ARTISAN®

OWNER'S MANUAL

LK-1900 AN/B-H

LCD Keys

Bar-tacking and Button Sewing Machine

1 General Information

1.1 Technical Parameters

No.	TYPE / ITEM	
1	Purpose	Bartacking / Button Lockstitch
2	Sewing Area	X(lateral) direction 40mm × Y(longitudinal) direction 30mm
3	Max. Sewing Speed	3300rpm（3000rpm for MSC）
4	Stitch Length	0.1mm – 10.0mm (adjustable by 0.1mm)
5	Cloth Feed	Intermittent Feed(2-axis drive by pulse motor)
6	Needle Bar Stroke	41.2mm
7	Needle	DP ×5 #14 (DP×5 #11(F,M), (DP×17#21 thick cloth))
8	Type of Lifting Presser Foot	Driven by pulse motor
9	Height of Presser Foot	14mm (Standard), Max. 17mm
10	Total Number of Standard Patterns	100
11	Wiper Type	To work together with Presser Foot driven by Pulse Motor
12	Thread Catching Device	Standard : 0
13	Needle Thread Tension	Electrical Thread Tension Release
14	Shuttle	Standard Semi-rotary Hook or Semi-rotary Double Hook
15	Lubricating Method	Rotary Part: Lubricate with minimum amount
16	Lubricating Oil (Liquid)	Ordinary Sewing Machine Lubricating Oil (Liquid)
17	Grease	Ordinary Sewing Machine Grease
18	Data Memory	Flash Memory
19	Scaling Facility	20%~200%(by 1%) in X direction and Y direction respectively
20	Scaling Method	By increasing/decreasing the stitch length
21	Max. Sewing Speed Limitation	400-3300rpm (by 100rpm)
22	Pattern Selection	Specifying Pattern No. Type (1-200)
23	Bobbin Thread Counter	Up/Down Type (0 – 999999)
24	Sewing Machine Motor	500W Compact AC Servomotor (Direct Drive)
25	Dimensions	263mm×153mm×212mm
26	Weight	10 Kg
27	Rated Power	600W

28	Operation Temperature Range	0℃ - 45℃
29	Operation Humidity Range	35% - 85% （No Dew Condensation）
30	Line Voltage	AC 220V ± 10%; 50-60Hz

※ Please reduce the max. sewing speed in accordance with the sewing conditions.
※ Effective standard for product:QCYXDK0004—2016 “Computerized Control System for Industrial Sewing Machine”

1.2 Corresponding Machine Type

MSC20X/MASC20X electronic bar-tacking and button sewing machine

1.3 Input Mode

Use keys to input.

1.4 Display Method

Use black and white lattice LCD and LED to display all the information.

1.5 Panel Layout

The quadrate Panel can be divided into two parts, the display part and the operation part. The display part consists of 1 lattice LCD and 2 LEDs and the operation part consists of 17 keys. Refer to the picture of the panel.

1.6 Standardization

The function keys use standard images recognizable and popular within the industry. Image is an international language that can be understood by any nation.

1.7 Operation Mode

Function keys include READY key, RESET key, MODE key, THREADING/WINDING key, SELECTION key, UP/DOWN key, EDIT key, RETURN key and other keys for special functions. See operation instruction for detailed operating methods.

2 Operation and Debugging

2.1 Instructions of Operation Panel

(1) LCD

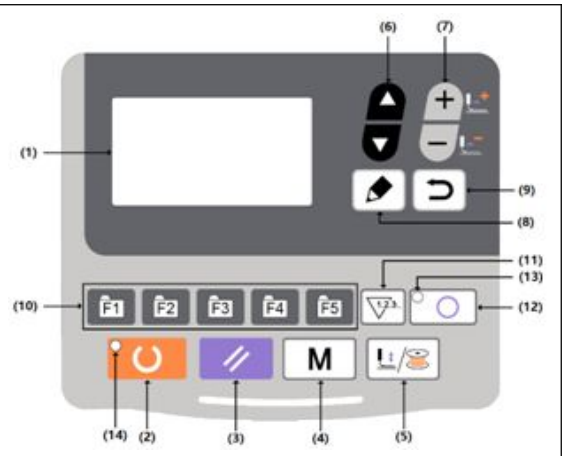
Display pattern number, shape and various other data.

(2) READY Key

This key changes from the setting state of the panel to the sewing state where the sewing machine actually operates.

(3) RESET Key

This key is used for canceling error or returning the set value to the initial value.



(4) MODE Key

This key initiates the setting of parameters or stored patterns.

(5) PRESSER FOOT/WINDING Key

This key is used to lift or lower the presser foot. When presser foot is up, move the needle bar back to origin; when the presser foot is down, move the needle bar to the right. Press this key when winding.

(6) SELECTION Key

This key is used to select among various pattern types, menu items or parameters.

(7) DATA SETTING Key

This key is used to modify the pattern number or parameter value. Under trial sewing mode, this key is used to move single needle and feed cloth.

(8) EDIT Key

This key is used to display editing interface, select item or display detailed information.

(9) RETURN Key

This key is used to return to the previous interface.

(10) DIRECT PATTERN (P Pattern)

Register P patterns. After registration, press the key to make immediate selection for sewing.

(11) COUNTER Key

Under sewing editing mode (unready for sewing), press it to enter counter setting mode.

(12) SPECIAL FUNCTION Key

This key is used to realize special functions according to setting.

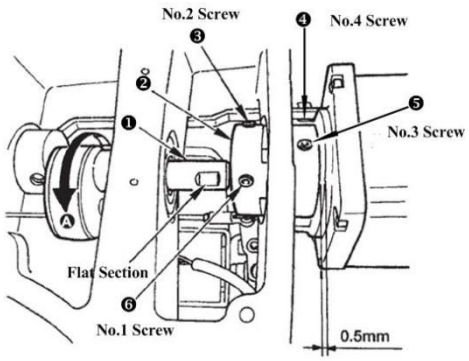
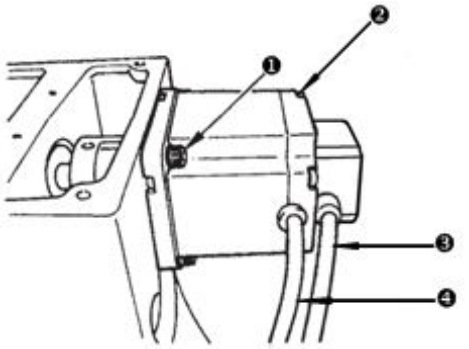
(13) SPECIAL FUNCTION LED

LED lights up when entering special function.

(14) SEWING LED

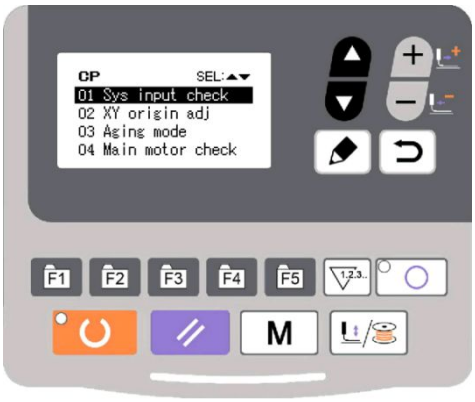
Under sewing mode, LED lights up.

2.2 Installing the Main Shaft Motor

Assemble the main motor to the main shaft ❶ through the coupling❷. And you need 4 screws to fix the coupling to the upper shaft and the main shaft. Fix the coupling with No.1 Screw❻and make sure that it is vertical towards the Flat Section, and then screw No.2 screw❸. Fix the coupling to the main shaft motor with No.3 screw❺, and make sure it is vertical to the flat section of the main shaft motor. Then screw the No.4 screw ❹ to finish the assembling task. The right diagram shows you the details:	
This right diagram shows you the directions of external cables of the main shaft motor (look from back, and the line is on your left-hand side): ❶ Screws for fixing the main shaft motor, totally 4; ❷ Screws for fixing the back cover of the motor, totally 4; ❸ main shaft motor encoder signal cable; ❹ power line for the main shaft motor.	

2.3 Text Mode

This mode is activated to conduct maintenance operation.

1） When the sewing LED is off, hold pressing M key for 3 seconds, and you would hear the ring of the buzzer. Then select item “11 system test” by pressing key and press key to enter test mode.	

2) Press key to change the function item for test and press key to enter the item for test. The functions represented by each number are as follows:

Function Test Item	Function	Description
01 System Input Test	Input signal test	LED light as the indicator to show the status

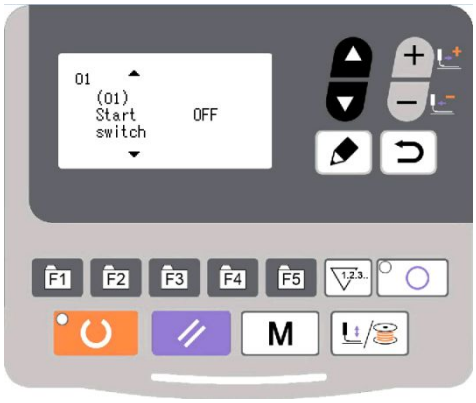
		of sensor input
02 XY Origin Adjustment	XY motor/origin sensor test	Display inching operation, origin searching operation and the status of X/Y origin sensor of X/Y motor
03 Aging Mode	Continuous running	Change to continuous running mode after setting the conditions of continuous running
04 Main Shaft Test	Main motor rotation number test	Set up the rotation number, start machine and display the actual rotation number.
06 Presser Foot Motor Test	Presser foot, thread-trimming motor/origin sensor test	Display inching operation of presser foot and thread-trimming motor, origin searching operation and the status of presser foot origin/presser foot sensor.
08 System Output Test	Output signal test	Drive the movement of output solenoid/air valve.
09 Panel Test	LED and LCD test	Test the status of panel displayer and LED light.

3） During the function test, if user presses  key or  key, the test will be terminated and the system will return to the status of step 2); however, if the aging mode has been used once, the aging mode can't be released unless the power supply is shut off.

2.3.1 01 System Input Test

1) This function is used to test the input status of panel keys, pedal switch and various sensors. Select "01 System Input Test" and press  key to enter.

2) Under this mode, press  key to change test item and the status of the test signal is displayed at the right side of the screen.



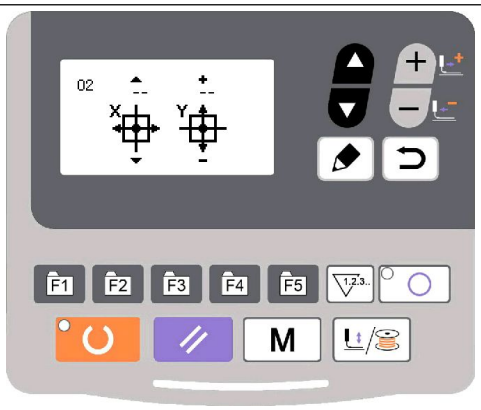
2.3.2 02 XY Origin Adjustment

This function is to display the inching operation, origin searching operation and the status of X/Y origin sensor of X/Y motor.

1) XY Motor Single Step Running Test

If after machine start, user has never pressed key to enter ready status but rather directly pressed M key to enter system test mode, enter “02 XY Origin Adjustment” and then user can directly press key and key to move XY motors step by step respectively. If user has ever pressed key to enter ready status after machine start, every time user enters “02 XY Origin Adjustment” mode, user need press key to search XY origin before moving motor step by step. Under this situation, this item indicates XY motor origin adjustment function.

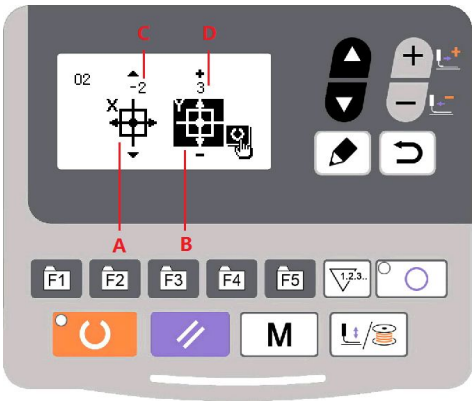
During moving XY motors, if the signal of the origin sensor changes, the icon displayed on the screen will become shadowed.



2) XY Motor Origin Adjustment

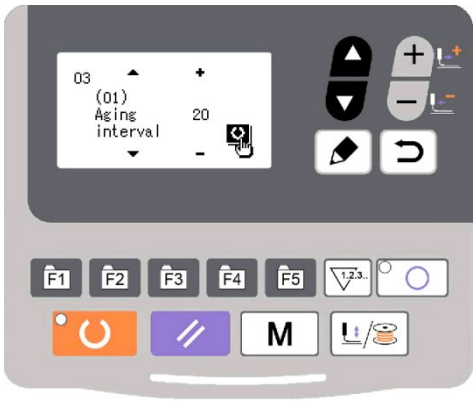
First press key to conduct XY origin search. On the screen will be displayed the origin sensor status A of X motor and the current adjustment value C, as well as the origin sensor status B of Y motor and the current adjustment value D.

Press the key and key to move X/Y motors respectively step by step and the adjustment value will change simultaneously. Observe the center of the presser foot and the position of needle hole. When they overlap, press key to save the adjustment value and return. If user doesn’t want to save the adjustment value, press key or M key to give up the saving.



2.3.3 03 Aging Mode

After selecting “03 aging mode”, press  key to enter continuous running mode. After setting its conditions, activate the continuous running mode; turn off the power to release the continuous running mode.

1) Interval Time Setting When the screen displays “(01) aging interval”, press  key to set the interval time between two operations. The setting range: 0~9900ms (by an increment of 100ms); default value: 2000ms.	

2) Origin Search at Sewing End

Press  key to shift to “(02) origin search” to set the origin search at sewing end.

OFF: invalid (default)

ON: valid (origin search at each sewing end)

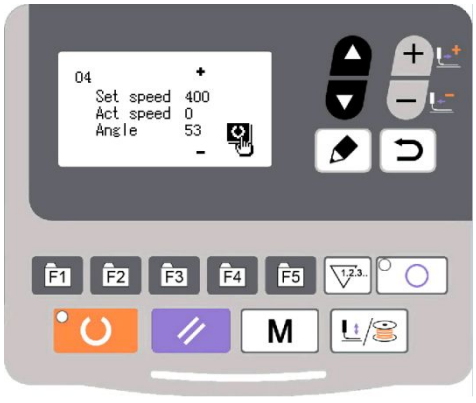
After setting, press  key to save and enter the main interface of normal sewing mode.

3) Continuous Operation

Under sewing mode of normal patterns, user can set pattern No., X/Y scale rate, max. rotation speed and other conditions before starting sewing. At sewing end, if the origin search is set to be valid in step 2, the system will conduct the origin search of X/Y presser foot and thread-catching/trimming motors. After the set interval time, the system will automatically start sewing again. If user need stop continuous sewing, press  key at sewing end to pause and turn off the power to terminate the continuous sewing.

2.3.4 04 Main Shaft Detection

Set the rotation speed of the machine, and then drive the main motor of the machine to display the actual rotation speed under the set rotation speed.

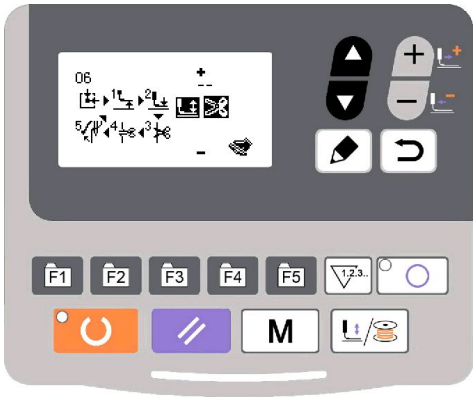
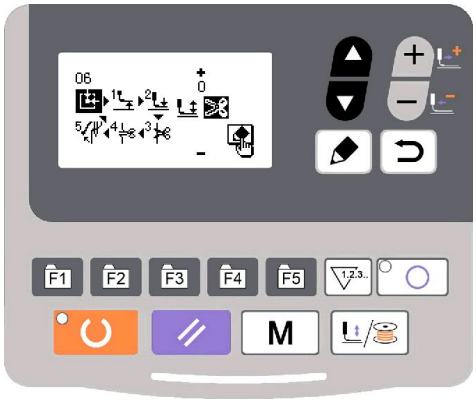
1) Preparation Select “04 main shaft detection” and then press  key to enter. Each motor will automatically execute origin research. The screen will display the “target rotation speed”, “actual rotation speed” and “main shaft angle” of the main shaft motor.	

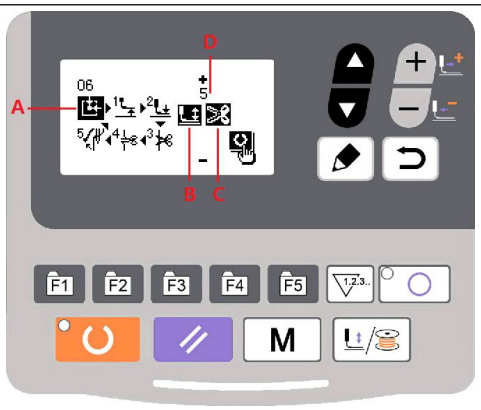
2) Operation

Press key to change the target rotation speed of the main shaft, and then press key to operate the machine at the set rotation speed. If the set rotation speed need changing, user can continue pressing key during the operation to set the rotation speed and then press key again to operate the machine at the new set rotation speed. Press key to stop the machine. After machine stops, press key or M key to quit.

2.3.5 06 Presser Foot Motor Detection

This function can be used to display the inching operation, origin search operation of the presser foot/thread-trimming motors and the status of presser foot origin sensor and thread-trimming sensor.

1) Presser Foot Motor Running Test The operation is similar to [2.3.202 XY 原点校正]. If the machine hasn't entered sewing ready status after power on, user can just enter "06 presser foot motor test" and press key to execute single step movement test of presser foot motor. At that time, the screen will display the signal status of the two sensors at the presser foot origin position and cutter position. Once origin search is made, user need step pedal to level 2 to execute origin search before moving the motor.	
2) Simulation Operation Test of Presser Foot Motor Under this mode, step pedal to level 2 to execute origin search, and then press key to make simulation operation of the motor at various work operation such as lifting up or lowering down.	

3) Presser Foot Motor Origin Adjustment Under this mode, step the pedal to level 2 to execute the origin search. Without pressing  key, the motor will remain at the origin position A. Press  key to change the origin adjustment value D, and at the same time presser foot origin sensor signal B and cutter position sensor signal D will change correspondingly. After setting the value, press  key to save and return. User can also press  key or  key to quit saving and return.	

2.3.6 08 System Output Test

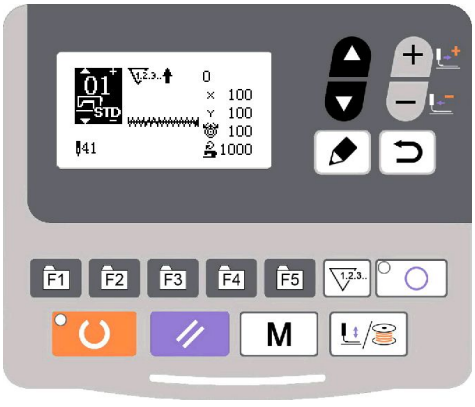
Under this mode, press  key to shift and select the device to be tested, and press  key to drive that device.

2.3.7 09 Panel Test

Under this test, press  key to light up all LED lights on the panel and the full screen of LCD, and press  key to return to normal display status.

2.4 Basic Operations

2.4.1 Pattern Number Setting

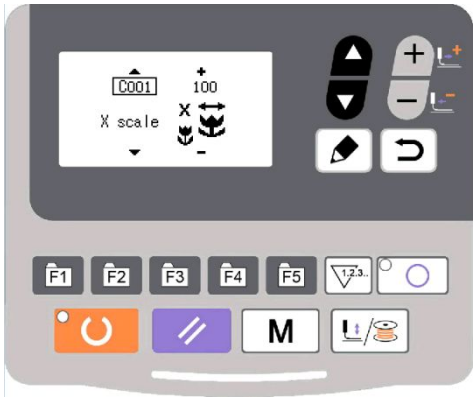
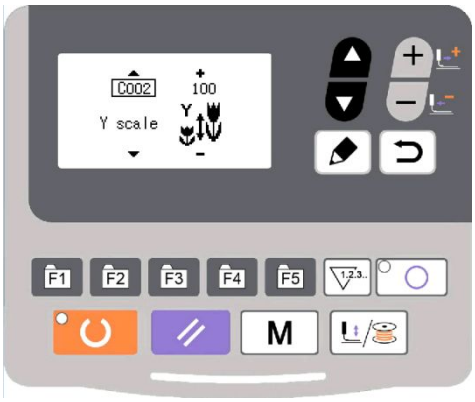
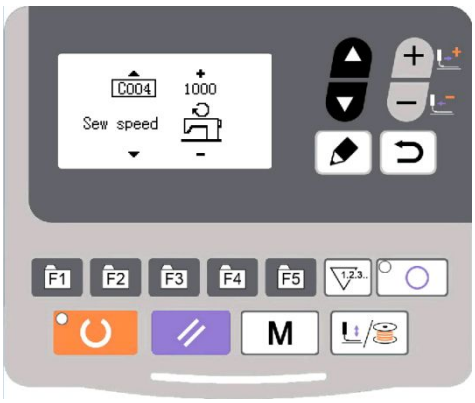
Open power swtich. On the left upper side of the screen will be displayed the pattern No., as well as pattern shape, X/Y scale rate, thread tension and sewing speed. Press  key to change pattern No. and press  key to shift pattern mode, that is, memory pattern, P pattern and C cyclic pattern.	

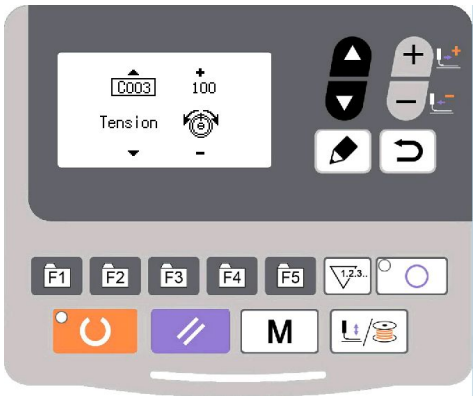
2.4.2 Item Data Setting

Press  key and the item data input interface will be displayed.

On the left side is the item to be edited and on the right side is the content of setting.

Press  key to select item, press  key to change the content and press  to save and return.

(1) X Size Input Press  to display C001 X size. Press  key to display the intended value. X/Y size can be inputted by % or by actual size (set by parameter U063) and the default setting is % input. **Note: if the set value is beyond the sewing range allowed by the presser foot, the needle may collide with the presser foot and thus cause needle breakage which is very dangerous.**	
(2) Y Size Input Press  to display C002 Y size. Press  key to display the intended value. X/Y size can be inputted by % or by actual size (set by parameter U063) and the default setting is % input. **Note: if the set value is beyond the sewing range allowed by the presser foot, the needle may collide with the presser foot and thus cause needle breakage which is very dangerous.**	
(3) Sewing Speed Input Press  key to display C004 sewing speed. Press  key to display the intended value. The inputted value is limited by the max. sewing speed set by parameter U001.	

(4) Thread Tension Setting Press  key to display C003 thread tension. Press  key to display the intended value. (input range: 0~200) Press  to confirm and return to the input interface.	

(5) Setting Completion

Press  key.

Presser foot moves and lifts and sewing LED lights up to enter sewing status.

Note: press READY key and the presser foot will return to the sewing start. The presser foot will lower down before moving. Therefore, please watch your fingers.

* Press  key to save the set value of pattern No., XY scale rate, etc.

* Press  key again, and sewing LED will be off. At that time, user can change the setting of each item.

* Please confirm the pattern No. first. Otherwise, press  key will initiate error M-306. At that time, user need reset the pattern No.

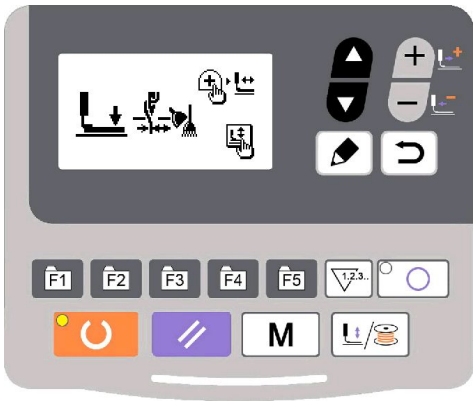
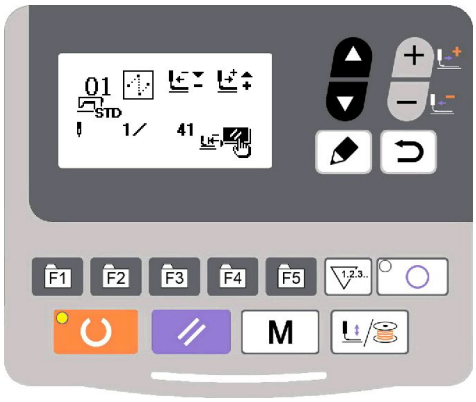
Note: if user turns off power before pressing  key, the set value of pattern No., XY scale rate, max. rotation speed and thread tension will not be saved.

