatic triggering in fixed-stitch modes: single section, multiple sections and multiple-section custom patterns. Automatic triggering is enabled automatically in W sewing. Shortcut: P + Free/trigger opens the monitoring screen.
	Pattern backtack / condensed stitch	Press briefly to turn pattern backtacking on or off. When enabled, start and end backtacks use the edited pattern. Hold to turn condensed stitching on or off. Shortcut: P + Pattern opens pattern editing.
	Sewing mode	Press briefly to cycle through W sewing / single-section sewing / multiple-section sewing / multiple-section custom-pattern sewing. Hold to select W sewing. Single-section sewing: 0-99 stitches. Multiple-section sewing: 0-99 stitches per section. Custom-pattern sewing: 0-99 stitches per section, with stitch-length patterns editable for each section.

Control-panel keys (continued)

Key	Function	Operation
	Presser-foot cycle / anti-bird's-nest	Press briefly to cycle through lift at intermediate stops / lift after trimming / lift at both intermediate stops and after trimming / off. Hold to turn the anti-bird's-nest function on or off.
	Soft start / thread trimming	Press briefly to turn soft start on or off. Hold to turn thread trimming on or off. Shortcut: P + Soft start/trimming opens the burn-in (aging) function.
	LED brightness / thread clamp	Press briefly to cycle through LED settings 0-5. Hold to turn the thread-clamp function on or off.
	Restore settings	On the standby screen, hold Reset for 1.5 seconds to restore settings. The source also identifies this key with restoration of manufacturer-defined settings; see Sections 2.6-2.7 for the explicit parameter procedures.
	Presser-foot height	Press briefly to open lift-height-after-trimming parameter P13, then use + or - to change its value. Hold to open intermediate lift-height parameter P12, then use + or -. With the main-shaft motor stationary, changing a value does not move the presser foot. When the pedal is heeled back to lift the foot, value changes produce a corresponding foot movement.
	Fabric thickness / tension	Press briefly to switch between standard, thin and thick fabric modes. The upper-right of the display shows N, S and H respectively. Hold to open needle-thread tension parameter P17, then use + or - to change its value.

Shortcut summary: P + Start backtack: P201; P + End backtack: P25; P + Free/trigger: monitoring; P + Pattern: pattern editing; P + Soft start/trimming: burn-in; P + T: teaching or service/test mode, depending on the sewing mode.

2. System functions

2.1 Monitoring mode

In normal sewing mode, press P + Free/trigger to open monitoring mode. Use + or - to display the required monitoring item. Press P to return to sewing mode.

Index	Monitored item	Unit / displayed example
U1	Motor speed	rpm
U2	Motor current	0.01 A
U3	DC bus voltage	V
U4	Pedal voltage	0.01 V
U5	Machine-head mechanical angle	deg
U6	Initial motor angle	deg
U7	Machine-head model	JIA
U8	Main-control program version	V100
U9	DSP model	F73
U10	Stepper-drive program version	V1xx
U11	Presser-foot stepper current	0.01 A
VER	Panel parameter version	v1xx
TYPE	HMI model	C104
AD1	Knee-lifter sensor voltage	1 mV
AD2	Presser-foot height sensor voltage	1 mV
H1	HMI secondary chip (STM32) version	V1xx
H2	Machine model	1969
JJ	Piece count (count up)	pieces
Jp	Piece count (count down)	pieces
DX	Bobbin-thread detection	cm

2.2 Piece counting: count up / count down

In sewing mode, press P + Free/trigger to open the JJ piece-count screen. Use + or - to switch between JJ, DX and JP. The displayed value is the current count. Press S/OK to switch the displayed field, then use + or - to edit the count. Press P to return to sewing mode.

To clear the count in monitoring mode, hold Start backtack for 3 seconds. Set P35 to enable piece counting. Set P38 to select count-down operation, shown as JP. The piece-count alert is identified as PBOB in the function description; the fault table uses P.bob.

System functions (continued)

2.3 Bobbin-thread detection

In sewing mode, press P + Free/trigger and select DX. Use + or - to switch between JJ, DX and JP. The displayed value is the current bobbin-thread value. Press S/OK to switch the displayed field, then use + or - to edit the value. Press P to return to sewing mode.

To clear the bobbin-thread count in monitoring mode, hold Start backtack for 3 seconds. Enable P30 for this function. The bobbin-thread alert is identified as LBOB in the function description; the fault table uses L.bob.

2.4 Password mode

Hold P to enter password mode; continue holding P after the parameter screen appears. The LCD displays 0000. Use Left/Right to select a digit and + or - to change that digit. After entering the correct password, press S/OK to view advanced parameters.

Changing the password

After entering the password in password mode, press Start backtack + End backtack together to open the password-reset screen. The display shows 0000. Enter the new password and press S. When 0000 appears again, re-enter the new password and press S. YES indicates a successful change; no indicates failure. The system then opens the parameter screen. Press P to return to sewing mode.

Burn-in (aging) shortcut

The control-panel key table provides P + Soft start/trimming as the shortcut for the burn-in (aging) function. The supplied manual contains no separate burn-in procedure.

The source does not provide a maintenance password. No password has been added to this translation.

