



**MITSUBISHI
INDUSTRIAL
SEWING
MACHINE**

Model

**LT2-250-M1ATW
-A1AT
-B1AT
Class**

(Auto-changer)

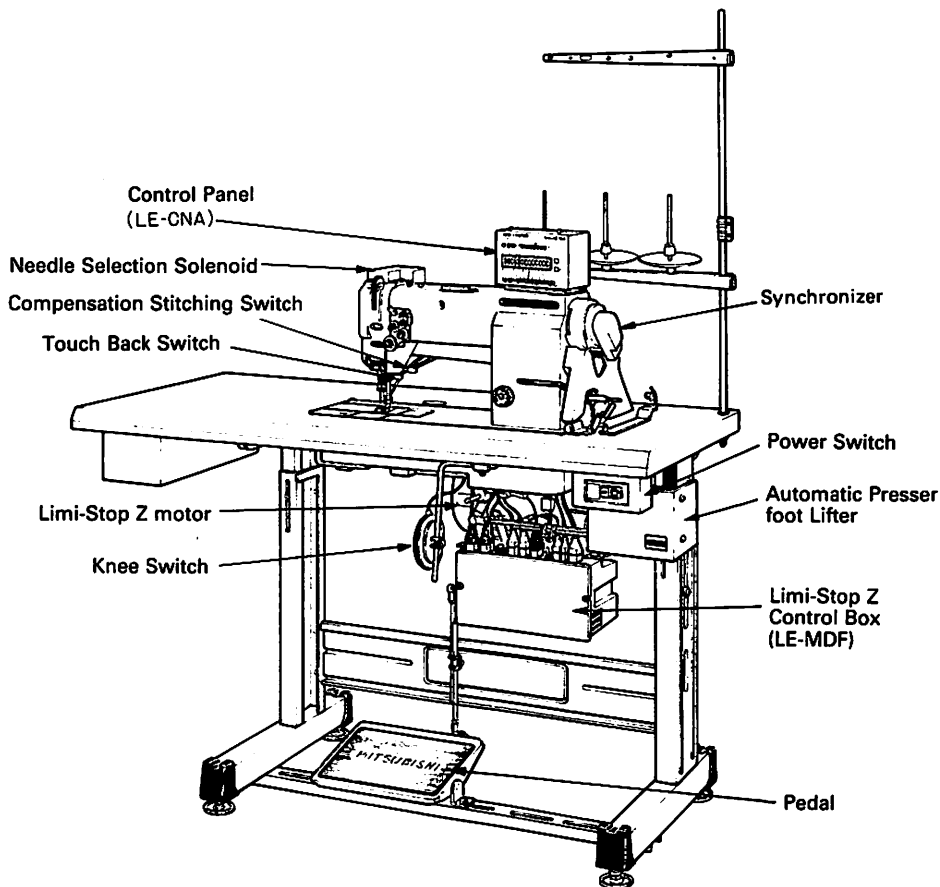
**Double-Needle
Lockstitch, Needle Feed,
Automatic Corner-Stitching
Machine with Automatic
Undertrimmer**

- Thank you for your purchase of Mitsubishi Industrial Sewing Machine.
Before the use of your sewing machine, please read this booklet carefully together with the Instruction Manual of LT2-230/250.

INSTRUCTION MANUAL

from the library of: Superior Sewing Machine & Supply LLC

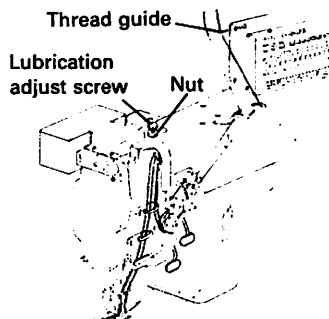
NAME AND LOCATION OF MAJOR COMPONENTS



PREPARATION FOR OPERATION

1 Threading with needle thread

Pass only the right-hand needle thread through the thread guide as shown in the right figure.
For other details of threading, refer to the description on page 6 of Instruction Manual of LT2-230/250.