2.4.3 Pattern Shape Confirmation

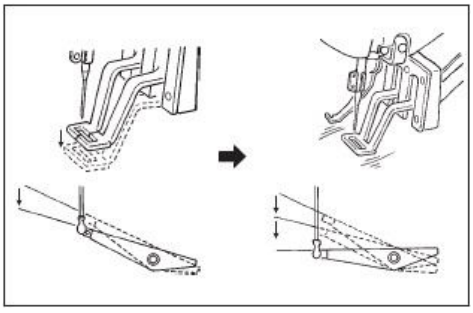
Warning!

1. After selecting the pattern, user must confirm the pattern shape. If the pattern shape is away from the presser foot, the needle may collide with the presser foot and break.

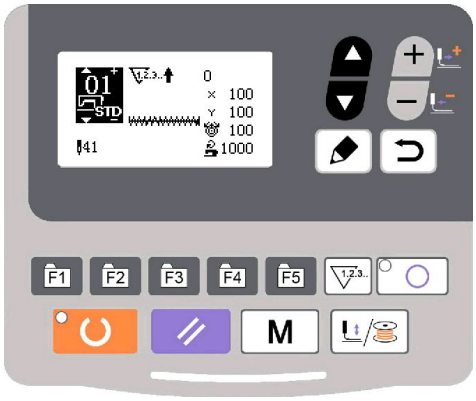
2. When confirming the pattern shape, please note that if user press +/- keys when the needle bar is down, the needle bar will lift automatically before the presser foot moves.

1) Press  key and sewing LED will light up. 2) Press  key to display “presser foot lowering interface”. 3) Press  key to display the shape confirmation interface. Under this mode, to step the pedal will not start sewing.	
4) Press  key to confirm the pattern is within the range of presser foot. 5) Press  key to return to sewing start position and lift the presser foot. Press  key to display the sewing interface at the present position. At that time, to step the pedal will start sewing from the present position.	

2.4.4 Sewing

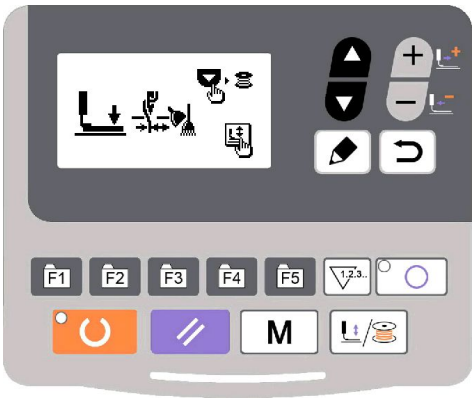
Sewing: 1. Put sewing material under presser foot. 2. Step pedal to level 1 to lower the presser foot and release the pedal to lift the presser foot. 3. Step pedal to level 2 to start sewing. 4. At sewing end, presser foot will lift and return to sewing start.	

2.4.5 Change to Other Pattern

Press  key and sewing LED is off. Press  key to set pattern No. XY scale rate, speed, etc. can be set in the same way as [2.4.1 item data setting]. Press  key and sewing LED lights up to enter sewing status. Please confirm the pattern shape after pattern selection, in case the pattern is away from presser	

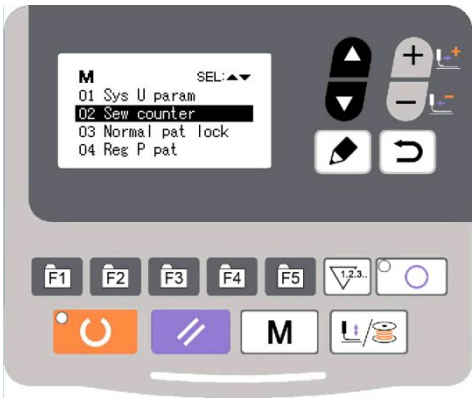
foot and needle will collide with presser foot and break during sewing.	

2.4.6 Bobbin Thread Winding

1) Press  key and sewing LED is off. 2) Press  key to lower the presser foot. 3) Press  key to display winding interface. 4) Step the pedal to run the sewing machine. 5) Step the pedal again or press  key to stop the sewing machine.	
6) Press  key and  key to finish the winding interface. **Note: when just power on, the winding function is inactive. Please set pattern No. or make other operations first and then press**  **key to search origin before the winding operation.**	

2.4.7 Sewing with Counter

(1) Counter Setting Method

1) Enter counter setting interface Under input mode, when sewing LED is off, press  key to display the mode interface. Press  key to select “02 counter setting”. Press  key to display counter interface	

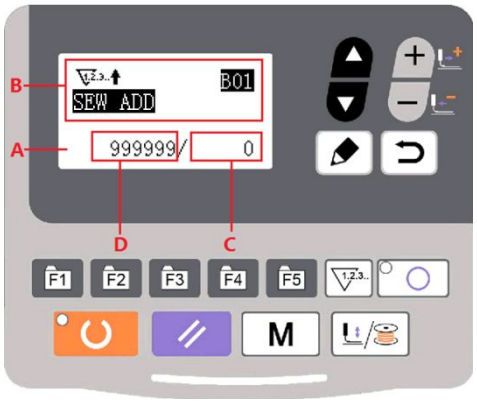
A.

Or, under input mode, when sewing LED is off, press  key to directly enter counter interface A.

When counter interface A is displayed, counter can be set under input mode. If the system is under sewing mode, press  key to turn off the sewing LED.

2) Select counter type

Press  key to shadow the counter type icon B. Press  key to select the proper counter type.



3) Change counter value

Press  key to shadow the counter value C. Press  key to input the set value.

4) Change the present counter value

Press  key to shadow present counter value D. Press  key to clear the present counter value and press  key to edit the present value.

(2) Counter Type

B01 Sewing Plus Counter

The present value will add 1 after sewing 1 shape.

Present value and set value.

B02 Sewing Minus Counter

The present value will deduce 1 after sewing 1 shape.

When present value reaches 0, minus counter interface will be displayed.

B03 Piece Number Plus Counter

Calculate present value of 1 cyclic sewing by adding number. When present value equals with set value, counter interface will be displayed.

B04 Piece Number Minus Counter

Calculate present value of 1 cyclic sewing by deducing number. When present value reaches 0, counter interface will be displayed.

B05 Bobbin Thread Plus Counter

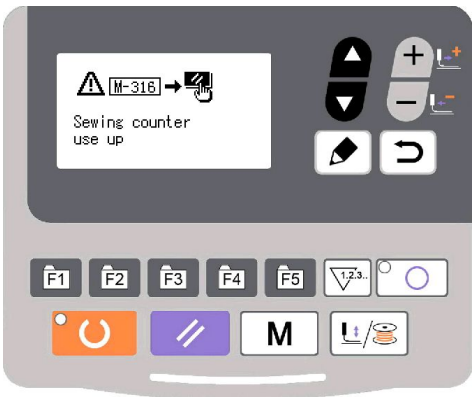
Add to the present value after every 10 stitches. When present value equals set value, counter interface will be displayed.

B06 Bobbin Thread Minus Counter

Deduce the present value after every 10 stitches. When present value reaches 0, counter interface will be displayed.

B07 Counter Nonuse

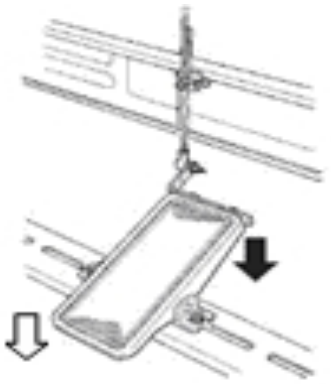
(3) Counter Release

When the counter value is exhausted, counter interface will be displayed. Press key to reset the counter and then the counter will start counting again.	

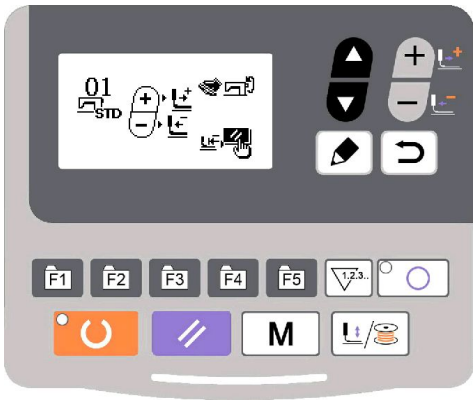
2.4.8 Pause

(1) Emergency Stop by Pedal

Pedal has three levels: level 1 to lower the presser foot, level 2 to start sewing and level 3 (to step backward with heel) for emergency stop.

1） Press the READY key and then step for ward the pedal to lower the presser fo ot; 2） Step forward the pedal again to start s ewing; 3） During sewing, user can step backward the pedal to stop the machine emergently and the p anel will display “E-002”.	

(2) Emergency Stop by Panel

1) Use parameter U031 to set the RESET key as 1 and the RESET key will be changed into pause key to stop the machine during sewing. 2) Press  to stop the machine and "E-002" will be displayed. Press  key again to release the error and the interface to feed cloth forward/backward will be displayed.	

3) Then, 3 operations are available:

1. Use starting switch to start sewing.

2. Press  key to trim thread and use  key to adjust position. Then use starting switch to start sewing.

3. Press  key to trim the thread and press  key again to return to origin.

4. After pressing RESET key to trim thread, user can step the pedal again to continue sewing.

2.5 P Pattern and C Pattern Setting

2.5.1 Use Pattern Key to Sew

User can register patterns (No.1~200) to P1~P99. Patterns can be registered after changing scale rate, max. rotation speed, thread tension and sewing position. User can also use pattern No. rolling window to register pattern. P1~P25 can be displayed at the same time.

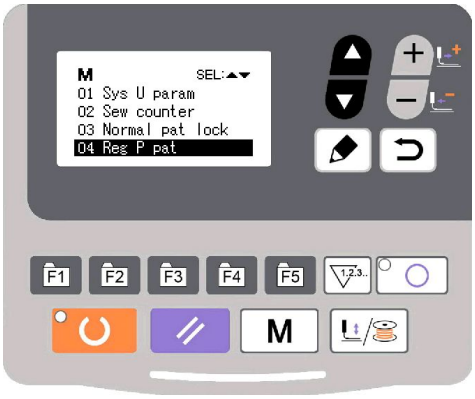
* When selecting P6~P25, user can use the combination of  keys (press simultaneously) to sew.

P-No.	Selection Key	P-No.	Selection Key	P-No.	Selection Key	P-No.	Selection Key
P1	P1	P8	P1+P4	P15	P4 +P5	P22	P2+P3+P4
P2	P2	P9	P1+P5	P16	P1+P2+P3	P23	P2+P3+P5
P3	P3	P10	P2+P3	P17	P1+P2+P4	P24	P2+P4+P5
P4	P4	P11	P2+P4	P18	P1+P2+P5	P25	P3+P4+P5
P5	P5	P12	P2+P5	P19	P1+P3+P4		
P6	P1+P2	P13	P3+P4	P20	P1+P3+P5		
P7	P1+P3	P14	P3+P5	P21	P1+P4+P5		

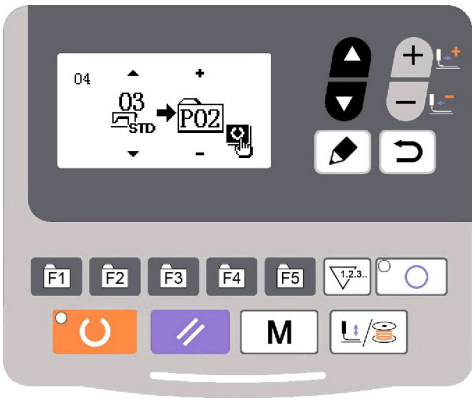
(1) Register to Pattern Key

Example: register pattern No.3 to P2, with X scale rate as 50%, max. speed of 2000sti/min, thread tension as 50 and pattern position as 0.5mm to the right and 1mm forward.

1) Turn on the power and then press [M] key. (Sewing LED is off.) Enter mode setting (memory switch setting). Press key to select “04 register P pattern” and press key to enter pattern register mode.



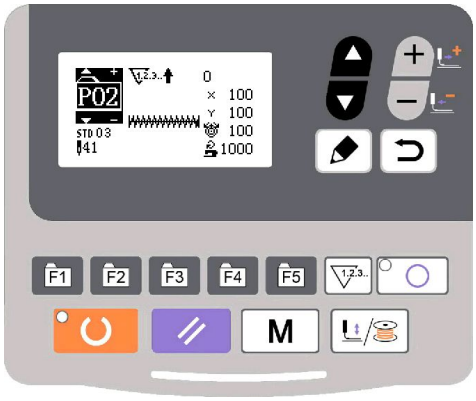
2) Press key to set the standard pattern as No.3. Press to set P-No. as 2. Press READY key to register P2 and the mode interface will be displayed. Then press [M] key or key.



3) Press key and then press key to edit item data.

4) Set separately the X scale rate as 50%, Y scale rate as 80%, sewing speed as 2000 sti/min and thread tension as 50.

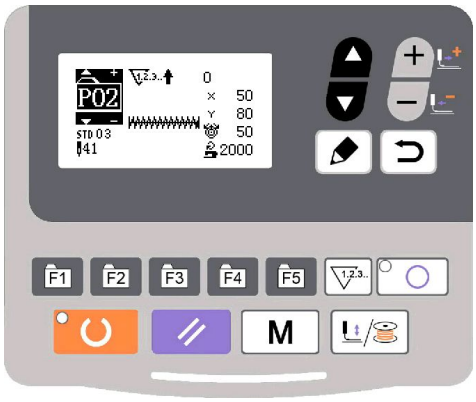
5) Press key and X scale rate will be displayed as 0.0. the increment of X direction movement can be set as 0.1mm. Press key to change the data into 0.5.



6) Press key and X scale rate will be displayed as 0.0. The increment of X direction movement can be set as 0.1mm. Press key to change the data into 1.0.

7) Press key to complete setting.

8) Press [M] key to complete pattern registering method.



9) Press M key to complete setting and return to normal mode.	

2.5.2 Group Sewing (Cyclic Sewing)

This machine can be used to sew several patterns in order cyclically.

Up to 99 patterns can be inputted. In addition, 99 data of group sewing can be registered. If necessary, please make a copy for future use.

(1) Cyclic Data Selection

1) Set as input mode Under input mode, when sewing LED is off, select cyclic sewing data. If the system is under sewing mode, press key to change into input mode. The cyclic sewing data can only be selected under data mode.	

2) Select cyclic sewing data

Press key to shift among the registered cyclic sewing data No. and continuous sewing data No. At this time, user can select the intended cyclic sewing No.

3) Conduct sewing

After selecting the continuous sewing data, press key and sewing LED lights up, ready for sewing.

Only cyclic data No.1 is registered without sewing patterns and therefore cannot be used for sewing. Please follow the following editing method to input patterns.

(2) Cyclic Sewing Data Editing Method

1) Set as input mode

Under input mode, when sewing LED is off, user can input continuous sewing data. If the machine is under sewing mode, press  key to change into input mode.

2) Set cyclic sewing data as editing status

Press  key to enter editing status and the selected pattern No. for editing will become shadowed. At that time, data can be edited.

3) Select editing content

Press  key to change the editing content and when move to the last pattern, user can add patterns.

After selecting the editing content, press  key to display the icon  which means pattern data can be inserted.

4) Change data of editing content

Press  key to change data of the editing content.

The registered pattern No. will be displayed for editing.

Press  key to delete the pattern data. User can repeat steps 3 and 4 to edit data.

5) Cancel pattern data input

Press  key to cancel pattern data input and return to input mode.

(3) Sewing Operation

1) Turn on the power.

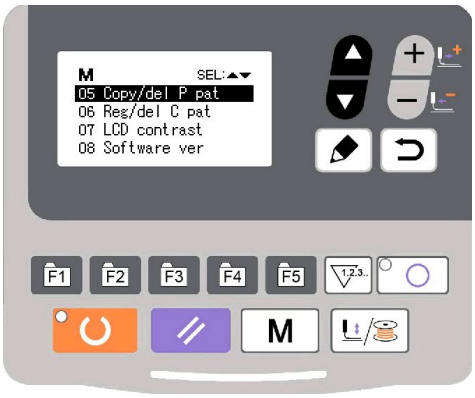
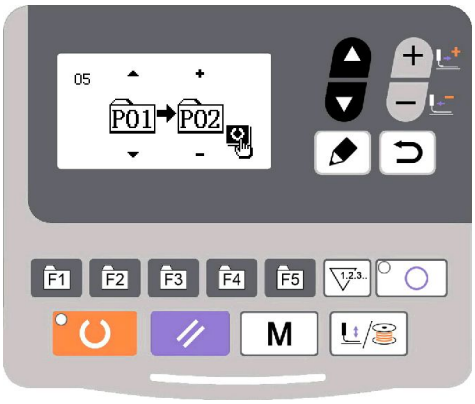
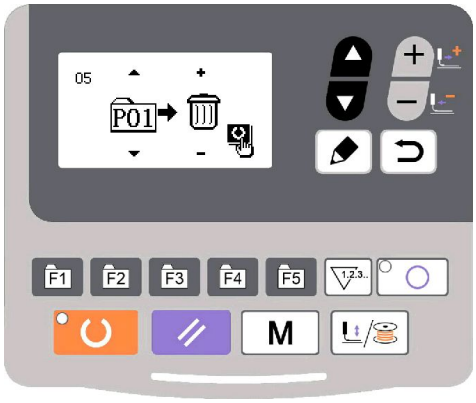
2) Press  key to select cyclic pattern and press  key to select the pattern No.

3) Press  key and sewing LED lights up. Presser foot will move and then lift.

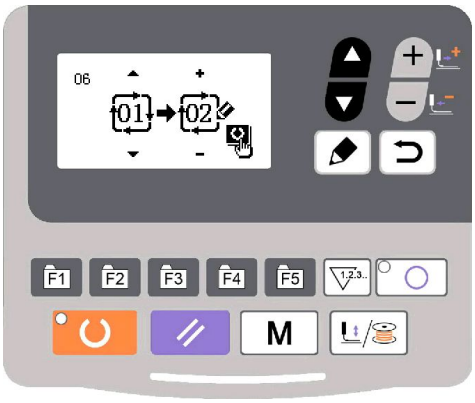
2.6 Copy/Delete P Pattern and C Pattern

Registered P patterns can be copied into new P patterns, so are C patterns. Existing P patterns or C patterns can also be deleted (the last C pattern cannot be deleted).

2.6.1 Copy/Delete P Pattern

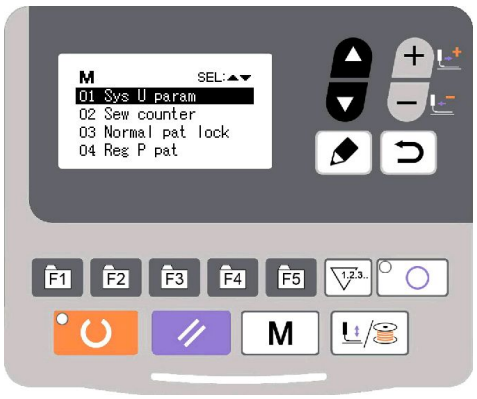
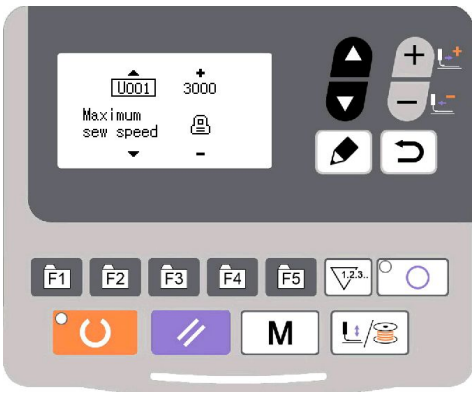
1) When sewing LED is off, press M key to enter system menu, press ▲▼ key to select "05 copy/delete P pattern" and then press ✎ key to enter this mode.	
2) Press ▲▼ key to shift to the P pattern number(existing) to be copied, and press +/- to shift to a new P pattern number (new). After confirmation, press ↺ key to save and return. Press ↩ key to quit saving and return.	
3) When pressing +/- to shift to new P pattern number, user can select icon 🗑, and if user press ↺ at that time, the existing P pattern will be deleted.	

2.6.2 Copy/Delect C Pattern

1) Under the system menu, press ▲▼ key to select "06 copy/delete C pattern" and press ✎ key to enter this mode. 2) Similar to the operation to copy/delete P pattern, press +/- key to shift new C pattern number to execute copying operation or press 🗑 key to delete C pattern.	

When press  key to shift to the icon  , it means to register a new empty C pattern.	

2.7 Memory Switch Activation and Change

1) Set input mode When sewing LED is off, memory switch data can be changed. Under sewing mode, press  key to shift to input mode. 2) Enter data editing interface Press  key to display the mode interface (operator level). Press  key to select “01 U parameter” and press  key to enter memory switch data interface.	
3) Select data to be changed Press  key to select the data item to be changed. 4) Change data Press  key to increase or decrease the set value. 5) Save and quit After completing data change, press  key to save and quit, and return to mode interface. Press  key again to return to sewing interface.	

2.7.1 User Parameter Setting List

No.	Function	Adjustment Rang	Default Value	Remarks
U001	Max Speed of Sewing （it can be set by an increment of 100rpm）	400～3000	3000	
U002	Sewing speed of 1st Stitch (thread-catching) (It can be set by an increment of 100rpm)	400～1500	1500	
U003	Sewing speed of 2nd Stitch (thread-catching) (It can be set by an increment of 100rpm)	400～3000	3000	
U004	Sewing speed of 3rd Stitch (thread-catching) (It can be set by an increment of 100rpm)	400～3000	3000	
U005	Sewing speed of 4th Stitch (thread-catching) (It can be set by an increment of 100rpm)	400～3000	3000	
U006	Sewing speed of 5th Stitch (thread-catching) (It can be set by an increment of 100rpm)	400～3000	3000	
U007	Thread tension of 1st Stitch (thread-catching)	0～200	200	
U008	Thread tension at the time of thread-trimming	0～200	0	
U009	Changeover time of thread tension at thread-trimming	－6～4	0	
U010	Sewing speed of 1st Stitch (no thread-catching) (It can be set by an increment of 100rpm)	400～1500	400	
U011	Sewing speed of 2nd Stitch (no thread-catching) (It can be set by an increment of 100rpm)	400～3000	900	
U012	Sewing speed of 3rd Stitch (no thread-catching) (It can be set by an increment of 100rpm)	400～3000	3000	

U013	Sewing speed of 4th Stitch (no thread-catching) (It can be set by an increment of 100rpm)	400～3000	3000	
U014	Sewing speed of 5th Stitch (no thread-catching) (It can be set by an increment of 100rpm)	400～3000	3000	
U015	Thread tension of 1st Stitch (no thread-catching)	0～200	0	
U016	Changeover timing of thread tension at the sewing start (no thread-catching)	－5～2	0	
U025	Presser Foot Division	0: Divided 1: Not divided	1	
U026	Adjustment of presser foot height in section level 2	50～90	70	
U031	Use keyboard (Clear Key) to stop sewing machine	0: invalid 1: RESET key 2: External emergency stop	0	
U032	Buzzer forbidden	0: no voice 1: panel operation voice 2: panel operation voice and alarm voice	2	
U033	Set number of stitches that thread-catching releases	1～7 stitches	2	
U034	Time deferrable in catching thread	－20～0	0	
U035	Forbid the control on catching upper thread	0: Normal 1: Forbidden	1	
U036	Select the Feed time. When stitches are not well tightened, set the value in “–” direction.	－8～16	12	
U037	Presser foot status at sewing end	0: Back to sewing start and then lift 1: Back to sewing start and at the same time lift 2: lift the presser foot manually by stepping the pedal	1	
U038	When the presser foot doesn’t lift, sewing can only be done by starting switch	0: Normal 1: Forbidden to lift presser foot	0	
U039	Search origin at sewing end	0: Not search origin 1: Search Origin	0	
U040	Search origin at cyclic sewing	0: Not Search origin 1: Search origin after the finish of	0	

		each pattern		
U041	Search origin at sewing of P pattern	0: Not search origin 1: Search Origin	0	
U042	Stop position of needle bar	0: upper position 1: highest position	0	
U043	Brightness of LED spotlight at the machine head	0～10	5	The larger value, the brighter; 0 means off.
U046	Forbid thread-trimming	0: normal 1: forbid thread-trimming	0	
U049	Set winding speed	800～2000	1600	
U055	Forbid start bar tacking at button sewing	0: start bar tacking 1: no start bar tacking	0	
U063	Setting method of X/Y scale rate	0: by percentage 1: by size	0	
U135	Presser foot movement order before sewing	0: stand-by at the sewing start 1: stand-by at the origin	0	
U200	Language	Set language	Simplified Chinese	
U212	Air valve separate presser foot lowering order	0: lower at the same time 1: lower left presser first and then right presser 2: lower right presser first and then left presser	0	
U213	Air valve separate presser lifting order	0: lift at the same time 1: lift left presser foot first and then right presser foot 2: lift right presser foot first and then left presser foot	0	
U214	Overturn Presser Foot Availability	0: forbidden 1: available	1	
U245	Clear lubricating alarm error	Press RESET to clear	Display the accumulated number of sewn stitches	

3 Service Parameter Setting

Service parameters are different from normal parameters and usually are not allowed to change by users. These parameters are for technicians to debug the machine.

3.1 Service Parameter Activation and Change

When sewing LED is off, hold pressing M key for 3 seconds until the buzzer rings so as to activate and change the service parameter.

The operation of service parameter change is the same with that of normal parameter, please refer to [2.7 memory switch activation and change].