System functions (continued)

2.5 Service / test mode

In normal free-sewing mode, hold P + T for more than 3 seconds to enter service/test mode. The LCD displays 1-dJ. Use + or - to select a test. Press P to exit to normal sewing mode.

Display	Test
1-DJ	Motor angle test
2-bJ	Stepper mechanical-zero adjustment
3-PD	Pedal neutral-position calibration
4-JD	Trimmer action test; press S to quickly adjust P122/P124

Motor encoder installation-angle test

Select 1-dJ and press S/OK. The display shows dj. Depress the pedal once, or press T. The motor rotates several times, then the LCD displays a number representing the installation angle of the motor encoder disc. Press P to return to normal mode.

This test is generally used to check the installation angle when needle positioning is abnormal or the motor runs away.

Stepper mechanical-zero adjustment

Select 2-bJ and press S/OK. The screen displays P-75-00. Use + or - to cycle through P75, P6, P7, P8 and P71. Press S/OK to open the selected parameter, use + or - to adjust its value, then press S/OK to confirm and return to the adjustment screen. Press P to return to normal mode.

Pedal neutral-position calibration

Select 3-Pd and press S/OK. The LCD displays pdL and the system performs a self-check. After approximately 3 seconds, PASS appears if the check succeeds. If it fails, a fault code is displayed. Press P to return to normal mode. This function uses software calibration to compensate for small deviations in pedal travel.

Trimmer action test

Select 4-Jd and press S/OK. The LCD displays JD. Depress the pedal once, or press T, to run one trimmer cycle at the corresponding angles. Press S/OK to open the quick-adjustment parameters P122/P124. Press P to return to normal mode.

When performing this test immediately after power-on, turn the handwheel one full revolution manually, or run the motor for one revolution, to verify the trimming zero position. Otherwise, the trimmer will not operate.

The source also includes the heading "Main-shaft encoder signal and solenoid testing", but supplies no procedure beneath it.

System functions (continued)

2.6 Restore factory settings

Using P79

On the normal sewing screen, hold P to open the parameter screen. Select P79; its initial displayed value is 0. Use + or - to change the value to 8, then press S/OK. The display shows yes. Use + or - to select no if required. Press S/OK to confirm the selected option.

Using the Reset shortcut

In normal sewing mode, hold Reset for more than 1.5 seconds. When yes appears, press S/OK to confirm restoration. Use + or - to select no if you wish to cancel.

2.7 Save / restore machine-manufacturer parameters

Saving

After completing machine parameter adjustment, hold P to open the parameter screen and select P131. Change the displayed value from 0 to 1 using + or -, then press S/OK to save the current values as the machine-manufacturer parameter set.

Restoring the saved manufacturer set

Hold P to open the parameter screen and select P79. Change 0 to 3 using + or -, then press S/OK. The display shows yes; + or - can select no. Press S/OK to confirm and restore the saved machine-manufacturer parameters.

2.8 Pattern editing

In normal sewing mode, press P + Pattern together. The LCD displays d1. Use + or - to select d1-d9, then press S to edit the selected pattern. The display shows 1 3.0 01. Set the stitch length and stitch count for the first section. Use Left/Right to select the field to be edited; the selected field flashes.

After setting a section, use Left/Right to make the leftmost section-number field flash. Use + or - to select another section. If the current section has a stitch count of zero, the next section cannot be set. After setting stitch lengths and stitch counts for all sections, press S/OK to save and return to the d1 screen. Press P to exit without saving. From the pattern-selection screen, press P to return to normal sewing mode.

Up to 9 patterns can be stored, with 16 sections per pattern. During sewing, patterns are processed according to their stitch-length settings. If sewing is paused in pattern mode, tap the reverse-sewing switch once; the next pattern-sewing operation restarts from the beginning. This is useful when turning corners or sewing bends.

3. System parameter table

All 173 source rows are reproduced, including the duplicate P-145. Range is the permitted setting range as printed; Step is the adjustment increment; Default is the source default; Level is the access level (1, 2 or 3). Gaps in parameter numbering follow the source.

Values are retained as printed, including inconsistent range/default entries and stitch-length notation. Appendix A identifies these source issues. Units are shown only where stated in the source.