2 Adjustment of lubrication to thread takeup lever

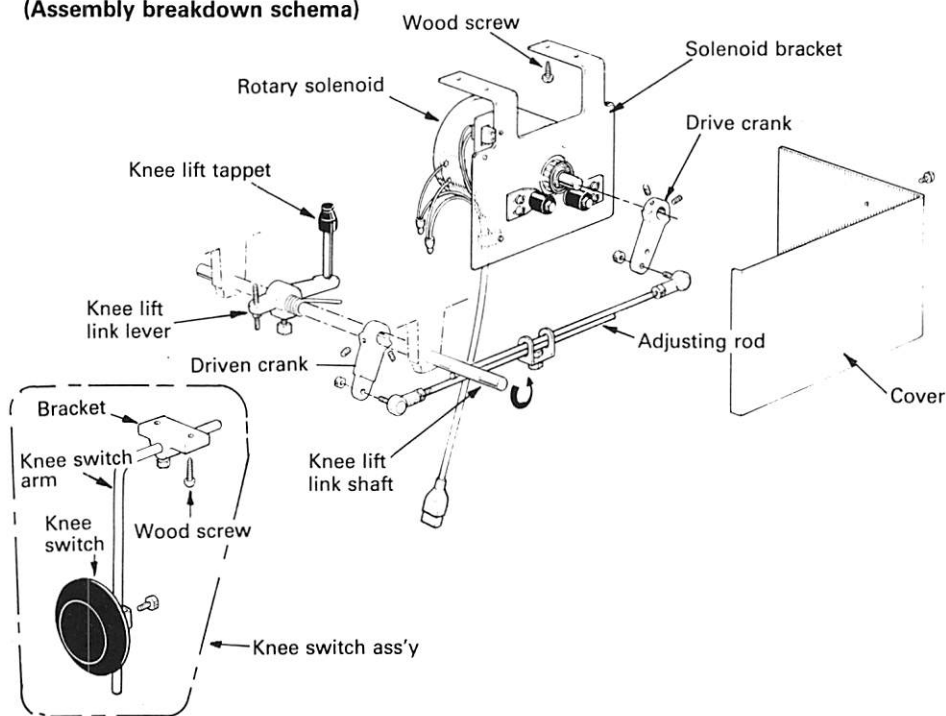
To restrict oiling to the takeup lever and needle bar, loosen the nut shown in the right figure and turn clockwise the lubrication adjust screw.

- (1) Lubrication adjust screw fully tightened Min. oiling to takeup lever
- (2) Lubrication adjust screw returned (counter-clockwise) by 4 turns from the fully tightened position Max. oiling to takeup lever

PREPARATION FOR OPERATION

3 Installation of solenoid-driven presser foot lifter and knee switch

(Assembly breakdown schema)

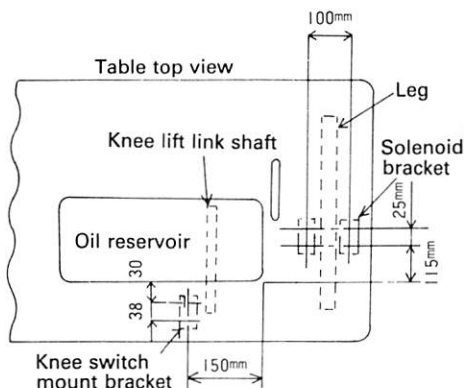


(Installation of knee switch)

- (1) Install the bracket to the table, as illustrated using wood screws. (See the right figure)
- (2) Install the knee switch arm and knee switch to the bracket.

(Installation of solenoid-driven presser foot)

- (1) Install the solenoid bracket to the table, as illustrated using wood screws. (See the right figure)
- (2) Remove the knee switch pad from the knee lift link shaft (the lift pad is not used).

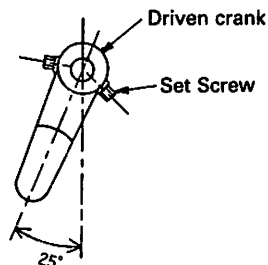
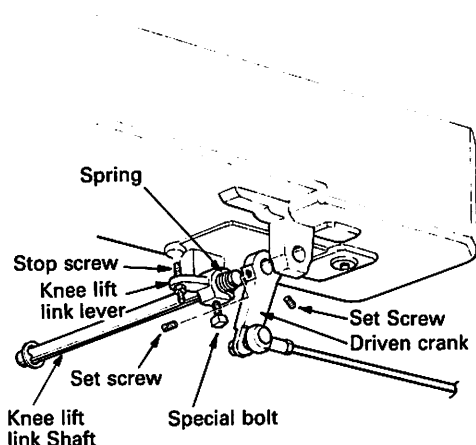


PREPARATION FOR OPERATION

- (3) Loosen the special bolt used to secure the knee lift link lever to the knee lift link shaft and remove the spring. Then draw the knee lift link shaft backward, as shown in the right figure.
- (4) Put the driven crank as shown in the right figure and pass the knee lift link shaft through the hole of driven crank.
- (5) Set the knee lift link lever and spring in the previous positions.
- (6) Turn clockwise the stop screw of knee lift link lever until the presser foot is about to lift.

Note: Vertical movement of the presser foot should be checked with the feed dog positioned lower than the throat plate.

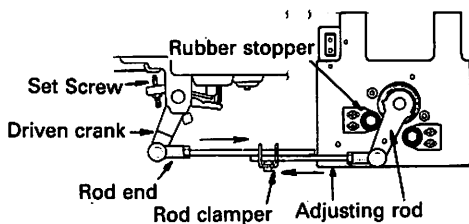
- (7) Turn clockwise the driven crank to about 25°, as shown in the right figure (it should be parallel with the drive crank) and secure it in that position by tightening the set screw.
- (8) Screw each adjusting rod into the rod end of driven and drive cranks.