3.2 Service Parameter List

No.	Function	Adjustment Range	Default Value	Remarks
K001	Pedal Type	0: Analog Single Pedal 1: Digital Single Pedal 2: Double Pedals 3: Double Pedals, but only the operation pedal controls	0	
K002	Intermediate Presser Foot Control Method	0: no control 1: not used 2: solenoid control 3: mechanical control	0	
K019	Lifting time of pneumatic outer presser foot	0～90	30	
K021	Positions of standard pedal & pedal switch	50～200	70	
K022	Position of standard pedal & stroke switch of high/low section.	50～200	120	
K023	Position of standard pedal & start switch	50～200	185	
K027	Dropping speed of presser foot at depressing pedal	100～4000pps	4000	
K028	Lifting speed of presser foot at stepping pedal	100～4000pps	1500	
K029	Lifting speed of thread-trimming presser foot at sewing end	100～4000pps	3000	
K043	Selection of machine rotating number at thread-trimming	3～8	8	
K044	Selection on whether to feed cloth in the direction for easy thread-trimming	0: Not Feed 1: Feed	0	
K045	Guide diameter of needle hole for feeding cloth at thread-trimming (by an increment of 0.2mm)	16～40（1.6mm～4.0mm）	16	

K056	Limited range of motion in +X direction (Right)	0～50mm	20	
K057	Limited range of motion in -X direction (Left)	0～50mm	20	
K058	Limited range of motion in +Y direction (Back)	0～30mm	15	
K059	Limited range of motion in -Y direction (Front)	0～30mm	15	
K064	Select thread wiping method	0: solenoid 1: motor	1	
K066	Impulse number for coactions of presser foot and wiper	30～60	45	
K074	Presser foot control mode shift	0: air valve control 1: motor control	1	
K095	Thread-trimming angle	－10～10	0	
K097	Thread-trimming method at pause	0: automatic thread-trimming 1: manual thread-trimming	1	
K102	X stepping motor full-current parameter	0～15	7	Effective after restart
K104	Y stepping motor full-current parameter	0～15	11	Effective after restart
K106	Thread-catching stepping motor full-current parameter	0～15	2	Effective after restart
K108	Presser stepping motor full-current parameter	0～15	14	Effective after restart
K109	X stepping motor semi-current parameter	0～15	7	Effective after restart
K110	Y stepping motor semi-current parameter	0～15	6	Effective after restart
K111	Presser foot stepping motor semi-current parameter	0～15	5	Effective after restart
K112	Main shaft stop correction	－10～10	0	
K120	Stitch number for alarm to add lubricating oil	3000～12000	5000	Unit: ten thousand stitches
K121	Counter Lock	0: Clear and Plus/Minus; 1: Clear Only; 2: Plus/Minus Only; 3: Neither Clear nor Plus/Minus	0	
K122	OC length adjustment	－128～128	0	
K123	OD length adjustment	－128～128	0	
K124	BD length adjustment	－512～512	0	
K125	OC length	1780～2380	2080	

K126	OD length	1440～2040	1740	
K127	BD length	430～630	530	
K128	Stepping Drive Type	0: DSP1 Close DSP2 Close 1: DSP1 Open DSP2 Open 2: DSP1 Close DSP2 Open 3: DSP1 Open DSP2 Open	0	Effective after restart
K135	Thread-separating delay	－10～30	0	
K137	Thread clamp release angle at sewing start	－150～150	0	
K138	Thread clamp holding time after trimming at sewing start	－2～1	0	-2 means thread holding action prohibited after thread-trimming at sewing start
K140	Thread Tension Control Method	0: electronic 1: mechanical	0	
K141	Suction force adjustment of branch thread tension solenoid	－20～20	0	
K142	Holding force adjustment of branch thread tension solenoid	－40～40	0	
K150	Invalidity of head tilt safety switch	0: Normal 1: The safety status of tilt head is invalid.	0	
K160	Prohibit stepping the pedal backward for emergency stop	0～1	0	0:Allowed 1:Prohibited
K172	Set stitch number for thread breakage detection	0～10	0	Value bigger than 0 means the stitch number after thread breakage before emergency stop 0 means thread breakage detection is off.
K174	Sensor availability at the cutter position	0: forbidden 1: in use	1	
K227	Main Shaft Motor Type	0: 0830-F11 1: 0830-F01	0	Effective after restart
K241	Function Selection	0: Bar-tacking 5: Pattern bar-tacking 7: Button sewing	0	

Note: the above parameters are for the use of repairers only and user should not change them without caution.

3.3 Restore Default Setting

If the user changes some parameters by mistake, which are properly set at delivery, the function of "recovery to default setting" can be used to restore the system.

At recovering the default settings, the entire parameters that are set by user before will be covered. Therefore, please take caution in using this function. If necessary, please contact the technicians of the manufacturer, and operate the machine with the instruction from the professionals.

The specific operation procedure is as follows:

When the sewing LED is off, hold pressing M key for 3 seconds until the panel buzzer rings. Press key to select "13 recovery to default setting", and then press key to enter the menu for restoring default setting. Press key again to select the item to be restored and then press key to execute the recovery operation. The panel will hint "executing, please do not turn off the machine", which means the recovery operation is undergoing and the power supply shall not be shut down. When the operation is completed, the penal will hint "please turn off the machine" and then you can shut down the machine and restart it to restore the default setting.

Note: During the restoring process, if the power supply is shut down by accident, the restoring process has to be aborted and you failed to restore the default setting. The software will return to the former state before restoring.

3.4 Software Version Display

When sewing LED is off, hold pressing M key for 3 seconds until the buzzer sings. Release M key and then press key to select "08 inquire software version". Press key to enter the software version inquiry interface, where user can press key or key to select the version to be inquired. The software version will be displayed in the following order:

Main control: machine type-MC-manufacturer code-version number
Operation panel: machine type- LKD2-manufacturer code-version number
Stepping 1: machine type- MD1-manufacturer code-version number
Stepping 2: machine type- MD2-manufacturer code-version number

3.5 Check Total Number of Stitches and Clear Lubricating Alarm

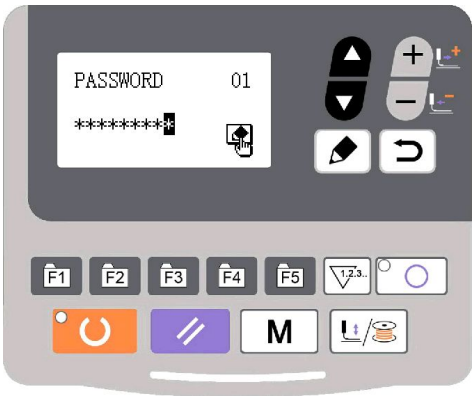
After the machine runs for a period of time, the system may hint "M-333 machine needs lubricating", which means lubricating is needed. Under this situtation, press  key first to clear the lubricating alarm, and then press  to enter system menu. Select "01 system U parameter" and press  key to enter U parameter setting mode. Then press  key to select "U245 clear stitich number for lubricating" and press  to clear the total number of stitches, to stop displaying the same message.

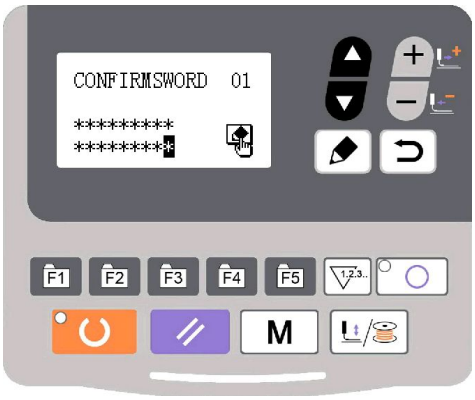
3.6 Password Setting and U/K Parameter Lock

The system provides users with password management function for them to set password by themselves. After inputting the set password, user can unlock certain advanced functions. User can lock system parameters to prevent change of key parameters by mistake so as not to cause problems.

3.7 Change Password

If user need change password, first enter password management mode and then change the password by the following method: when sewing LED is off, hold pressing  key for 3 seconds until the buzzer rings, press  key to select "14 password setting" and press  key to enter password input interface.

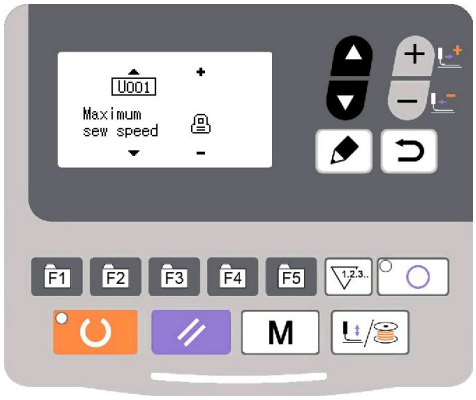
Press  key to move backward or forward to delete the password position to be inputted. Press  key to input the password character for the selected position. The available password characters are "0~9", "A~Z". After completing input, press  to confirm and enter the new password input interface. Otherwise, the system will report error and return to the system menu. **Note: the default password is fixed; for more information, please contact your machine manufacturer or its agents.**	

User need input the new password in the first line and re-input the same password to confirm it. Then press  to confirm the password change. Otherwise, the system will hint "wrong password". If user will give up the password change operation, press  key or  key to quit. **Note: after successful change of password, please remember the password and keep it secret!**	

3.7.1 Set U/K Parameter Lock

This function allows user to lock or unlock parameters that need protecting. Every U parameter and K parameter can be set to be locked or unlocked. The setting method is the same for U parameter and K parameter, and here take U parameter lock for example.

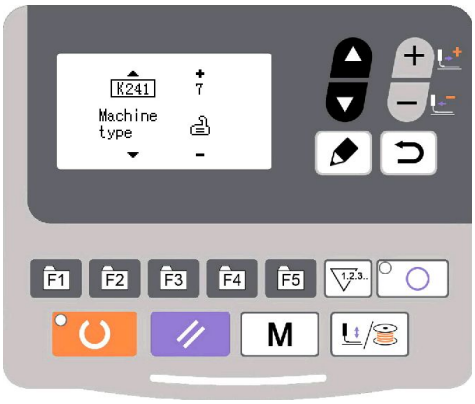
Under the system menu, press  key to select "15 U parameter lock" and press  key to enter password input interface. Input the right password and press  key to enter U parameter lock setting interface. The password has to be correct, otherwise user cannot enter this interface.

Under this interface, press  key to select the U parameter that need change its locked/unlocked status, and press  to change the locked/unlocked status. The symbol  means locked and  means unlocked. When parameter is locked, user need input password to change its set value. When user quit the parameter setting interface and enter it again, the locked parameters will remain locked.	

After completing the parameter lock setting, press  key or  key to save and quit.

4 Button Sewing Function

4.1 Button Sewing Function Setting

1、 When sewing LED  is off, hold pressing  key for 3 seconds until the buzzer rings, and release  key to activate service parameter medication; 2、 Press  key to select "12 system K parameter", press  key to enter and then press  key to select parameter K241;	

3、 Press  key to change the parameter value into "7" and press  key to confirm the change. At this time, the panel will hint "operation executing, please do not turn off the machine", and user must not cut off the power supply. When the panel hint "please turn off the machine" after a while, user can cut off the power supply.

4、 Then power the machine again and the function changes into button sewing.

Note: the button sewing function of the machine requires special presser foot and other auxiliary external devices. For more information, please contact your machine manufacturer or its agents.

5 Update Pattern Data by USB Disk

Support import (addition) of single VDT pattern:

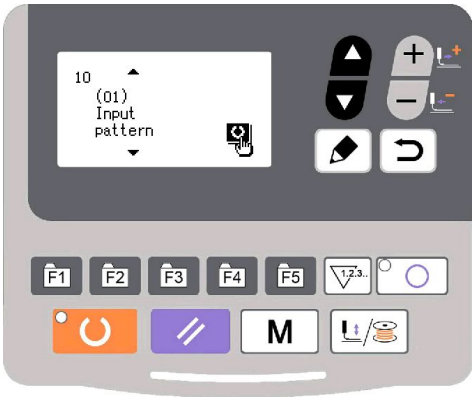
(01) Import pattern: import (add) pattern, and cover the pattern of the same number with imported pattern;

(2) Export pattern: export all external patterns to USB storage device;

(3) Delete pattern: clear (format) the panel's storage area for external patterns;

5.1 Pattern Data Update

User can import VDT format patterns to the control system via U disk, with the updated pattern number from 101 to 200. User can also export existing patterns numbered 101~200 that are stored in the control system to U disk.

1) Use pattern-editing software to make pattern file in VDT format and name it by "XXX.VDT". (Note: XXX shall be a number between 101~200 which at the same time is the updated pattern number.) 2) Create a new file folder named DH under the root directory of U disk, and save the pattern made in the previous step under the directory of DH (many patterns at one time).	

3) When the sewing LED is off, press M key to enter system menu. Press key to select "10 pattern import/export" and then press key to enter this mode.

4) Press key to select "01 import pattern" and insert the U disk containing patterns to the USB interface at the right side of the panel.

5) Press key, and when the panel hint "operation executing, please do not turn off the machine", the patterns are starting to be imported.

Note: before this operation, please confirm the U disk having been connected to USB interface; if not, this update operation cannot be done and the panel will hint "M-324 U disk not found".

6) After the update, the panel will display "Operation succeeded!" and the system will automatically return to the interface for importing patterns.

Note: if there are already patterns numbered 101~200 in the panel, patterns named with different numbers can be added to the system via U disk following the above operations; if the pattern numbers in the U disk are the same with those in the panel, the patterns with the same number in the panel will be replaced.

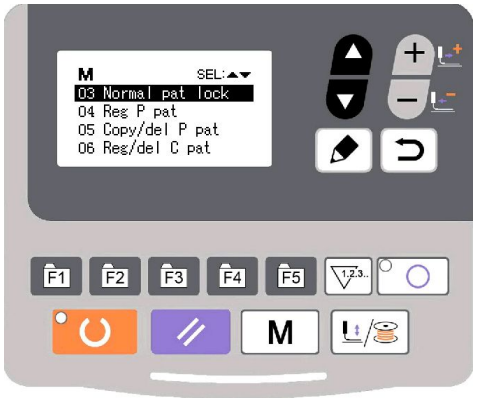
In addition, apart from the pattern update import operation under function number "01", user can also change the function number to "02" and "03" to export and delete patterns

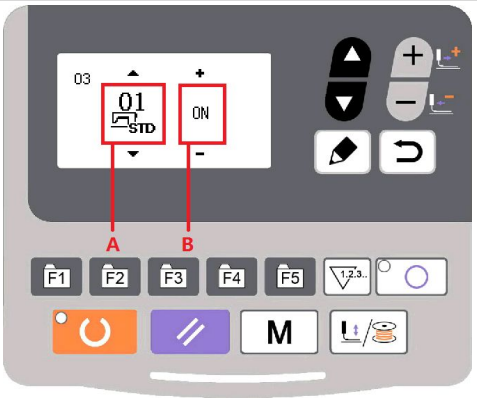
respectively. To change function number to "02" means to back up imported patterns, while to change function number to "03" means to delete all patterns numbered 101~200, which may be done when external pattern storage area is full or the data format of the external pattern storage area is abnormal.

7) Open pattern lock: after update, if the patterns updated via U disk cannot be selected on the sewing interface, the possible reason is that the pattern lock is unopened, for the default setting of patterns number 101~200 is locked and unable to be selected. User need make the following operation:

When sewing LED is off, press M to enter system menu, press key to select "03 normal pattern lock" and press key to enter.

Under this mode, the left part A displays the normal pattern number, and user can press key to change from 1~200; the right part B display the pattern status, "ON" for open and "OFF" for lock. User can press to open or lock the pattern.

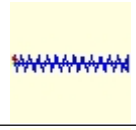
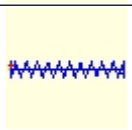
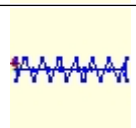
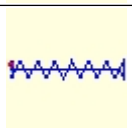
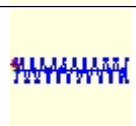
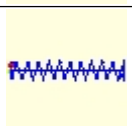
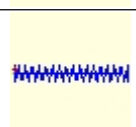
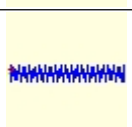
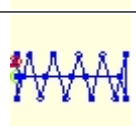
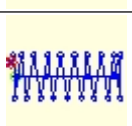
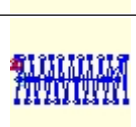
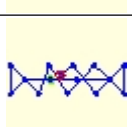
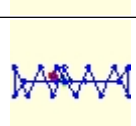
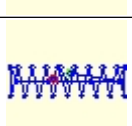
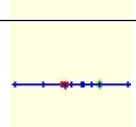
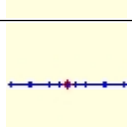
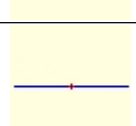
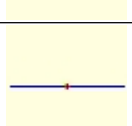
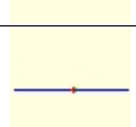
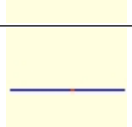
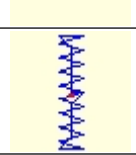
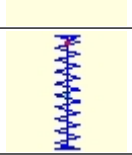


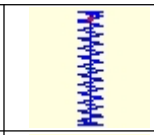
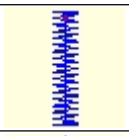
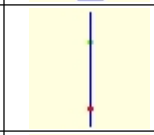
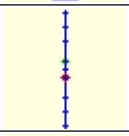
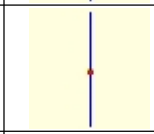
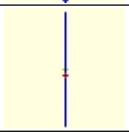
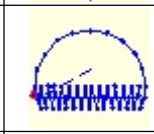
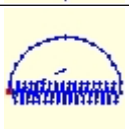
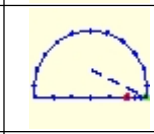
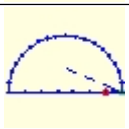
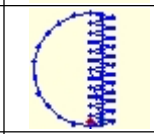
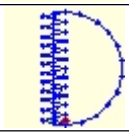
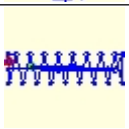
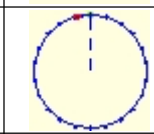
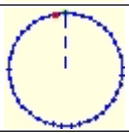
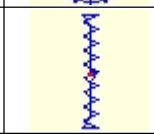
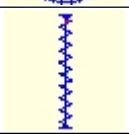
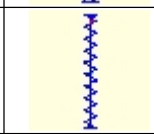
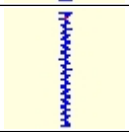
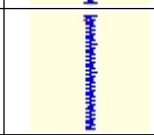
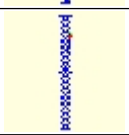
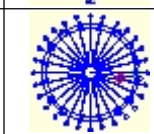
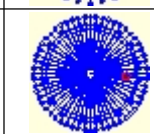
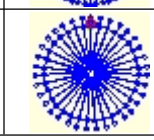


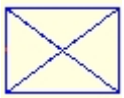
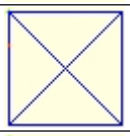
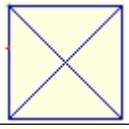
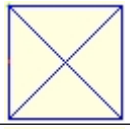
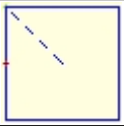
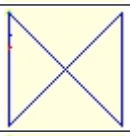
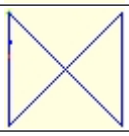
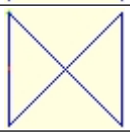
8) Use key and key to open the pattern, press key to save and return to the system menu, and then press key again to return to the normal sewing mode.

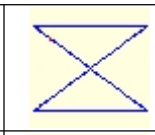
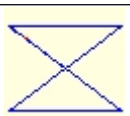
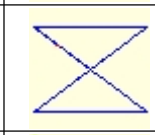
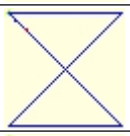
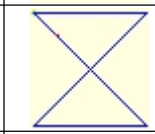
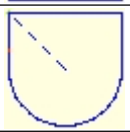
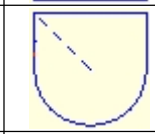
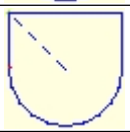
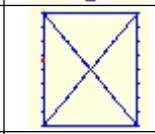
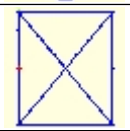
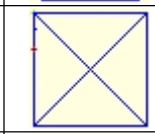
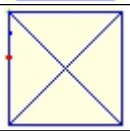
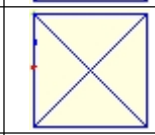
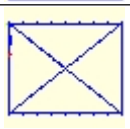
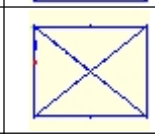
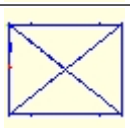
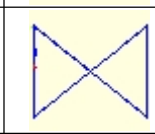
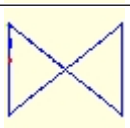
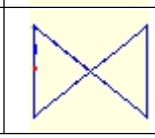
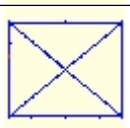
6 Appendix 1

6.1 List of Patterns in 1900A Controller

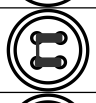
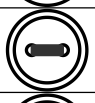
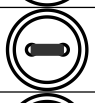
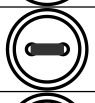
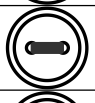
NO.	Patterns	Stitch Number	Length × Width (mm)	NO.	Pattern	Stitch Number	Length × Width (mm)
1		41	16.1×2	2		41	10.2×2
3		41	16×2.4	4		41	24×3
5		27	10.1×2	6		27	16×2.4
7		35	10.1×2	8		35	16×2.4
9		55	24×3	10		63	24×3
11		20	6.1×2.4	12		27	6.2×2.4
13		35	6.1×2.4	14		14	8×2
15		20	8×2	16		27	8×2
17		20	10×0	18		27	10×0
19		27	25.2×0	20		35	24.8×0
21		40	25.2×0	22		43	35×0
23		27	4×20	24		35	4×20

25		41	4×20	26		55	4×20
27		17	0×20	28		20	0×10
29		20	0×20	30		27	0×20
31		51	10.1×7	32		62	12.1×7
33		23	10.2×6	34		30	12×6
35		47	7×10	36		47	7×10
37		89	24×3	38		27	8×2
39		25	11.8×12	40		45	12×12
41		28	2.4×20	42		38	2.4×25
43		38	2.4×25	44		57	2.4×30
45		75	2.4×30	46		41	2.4×30
47		89	8×8	48		98	8×8
49		147	8×8	50		163	8×8
51		110	7.9×7.9	52		120	7.9×7.9

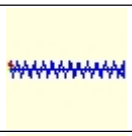
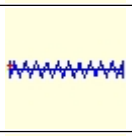
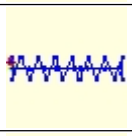
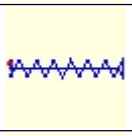
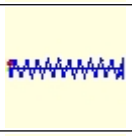
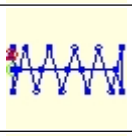
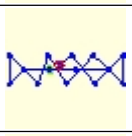
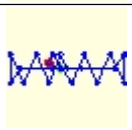
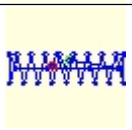
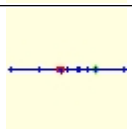
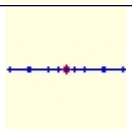
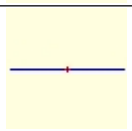
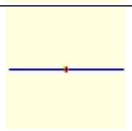
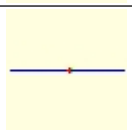
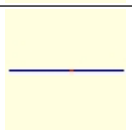
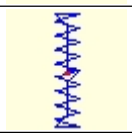
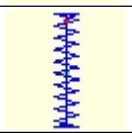
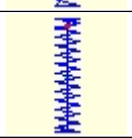
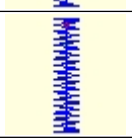
53		130	7.9×7.9	54		51	12.4×10.2
55		50	12.4×10.2	56		52	21×6
57		57	21×6	58		102	19×3
59		115	40×5	60		115	40×5
61		93	5×30	62		109	5×30
63		108	40×30	64		80	40×30
65		64	40×30	66		96	30×30
67		76	30×30	68		60	30×30
69		52	40×30	70		40	40×30
71		32	40×30	72		44	30×30
73		36	30×30	74		28	30×30
75		60	40×30	76		48	40×30
77		36	40×30	78		56	30×30
79		44	30×30	80		36	30×30

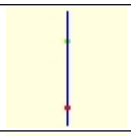
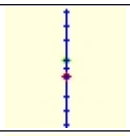
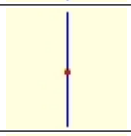
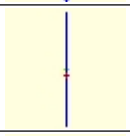
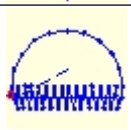
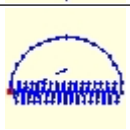
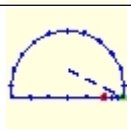
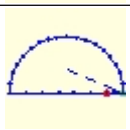
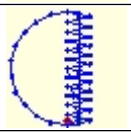
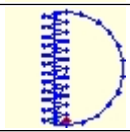
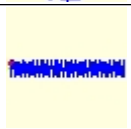
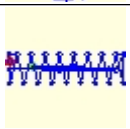
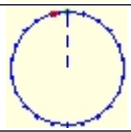
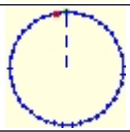
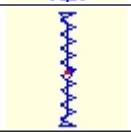
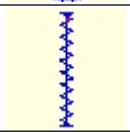
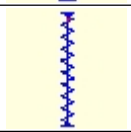
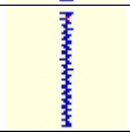
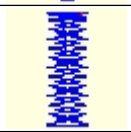
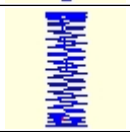
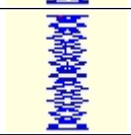
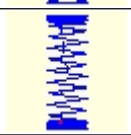
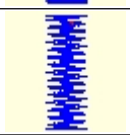
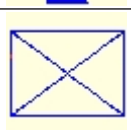
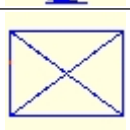
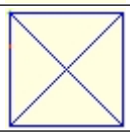
81		67	40×30		82		51	40×30
83		39	40×30		84		55	30×30
85		35	30×30		86		42	30×30
87		32	30.1×30		88		26	30×30
89		74	20×24		90		54	20×24
91		65	20×20		92		49	20×20
93		39	20×20		94		63	25×20
95		51	25×20		96		45	25×20
97		42	25×20		98		33	25×20
99		27	25×20		100		88	30×25