Code	Parameter / description	Range	Step	Default	Level
P-01	**Maximum pedal speed** Sets the maximum motor speed under pedal control.	200-5000 rpm	100	4000	1
P-02	**Soft start** Sews the first few stitches at low speed. 0: Off; 1-9: Number of soft-start stitches.	0-9	1	2	1
P-04	**Maximum speed for fixed-stitch sewing** Sets the maximum speed for fixed-stitch sewing.	200-4000 rpm	100	3000	1
P-06	**Zero stitch-length correction** With stitch length set to 0 mm, fine-adjust this value until the actual stitch length is zero.	50-150	1	100	2
P-07	**Forward stitch-length correction** Forward stitch-length scaling ratio for backtack stitches.	50-150 %	1	105	2
P-08	**Reverse stitch-length correction** Reverse stitch-length scaling ratio for backtack stitches.	50-150 %	1	105	2
P-09	**Speed limit for reverse-sewing switch** Sets the speed limit when the reverse-sewing switch is used.	500-1500 rpm	50	800	1
P-10	**Custom-pattern count in fixed-stitch sewing** 0: The set value is the stitch count for each section. 1: In custom-pattern fixed-stitch sewing, the value is the number of pattern repeats; total stitches = stitches per pattern x set value.	0/1	1	1	1
P-12	**Presser-foot lift height at an intermediate stop** Sets lift height when sewing pauses. Applies to the stepper-driven presser foot.	0-80	1	60	2
P-13	**Maximum presser-foot lift height** Sets maximum lift height after thread trimming. Applies to the stepper-driven presser foot.	0-80	1	75	2
P-14	**Presser-foot lifting speed** Stepper speed for raising the presser foot. Applies to stepper drive.	20-500 rpm	10	500	2
P-15	**Presser-foot lowering speed** Stepper speed for lowering the presser foot. Applies to stepper drive.	20-500 rpm	10	400	2
P-16	**Soft-lowering duty cycle** Sets the duty cycle for soft lowering.	0-100	1	8	2
P-17	**Needle-thread tension** Adjusts needle-thread tension.	0-100	1	45	2
P-18	**Omit end backtack immediately after start backtack** If enabled, heeling back to trim immediately after start backtacking trims without end backtacking. 0: Off; 1: On.	0/1	1	0	1
P-19	**Stop after start backtacking** 0: Off; 1: Stop after start backtacking.	0/1	1	0	1

Code	Parameter / description	Range	Step	Default	Level
P-20	**Auxiliary machine-head button function** 0: Off; 1: Manual thread trimming in standby; 2: Manual presser-foot operation after trimming; 3: Manual fabric cutting.	0/1/2/3	1	0	1
P-21	**Soft-start speed 1** Speed of the first soft-start stitch.	100-3000 rpm	50	400	1
P-22	**Soft-start speed 2** Speed of the second soft-start stitch.	100-3000 rpm	50	1000	1
P-23	**Soft-start speed 3** Speed of soft-start stitches 3-9.	100-3000 rpm	50	1500	1
P-24	**Presser-foot soft lowering** Slows presser-foot lowering to prevent fabric damage.	0/1	1	1	1
P-25	**Presser-foot lifting enable** 0: Off; 1: On; 2: Enabled only after thread trimming.	0/1/2	1	1	1
P-26	**Thick-section function** 0: Off; 1: On.	0/1	1	0	1
P-27	**Positioning at power-on** Automatically moves the machine head to the needle-up position at power-on. 0: Off; 1: On.	0/1	1	0	1
P-28	**Safety-switch signal mode** 0: Normally open; 1: Normally closed; 2: Protection disabled.	0/1/2	1	0	1
P-29	**Presser-foot soft-lowering time** Longer settings make presser-foot lowering slower.	10-500 ms	5	120	2
P-30	**Bobbin-thread counting enable** 0: Counting off; 1: Count down to the set value, then automatically restart counting; 2: Count down to the set value, then stop the motor.	0/1/2	1	0	1
P-31	**Initial bobbin-thread value** Sets the initial bobbin-thread value.	200-4000(0.1 m)	20	1600	1
P-32	**Special end-backtack mode** 0: Off; 1: CDC end backtacking.	0-1	1	0	2
P-33	**Special start-backtack mode** 0: Off; 1: ABA start backtacking; 2: BAB start backtacking.	0-2	1	1	2
P-34	**Standard backtack speed control** 0: Automatic; 1: Pedal control.	0/1	1	0	2
P-35	**Piece-count multiplier** Sets the piece-count multiplier.	0-50	1	0	1
P-36	**Initial piece count** Sets the initial piece count.	0-1000	5	100	1
P-37	**Thread-wiper operating time** Sets the thread-wiper operating time.	0-800 ms	10	40	2
P-38	**Piece-count mode** 0: Off; 1: Count up to the set value and automatically restart; 2: Count down to the set value and automatically restart; 3: Count up to the set value and stop the motor; 4: Count down to the set value and stop the motor.	0/1/2/3/4	1	0	1
P-40	**Tension release when lifting the presser foot** 0: No tension release during presser-foot lifting; 1-5: Tension-release operating time during lifting, in seconds.	0-5	1	0	2
P-41	**Minimum speed** Minimum sewing speed under pedal control.	100-500 rpm	10	200	1