- (9) While drawing the two adjusting rods toward each other, secure them with the rod clumper.

Note: When securing the rods with the rod clumper, make sure the drive crank is in contact with the left rubber stopper.

- (10) Be sure to loosen the stop screw of knee lift link lever so that it does not come into contact with the oil reservoir when the solenoid remains still.

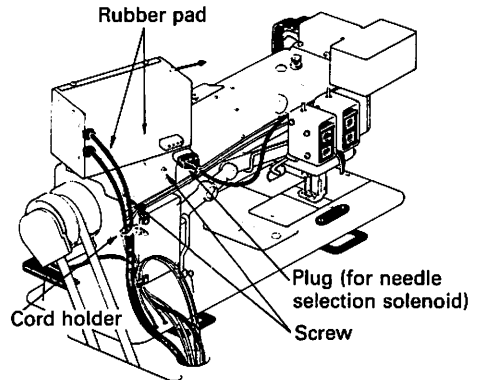


Note: While the presser foot goes up when the needles stop at DOWN position, after assembling the automatic presser foot lifting mechanism. Be sure that the presser foot will not contact with the needles or needle clamp.

PREPARATION FOR OPERATION

4 Installation of control panel

- (1) Install the control panel on the top of machine head, as shown in the right figure.
(To install, while lightly holding down the control panel on the top of machine head to slightly compress the rubber pads, tighten screws.)
- (2) Plug the needle selection solenoid cord into the corresponding receptacle provided in the control panel.
- (3) Bind all cords with the furnished cord holder, as shown in the right figure.

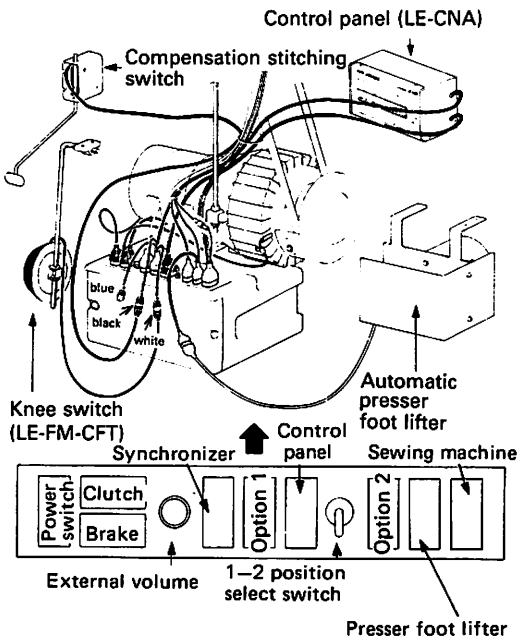


5 External wiring

Connect the automatic presser foot lifter, compensation stitch switch, knee switch and control panel to the control box, as shown in the right figure.

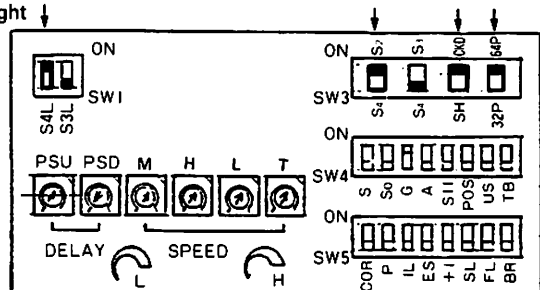
- (1) The compensation stitching switch cable should be connected to 2-pin black connector.
- (2) The knee switch should be connected to 2-pin white connector.

Note: Before plugging or unplugging, be sure to turn off the power switch for safety.



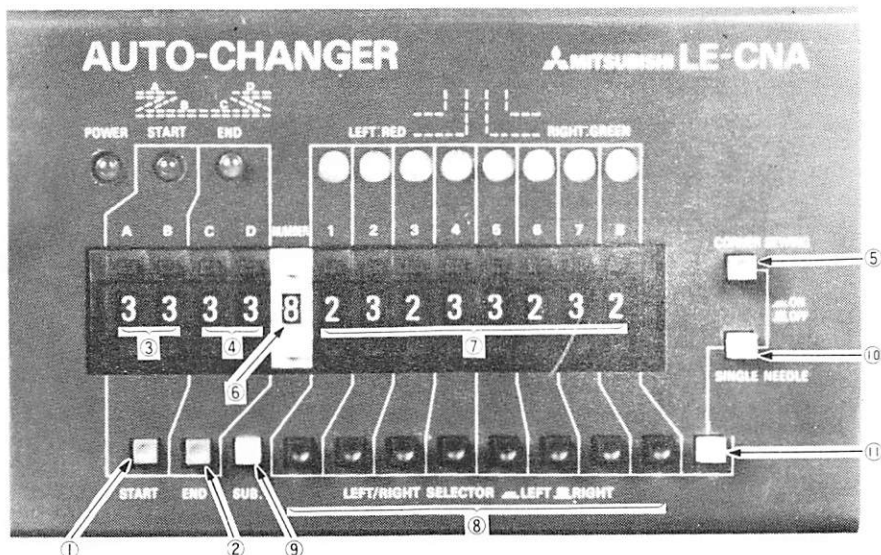
6 Setting of DIP switches in the control box