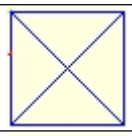
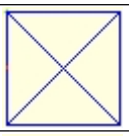
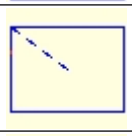
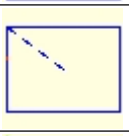
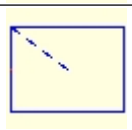
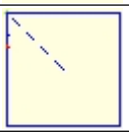
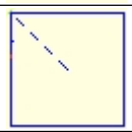
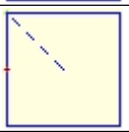
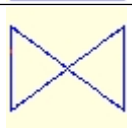
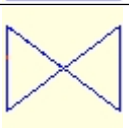
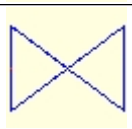
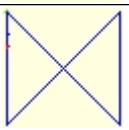
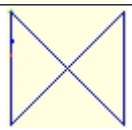
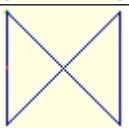
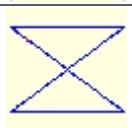
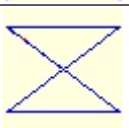
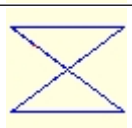
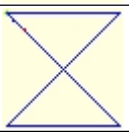
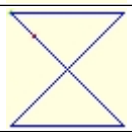
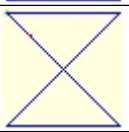
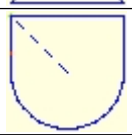
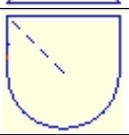
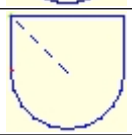
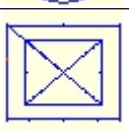
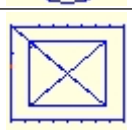
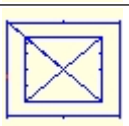
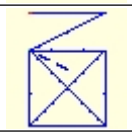
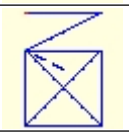
6.2 List of Patterns for Button-sewing in 1900B Controller

No.	Pattern	Thread Number	Standard Sewing Length X(mm)	Standard Sewing Length Y(mm)	No.	Pattern	Thread Number	Standard Sewing Length X(mm)	Standard Sewing Length Y(mm)
1 34		6-6	3.4	3.4	18 44		6	3.4	0
2 35		8-8			19 45		8		
3		10-10			20		10		
4		12-12			21		12		
5 36		6-6			22		16		
6 37		8-8			23 46		6	0	3.4
7		10-10			24		10		
8		12-12			25		12		
9 38		6-6			26 47		6-6	3.4	3.4
10 39		8-8			27		10-10		
11		10-10			28 48		6-6		
12 40		6-6			29		10-10		
13 41		8-8			30 49		5-5-5	3.0	2.5
14		10-10			31		8-8-8		
15 42		6-6			32 50		5-5-5		
16 43		8-8			33		8-8-8		
17		10-10							

6.3 List of Patterns for Doubling Controller

NO.	Patterns	Stitch Number	Length × Width (mm)	NO.	Patterns	Stitch Number	Length × Width (mm)
1		41	16.1×2	2		41	10.2×2
3		41	16×2.4	4		41	24×3
5		27	10.1×2	6		27	16×2.4
7		35	10.1×2	8		35	16×2.4
9		55	24×3	10		63	24×3
11		20	6.1×2.4	12		27	6.2×2.4
13		35	6.1×2.4	14		14	8×2
15		20	8×2	16		27	8×2
17		20	10×0	18		27	10×0
19		27	25.2×0	20		35	24.8×0
21		40	25.2×0	22		43	35×0
23		27	4×20	24		35	4×20
25		41	4×20	26		55	4×20

27		17	0×20		28		20	0×10
29		20	0×20		30		27	0×20
31		51	10.1×7		32		62	12.1×7
33		23	10.2×6		34		30	12×6
35		47	7×10		36		47	7×10
37		89	24×3		38		27	8×2
39		25	11.8×12		40		45	12×12
41		28	2.4×20		42		38	2.4×25
43		38	2.4×25		44		57	2.4×30
45		141	10×30		46		122	10×30
47		97	10×30		48		109	10.1×30
49		122	10.1×30		50		265	10×30
51		108	40×30		52		80	40×30
53		64	40×30		54		96	30×30

55		76	30×30		56		60	30×30
57		52	40×30		58		40	40×30
59		32	40×30		60		44	30×30
61		36	30×30		62		28	30×30
63		60	40×30		64		48	40×30
65		36	40×30		66		56	30×30
67		44	30×30		68		36	30×30
69		67	40×30		70		51	40×30
71		39	40×30		72		55	30×30
73		43	30×30		74		35	30×30
75		42	30×30		76		32	30.1×30
77		26	30×30		78		103	30×25
79		82	30×25		80		64	30×25
81		80	20×30		82		60	20×30

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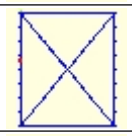
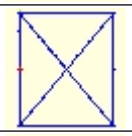
85		74	20×24		86		54	20×24
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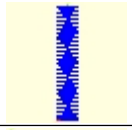
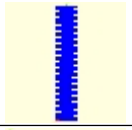
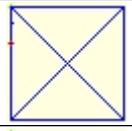
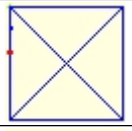
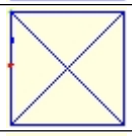
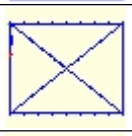
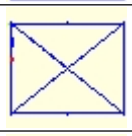
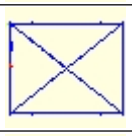
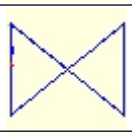
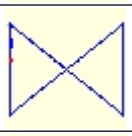
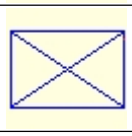
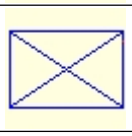
89		93	5×30		90		109	5×30
91		65	20×20		92		49	20×20
93		39	20×20		94		63	25×20
95		51	25×20		96		45	25×20
97		42	25×20		98		33	25×20
99		111	60×40		100		91	60×40

6.4 Main Control Error List

Code	Name	Content	Solution
E-001	Pedal not in the middle position	Pedal is stepped down when entering the ready sewing status	Make sure the pedal is not stepped down when entering the ready sewing status
E-002	Pause	RESET key is pressed while sewing machine is running. The machine pauses.	Restart or return-to-origin after pressing RESET key for thread-trimming.
E-003	Head Tilt Error	Head tilt detection switch is set as ON.	The sewing machine cannot be operated with the head tilted. Return the sewing machine head to its proper position. Technicians can use short circuit board to short circuit the 2P blue plug on the head board.
E-004	Low Voltage Error	The voltage of power is too low.	Sampling UZKIN analog quantity is too low. Confirm the voltage of power and related circuit.
E-005	Overvoltage Error	The voltage of power is over the specified value.	The detected signal of AC_OVDT is high. Confirm the voltage of power and related circuit.

Code	Name	Content	Solution
E-007	Main shaft driver abnormal	The error is detected in main shaft driver.	Turn off the power and repower the machine after a while.
E-008	24V power supply error	24V over-current	Turn off the power supply and then turn it on again after a while.
E-009	24V power supply error	24V voltage is too low	Turn off the power supply and then turn it on again after a while.
E-010	Air valve (fan) problem	After start, the system detects abnormal signal about the voltage of the air valve or fan.	Shut down the machine to check if there is any short circuit
E-012	Presser Foot Position Error	Presser foot is not at proper position.	Turn off the power and check connection of the CZ025 at the head signal circuit board. If the connection is ok, check the optocoupler.
E-013	Encoder Disconnection	The system can't detect ADTC signal.	Turn off the power, and confirm whether plug X5 is connected properly.
E-014	Motor Running Abnormal	When the main shaft motor is running, the range of the electrical angle is abnormal at 0°	Shut down the machine to check the motor encoder.
E-015	Beyond Sewing Area	The sewing area is beyond the limit.	Press RESET switch to confirm the pattern and its X/Y scale rate. Triggering condition: pattern computation error.
E-016	Needle Bar Up Position Error	The needle bar is not at UP position.	The main shaft stop position error may be caused by main shaft drive, or may be caused by human error. Turn the hand wheel to return the needle bar to its UP position.
E-018	Cutter Position Error	The cutter is not at the right position.	Turn off the power and check the connection of the CZ024 at the head signal circuit board. If the connection is ok, check the optocoupler.
E-019	Emergency Stop Switch Not at Normal Position	Before start, the emergency stop switch is found pressed down	Manually solve the problem
E-020	Stepping Software Version Error	The software version for the stepping board is false.	Change the stepping board or update the stepping board program.
E-022	Machine Stop Due to Aging	After entering aging mode, the machine stops.	Shut down the machine
E-023	Thread-catching Position Error	The thread-catching device is at wrong position.	Turn off the power and check the connection of the CZ026 at the head signal circuit board. If the connection is ok, check the optocoupler.

Code	Name	Content	Solution
E-025	X Origin Search Error	X origin sensor doesn't change.	Turn off power and check the connections of CZ021 on head signal circuit board and X9 on control box.
E-026	Y Origin Search Error	Y origin sensor doesn't change.	Turn off power and check the connections of CZ022 on head signal circuit board and X9 on control box.
E-027	Presser Origin Search Error	Presser origin sensor doesn't change.	Turn off power and check the connections of CZ025 on head signal circuit board and X9 on control box.
E-028	Thread-catching Origin Search Error	Thread-catching origin sensor doesn't change.	Turn off power and check the connections of CZ026 on head signal circuit board and X9 on control box.
E-030	Communication Error between Main-board and Stepping Board	Communication between Main-board and Stepping Board is down.	Turn off the power and repower the machine after a while. Check the connections of the communication cable, main board and drive board.
E-031	Stepping driver Error	Over-current occurs to stepping drive board.	Turn off the power and repower the machine after a while.
E-034	Main shaft driver abnormal	The error is detected in main shaft driver.	Turn off the power and repower the machine after a while.
E-035	Main Board IPM Sudden Over-current	The current for the main board IPM drive module is too much within a short period of time	Turn off the power and repower the machine after a while. Change the main shaft motor to check if the motor is damaged; if problem remains, change the main board.
E-036	Main Board IPM Multiple Over-current	Over-current happens repeatedly to the main board IPM drive module after power on	Turn off the power and repower the machine after a while. Change the main shaft motor to check if the motor is damaged; if problem remains, change the main board.
E-037	Main Shaft Over-current	Motor stops.	If there is no mechanic problem, check the connection of the main shaft encoder
E-038	Machine Lock Error	The main-shaft of sewing machine can't rotate due to some problem.	After user sending order to rotate the main shaft, the main shaft motor doesn't respond. Check the PWM curve of the main shaft motor, the signal of the encoder and whether there is mechanic problem.
E-039	Main Shaft Over-speed	The system detects the actual speed of the main shaft motor exceeding the speed limit	Turn off the power and repower the machine after a while.
E-040	Current Abnormal When Stop	Over-current occurs during the stop process of the main shaft	Turn off the power and repower the machine after a while. Change the main shaft motor to check if the motor is damaged; if problem remains, change the main board.

Code	Name	Content	Solution
E-043	Thread-trimming Motor Origin Search Error	Thread-trimming origin sensor doesn't change.	Turn off power and check the connections of CZ026 on head signal circuit board and X9 on control box.
E-044	Machine Head Board Parameter Abnormal with Lower Computer	The lower computer read abnormal parameter from the machine head board.	Check the machine head board and the connection of X9 cable. Press RESET key to use parameter No. 67 to restore the parameters of the machine head board.
E-056	Stepping Close Loop DSP1(X25/X27) Communication Error	The verification of the received order at stepping board is failed	Check the connection of SPI communication cable
E-057	Stepping Close Loop DSP1 1st Route (X27) Over-Current	Large current is detected by hardware	At first, please check motor. Then check the resistance and sensor value. If the motor is ok, user should check the hardware on stepping board
E-058	Stepping Close Loop DSP1 1st Route (X27) Position Error	The detected encoder response position is not consistent with the position set in the order.	Change the stepping motor to open loop mode and run it. If the motor can work normally, the motor is ok. If the motor can't work normally, user should check the driving part on the stepping board and the motor itself. After the above operations, user should check the encoder. Make sure the connection and the condition of the encoder cable is ok. And make sure the signal response part on the stepping board and the encoder itself is ok.
E-059	Stepping Close Loop DSP1 1st Route (X27)Over-speed	The system will give this warning when it detects the abnormal motor speed via the encoder response signal.	The checking method is the same with that for Position Error
E-060	Stepping Close Loop DSP1 2nd Route (X25) Over-Current	Large current is detected by hardware	At first, please check motor. Then check the resistance and sensor value. If the motor is ok, user should check the hardware on stepping board

Code	Name	Content	Solution
E-061	Stepping Close Loop DSP1 2nd Route (X25) Position Error	The detected encoder response position is not consistent with the position set in the order.	Change the stepping motor to open loop mode and run it. If the motor can work normally, the motor is ok. If the motor can't work normally, user should check the driving part on the stepping board and the motor itself. After the above operations, user should check the encoder. Make sure the connection and the condition of the encoder cable is ok. And make sure the signal response part on the stepping board and the encoder itself is ok.
E-062	Stepping Close Loop DSP1 2nd Route (X25) Over- speed	The system will give this warning when it detects the abnormal motor speed via the encoder response signal.	The checking method is the same with that for Position Error
E-063	Stepping Close Loop DSP2(X21/X23) Communication Error	The verification of the received order at stepping board is failed	Check the connection of SPI communication cable
E-064	Stepping Close Loop DSP2 1st Route (X23) Over-Current	Large current is detected by hardware	At first, please check motor. Then check the resistance and sensor value. If the motor is ok, user should check the hardware on stepping board
E-065	Stepping Close Loop DSP2 1st Route (X23) Position Error	The detected encoder response position is not consistent with the position set in the order.	Change the stepping motor to open loop mode and run it. If the motor can work normally, the motor is ok. If the motor can't work normally, user should check the driving part on the stepping board and the motor itself. After the above operations, user should check the encoder. Make sure the connection and the condition of the encoder cable is ok. And make sure the signal response part on the stepping board and the encoder itself is ok.
E-066	Stepping Close Loop DSP2 1st Route (X23) Over- speed	The system will give this warning when it detects the abnormal motor speed via the encoder response signal.	The checking method is the same with that for Position Error
E-067	Stepping Close Loop DSP2 2nd Route (X21)Over-curr ent	Large current is detected by hardware	At first, please check motor. Then check the resistance and sensor value. If the motor is ok, user should check the hardware on stepping board

Code	Name	Content	Solution
E-068	Stepping Close Loop DSP2 2nd Route (X21) Position Error	The detected encoder response position is not consistent with the position set in the order.	Change the stepping motor to open loop mode and run it. If the motor can work normally, the motor is ok. If the motor can't work normally, user should check the driving part on the stepping board and the motor itself. After the above operations, user should check the encoder. Make sure the connection and the condition of the encoder cable is ok. And make sure the signal response part on the stepping board and the encoder itself is ok.
E-069	Stepping Close Loop DSP2 2nd Route (X21) Over-speed	The system will give this warning when it detects the abnormal motor speed via the encoder response signal.	The checking method is the same with that for Position Error
E-070	Stepping Board 90V Power Supply Error	Stepping board 90V is over-current	Turn off the power supply and then turn it on again after a while.

6.5 Operation Panel Error List

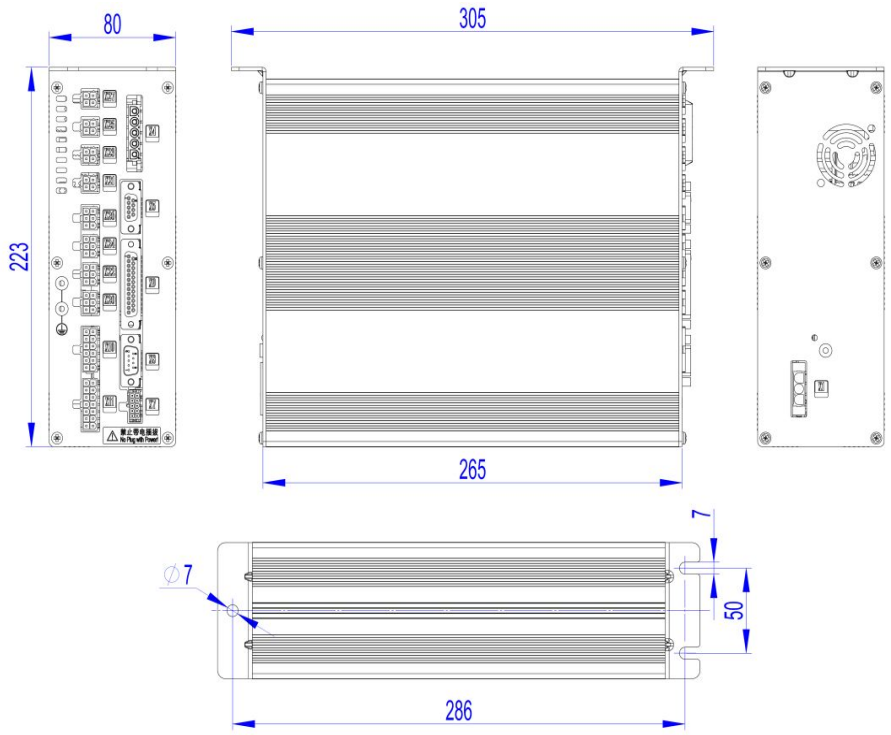
Code	Name	Content	Solution
M-300	Memory Abnormal	There exists error with the data defined by the operation panel.	Internal error: user need update the panel program.
M-301	Memory Abnormal	Panel memory data abnormal	Internal error: user need update the panel program.
M-302	Machine Type Parameter Error	The machine type data read by the operation panel is not within the set range.	Press RESET key to automatically enter parameter No. 241 to select and save the defined machine type.
M-303	UK Parameter Abnormal	Abnormal range of the parameter read by the panel from EEPROM	Press RESET key to enter the system menu and recover the default setting.
M-304	Head Board Parameter Abnormal	Abnormal range of parameters received by panel from down computer	Press RESET key to enter the system menu and recover the default setting.
M-305	Normal Pattern Parameter Abnormal	When using pattern parameter, the panel detects abnormal parameter range.	Press RESET key to enter the system menu and recover the default setting.
M-306	Pattern Not Found or Locked	The prepared pattern No. hasn't been registered to ROM or set as not to be read. The pattern No. is displayed as 0.	Press RESET key, confirm the pattern No. and make sure the pattern is unlocked.
M-307	Pattern Data Abnormal	When the panel reads the sewing data of the pattern, the data format is found to be abnormal.	Select other patterns.
M-308	Sewing Data Too Large	When being computed, the size of the pattern data is found to be too large and beyond normal range.	Select other patterns for sewing.
M-309	Pattern beyond Sewing Range	When being computed, the pattern is found to be beyond sewing range.	Press RESET key, confirm the size of the pattern is within the set range of parameters K056, K057, K058 and K059.
M-310	Stitch Length beyond Normal Range	When being computed, the stitch length is found to be beyond normal range.	Press RESET key, confirm the pattern and X/Y scaling up rate.
M-311	Pattern Data Communication Abnormal	Error occurs when the panel sends pattern data to the main control.	Check the pattern and the cable connection between the panel and the main control.
M-312	Normal Pattern Lock Abnormal	The panel can't read the normal pattern lock data from EEPROM.	Press RESET key to enter the system menu and recover the default setting.
M-313	Present Pattern Parameter	The panel can't read the pattern parameter data from EEPROM.	Press RESET key to enter the system menu and recover the default setting.

Code	Name	Content	Solution
	Abnormal		
M-314	Parameter Setting beyond Normal Range	The set value of the parameter exceeds normal range.	Press RESET key and change the set value.
M-315	Counter Abnormal	The panel can't read the counter data from EEPROM.	Press RESET key to enter the system menu and recover the default setting.
M-316	Counter Exhausted	The counter has reached the upper limit after the sewing.	Press RESET key.
M-317	Communication Error between Main Board and the Panel	There is no communication or communication error between main board and the panel.	Turn off the power and repower the machine after a while. Check the communication cable, the main board and the panel.
M-318	The Storage Space for External Patterns Full	When patterns are imported to the control panel via USB, the storage space for such patterns is found full.	First export the internal patterns before deleting them, and then import patterns again.
M-319	External Patterns Format Abnormal	Pattern data is found abnormal when its format data is read by the control panel	Enter the parameter import/export mode of the system and delete such patterns.
M-320	Imported Pattern Already Exist	When importing pattern from USB storage device, pattern with the same number is found to exist already in the panel.	Change the number of the pattern in the USB storage device to be imported.
M-321	Imported Pattern Not Found	When importing pattern from USB storage device, the pattern to be imported is not found.	Select existing patterns in the USB storage device.
M-322	Pattern Deletion Error	When deleting external pattern, it is found to be not exist.	Select existing pattern for deletion.
M-323	Pattern Read Error	There is problem with reading pattern data from external pattern storage area.	Please select other patterns.
M-324	USB Device Not Connected	When importing or exporting patterns, the panel detects abnormal USD storage device.	Change another USB storage device
M-325	The Size of Imported Pattern Too Large	When importing patterns, the panel detects that the imported pattern is too beyond the size limitation.	Make sure the imported pattern is within the size range.
M-326	External Pattern Not Found	Under sewing ready status, the external pattern to be read is not found.	Please select other patterns.

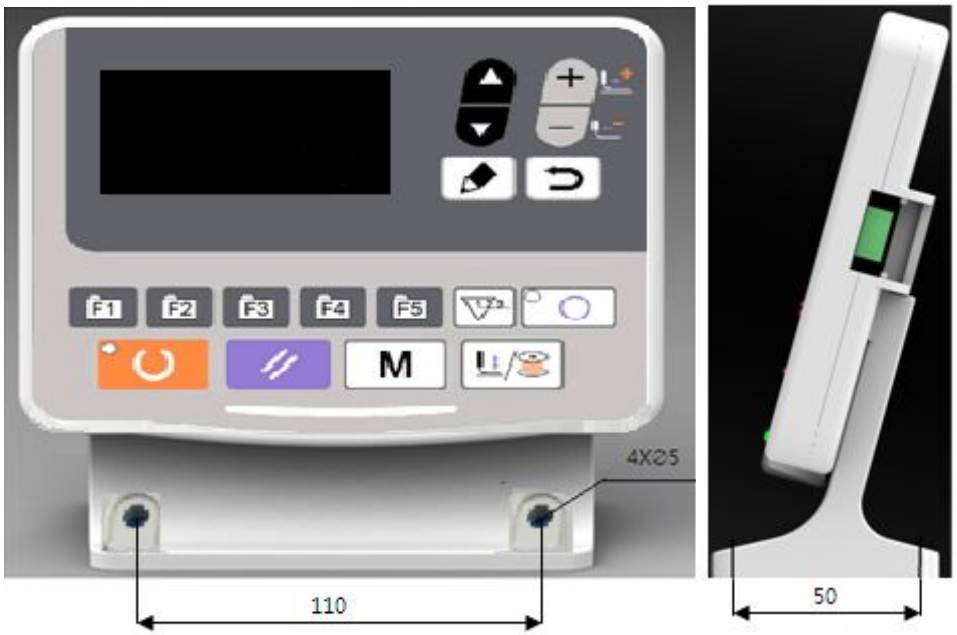
Code	Name	Content	Solution
M-327	P Pattern to Be Deleted is Cited by C Pattern	When being deleted, the P pattern is found to have been added to certain C pattern.	First delete the P pattern from the C pattern and then delete the P pattern.
M-328	USB Patterns Not Found	The pattern number to be imported can't be found after USB connection	Make sure the pattern is correctly named and saved under the designated directory of the USB storage device.
M-329	No Registered P Pattern	Before entering the P pattern or C pattern copy/deletion mode, no P pattern has been registered.	Please register P patterns before entering those modes.
M-330	All Normal Patterns Shut Down	Before entering P pattern registration mode, all normal patterns are found to have been shut down.	Please unlock normal patterns.
M-331	No More Registration of P Patterns	Before entering P pattern registration mode, it is found that all P patterns have been registered.	Please delete some P patterns before registering new ones.
M-332	No Deletion of the Last C Pattern	The C pattern to be deleted happens to be the last one.	The deletion of the remaining last C pattern is prohibited.
M-333	Alarm to Lubricate the Machine	It is time to add lubricating oil to certain parts of the machine, so the machine stops working.	Restart the machine, enter parameter No. 245 and press RESET key, and then power on again
M-999	Undefined Error	Undefined error of the operation panel	Shut down the machine and update the control panel program.