Code	Parameter / description	Range	Step	Default	Level
P-42	**Pedal response curve** 0: Normal; 1: Slow acceleration; 2: Fast acceleration.	0/1/2	1	0	1
P-44	**Thread-trimming speed** Sets thread-trimming speed.	100-500 rpm	10	350	1
P-45	**Reverse-switch speed-limit enable** Limits speed to help prevent needle breakage during reverse sewing. 0: No limit; 1: Momentary limit; 2: Continuous limit.	0/1/2	1	0	1
P-46	**Sewing delay after presser-foot lowering** Delay to ensure that the presser foot has lowered before sewing starts.	0-800 ms	10	0	2
P-47	**Knee-lifter evaluation speed during sewing** Sets the speed used to evaluate knee-operated presser-foot lifting while sewing.	200-1000 rpm	50	500	2
P-48	**Knee-operated lift height during sewing** Presser-foot lift height when the knee lifter is operated during sewing.	0-100	1	0	2
P-49	**Presser-foot lift hold time** Forcibly switches the lifting output off after the set hold time.	1-60 s	1	25	2
P-50	**Full-voltage presser-foot lift output time** Sets the duration of full-voltage lift output.	0-800 ms	10	150	2
P-51	**Presser-foot lift output duty cycle** Sets the duty cycle of the lift output.	0-100	1	40	2
P-53	**Start-backtack speed** Sets start-backtack speed.	100-3000 rpm	50	1800	1
P-56	**End-backtack speed** Sets end-backtack speed.	100-3000 rpm	50	1800	1
P-59	**Continuous backtack speed** Sets continuous backtack speed.	100-3000 rpm	50	1800	1
P-60	**Disable backtack speed limit** 0: Software speed limit enabled; 1: Software speed limit disabled. Stitches may be unstable at high speed with a long stitch length.	0/1	1	0	2
P-61	**Disable angle limit for stitch-length changes by head button** 0: Changes allowed only within the permitted angle range; 1: Changes allowed at any angle. Stitches may not overlap and the needle may break. Pressing reverse at the start of sewing actuates the feed dog.	0/1	1	0	2
P-62	**Pedal travel to start sewing** Pedal position for starting sewing, measured from neutral.	10-50(0.1 deg)	1	15	2
P-63	**Pedal travel to start acceleration** Pedal position for starting acceleration, measured from neutral.	10-100(0.1 deg)	1	50	2
P-64	**Pedal travel for maximum speed** Pedal position for maximum speed, measured from neutral.	10-150(0.1 deg)	1	90	2
P-65	**Pedal travel for presser-foot lifting** Pedal position for lifting the presser foot, measured from neutral.	-100--10(0.1 deg)	1	-20	2
P-67	**Pedal travel for trimming 1** Pedal position for starting trimming when presser-foot lifting is disabled, measured from neutral.	-100--10(0.1 deg)	1	-50	2
P-68	**Pedal travel for trimming 2** Pedal position for starting trimming when presser-foot lifting is enabled, measured from neutral.	-100--10(0.1 deg)	1	-60	2
P-69	**Needle-down stop position** Adjusts the needle-down stop position.	0-240	1	160	1

Code	Parameter / description	Range	Step	Default	Level
P-70	**Reverse rotation to raise the needle** 0: Off; 1: Reverse rotation and needle positioning after trimming; 2: Reverse rotation and positioning when the presser foot lowers; 3: Both after trimming and when the presser foot lowers.	0-3	1	0	1
P-71	**Reverse needle-raising angle** Sets the angle for reverse rotation to raise the needle.	120-360	1	325	1
P-72	**Thread-clamp force** 0: Clamp disabled; 1-9: Clamp force adjustment.	0-9	1	3	1
P-73	**Thread-clamp engagement angle** Sets the thread-clamp engagement angle.	10-150(deg)	5	100	1
P-74	**Thread-clamp release angle** Sets the thread-clamp release angle.	160-300(deg)	5	270	1
P-75	**Machine-head reference position** Adjusts the machine-head reference position.	0-2400	1	1830	1
P-77	**Condensed-stitch enable** 0: Off; 1: On.	0/1	1	0	1
P-78	**Condensed-stitch mode** 1: At seam start; 2: At seam end; 3: At both start and end.	1/2/3	1	2	2
P-79	**Restore parameters** Special-function parameter. 3: Restore user-saved settings; 5/8: Restore factory settings.	0-15	1	0	1
P-80	**Maximum sewing speed** Sets maximum sewing speed. This parameter is not reset by parameter restoration.	300-5000 rpm	100	4000	2
P-81	**Pedal speed percentage** Sets the pedal speed percentage.	50-100	1	100	2
P-83	**Needle penetration boost** Use when the needle cannot penetrate the fabric. 0: Off; 1-15: Force adjustment.	0-15	1	0	2
P-84	**Thread-trimming force boost** Applies to solenoid-driven trimming. 0: Off; 1-15: Force adjustment.	0-15	1	0	2
P-85	**Trimmer engagement angle** Sets the trimmer engagement angle.	150-200	2	174	3
P-86	**Trimmer force-boost angle** Sets the trimmer force-boost angle.	200-300	2	260	3
P-87	**Trimmer release angle** Sets the trimmer release angle.	300-360	2	340	3
P-88	**Tension-release engagement angle** Sets the tension-release engagement angle.	0-360	2	250	2
P-89	**Tension-release disengagement angle** Sets the tension-release disengagement angle.	0-360	2	290	2
P-90	**Voice language** 0: Off; 1: Chinese; 2: English.	0-2	1	1	2
P-91	**Stitch-length change permission** 0: Changes allowed; 1: Changes prohibited.	0-1	1	0	2
P-92	**Pedal presser-foot lift command time** Confirmation time for the lift command when the pedal is heeled back.	10-300 ms	10	80	2

Code	Parameter / description	Range	Step	Default	Level
P-93	**Pedal neutral position** Fine-adjusts the pedal neutral position.	-15-15(0.1 deg)	1	0	2
P-95	**Anti-bird's-nest configuration** 0: Thread-clamp model; 1: Anti-bird's-nest model; 2: Thread-wiper model. The source does not define option 3.	0/1/2/3	1	0	2
P-100	**Knee-lifter enable** 0: Off; 1: On.	0/1	1	0	2
P-101	**Knee-lifter sensor zero-position voltage** Zero-position voltage of the knee-operated presser foot, in units of 0.01 V.	0-500	5	120	2
P-102	**Knee-lifter sensor full-travel voltage** Full-travel voltage of the knee-operated presser foot, in units of 0.01 V. Source range/default discrepancy: see Appendix A.	0-500	5	1800	2
P-103	**Tension-control / tension-release selection** 0: Thread-tension control; 1: Conventional tension-release solenoid control.	0/1	1	1	2
P-104	**Pattern-completion needle stop** 0: Off; 1: Completes all stitches in the current pattern before stopping.	0/1	1	0	2
P-109	**Full-voltage presser-foot duty cycle** Duty cycle at full-voltage presser-foot output, providing a buffer when the foot is actuated.	50-100	1	85	2
P-110	**Fabric thickness / tension control** Increases tension as appropriate when sewing thick fabric.	0-10	1	0	2
P-111	**Thick-section sewing speed** Speed limit for sewing thick sections.	500-3000 rpm	50	1500	2
P-112	**Thick-section stitch-length compensation** Stitch-length compensation factor for thick sections.	50-150 %	1	120	2
P-113	**Stitch-length mode for additional stitches** 0: Normal stitch length; 1: Additional-stitch length set by P114; 2: Reverse sewing at normal stitch length; 3: Reverse sewing at additional-stitch length.	0-3	1	0	1
P-114	**Additional-stitch length** For 5 mm models: 1.0-5.0 mm. For 7 mm models: 1.0-7.0 mm. Source range notation is retained; see Appendix A.	10-50(70) mm	1	35	1
P-115	**Reverse-sewing button function** 0: Reverse; 1: Condensed stitching; 2: Additional stitch; 3: Reverse + additional stitch; 4: Condensed + additional stitch; 5: Manual thick-section mode; 6: Travel switch (reverse allowed); 7: Travel switch (reverse prohibited).	0-7	1	0	2
P-116	**Additional-stitch button function** 0: Reverse; 1: Condensed stitching; 2: Additional stitch; 3: Reverse + additional stitch; 4: Condensed + additional stitch; 5: Manual thick-section mode.	0-5	1	2	2
P-117	**Condensed-stitch length via head button** Sets condensed-stitch length for the machine-head button.	50-150	1	110	2
P-118	**Condensed-stitch count** Sets the number of condensed stitches.	1-10	1	2	2
P-119	**Condensed-stitch length at seam start** Sets condensed-stitch length at the start of sewing.	50-150	1	107	2
P-121	**Trimming stage 1 start angle** Sets the start angle of trimming stage 1.	200-300	2	240	2

Code	Parameter / description	Range	Step	Default	Level
P-122	**Trimming stage 1 travel** Sets the travel of trimming stage 1.	0-150	1	75	2
P-123	**Trimming stage 2 start angle** Sets the start angle of trimming stage 2.	250-360	2	350	2
P-124	**Trimming stage 2 travel** Sets the travel of trimming stage 2.	0-150	1	125	2
P-125	**Trimming at an intermediate fixed-stitch stop** 0: Off; 1: On; 2: If the thread breaks midway, press reverse to sew the current section again. In this mode, the normal additional-stitch and reverse-button functions are inactive.	0/1/2	1	0	2
P-126	**Tension release at seam start** 0: Off; 1: On.	0/1	1	1	2
P-127	**Delay before start-of-seam tension release** Sets the delay before tension release at the start of sewing.	0-1000	10	0	2
P-128	**Start-of-seam tension-release duration** Sets the duration of tension release at the start of sewing.	0-1000	10	660	2
P-129	**Display backlight** Sets display backlight brightness.	0-10	1	5	1
P-130	**Voice volume** 0: Off; 1-30: Volume level.	0-30	1	20	1
P-131	**Save machine manufacturer's parameters** 0: Off; 1: Saves all current parameter values as machine-manufacturer settings.	0-1	1	0	3
P-133	**Additional-stitch mode** 0: Additional stitches allowed at intermediate stops and after trimming; 1: Allowed only at intermediate stops.	0-1	1	1	1
P-135	**Intermediate backtack enable** 0: Off; 1: On.	0-1	1	0	1
P-136	**Intermediate backtack stitch count** Sets 1-50 stitches.	1-50	1	4	1
P-137	**Intermediate backtack repeat count** Sets 1-10 back-and-forth cycles.	1-10	1	1	1
P-138	**Screen lock** 0: Off; 1: On.	0-1	1	1	1
P-139	**Screen-lock time** Description specifies 30-240 s. The source range column shows 0-1; retained here. See Appendix A.	0-1	1	30	1
P-140	**Anti-bird's-nest: delay before thread hooking** Delay from the end of trimming to the thread-hooking action.	0-500 ms	5	40	2
P-141	**Anti-bird's-nest: thread-hooking duration** Operating time of the thread-hooking solenoid.	0-500 ms	5	80	2
P-142	**Anti-bird's-nest: delay after thread hooking** Delay before switching off the thread-hooking solenoid.	0-500 ms	5	50	2
P-143	**Anti-bird's-nest: thread-hooking duty cycle** Adjusts the operating force of the thread-hooking solenoid.	0-100	1	100	2
P-144	**Anti-bird's-nest: suction duration** Operating time of the suction air valve.	0-2000 ms	10	350	2