7 Appendix 2

7.1 Installation Size of Control Box



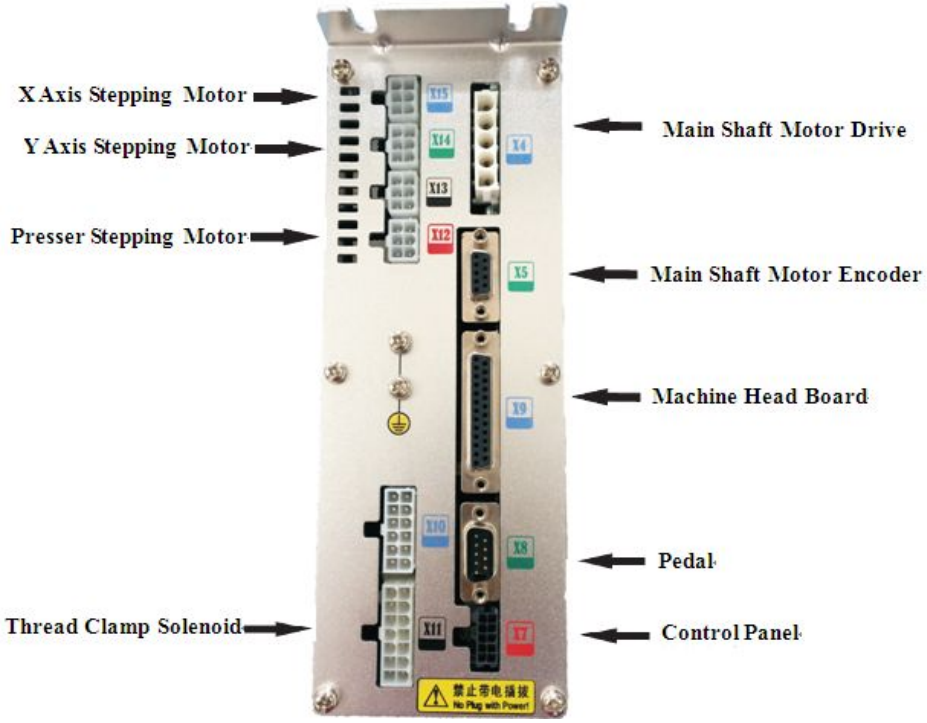
7.2 Installation Size of Operation Panel



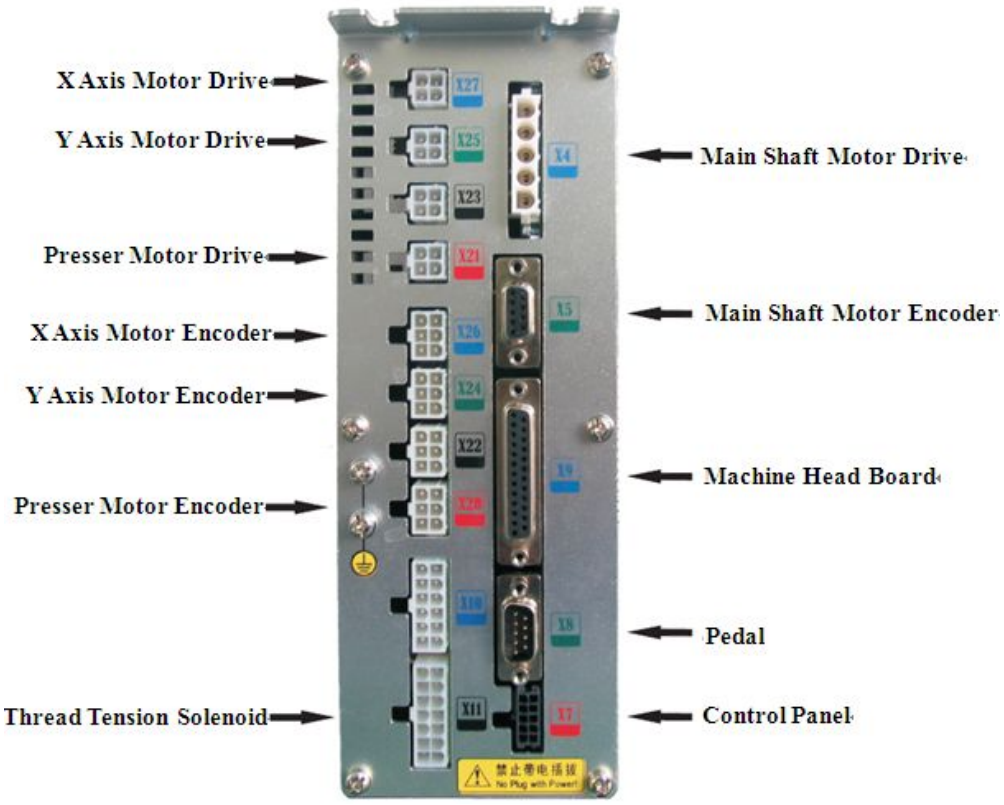
7.3 External Cable Connection of Control Box

(1) MSC201 Control Box Back Wiring Diagram

Note: the external cables bear corresponding serial number, and please check carefully before connection (refer to diagram No. 5).

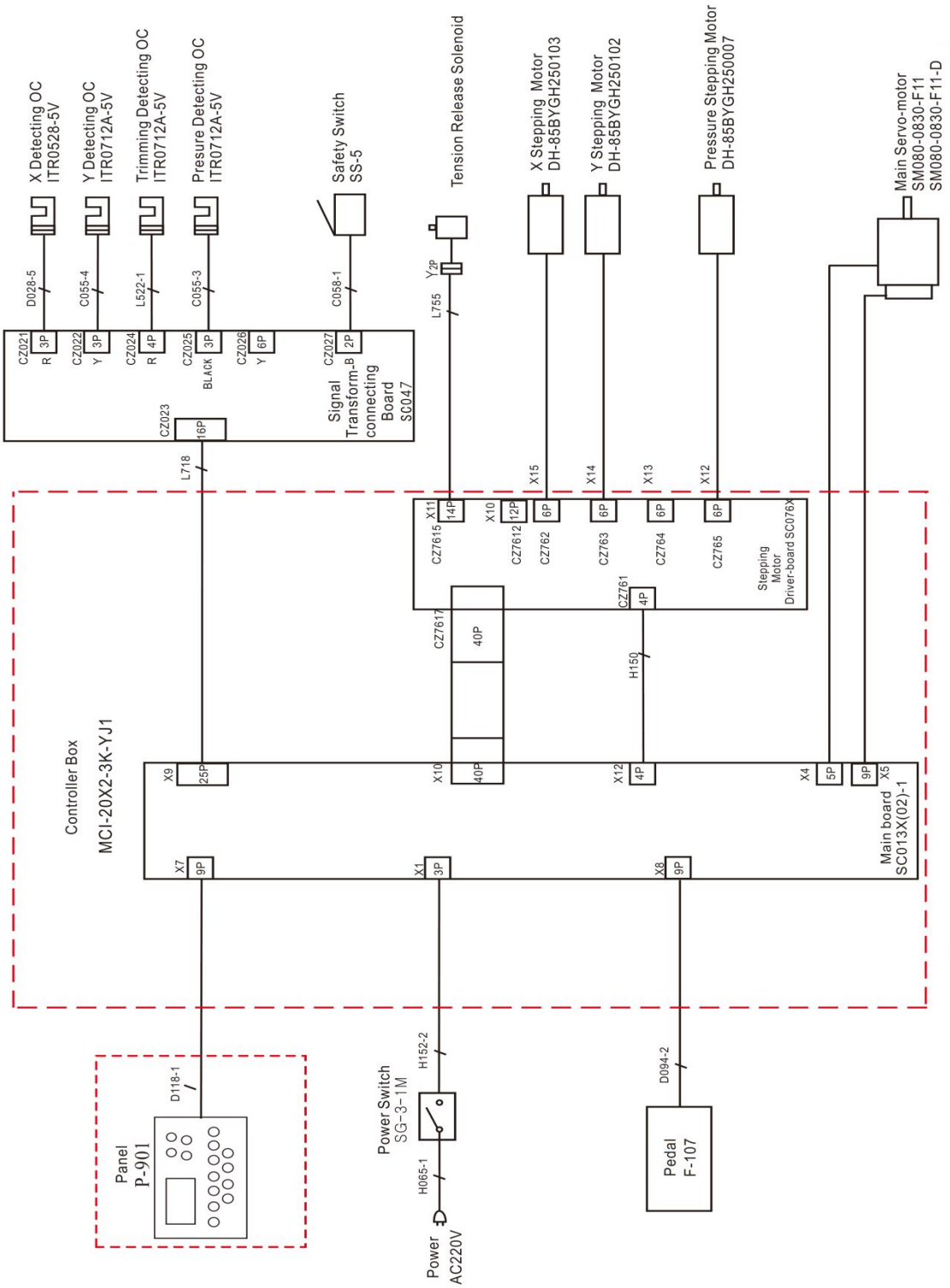


(2) MASC201 Control Box Back Wiring Diagram

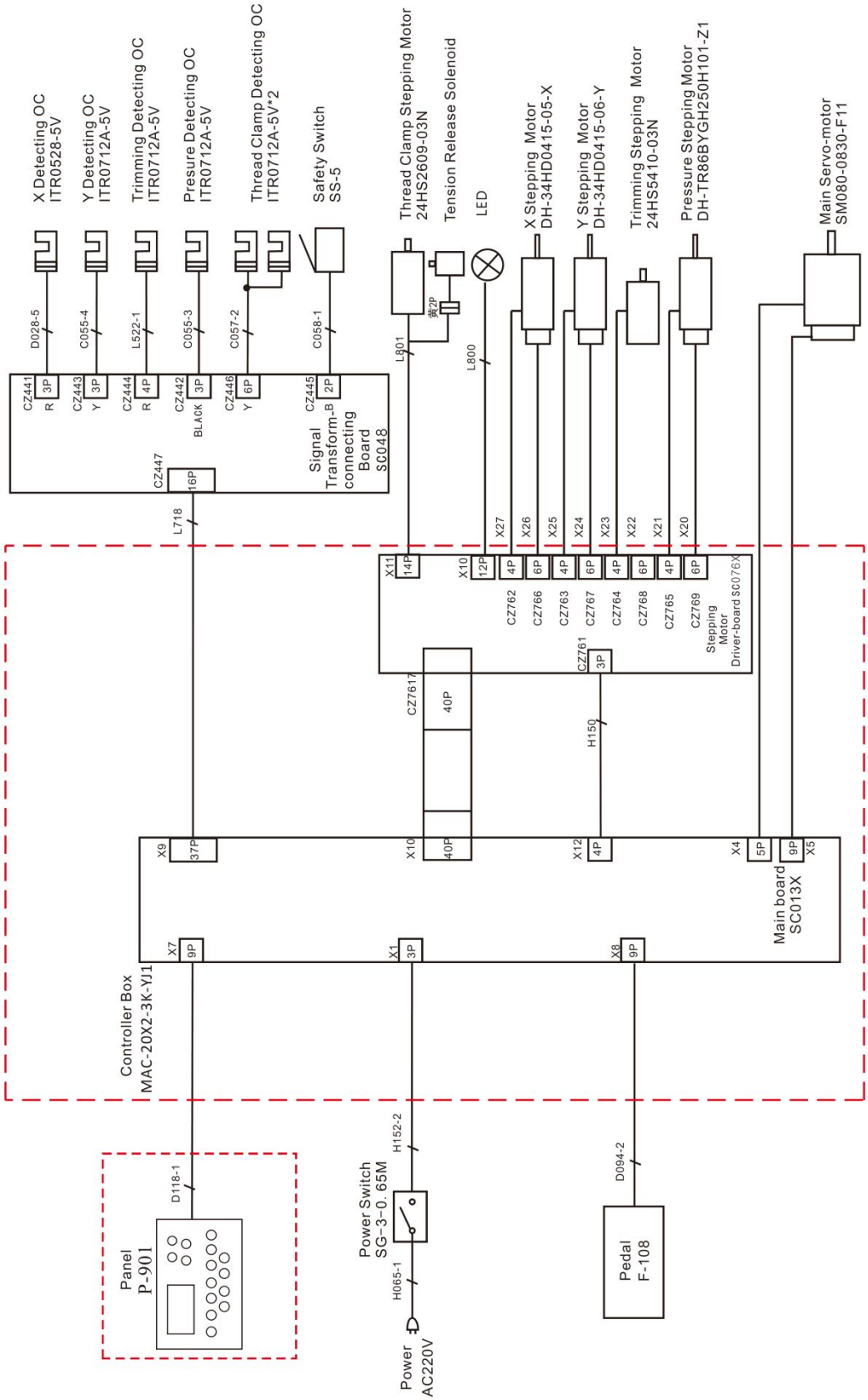


7.4 System Diagram

(1) MSC201-2K/A System Diagram



(2) MASC201-2K/B System Diagram

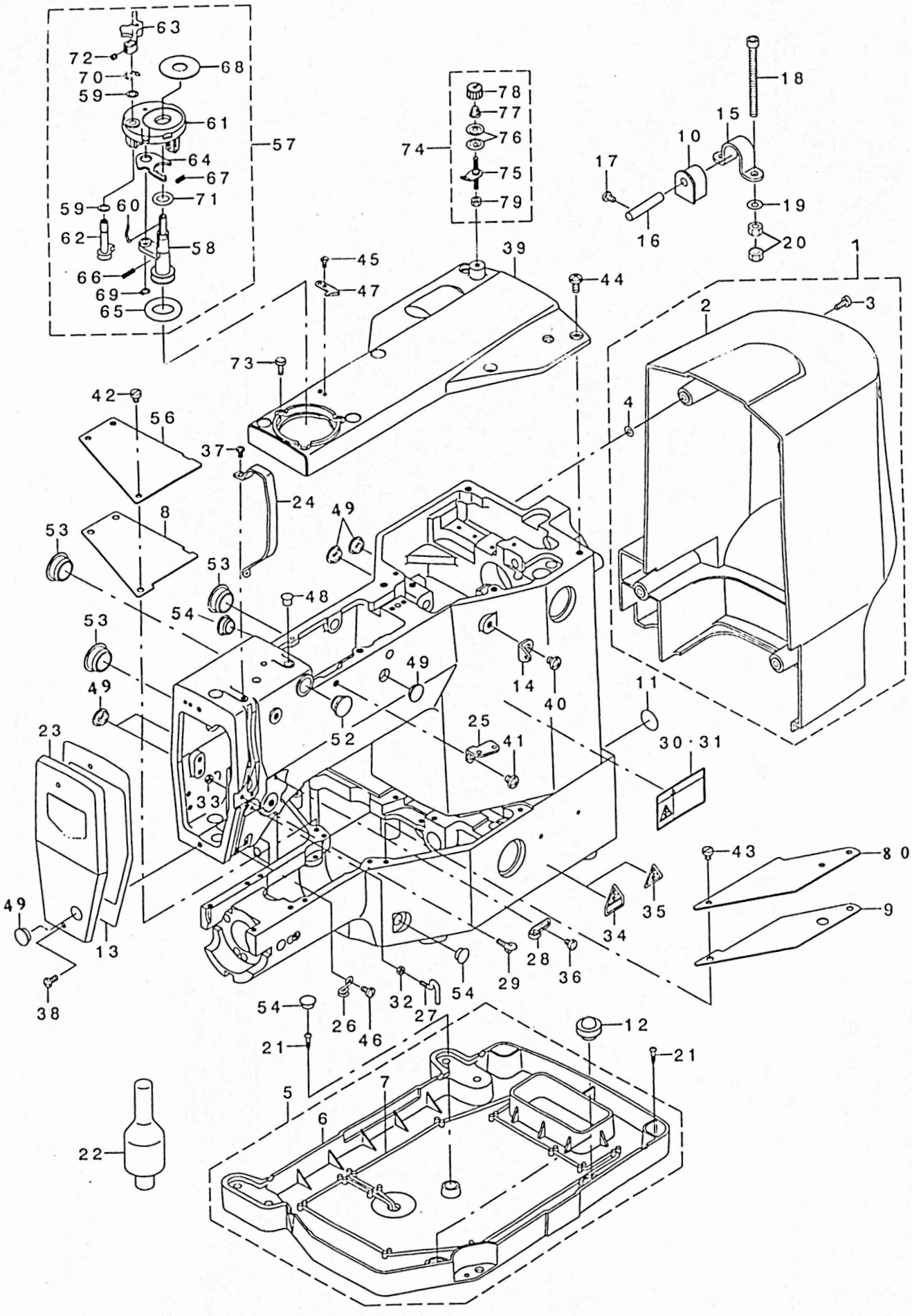


LK-1900 AN/B-H

Computer-controlled High-speed Bar Tacking Industrial Sewing Machine/Lockstitch Button Sewing Machine

PARTS BOOK

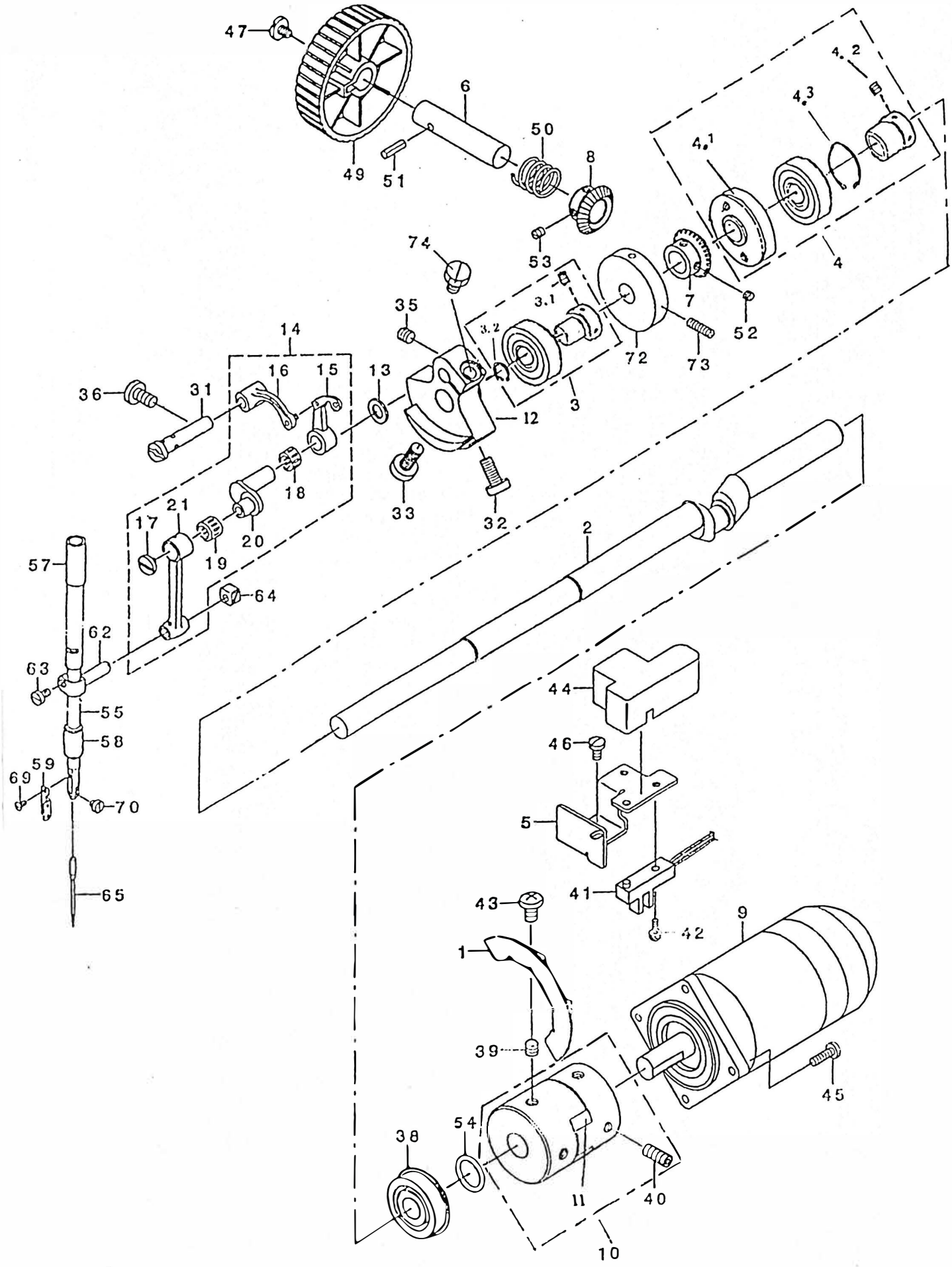
1. FRAME & MISCELLANEOUS COVER COMPONENTS



1. FRAME MISCELLANEOUS COVER COMPONENTS

REF.NO		DESCRIPTION	PART NO		QTY
1		MOTOR COVER ASM.	141-00457		1
2		MOTOR COVER	141-00408	01-002-1900	(1)
3		SCREW 11/64-40 L=11	SS-6111140-SP	5-39-185	(4)
4		STOPPER	M8002-430-000	01-004-1900	(4)
5		OIL PAN ASM.	141-00754		1
6		OIL PAN	141-00705	01-006-1900	(1)
7		OIL WICK	CQ-2522000-00		(1)
8		BED COVER PACKING A	141-00903	01-008-1900	1
9		BED COVER PACKING B	141-01000	01-009-1900	1
10		HINGE RUBBER	B1115-210-D00	01-010-1900	2
11		GROUND MARK	100-04109		2
12		FRAME SUPPORT RUBBER	B1116-210-D00	01-012-1900	2
13		FACE PACKING	135-02307	01-002-185	1
14		THREAD GUIDE NO.1	137-86306	01-014-1900	1
15		BED HINGE	B1111-210-D00	01-015-1900	2
16		HINGE STUD	B2707-761-000	01-016-1900	2
17		SCREW 11/64-40 L=4	SS-8110422-TP	5-30-1190	2
18		HEXAGONAL-HOLE BOLT M6 L=75	SM-6067552-TP	GB/T70-1985	4
19		WASHER	WP-0651646-SC	GB/T97.1-1985	4
20		NUT M6	NM-6060001-SC	GB/T6148-2000	8
21		SCREW D=3.8 L=20	SK-3382001-SE	GB/T15856.1H-2002	4
22		HEAD SUPPORT BAR	112-80856	01-022-1900	1
23		FACE COVER ASM.	135-38152	01-001-185	1
24		BALANCE COVER	138-16608	01-012-185	1
25		THREAD GUIDE PLATE	B1111-232-000	15037-780	1
26		ARM THREAD GUIDE B	B1124-280-000	01-013-185	1
27		L-SHAPED THREAD GUIDE A	B1125-280-000	11544-780	1
28		ARM THREAD GUIDE A	110-18504	11542-780	1
29		THREAD GUIDE	B3114-771-000	11545-780	1
30		SAFETY LABEL,1(SMALL)	CM-3002001-01		1
32		NUT 9/64-40	NS-6090310-SP	1-23-185	1
33		NUT 9/64-40	NS-6090310-SP	1-23-185	1
35		CAUTION LABEL(25)	CM-3002000-02		1
36		SCREW 11/64-40 L=6	SS-6110610-TP	10924-780	1
37		SCREW 9/64-40 L=5	SS-4090515-SP	10305-780	2
38		SCREW 11/64-40 L=10	SS-4111015-SP	10338-780	2
39		TOP COVER	141-00309	01-039-1900	1
40		SCREW 15/64-28 L=7	SS-4150715-SP	10808-780	1
41		SCREW 15/64-28 L=7	SS-4150715-SP	10808-780	1
42		SCREW 11/64-40 L=6	SS-6110610-TP	10140-780	3
43		SCREW 11/64-40 L=6	SS-6110610-TP	10140-780	2
44		SCREW 15/64-28 L=12	SS-4151215-SP	10610-780	6
45		SCREW 9/64-40 L=7	SS-4090715-SP	10512-780	1
46		SCREW 11/64-40 L=7.8	SS-7110840-SP	10516-780	1
47		THREAD CUTTER	105-02300	01-047-1900	1
48		RUBBER PLUG	TA-0750704-R0	10135-780	1
49		RUBBER PLUG D=12.5 L=4	TA-1250406-R0	10-005-185	6
52		RUBBER PLUG	TA-1470704-R0	01-052-1900	1
53		RUBBER PLUG	TA-2100904-R0	10-001-185	3
54		RUBBER PLUG	TA-1050504-R0	10-002-185	3
56		BED COVER A	141-00507	01-056-1900	1
57		BOBBIN WINDER ASM.	141-13666		1
58		BOBBIN WINDER SHAFT COMPL.	141-13658	01-058-1900	(1)
59		WASHER	135-07504	01-059-1900	(2)
60		LATCH SPRING	B3212-761-000	01-060-1900	(1)
61		BOBBIN FITTING BASIS COMPL	225-37658	01-061-1900	(1)
62		BOBBIN CAM SHAFT COMPL	225-38151	01-062-1900	(1)
63		BOBBIN LEVER	225-38300	01-063-1900	(1)
64		ADJUSTING PLATE	225-38409	01-064-1900	(1)
65		RUBBER RING	A3216-001-00A	01-065-1900	(1)
66		SPRING	B1148-555-000	01-066-1900	(1)
67		PRESSUR FOOT SPRING	B1529-890-00C-A	01-067-1900	(1)
68		CUSHION	B3205-210-000	01-068-1900	(1)
69		RETAINING RING	RC-0560711-KP	GB/T894.1-1980	(1)
70		E-RING	RE-0500000-K0	GB/T896-1986	(1)
71		RUBBER RING	RO-0922702-00	GB/T3452.1	(1)
72		SCREW 11/64-40 L=4	SS-8110422-TP	05-030-1190	(1)
73		SCREW 11/64-40 L=11	SS-6111140-SP	01-073-1900	3
74		BOBBIN THREAD TENSION ASM.	141-13468		1
75		BOBBIN THREAD TENSION ROD ASM	141-13450	11416-780	(1)
76		THREAD TENSION DISK	B3126-012-000	11415-780	(2)
77		CONNECTING ROD SPRING	D7133-555-B00	11414-780	(1)
78		THREAD TENSION NUT	110-72402	11413-780	(1)
79		NUT 11/64-40	NS-6110310-SP	10211-780	(1)
80		BED COVER B	141-00606	01-080-1900	1