Code	Parameter / description	Range	Step	Default	Level
P-145	**Anti-bird's-nest: thread-support duration** Operating time of the thread-support solenoid.	0-500 ms	5	50	2
P-146	**Anti-bird's-nest: suction start angle** Angle at which suction starts during thread trimming.	150-360	2	154	2
P-145	**Anti-bird's-nest: thread-support start angle** Start angle of the thread-support solenoid. The source repeats P-145 for this row; see Appendix A.	0-360	2	180	2
P-150	**Maximum stitch length** Sets the maximum stitch length. Source range notation is retained; see Appendix A.	10-50(70) mm	1	50	2
P-151	**Prevent thread pull-out at seam start** 0: Off; 1: On.	0-1	1	0	2
P-152	**Stitch length for thread pull-out prevention** Stitch-length setting; physical range 1.0-5.0 mm.	10-50	1	40	2
P-153	**Machine-head button toggle mode** 0: Off; 1: Press once to enable and again to cancel, e.g. condensed stitching, thick-section mode or presser-foot operation.	0-1	1	0	2
P-154	**Machine-head reverse-button type** 0: Conventional switch; 1: Travel switch.	0-1	1	0	3
P-155	**Needle-bar light brightness** 0: Off; 1-5: Five brightness levels. HMI sequence: 0/1/2/3/4/5/0.	0-5	1	5	2
P-156	**Lubrication reminder time** 0: Off; 15-3000: Powered-on trial-use time, as stated in the source. The source gives no time unit; see Appendix A.	0-3000	15	0	3
P-160	**1/2-stitch additional-stitch length** For 5 mm models: 0-5.0 mm. Source range notation is retained; see Appendix A.	0-50 mm	1	10	1
P-161	**1/2-stitch button function** 0: Reverse; 1: Condensed stitching; 2: Additional stitch at 1/2 stitch length.	0-2	1	2	2
P-163	**Presser-foot height at seam start** Sets presser-foot height at the start of sewing.	0-100	1	0	1
P-164	**Start-of-seam presser-foot start angle** Sets the start angle for presser-foot action at the start of sewing.	0-300	5	0	2
P-165	**Start-of-seam presser-foot end angle** Sets the end angle for presser-foot action at the start of sewing.	0-500	5	300	2
P-168	**First-stitch starting speed** Sets the starting speed for the first stitch.	200-5000 rpm	100	3500	1
P-170	**Speed-based compensation enable** 0: P171-P176 disabled; 1: P171-P176 enabled.	0-1	1	1	2
P-171	**Speed-based forward compensation** Forward stitch-length compensation factor by speed.	50-150	1	100	2
P-172	**Speed-based reverse compensation** Reverse stitch-length compensation factor by speed.	50-150	1	100	2
P-173	**Start-backtack forward speed compensation** Forward stitch-length compensation factor by speed during start backtacking.	50-150	1	100	2

Code	Parameter / description	Range	Step	Default	Level
P-174	**Start-backtack reverse speed compensation** Reverse stitch-length compensation factor by speed during start backtacking.	50-150	1	100	2
P-175	**End-backtack forward speed compensation** Forward stitch-length compensation factor by speed during end backtacking.	50-150	1	100	2
P-176	**End-backtack reverse speed compensation** Reverse stitch-length compensation factor by speed during end backtacking.	50-150	1	100	2
P-177	**Thread-support / puller pulse-output selection** 0: Thread-support solenoid output; 1: Stitch-length pulse signal output; 2: Fabric-cutting machine; 3: Puller roller.	0-3	1	0	2
P-178	**1/2-stitch / needle-thread detection input** 0: 1/2-stitch signal input; 1: Needle-thread detection sensor input.	0-1	1	0	2
P-179	**Needle-thread detection sensitivity** 0: Detection off; 1-10: Reports an error if no valid needle-thread detection signal is received within the set stitch count. The source range extends to 20; see Appendix A.	0-20	1	2	2
P-180	**Stitch-length-based compensation enable** 0: P181-P200 disabled; 1: P181-P200 enabled. The source lists individual entries only through P194.	0-1	1	1	2
P-181	**1 mm forward compensation** Forward stitch-length compensation factor at 1 mm.	50-150	1	100	2
P-182	**1 mm reverse compensation** Reverse stitch-length compensation factor at 1 mm.	50-150	1	100	2
P-183	**2 mm forward compensation** Forward stitch-length compensation factor at 2 mm.	50-150	1	100	2
P-184	**2 mm reverse compensation** Reverse stitch-length compensation factor at 2 mm.	50-150	1	100	2
P-185	**3 mm forward compensation** Forward stitch-length compensation factor at 3 mm.	50-150	1	100	2
P-186	**3 mm reverse compensation** Reverse stitch-length compensation factor at 3 mm.	50-150	1	100	2
P-187	**4 mm forward compensation** Forward stitch-length compensation factor at 4 mm.	50-150	1	100	2
P-188	**4 mm reverse compensation** Reverse stitch-length compensation factor at 4 mm.	50-150	1	100	2
P-189	**5 mm forward compensation** Forward stitch-length compensation factor at 5 mm.	50-150	1	100	2
P-190	**5 mm reverse compensation** Reverse stitch-length compensation factor at 5 mm.	50-150	1	100	2
P-191	**6 mm forward compensation** Forward stitch-length compensation factor at 6 mm.	50-150	1	100	2
P-192	**6 mm reverse compensation** Reverse stitch-length compensation factor at 6 mm.	50-150	1	100	2
P-193	**7 mm forward compensation** Forward stitch-length compensation factor at 7 mm.	50-150	1	100	2
P-194	**7 mm reverse compensation** Reverse stitch-length compensation factor at 7 mm.	50-150	1	100	2