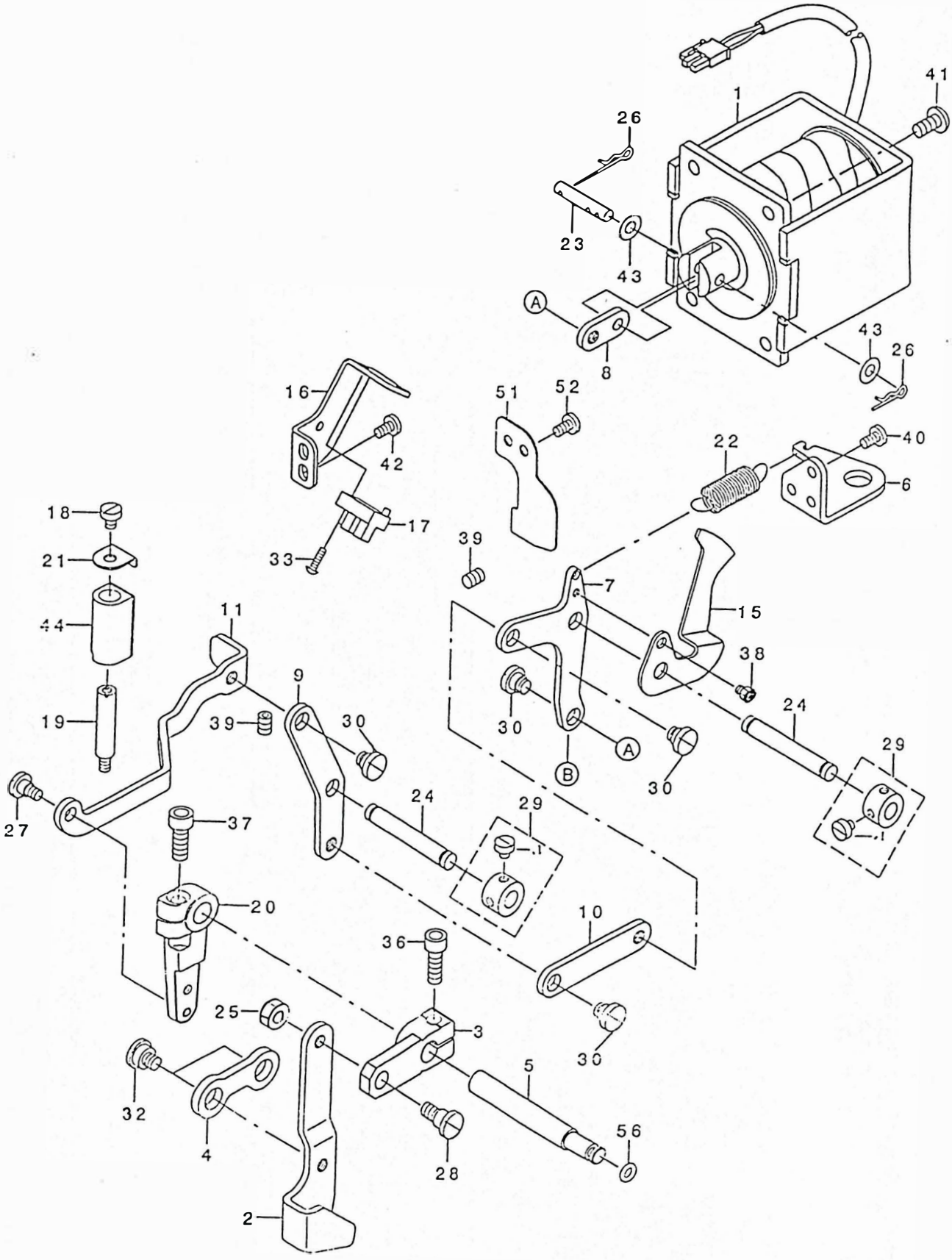
2. MAIM SHAFT & NEEDLE BAR COMPONENTS



2. MAIM SHAFT NEEDLE BAR COMPONENTS

REF.NO		DESCRIPTION	PART NO		QTY
1		MAIN SHAFT SLIT PLATE	141-02404	02-001-1900	1
2		MAIN SHAFT	141-02107	02-002-1900	1
3		MAIN SHAFT BUSHING,FRONT	141-02206	02-003-1900	1
3.1		SCREW 11/64-40 L=6		10331-780	2
3.2		RETAINING RING 17		GB/T894.1-1986	1
4		MAIN SHAFT BUSHING,MIDDLE	141-02305	02-004-1900	1
4.1		MAIN SHAFT BUSHING,MIDDLE		02-004.1-1900	1
4.2		SCREW 11/64-40 L=6		10331-780	2
4.3		E-RING 37		GB/T893.1-1986	1
5		SENSOR INSTALLING BASE	141-02503	02-005-1900	1
6		HAND PULLEY SHAFT	141-02602	02-006-1900	1
7		HAND PULLEY GEAR A	141-02701	02-007-1900	1
8		HAND PULLEY GEAR B	141-02800	02-008-1900	1
9		MAIN MOTOR	B1230-210-D00		1
10		COUPLING	B1231-210-D00	02-010-1900	1
11		INDIA RUBBER		02-010.3-1900	1
12		COUNTER WEIGHT	B1202-280-000	02-002-1850	1
13		NEEDLE ROD CRANK WASHER	B1223-771-000	10317-780	1
14		LINK BALANCE ASM.	B1901-280-0B0	02-014-1900	1
15		THREAD TAKE-UP LEVER	B1901-280-000	03-001-1850	(1)
16		THREAD TAKE-UP CRANK	B1903-280-000	03-005-1850	(1)
17		LEFT SCREW	B1903-552-000	10315-780	(1)
18		NEEDLE BUSHING	B1905-541-000	5846-081208-1850	(1)
19		NEEDLE DRIVING LEVER BEARING	B1411-804-000	5846-081110-1850	(1)
20		NEEDLE ROD CRANK	B1203-280-000	03-004-1850	(1)
21		NEEDLE BAR CRANK ROD	B1404-280-000	03-003-1850	(1)
31		BALANCE CRANK PIN	B1904-280-0001	03-002-185	1
32		SCREW 15/64-28 L=14	SS-6151412-TP	2-2-185	1
33		SCREW 9/32-28 L=16.5	SS-6681712-TP	02-001-185	1
35		SCREW 1/4-40 L=6	SS-8660610-TP	10404-780	1
36		SCREW 15/64-28 L=11	SS-7151120-SP	9-15-185	1
38		UPPER SHAFT REAR BEARING	G1216-870-000		1
39		SCREW M6 L=6	SM-8060612-TP	GB/T80-1985	2
40		SCREW M6×16	SM-8061612-TP	GB/T80-1985	2
41		PHOTO SENSOR	HD-0019300-00		1
42		SCREW M4 L=12	SL-4041291-SC	GB/T70-1985	1
43		SCREW	SL-4061091-SC	GB/T818-1985	2
44		MAIN SHAFT SENSOR COVER	141-14508	02-044-1900	1
45		SCREW 11/64-40 L=14	SS-7111410-TP	10127-780	4
46		SCREW 11/64-40 L=7.8	SS-7110840-SP	10516-780	1
47		HANDWHEEL SETSCREW	A1230-500-000-A	02-047-1900	1
49		PULLEY	B1212-210-D00	02-049-1900	1
50		SPRING	GAF-01007000	02-050-1900	1
51		SPRING PIN 4×14	PS-0400142-KH	GB/T879-1986	1
52		SCREW 11/64-40 L=2.8	SS-8110310-SP	02-052-1900	2
53		SCREW 11/64-40 L=2.8	SS-8110310-SP	02-053-1900	2
54		RUBBER RING	RO-1542401-00	GB/T3452.1	1
55		NEEDLE BAR	B1401-280-000	03-008-185	1
57		NEEDLE ROD METAL	B1402-280-000	03-006-185	1
58		NEEDLE ROD LOWER METAL	B1403-280-000	03-009-185	1
59		NEEDLE BAR THREAD GUIDE	B1405-280-000	03-010-185	1
62		NEEDLE BAR CLAMP	B1411-552-000	03-007-185	(1)
63		SCREW 9/64-40 L=6	SS-6090670-TP	11424-780	(1)
64		SQUARE BLOCK	B1414-232-000	10601-780	1
65		NEEDLE DPX5 #11	MDP-500B1100	DPX5 #11	1
69		SCREW 3/32-56 L=4.5	SS-2060510-SP	3-15-185	1
70		SCREW 1/8-44 L=2.9	SS-6080340-SP	3-20-185	1
72		BOBBIN WINDER DRIVING WHEEL	B3213-205-000	02-072-1900	1
73		SCREW 11/64-40 L=15.5	SS-8111610-SP	02-073-1900	2
74		SCREW 1/4-40 L=12	SS-9661230-CP	2-3-1850	1

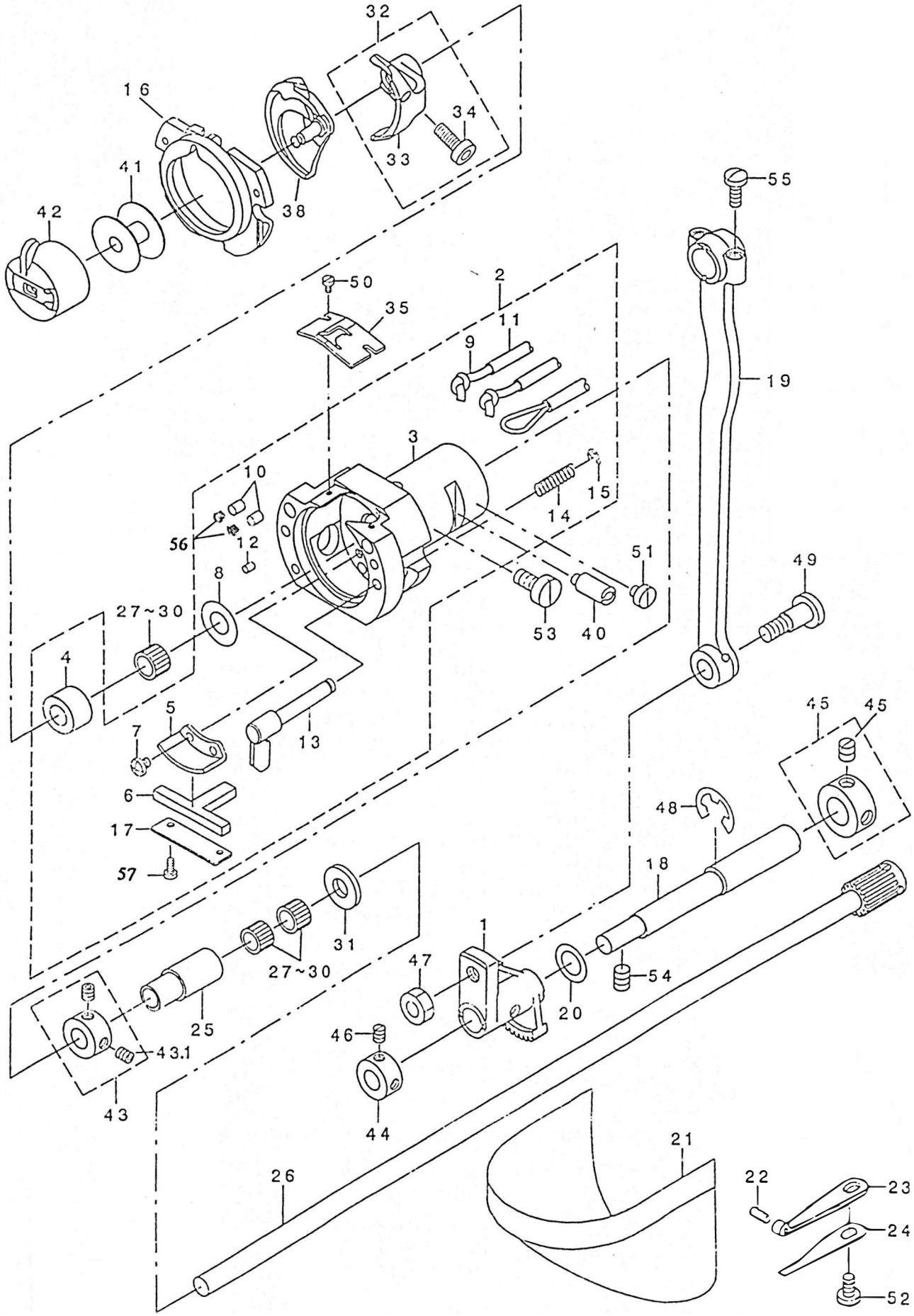
3. PRESSER LIFTER COMPONENTS



3. PRESSER LIFTER COMPONENTS

REF.NO		DESCRIPTION	PART NO		QTY
1		PRESSER LIFTING SOLENOID ASM.	141-04152		1
2		LOWERING FOOT	141-04202	03-002-1900	1
3		LOWERING ARM	141-04301	03-003-1900	1
4		CONNECTING LINK	141-04400	03-004-1900	1
5		CONNECTING SHAFT	141-04509	03-005-1900	1
6		RETURN SPRING HOOK	141-04608	03-006-1900	1
7		LINK D	141-05100	03-007-1900	1
8		SOLENOID LINK	141-04707	03-008-1900	1
9		LINK B	141-04905	03-009-1900	1
10		LINK C	141-05001	03-010-1900	1
11		LINK A	141-04806	03-011-1900	1
15		PRESSER SENSOR SLIT	141-05209	03-015-1900	1
16		SENSOR INSTALLING PLATE	141-05308	03-016-1900	1
17		PHOTO SENSOR	HD-0005700-0A		1
18		SCREW 11/64-40 L=6	SS-6110610-TP	10924-780	1
19		OIL PUMP SUPPORT	113-92107	03-019-1900	1
20		CONNECTING ARM	135-06415	03-020-1900	1
21		STOPPER RUBBER SET WASHER	WP-0560860-SE	03-021-1900	1
22		SPRING	135-44705	03-022-1900	1
23		MAGNET PIN	B1513-210-D00	03-023-1900	1
24		SHAFT BLOCK SHAFT	D2502-232-D00	03-024-1900	2
25		NUT 15/64-28	NS-6150310-SP	10544-780	1
26		PIN	B1515-210-D00	GB/T91-1986	2
27		HINGE SCREW D=6.35 H=3.9	SD-0640391-TP	03-027-1900	1
28		HINGE SCREW D=7.94 H=6	SD-0790601-SP	03-028-1900	1
29		THRUST COLLAR ASM.D=7.94 W=10	CS-079101A-SH	03-029-1900	2
29.1		SCREW 11/64-40 L=4.8		11005-780	4
30		HINGE SCREW D=8 H=3.4	SD-0800341-SP	03-030-1900	4
32		HINGE SCREW D=10 H=4	SD-1000401-SP	03-032-1900	2
33		SCREW M3×12	SL-4031291-SC	GB/T818	1
36		SCREW M6 L=18	SM-6061802-TP	GB/T70-1985	1
37		SCREW M6 L=18	SM-6061802-TP	GB/T70-1985	1
38		STUD	HX-0033900-00	GB/T70-1985	1
39		SCREW 15/64-28 L=8	SS-8150822-TP	5-31-185	2
40		SCREW 11/64-40 L=7.8	SS-7110840-SP	10516-780	2
41		SCREW 15/64-28 L=12	SS-4151215-SP	10610-780	4
42		SCREW 11/64-40 L=7.8	SS-7110840-SP	10516-780	2
43		WASHER 5×10×1	WP-0560860-SE	GB/T95-1985	2
44		PRESSER LIFTING STOPPER RUBBER	135-00400	03-044-1900	1
51		PLATE	141-05506	03-051-1900	1
52		SCREW 11/64-40 L=7.8	SS-7110840-SP	10516-780	2
56		RUBBER RING		GB/T3452.1	1

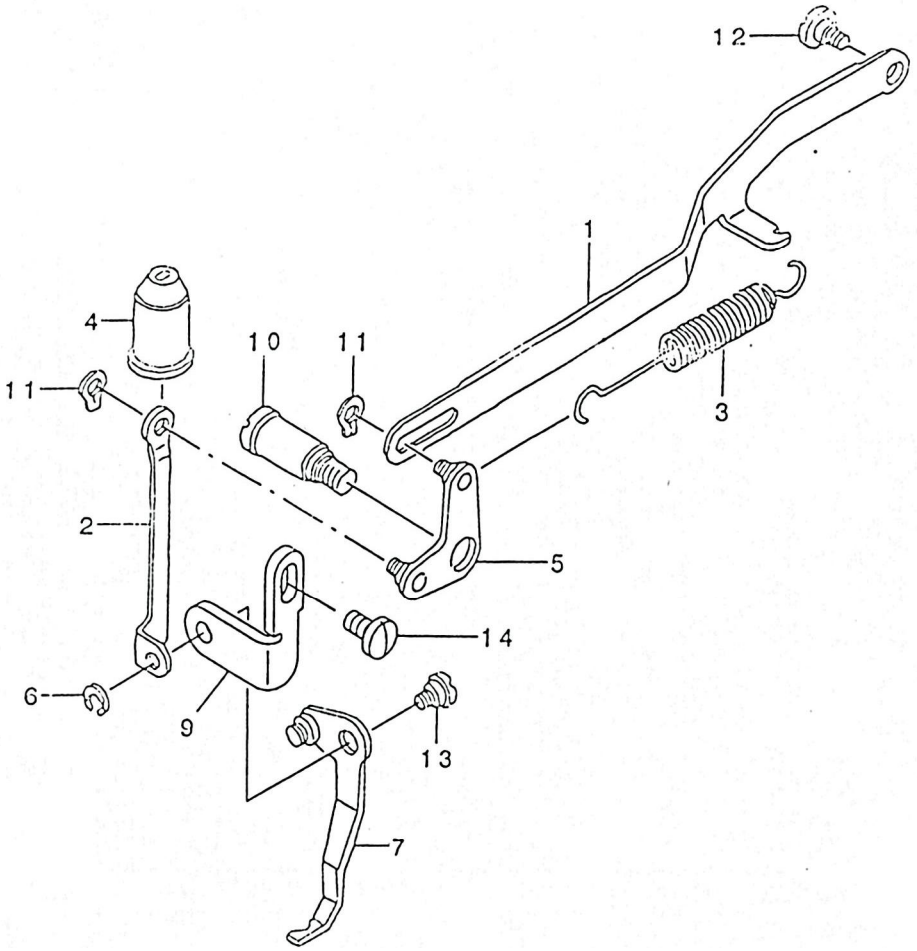
4. SHUTTLE DRIVER SHAFT COMPONENTS



4. SHUTTLE DRIVER SHAFT COMPONENTS

REF.NO		DESCRIPTION	PART NO		QTY
1		OSCILLATOR	141-03402	04-001-1900	1
2		SHUTTLE ASM.	141-03154		1
3		SHUTTLE	141-03105	05-005-185	(1)
4		SHUTTLE NEEDLE OUTER RING	B1813-980-000	05-004-185	(1)
5		SHUTTLE LUBRICATING PLATE	B3505-280-000	10-034-185	(1)
6		SHUTTLE ONCE THROUGH OIL FELT	B3504-280-000	05-005.6-185	(1)
7		SCREW 9/64-40 L=4	SS-6090440- SP	10-45-185	(2)
8		WASHER 9.5×14.8×2.6	WP-0952616- SD	5-9-185	(1)
9		OIL WICK	CQ-2522000-00		(1.59)
10		SHUTTLE OIL FELT,A	B1820-210- D00	04-010-1900	(2)
11		VINYL PIPE	BP-3000000-00	Φ4.5×0.8	(0.99)
12		SHUTTLE OIL FELT,B	B1821-210- D00	04-012-1900	(1)
13		INNER HOOK PRESSER ASM.	B1820-215-PA0-A	05-005.1-185	(2)
14		INNER HOOK PRESSER SPRING	B1822-215- P00	05-005.4-185	(2)
15		E-RING 3	RE-0300000 K0	GB/T896-1986	(2)
16		INNER HOOK PRESSER ASM.,A	141-03253	05-001.1-185	1
17		ONCE THROUGH OIL FELT PRESSER	141-04004	05-005.5-185	1
18		OSCILLATING ECCENTRIC SHAFT	B1836-210- D00	04-018-1900	1
19		CRANK ROD	B1802-210- D00	04-019-1900	1
20		WASHER	105-23504	04-020-1900	1
21		CYLINDER ARM CAP	138-16855	05-020-185	1
22		HOOK COVER PRESSER SPRING PIN	135-08700	GB/T119-1986	1
23		HOOK COVER PRESSER SPRING A	135-08809	05-021-185	1
24		HOOK COVER PRESSER SPRING B	135-08908	05-022-185	1
25		LOWER SHAFT REAR METAL	135-08403	05-009-185	1
26		LOWER SHAFT GEAR A ASM.	135-09153	05-011-185	1
27		BEARING(A)	B1411-804-A00	5846-081110	3
31		LOWER SHAFT THRUST WASHER	B1808-980-000	05-010-185	1
32		DRIVER ASM.	B1812-980-0A0		1
33		SHUTTLE DRIVER	B1812-980-000	05-003-185	(1)
34		SCREW 3/16-28 L=12	SS-6121212-TP	5-6-185	(1)
35		SHUTTLE UPPER SPRING	B1815-980-000	05-006-185	1
38		INNER HOOK	B1818-280-000	5-4 SH280	1
40		SHUTTLE RACE ADJUSTING SHAFT	B1819-280-000	05-007-185	1
41		BOBBIN	138-12102	05-002-185	1
42		BOBBIN CASE ASM.(RACING PREVE)	B1828-980-0BB	B1828-185	1
43		THRUST COLLAR ASM.D=8 W=8	CS-080081C-SH	05-008-185	1
43.1		SCREW 11/64-40 L=4.5		10333-780	2
44		THRUST COLLAR	CS-1000811-SP	04-044-1900	1
45		THRUST COLLAR ASM.D=12 W=10	CS-1201010-SH	04-045-1900	1
45.1		SCREW 1/4-40 L=6		10404-780	2
46		SCREW 11/64-40 L=4.5	SS-8110520-TP	5-27-185	2
47		NUT 1/4-40	NS-6660430-SP	5-25-185	1
48		E-RING 9	RE-0900000-K0	GB/T896-1986	1
49		HINGE SCREW D=8 H=10.2	SD-0801021-TP	5-23-185	1
50		SCREW 3/32-56 L=3.5	SS-6060410-TP	5-12-185	2
51		SCREW 11/64-40 L=4.3	SS-6110480-SP	1-8-185	1
52		SCREW 11/64-40 L=7.8	SS-7110840-SP	10516-780	1
53		SCREW 15/64-28 L=11.5	SS-6151220-SP	6-31-185	1
54		SCREW 15/64-28 L=8	SS-8150822-TP	5-31-185	2
55		SCREW 11/64-40 L=10.5	SS-7111110-TP	5-3-1190	2
56		RUBBER PLUG		10-035-185	(2)
57		SCREW 3/32-56 L=3.5	SS-6060410-TP	5-12-185	2

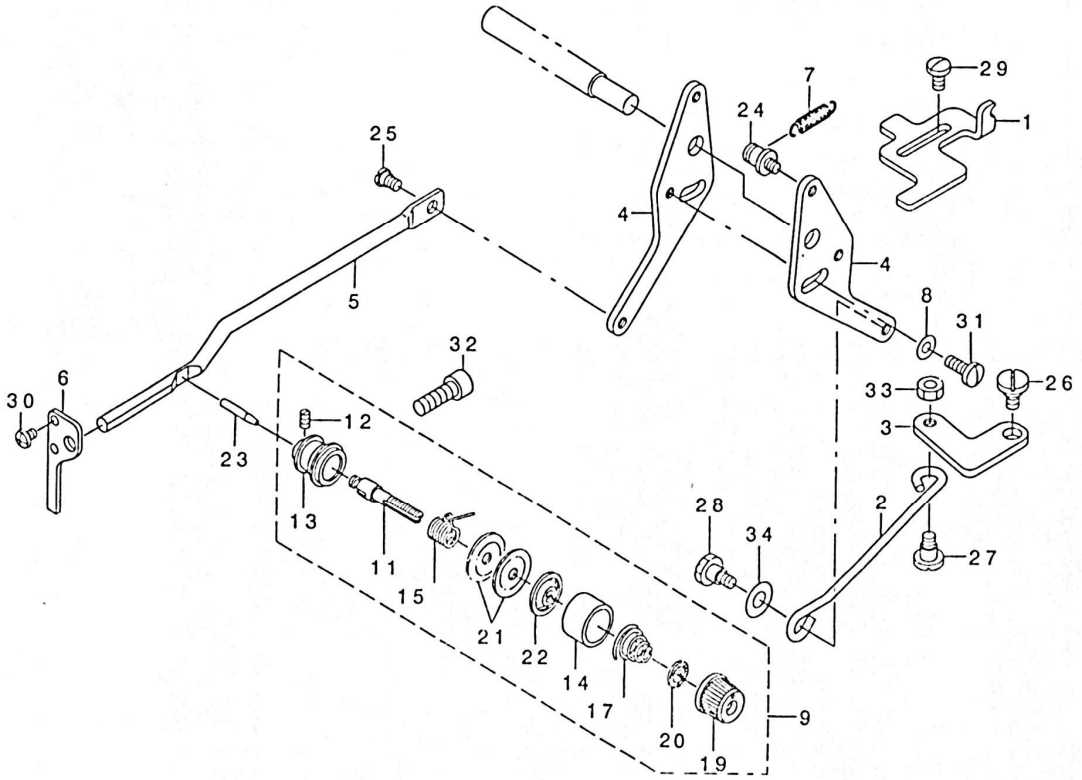
5. WIPER MECHANISM COMPONENTS



5. WIPER MECHANISM COMPONENTS

REF.NO		D E S C R I P T I O N	P A R T N O		QTY
1		WIPER CONNECTING LINK	135-09500	04-024-185	1
2		WIPER CONNECTING PLATE	135-09609	04-029-185	1
3		SPRING	135-09708	04-025-185	1
4		OIL SHIELD CAP	135-09807	04-028-185	1
5		WIPER CONNECTING ARM ASM.	135-099555	04-026-185	1
6		RETAINING RING 5	B1229-232-000	GB/T894.1-1985	1
7		WIPER ASM.	B2101-280-0A0	04-031-185	1
9		WIPER BASE PLATE	135-74009	04-030-185	1
10		WIPER CONNECTING SCREW	B2109-280-000	04-027-185	1
11		RETAINING RING 5	RC-0470611-KP	GB/T894.1-1985	2
12		HINGE SCREW D=5.3 H=2.2	SD-0530221-SP	4-30-185	1
13		HINGE SCREW D=6.35 H=2.1	SD-0640211-SP	4-56-185	1
14		SCREW 11/64-40 L=7.8	SS-7110840-SP	04-055-185	1

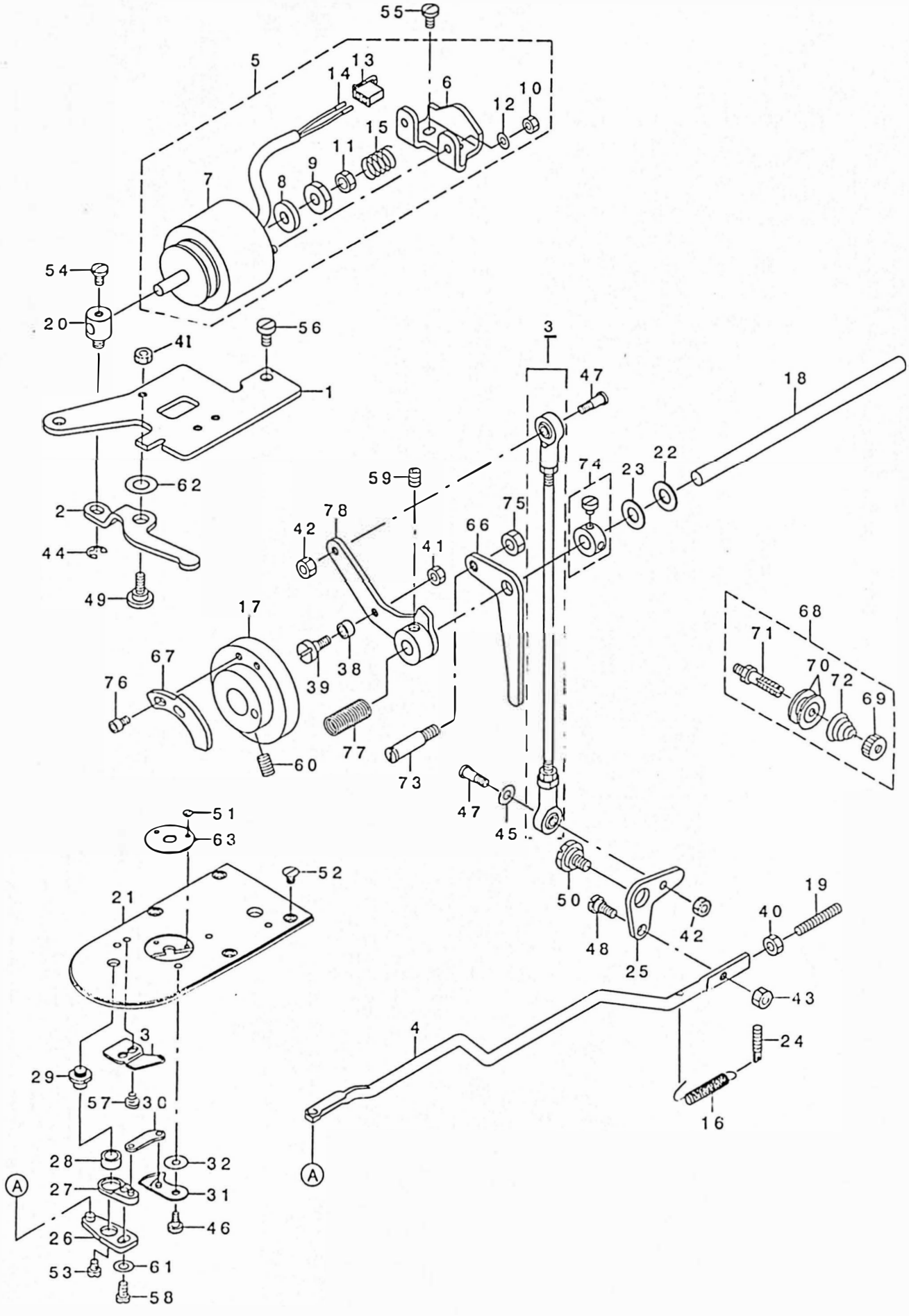
6. TENSION RELEASE & THREAD TENSION COMPONENTS



6. TENSION RELEASE & THREAD TENSION COMPONENTS

REF.NO		DESCRIPTION	PART NO		QTY
1		STOPPER	141-07502	06-001-1900	1
2		CONNECTING BAR	141-07700	06-002-1900	1
3		TENSION RELEASE LINK	B2304-210-D00	06-003-1900	1
4		TENSION RELEASE ADJUSTING ARM	B2306-210-D00	06-004-1900	2
5		TENSION RELEASE BAR	135-13205	04-017-185	1
6		THREAD TENSION ARM	135-13304	04-018-185	1
7		PRESSURE SPRING	B2545-280-000	06-007-1900	1
8		WASHER 4.8×11.5×2	WP-0482086-SD	9-2-185	1
9		SECOND THREAD TENSION ASM.	B2302-280-0A0		1
11		SECOND THREAD TENSION ROD	B2302-280-000	04-004-185	(1)
12		SCREW 9/64-40 L=5.9	SS-8090610-SP	4-5-185	(1)
13		THREAD TENSION ROD,LARGE	B2313-280-000	04-003-185	(1)
14		THREAD TENSION DISK PRESSER	B3107-804-000	04-004-185	(1)
15		THREAD TAKE-UP SPRING	B3112-761-000	04-005-185	(1)
17		THREAD TENSION SPRING	B3114-232-000	04-007-185	(1)
19		THREAD TENSION NUT	B3119-771-000	15020-780	(1)
20		ROTATING STOPPER	B3120-125-000	15021-780	(1)
21		THREAD TENSION DISK	B3126-012-000	15024-780	(2)
22		THREAD TENSION DISK PRESSER	B3132-552-000	04-006-185	(1)
23		TENSION RELEASE PIN	B2303-280-000	04-001-185	1
24		SUSPENSION SCREW	B3413-552-000	06-024-1900	1
25		HINGE SCREW D=5.3 H=2.2	SD-0530221-SP	04-030-185	1
26		HINGE SCREW D=7.24 H=3.3	SD-0720321-TP	04-039-185	1
27		HINGE SCREW D=6.35 H=3.9	SD-0640391-TP	04-042-185	1
28		HINGE SCREW D=6.35 H=4.8	SD-0640482-SP	06-028-1900	1
29		SCREW 11/64-40 L=8	SS-6110810-TP	10516-780	2
30		SCREW 9/64-40 L=5	SS-4090515-SP	10305-780	2
31		SCREW 11/64-40 L=11	SS-7111120-TP	10338-780	1
32		SCREW 15/64-28 L=18	SS-6151812-TP	06-032-1900	1
33		NUT 3/16-28	NS-6120310-SP	7-12-185	1
34		WASHER 6.3×11.2×0.5	WP-0651056-SD	07-026-185	1

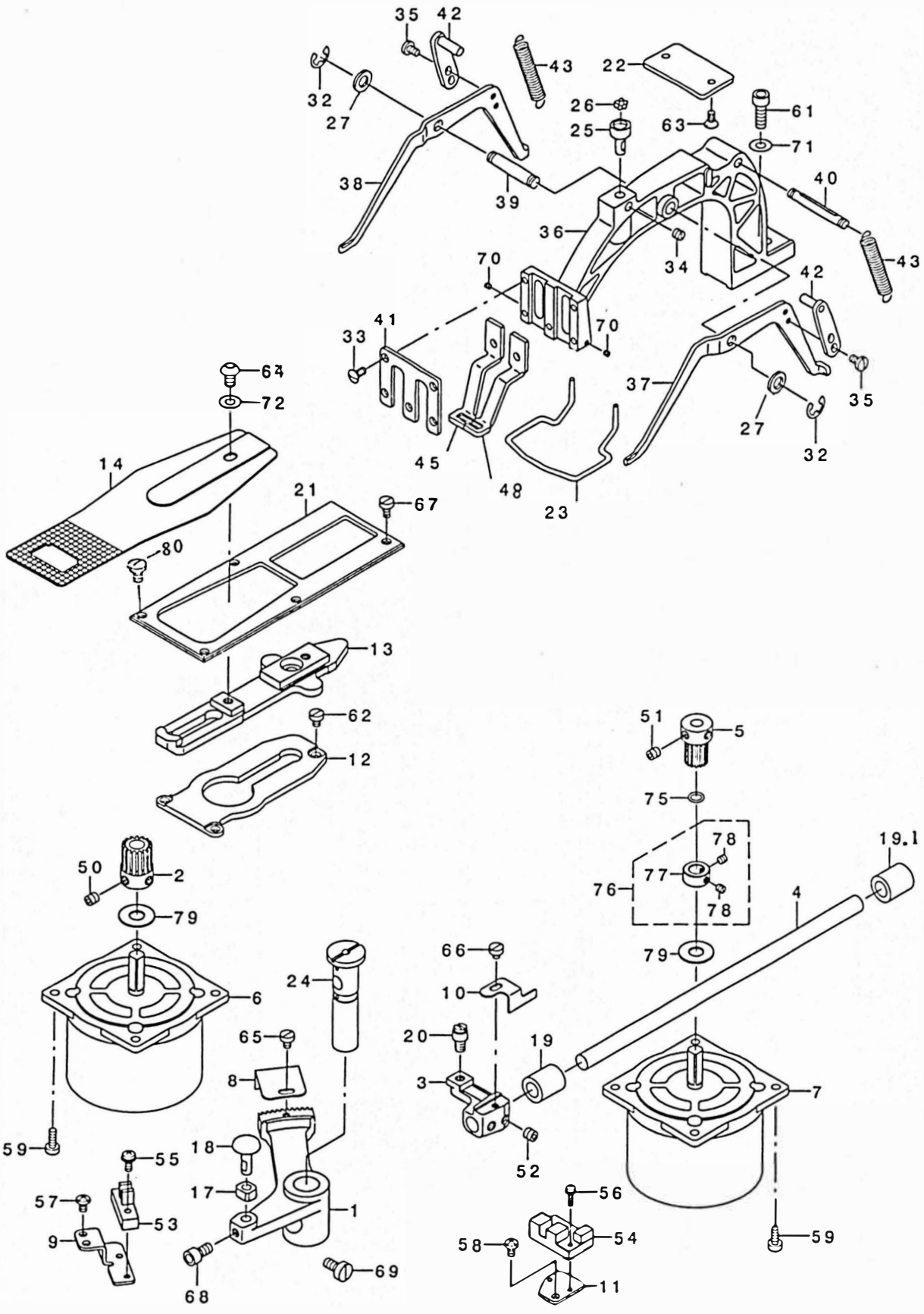
7. TENSION RELEASE & THREAD TRIMMER MECHANISM COMPONENTS



7. TENSION RELEASE THREAD TRIMMER MECHANISM COMPONENTS

REF.NO		DESCRIPTION	PART NO		QTY
1		CAM FOLLOWER STOPPER	141-08401	07-001-1900	1
2		SOLENOID ARM	141-08500	07-002-1900	1
3		CONNECTING ROD	141-08609		1
4		CONNECTING BAR	141-08708	07-004-1900	1
5		THREAD TRIMMING SOLENOID ASM.	141-08955		1
6		SOLENOID INSTALLING BASE	141-08807	07-006-1900	(1)
7		SOLENOID FOR THREAD TRIMMING	141-08906		(1)
8		SOLENOID RUBBER	110-43304		(1)
9		NUT	NS-6660410-SH		(1)
10		NUT M4	NM-6040000-SN		(2)
11		NUT 1/4-40	NS-6660430-SP		(1)
12		WASHER 4.5×8×0.5	WP-0450000-SD		(2)
13		2-POLE NYLON PLUG	HK-0346100-20		(1)
14		PIN CONTACT	HK-0346400-00		(2)
15		SPRING	B1652-704-000	07-015-1900	(1)
16		THREAD TRIM LINK SPRING	141-09300	07-016-1900	1
17		THREAD TRIMMER CAM	B2401-210-D00	07-017-1900	1
18		THREAD TRIMMER SHAFT	B2408-210-D00	07-018-1900	1
19		SCREW M5 L=30	SM-8053002-TP	GB/T73-1988	1
20		SOLENOID PIN	110-43007	07-020-1900	1
21		NEEDLE PLATE	135-15507	03-026-185	1
22		NEEDLE ROD CRANK WASHER	B1223-771-000	07-022-1900	1
23		CLOTH PLATE WASHER	B1116-804-000	07-023-1900	1
24		TENSION SPRING ADJUSTING SCREW	B1649-161-000	07-021-185	1
25		THREAD TRIMMER LINK	B2411-210-000	07-025-1900	1
26		THREAD CUTTER LEVER ASM.,LARG	B2414-280-0A0	03-026.1-185	1
27		THREAD CUTTER LEVER ASM.,SMAL	B2415-280-0A0	03-030-185	1
28		THREAD CUTTING LEVER RING	B2416-280-000	03-029-185	1
29		THREAD CUTTER LEVER SHAFT	B2417-280-000	03-026.2-185	1
30		MOVING KNIFE LINK	B2418-280-000	03-028-185	1
31		MOVING KNIFE ASM.	B2421-280-0A0	03-033-185	1
32		MOVING KNIFE WASHER A	B2423-280-00A	03-032-185	1
37		FIXING KNIFE	B2424-280-000	03-027-185	1
38		ROLLER	D2587- L8W- B00	07-038-1900	1
39		ROLLER SHAFT	D2588- L8W- B00	07-039-1900	1
40		NUT M5	NM-6050001-SP	GB/T6184-2000	1
41		NUT 11/64-40	NS-6110420-SP	7-39-185	2
42		NUT 11/64-40	NS-6110420-SP	7-39-185	2
43		NUT 3/16-28	NS-6120310-SP	11-36-185	1
44		E-RING	RE-0500000-K0	GB/T896-1986	1
45		WASHER 5×10.5×1	WP-0501016-SD	11-39-185	1
46		HINGE SCREW D=5.0 H=0.9	SD-0500091-TP	3-54-185	1
47		HINGE SCREW D=5 H=8	SD-0500803-TP	07-047-1900	2
48		HINGE SCREW D=6.5 H=3.1	SD-0650305-TP	07-048-1900	1
49		HINGE SCREW D=7.94 H=3.1	SD-0790311-TP	07-049-1900	1
50		HINGE SCREW H=11 W=3	SD-1100301-TP	07-050-1900	1
51		SCREW 3/32-56 L=2.2	SS-1060210-TP	3-56-185	2
52		SCREW 11/64-40 L=5.5	SS-1110640-TP	3-51-185	4
53		SCREW 11/64-40 L=4.0	SS-6110430-TP	1-8-185	1
54		SCREW 11/64-40 L=7	SS-7110740-TP	10140-780	1
55		SCREW 11/64-40 L=7.8	SS-7110840-SP	10516-780	2
56		SCREW 3/16-28 L=9	SS-6120930-SP	10703-780	2
57		SCREW 9/64-40 L=3.5	SS-7090410-SP	3-59-185	2
58		SCREW 11/64-40 L=7	SS-7110740-TP	3-66-185	1
59		SCREW 15/64-28 L=8	SS-8150822-TP	5-31-185	1
60		SCREW 1/4-40 L=10	SS-8661012-TP	2-19-185	2
61		WASHER 4.8×7.8×0.8	WP-0450846-SP	3-65-185	1
62		WASHER 5.6×16×3.2	WP-0553216-SD	07-062-1900	1
63		NEEDLE HOLE GUIDE	B2426-280-000	03-025-185	1
66		THREAD RELEASE ARM	141-07601	07-066-1900	1
67		TENSION RELEASE NOTCH	B2312-210-D00	07-067-1900	1
68		FIRST THREAD TENSION ASM.	B1115-232-0A0		1
69		TENSION NUT,NO.1	A3125-002-000	04-011-185	(1)
70		THREAD TENSION DISK	B3126-012-000	15024-780	(2)
71		THREAD TENSION ROD	B3123-352-000	04-009-185	(1)
72		FIRST THREAD TENSION SPRING	B1115-232-000	04-010-185	(1)
73		TENSION RELEASE ARM PIN	141-07809	07-073-1900	1
74		THRUST COLLAR ASM.D=8.0 W=8	CS-080081C-SH	07-074-1900	1
74.1		SCREW 11/64-40 L=4.8		11005-780	2
75		NUT 15/64-28	NS-6150310-SP	10544-780	1
76		SCREW M4 L=6	SM-6040602-TP	GB/T70-1985	2
77		TRIPPING LEVER TENSION SPRING	B2617-771-000	07-077-1900	1
78		CAM FOLLOWER ASM.	141-09250	07-078-1900	1

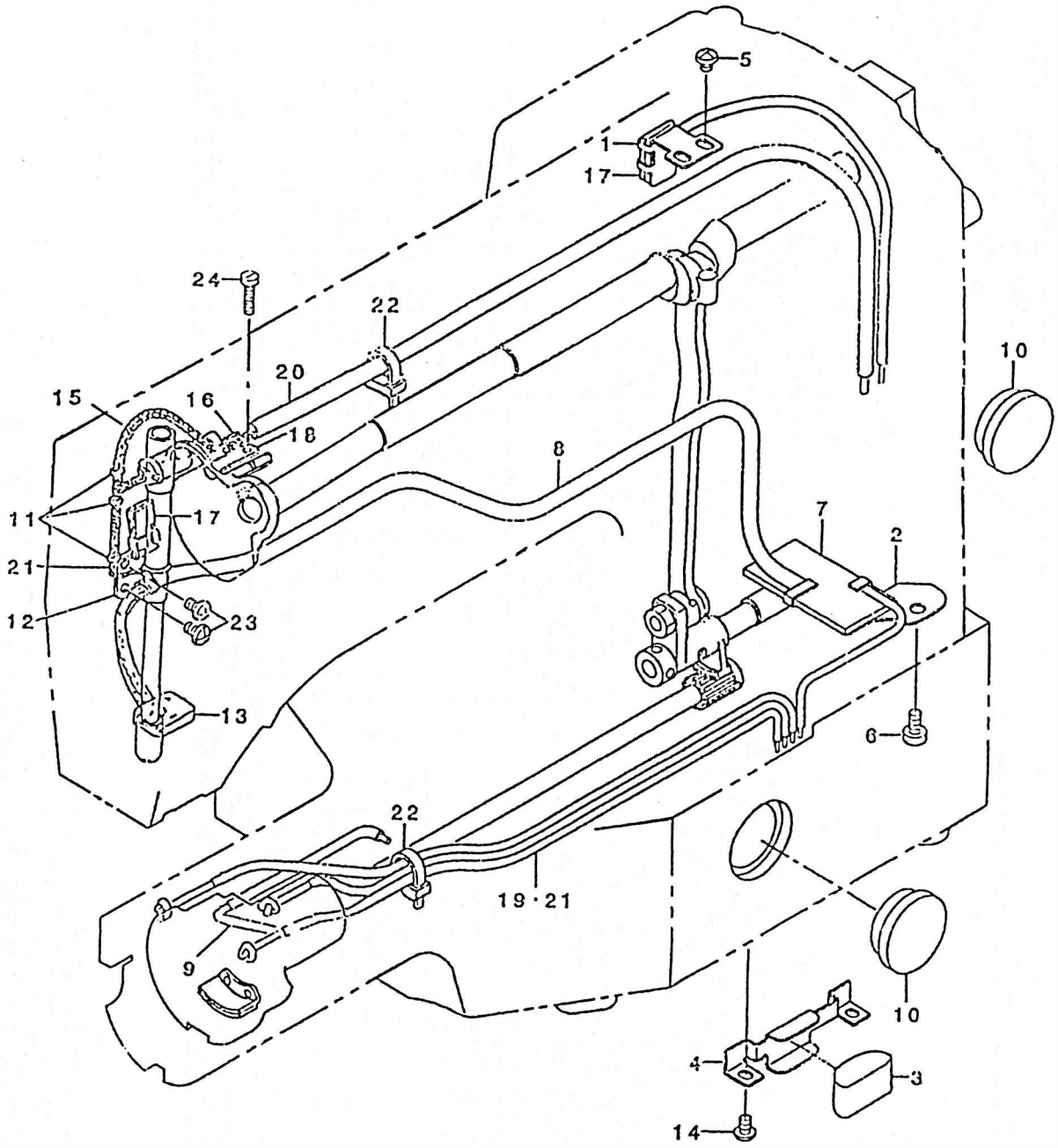
8. FEED MECHANISM COMPONENTS

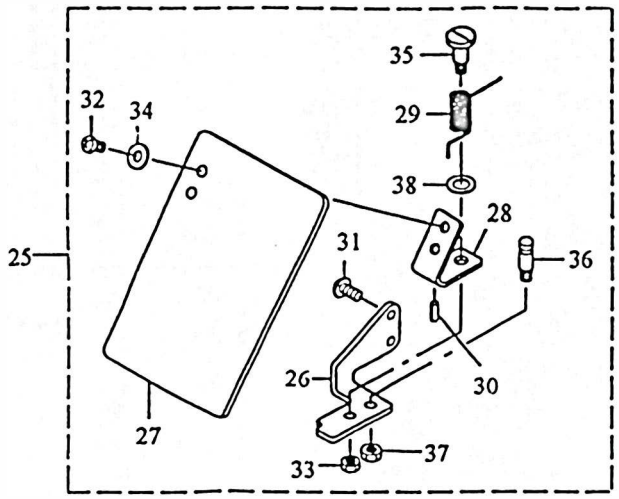


8. FEED MECHANISM COMPONENTS

REF.NO		DESCRIPTION	PART NO		QTY
1		CROSSFEED ARM	141-10001	08-001-1900	1
2		CROSSFEED GEAR	141-10308	08-002-1900	1
3		LENGTHWISE FEED ARM	141-10100	08-003-1900	1
4		LENGTHWISE FEED SHAFT	141-10209	08-004-1900	1
5		LENGTHWISE FEED GEAR	141-10407	08-005-1900	1
6		X FEED STEPPING MOTOR	141-12304		1
7		Y FEED STEPPING MOTOR	141-12403		1
8		CROSSFEED SENSOR SLIT	141-11504	08-008-1900	1
9		SENSOR INSTALLING BASE	141-11702	08-009-1900	1
10		LENGTHWISE FEED SENSOR SLIT	141-36402	08-010-1900	1
11		SENSOR INSTALLING BASE	141-11801	08-011-1900	1
12		CLOTH FEED SUPPORT PLATE	141-10704	08-012-1900	1
13		CLOTH FEED PLATE	141-10811	08-013-1900	1
14		FEED PLATE A	141-16107	08-014-1900	1
17		SQUARE BLOCK	B1414-232-000	06-030-185	1
18		SLIDE BLOCK STUD	135-17206	06-029-185	1
19		BUSHING,REAR	B2509-704-000	08-019-1900	1
19.1		BUSHING,REAR		08-019.1-1900	1
20		HINGE STUD	135-17404	08-020-1900	1
21		CLOTH FEED PRESSER PLATE	135-62400	08-021-1900	1
22		SUPPORT PLATE	135-18907	06-005-185	1
23		FINGER GUARDE	135-33104	06-010-185	1
24		FEED DRIVING ARM SHAFT	135-16208	06-017A-185	1
25		BALL RETAINER	B2548-280-000	06-006-185	1
26		WORK CLAMP FOOT MOUNTING BASE	B2549-280-000	6-10-185	7
27		WASHER FOR DRIVING ARM	B2557-280-00 A	6-3-185	2
32		E-RING 7	RE-0700000 K0	GB896-1986	2
33		SCREW 11/64-40 L=8.7	SS-2110930- SP	10515-780	5
34		SCREW 15/64-28 L=4.7	SS-8150510- TP	11116-780	1
35		SCREW 11/64-40 L=7	SS-7110740- TP	10146-780	4
36		FEED BRACKET	135-17800	06-008-185	1
37		LIFTING LEVER,RIGHT	135-17909	06-009-185	1
38		LIFTING LEVER,LEFT	135-18006	06-003-185	1
39		LIFTING LEVER SHAFT	135-18105	06-004-185	1
40		SPRING SUSPENSION	135-18501	06-007-185	1
41		WORK CLAMP FOOT FACE PLATE	135-18808	06-011-185	1
42		LEVER DRIVING PLATE ASM.	135-18352	06-001-185	2
43		CLOTH PRESSER SPRING	141-05407	06-002-185	2
45		WORK CLAMP FOOT,RIGHT	135-42915	06-012-185	1
48		WORK CLAMP FOOT,LEFT	135-43012	06-013-185	1
50		SCREW M6 L=6	SM-8060612- TP	GB/T80-1985	2
51		SCREW M6 L=6	SM-8060612- TP	GB/T80-1985	2
52		SCREW 1/4-40 L=6	SS-8660612- TP	10404-780	2
53		PHOTO SENSOR	HD-0013500-00		1
54		PHOTO SENSOR	HD-0005700-0 A		1
55		SCREW M4 L=12	SL-4041291- SC	GB/T818-1985	1
56		SCREW M3×12	SL-4031291- SC	GB/T818-1985	1
57		SCREW 11/64-40 L=7	SS-4110715- SP	10140-780	2
58		SCREW 11/64-40 L=7	SS-4110715- SP	10140-780	1
59		SCREW 11/64-40 L=11	SS-6111140- SP	10338-780	8
61		SCREW M6 L=18	SM-6061802- TP	GB/T70-1985	1
62		SCREW 11/64-40 L=6	SS-6110610- TP	10924-780	3
63		SCREW 11/64-40 L=8.5	SS-2110920- TP	10515-780	2
64		SCREW M6 L=10	SM-3061052- TP	GB/T70.2-2000	1
65		SCREW 11/64-40 L=6	SS-6110610- TP	10924-780	1
66		SCREW 11/64-40 L=4.3	SS-6110480- SP	1-8-185	1
67		SCREW 11/64-40 L=7.8	SS-6110420- TP	10516-780	1
68		SCREW 15/64-28 L=10.5	SS-6151142- TP	6-56-185	1
69		SCREW 15/64-28 L=11.5	SS-6151220- SP	10610-780	1
70		SCREW 1/8-44 L=2.8	SS-8080310- TP	6-18-185	2
71		WASHER 6.2×13×1	WP-0621016- SD	6-13-185	1
72		WASHER 6.2×13×1	WP-0650876- SD	6-13-185	1
75		RUBBER RING	RO-0691801-00	GB/T3452.1	1
76		THRUST COLLAR ASM.D=9.53 W=8	CS-095081A-SH		1
77		THRUST COLLAR D=8 W=8	CS-0950817- SH	08-077-1900	(1)
78		SCREW 11/64-40 L=3.5	SS-8110410- TP	5-19-1190	(2)
79		RUBBER WASHER	141-12502	08-079-1900	2
80		SCREW 11/64-40 L=4.8		3-51-185	4