Code	Parameter / description	Range	Step	Default	Level
P-201	**Pedal mode** 1: Comfort; 2: Standard; 3: Sport.	1/2/3	1	2	1
P-221	**Thread-tension scaling factor** Scaling factor at 200 rpm.	10-100	1	100	2
P-222	**Thread-tension scaling factor** Scaling factor at 400 rpm.	10-100	1	96	2
P-223	**Thread-tension scaling factor** Scaling factor at 600 rpm.	10-100	1	89	2
P-224	**Thread-tension scaling factor** Scaling factor at 800 rpm.	10-100	1	74	2
P-225	**Thread-tension scaling factor** Scaling factor at 1000 rpm.	10-100	1	66	2
P-226	**Thread-tension scaling factor** Scaling factor at 1500 rpm.	10-100	1	59	2
P-227	**Thread-tension scaling factor** Scaling factor at 2000 rpm.	10-100	1	54	2
P-228	**Thread-tension scaling factor** Scaling factor at 2500 rpm.	10-100	1	51	2
P-229	**Thread-tension scaling factor** Scaling factor at 3000 rpm.	10-100	1	49	2
P-230	**Thread-tension scaling factor** Scaling factor at 3500 rpm.	10-100	1	47	2
P-231	**Thread-tension scaling factor** Scaling factor at 4000 rpm.	10-100	1	45	2
P-232	**Stepper thread-clamp free-travel calibration** Calibrates free travel of the stepper-driven thread clamp.	80-120	1	100	2

4. Fault and status codes

Check the fault code shown on the display against the table below. Codes grouped in the source share the same fault description and checks. STEP2 denotes the feed motor; STEP1 denotes the trimmer/presser-foot motor.

Display	Fault / status	Possible cause	Checks / action
E011 / E012	Motor signal fault	Motor position-sensor signal fault.	Check motor plug contact, the motor signal detector, and correct installation of the sewing-machine handwheel.
E021 / E023	Motor overload	Motor stalled or overloaded.	Check motor plug contact; check whether the machine head or trimming mechanism is jammed, whether the fabric exceeds the specified thickness, and whether current detection is normal.
E101	Hardware drive fault	Abnormal current detection or driver shoot-through.	Check the system current-detection circuit and drive components for damage.
E111 / E112	System overvoltage	Actual voltage too high; braking-circuit fault; incorrect voltage detection.	Check incoming supply voltage, braking-resistor operation and the system voltage-detection circuit.
E121 / E122	System undervoltage	Actual voltage too low or incorrect voltage detection.	Check incoming supply voltage and the system voltage-detection circuit.
E131	Current-detection circuit fault	Abnormal current detection.	Check the system current-detection circuit.
E133	OZ circuit fault	Abnormal OZ circuit.	Check the system OZ circuit.
E134	DBFLT fault	Abnormal "automatic resistor" circuit (source wording).	Check the "automatic resistor" plug contact and the resistor for damage. The component name requires source confirmation; see Appendix A.
E201	Excessive motor current	Abnormal current detection or abnormal motor operation.	Check the system current-detection circuit and motor signals.
E211 / E212	Abnormal motor operation	Abnormal motor operation.	Check motor plug contact and whether motor signals are mismatched.
E301	Panel communication fault	Communication data lost from the machine-head panel.	Check panel plug contact and panel components for damage.
E302	Panel E2PROM fault	Internal panel fault.	Check panel components for damage.
E303	SPI communication fault	Internal fault between the main controller and stepper controller.	Check main-control board components for damage.
E304	HMI primary/secondary-chip communication fault	Internal panel fault.	Check panel components for damage.
E402	Pedal ID fault	Pedal identification fault.	Check for a loose pedal connector.
E403	Pedal neutral calibration fault	Pedal neutral calibration value out of range.	Check whether the pedal is damaged or was not in the stop/neutral position during calibration.
E501	Head-tilt switch fault	Head-tilt switch activated.	Lower the machine head or check the head-tilt switch.
E502	Oil-level alarm	Oil-level alarm.	Add oil as indicated.