9. LUBRICATION & SAFETY PLATE COMPONENTS

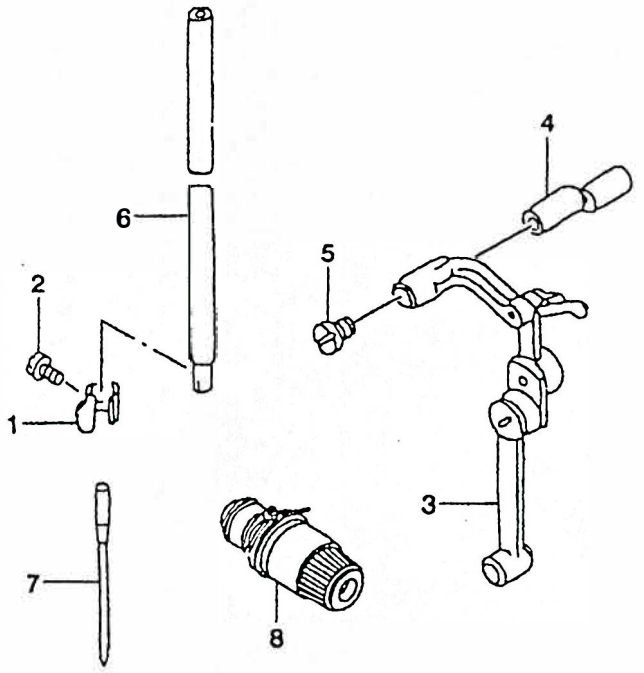




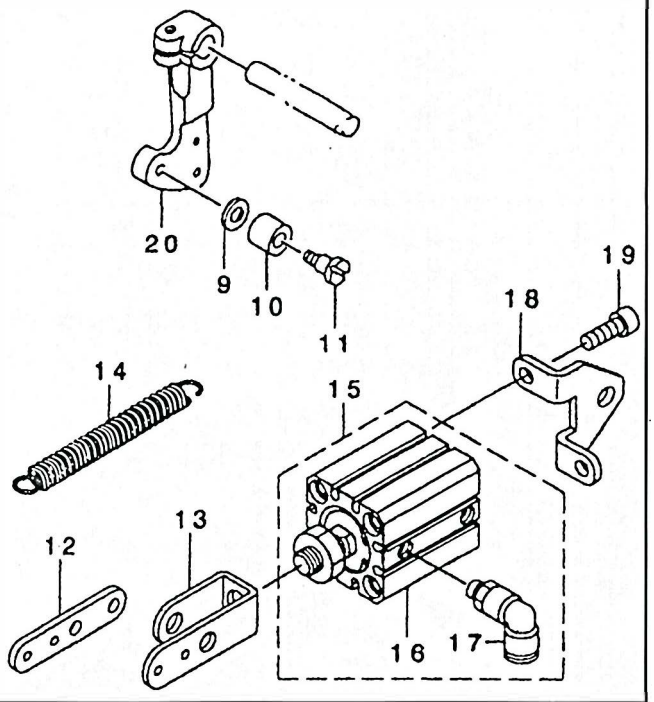
9. LUBRICATION SAFETY PLATE COMPONENTS

REF.NO		DESCRIPTION	PART NO		QTY
1		OIL SHIELD	141-14102	09-001-1900	1
2		OIL SHIELD	141-14201	09-002-1900	1
3		OIL FELT	141-14300	09-003-1900	1
4		FELT PRESSER	141-14409	09-004-1900	1
5		SCREW 11/64-40 L=5	SS-4110515- SP	10158-780	2
6		SCREW 3/16-28 L=9	SS-6120930- SP	11131-780	1
7		OIL FELT	B3509-210- D00	09-007-1900	1
8		ONCE THROUGH OIL FELT	135-29003	09-008-1900	1
9		VINYL PIPE,OIL ROPE	135-30357		1
10		OIL GAUGE	B3501-210-000	Φ28	2
11		OIL WICK PRESSER	B1419-026-000	10-004-185	3
12		OIL WICK PRESSER	B3506-280-000	09-012-1900	1
13		FACE FELT	B3507-280-000	09-013-1900	1
14		SCREW 11/64-40 L=7	SS-4110715- SP	10140-780	2
15		OIL WICK	CQ-2000000-00		2.3M
16		BALANCE LUBRICATING PLATE	B3508-280-000	10-010-185	2
17		NEEDLE ROD CRANK LUBRICATING	10-011-185	10-009-185	2
18		BALANCE LUBRICATING	B3518-280-000	10-011-185	1
19		VINYL TUBE	BP-3000001-00		0.7M
20		VINYL PIPE	BP-6000000-00		0.72M
21		OIL WICK	CQ-2522000-00		1.6M
22		CABLE BAND	EA-9500 B01-00		2
23		SCREW 11/64-40 L=7	SS-4110715- SP	10140-780	2
24		SCREW 9/64-40 L=21.2	SS-6092120- SP	10-13-185	1
25		SAFETY PLATE ASM.	135-51254	01-029-185	1
26		SAFETY PLATE INSTALLING BASE	135-51205	01-037-185	1
27		SAFETY PLATE	B3120-372-000	02-002-780	1
28		SAFETY PLATE INSTALLING PLATE	B3121-372-000	02-010-185	1
29		SAFETY PLATE RETURN SPRING	139-43204	02-006-780	1
30		SPRING PIN 2×6	PS-0200062-KH	GB879-76	1
31		SCREW 11/64-40 L=7	SS-4110715- SP	10203-780	2
32		SCREW 11/64-40 L=7	SS-4110715- SP	10203-780	2
33		NUT 11/64-40	NS-6110310-SP	10211-780	1
34		WASHER 4.5×10×0.8	WP-0450801-SD	10204-780	2
35		HINGE SCREW D=6 H=10.2	SD-0601021-SP	10205-780	1
36		TENSION SPRING RACK B	B1506-352-000	10208-780	1
37		NUT 3/16-28	NS-6120310-SP	10142-780	1
38		WASHER 7.4×11.8×0.5	WP-0740516-SP	10207-780	1

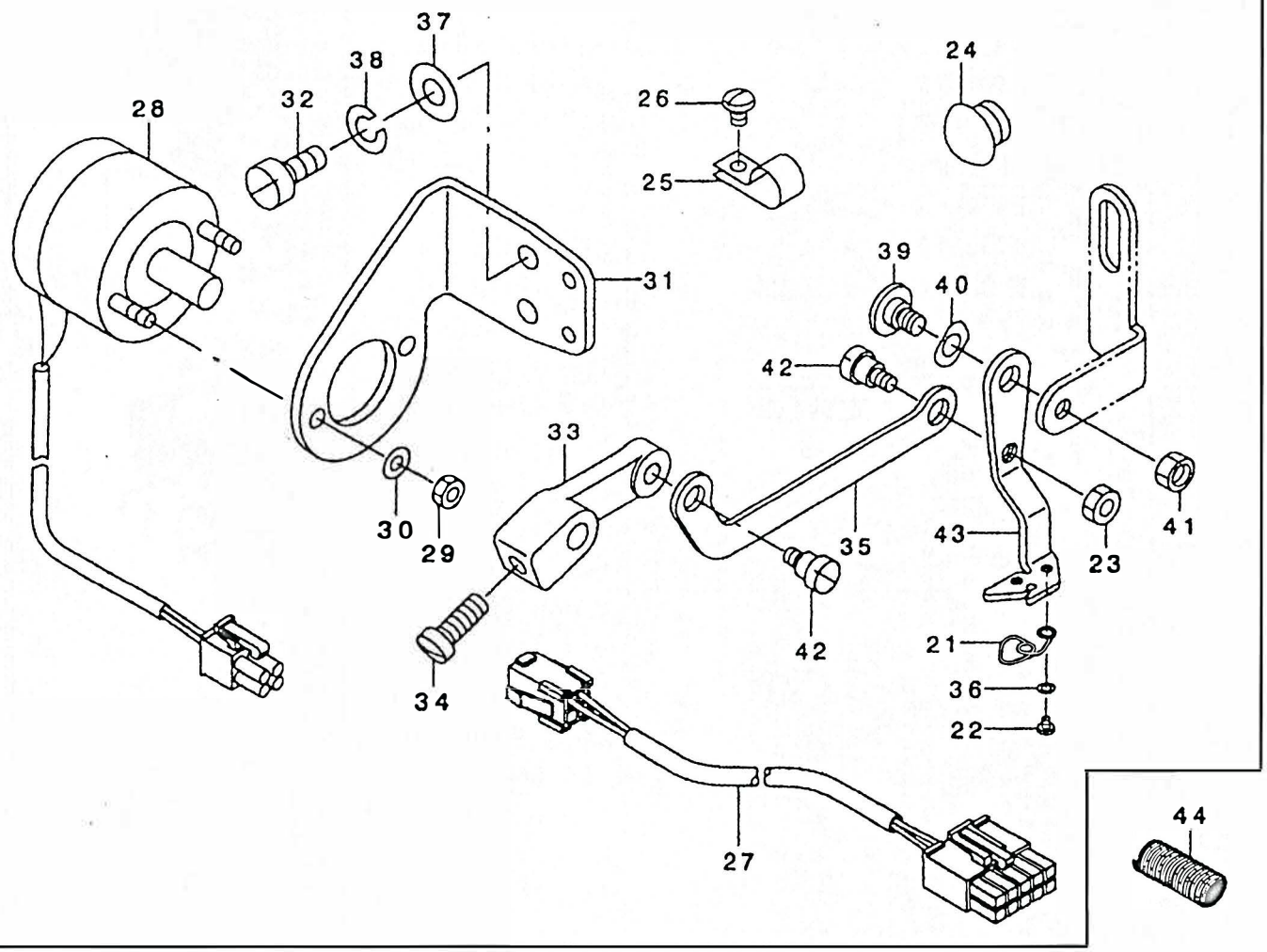
10. RHEIN1903S△-30△: NEEDLE BAR & THREAD TENSION COMPONENTS



11. RHEIN1903S△-30△: PRESSER LIFTER COMPONENTS

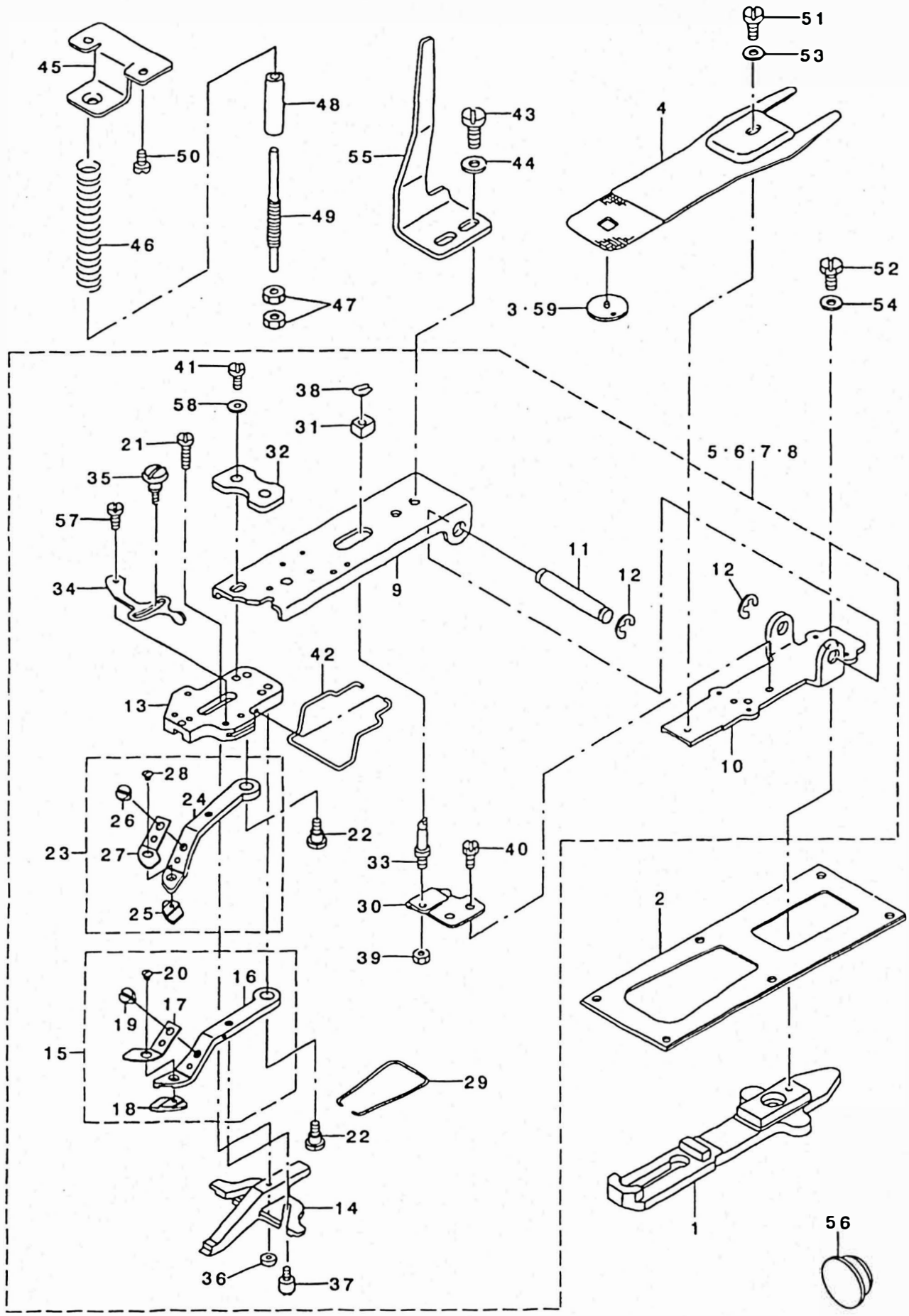


12. RHEIN1903S△-30△: WIPER MECHANISM COMPONENTS



REF.NO		DESCRIPTION	PART NO		QTY
1		NEEDLE BAR THREAD GUIDE	D1405-M7W-F00	03-010-185	1
2		SCREW 1/8-44 L=4.5	SS-7080510-TP	3-15-185	1
3		THREAD TAKE-UP LEVER ASM	D1901-L7V-VB0	03-003-185	1
4		LINK TAKE-UP LEVER PIN,HEAVY	D1904-L7V-V00	02-003-1851	1
5		SET SCREW	D1906-L7V-V00		1
6		NEEDLE BAR	D1401-L7V-V00	03-008-185	1
7		NEEDLE DP×17 #14	MDP-170B1400	DP×17 #14	1
8		TENSION CONTROLLER NO.2 ASM	B2302-205-0A0		1
9		HOOK DHAFT WASHER	B1853-512-00E	DQ-0621010-PD	1
10		STOP MOTION TRIPPING LEVER CAM	B2619-372-000	03-002-1851	1
11		HINGE SCREW D=7.94 H=12.7	SD-0791271-SP	ZD-7079127-55	1
12		SOLENOID LINK	141-47003		1
13		CYLINDER KNUCKLE	141-47102		1
14		TENTION SPRING	100-87906		1
15		PRESSER LIFTING CYLINDER ASM	141-47359		1
16		AIR CYLINDER	PA-2502007-A0		(1)
17		ELBOW UNION M5×6	PJ-3040605-02		(2)
18		PRESSER LIFTING CYLINDER BASE	141-47201		1
19		SCREW M6 L=16	SM-6061602-TP		2
20		CONNECTING ARM	135-41313	03-004-1851	1
21		SPRING	141-47805	12-21-1903	1
22		SCREW 3/32-56 L=3	SS-7060310-SP	12-22-1903	2
23		NUT 11/64-40	NS-6110310-SP	12-23-1903	1
24		RUBBER PLUG	TA-1250705-R0	12-24-1903	1
25		CABLE CLIP	HX-0012300-0C		3
26		SCREW 11/64-40 L=6	SS-4110615-SP	12-26-1903	3
27		SOLENOID RELAY CABLE ASM	141-42251	12-27-1903	1
28		SOLENOID FOR WIPER ASM	141-47755	12-28-1903	1
29		NUT M4	NM-6040003-SC	12-29-1903	2
30		SPRING WASHER M4	WS-0410002-KS	12-30-1903	2
31		SOLENOID FITTING PLATE	138-64509	12-31-1903	1
32		SCREW 11/64-40 L=9.5	SS-6111010-TP	12-32-1903	2
33		WIPER ARM	B2102-205-00A	12-33-1903	1
34		SCREW 11/64-40 L=10.5	SS-7111120-SP	12-34-1903	1
35		WIPER LINK	141-47607	12-35-1903	1
36		WASHER	WP-0280500-SC	12-36-1903	1
37		WASHER 4.5×10×0.8	WP-0450801-SD	12-37-1903	2
38		SPRING WASHER 4.5×8.5×1	WS-0451040-KP	12-38-1903	2
39		HINGE SCREW D=3.65 H=2.6	SD-0640261-SP	12-39-1903	1
40		WAVE WASHER	WZ-0640200-KP	12-40-1903	1
41		NUT 3/16-28	NS-6120310-SP	12-41-1903	1
42		HINGE SCERW	SD-0600181-TP	12-42-1903	2
43		WIPER	141-47508	12-43-1903	1
44		VERTICAL FEED SHAFT SPRING	141-48407	12-44-1903	1

13. RHEIN1903-301: BUTTON CLAMP COMPL. FOR SMALL-BUTTONS



13. BUTTON CLAMP COMPL. FOR SMALL-BUTTONS

REF.NO		DESCRIPTION	PART NO		QTY
1		CLOTH FEED PLATE	141-45106	08-013-1900	1
2		FEED PLATE PRESSER PLATE	135-17602	08-021-1900	1
3		GUIDE	MAZ-15501000	09-003-1851	1
4		PRESSURE PLATE	MAZ-15502000	09-004-1851	1
5		SMALL CLAMP MECHANISM ASM	141-45551	09-005-1851	1
6		MEDIUM CLAMP MECHANISM ASM	141-45650	09-006-1851	1
7		LARGE CLAMP MECHANISM ASM	141-45759	09-007-1851	1
8		VERY SMALL CLAMP MECHANISM ASM	141-45858	09-008-1851	1
9		PICK-UP FOOT INSTALLING BASE	141-46203	09-008.2-1851	2
10		PICK-UP INSTALLING BASE	141-46104	09-009-1851	2
11		INSTALLING SHAFT	141-41402	09-027-1851	1
12		E-RING	RE-0700000-K0	896-07000	2
13		PICK-UP FOOT INSTALLING BASE	141-46302	09-010-1851	1
14		BUTTON CLAMP SLIDE	B2552-372-000	09-011-1851	1
15		SMALL CLAMP JAW LEVER ASM.,R	141-48852	09-012-1851	1
16		SMALL CLAMP JAW LEVER ASM.,L	MAZ-15507000	09-013-1851	2
17		SPRING, RIGHT	MAZ-15509000	19-014-1851	1
18		PLATE K,R	141-48803		1
19		SCREW 9/64-40 L=4	SS-7090410-SP	YD-7090410-55	1
20		SCREW 3/32-56 L=3	SS-2060310-SP		1
21		HINGE SCREW D=5.5 H=3	SD-0550301-SP	ZD-7060038-55	1
22		HINGE SCREW D=6.35 H=3.9	SD-0640391-TP	ZD-4064040	2
23		SMALL CLAMP JAW LEVER ASM.,L	141-48951	09-015-1851	1
24		SMALL CLAMP JAW LEVER, L	MAZ-15508000	09-016-1851	1
25		PLATE K,L	141-48902		1
26		SCERW 9/64-40 L=4	SS-7090410-SP	YD-7090410-55	1
27		SPRING,LEFT	MAZ-15510000	09-017-1851	1
28		SCREW 3/32-56 L=3	SS-2060310-SP		1
29		BUTTON CLAMP JAW LEVER SPRING	MAZ-15513000	09-018-1851	1
30		SUPPORT PLATE	MAZ-15514000	09-019-1851	1
31		SLIDE BLOCK	MAZ-15515000	09-020-1851	1
32		PRESSUER PLATE	141-46401	09-021-1851	1
33		STATIONING BLOCK SHAFT	135-40901	09-028-1851	1
34		SNAP FASTENER CLAMP STOP LEVER	B2548-372-000	09-022-1851	1
35		CLAMP SCREW A	B2549-372-000	09-023-1851	1
36		NUT	B2553-372-000	09-024-1851	1
37		BUTTON CLAMP STOP PIN	B2560-372-000	ZD-5054060-55	1
38		SNAP RING,FOR CONNECTING ROD	D2548-232-D00	896-05000	1
39		NUT 15/64-28	NS-6150310-SP	YM-6150309-55	1
40		SCREW 11/64-40 L=4	SS-9110460-CP	YD-2110510-55	1
41		SCREW 3/16-32 L=13.5	SS-9621413-SP	YD-7110810-55	1
42		FINGER GUARD	D3130-MIY-C00		
43		SCREW 15/64-28 L=11	SS-9151120-CP	YD-2151110-55	1
44		WASHER 6.1×15.2×2.5	WP-0612516-SD	DQ-0612515-PD	1
45		ACCEPT PLATE, UPPER	138-11906	09-026-1851	1
46		PRESSURE SPRING	138-12003	09-029-1851	1
47		THREAD TENSION NUT	B3125-012-000	27-068-783V	1
48		SLEEVE	D2527-232-D00	09-031-1851	1
49		ADJUSTING SHAFT	141-46906	09-032-1851	1
50		SCREW 11/64-40 L=7.8	SS-7110840-SP	YD-7110810-55	1
51		SCREW 11/64-40 L=5.3	SS-9110543-CP	YD-2110510-55	1
52		SCREW M6 L=12	SM-6061202-TP	YD-6151010-55	1
53		WASHER 5×10.5×1	WP-0501016-SD	DQ-0501011-PD	1
54		WASHER 6.1×15.2×2.5	WP-0612516-SD	DQ-0612515-PD	1
55		MOVING PLATE	MAZ-1551600	09-025-1851	1
56		RUBBER PLUG	TA-2100904-R0		1
57		HINGE SCREW D=5.5 H=1.8	SD-0550181-SP	ZD-4052020-55	1
58		WASHER 5×10.5×1	WP-0501016-SD	DQ-0501011-PD	1
59		NEEDLE HOLE GUIDE	141-49603		