Display	Fault / status	Possible cause	Checks / action
E601	Hardware overcurrent fault	Feed motor STEP2 hardware overcurrent.	Check the system current-detection circuit and drive components for damage.
E602	Software overcurrent fault	Feed motor STEP2 software overcurrent.	Check the system current-detection circuit and drive components for damage.
E603	Current-detection circuit fault	Feed motor STEP2 current-detection circuit fault.	Check the system current-detection circuit and drive components for damage.
E604	Mechanical homing fault	Feed motor STEP2 initial mechanical-angle fault.	Check feed-motor plug contact.
E605	Motor stall	Feed motor STEP2 encoder or rotor jammed during initialization.	Check feed-motor plug contact and mechanical binding.
E606	Excessive position error	Feed motor STEP2 encoder angle reading too large during operation, or rotor jammed.	Check feed-motor plug contact, the system current-detection circuit and drive components for damage.
E607	Trimmer/presser-foot stepper hardware drive fault	Trimmer/presser-foot motor STEP1 hardware overcurrent.	Check the system current-detection circuit and drive components for damage.
E608	Trimmer/presser-foot stepper software overcurrent	Trimmer/presser-foot motor STEP1 software overcurrent.	Check the system current-detection circuit and drive components for damage.
E609	Trimmer/presser-foot stepper current-detection fault	Trimmer/presser-foot motor STEP1 current-detection circuit fault.	Check the system current-detection circuit and drive components for damage.
E610	Trimmer/presser-foot stepper homing-signal fault	Trimmer/presser-foot motor STEP1 initial mechanical-angle fault.	Check trimmer/presser-foot motor plug contact.
E611	Trimmer/presser-foot stepper stall	Trimmer/presser-foot motor STEP1 encoder or rotor jammed during initialization.	Check trimmer/presser-foot motor plug contact and mechanical binding.
E612	Trimmer/presser-foot stepper excessive position error	Trimmer/presser-foot motor STEP1 winding circuit (source wording).	Check the system current-detection circuit and drive components for damage.
E703	Needle-thread detection fault	No change in the needle-thread break-detection signal.	Press the reverse-sewing switch to clear the fault.
P.oFF	Power-off display	Power switched off.	Wait for the power supply to be restored.
EvAL	Trial-use protection	Trial period has expired.	Contact the dealer.
L.bob	Bobbin-thread alert	Bobbin-thread count is negative.	Replace the bobbin thread, press S to open the screen, then hold Start backtack for more than 2 seconds to clear the alert.
P.bob	Piece-count alert	Piece count is zero.	Press S to open the screen, then hold Start backtack for more than 2 seconds to clear the alert.

Appendix A. Source clarifications

The following points concern inconsistencies or omissions in the supplied Chinese manual. They are recorded for traceability. No missing parameter numbers, values or technical procedures have been invented.

Parameter numbering and data

1. P-145 is printed twice: once for the anti-bird's-nest thread-support operating time (default 50), and once for its start angle (default 180). Both original identifiers are retained. The second identifier requires confirmation.

2. P-102 has a printed range of 0-500 and a default of 1800. P-139 describes a screen-lock time of 30-240 s, but its range column shows 0-1 and its default is 30. These entries are reproduced without correction.

3. P-114 and P-150 show 10-50 (70) mm in the range column, while the descriptions refer to physical stitch lengths up to 5.0 or 7.0 mm. P-160 shows 0-50 mm, while its description refers to 0-5.0 mm. The source does not explicitly state the displayed-value scale.

4. P-95 lists a selectable range of 0/1/2/3, but describes only options 0, 1 and 2. P-179 has a range of 0-20, but its description explains only 0 and 1-10. P-180 refers to P181-P200, while the table supplies entries only through P194.

5. P-156 is titled as a lubrication-reminder time, but its description states powered-on trial-use time. No time unit is given. This difference is retained.

Key operation and display notation

6. The parameter-key table specifies P after password entry, whereas the detailed password procedure specifies the S/OK confirmation key. Both statements are retained in their respective sections.

7. The Reset-key table refers to both factory restoration and manufacturer-defined settings. The explicit procedures distinguish P79 = 8 (factory restoration), P79 = 3 (restore saved manufacturer settings), and P131 = 1 (save manufacturer settings). The parameter table also lists P79 = 5/8 for factory restoration.

8. The LED-key description calls the adjustment five levels but lists settings 0-5. This translation lists 0-5; P155 defines 0 as off and 1-5 as five brightness levels.

9. The source uses S, OK and S/Enter for the confirmation key. It also varies capitalization and punctuation in displays: Jp/JP, 1-DJ/1-dJ, 3-PD/3-Pd, 4-JD/4-Jd, LBOB/L.bob and PBOB/P.bob. These refer to the corresponding functions described in the manual.

Incomplete source sections and terminology

10. The source contents list socket definitions, but no socket-definition section or wiring pinout is present in the supplied PDF. The contents also list a separate aging section, while the body instead includes password mode. The burn-in shortcut is retained; no operating steps are supplied.

11. A heading for main-shaft encoder signal and solenoid testing appears without an accompanying procedure. No procedure has been added.

12. E134 names an "automatic resistor" circuit. The source does not define this component, so the original wording is retained for confirmation. E612 labels excessive position error but describes the STEP1 motor winding circuit; both statements are retained.

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