Set the DIP switches S4L, S2, CKD and 64P in the control box to "ON", as shown in the right figure.



OPERATION FOR AUTOMATIC CORNER STITCHING

1 Setting of switches and counters on the control panel



- (1) Set the start backtacking "START" switch ① to "ON" and set number of forward stitch "A" and backward stitch "B" on counter ③.
- (2) Set the end backtacking "END" switch ② to "ON" and set number of forward stitch "C" and backward stitch "D" on counter ④.
- (3) Set the "CORNER SEWING" switch ⑤ to "ON".

Note: When this switch is "OFF", usual double-needle stitching is possible.

- (4) Set the "NUMBER" (number of corner stitching steps) within a range from 1 step to 8 steps on counter ⑥.
 - The number of the next corner stitching steps is displayed by LED.



When all preset steps are completed, the counter is reset to "1".

- (5) Set number of stitches to be completed with single-needle stitching in each step on counter ⑦.

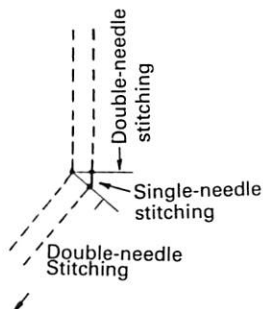
Note: When number of single-needle stitches is set to "0", deep pedal heeling down causes single-needle one stitch and, after the fabric is turned, double-needle stitching immediately starts without single-needle stitching. (See the right figure)

- (6) Set the direction of turn at each end of corner stitching step on LEFT/RIGHT SELECTOR switch. (Maximum eight turns may be set.)

- The direction of turn is displayed by LED colour

For leftward turn (), set switch  red LED will light.

For rightward turn (), set switch  green LED will light.





OPERATION FOR AUTOMATIC CORNER STITCHING

2 Retracing of corner stitching step

Every one depression of the "SUB" switch causes retracing of one corner stitching step. When steps are retraced, be sure to check the position by LED.

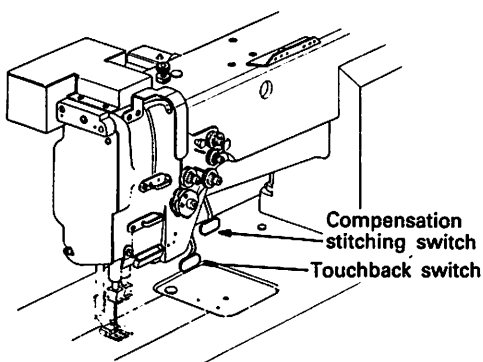
3 Continuous single-needle stitching

- (1) Set the "SINGLE NEEDLE" switch ⑩ to "ON".
- (2) To select the left needle or the right needle, set switch ⑪.
 - To stop the left needle, depress switch  red LED will flicker.
 - To stop the right needle, depress switch  green LED will flicker.
- (3) Toe down the pedal to start continuous single-needle stitching.
- (4) To disengage continuous single-needle stitching, set the switch ⑩ to "OFF" and toe down the pedal.

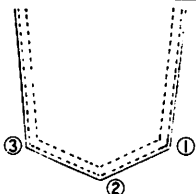
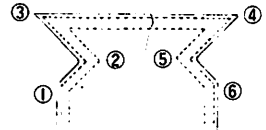
4 Compensation stitching

Compensation stitching is made before starting corner stitching, or when one stitch is added in corner stitching.

- (1) By once depressing the compensation stitch switch, one stitch can be added in the forward direction.
- (2) By depressing the compensation stitch switch while holding down the touchback switch, one stitch can be added in the backward direction.



5 Example of corner stitching patterns

Stitching pattern									
	Needle gauge 1/4" (6.4mm) Stitch length: 3.2mm			Needle gauge 1/4" (6.4mm) Stitch length: 3.2mm					
NUMBER of corner stitching steps	3			6					
Step	①	②	③	①	②	③	④	⑤	⑥
Number of corner single-needle stitches	1	1	1	1	2	5	5	2	1
Corner stitching direction	LEFT	LEFT	LEFT	LEFT	RIGHT	LEFT	LEFT	RIGHT	LEFT

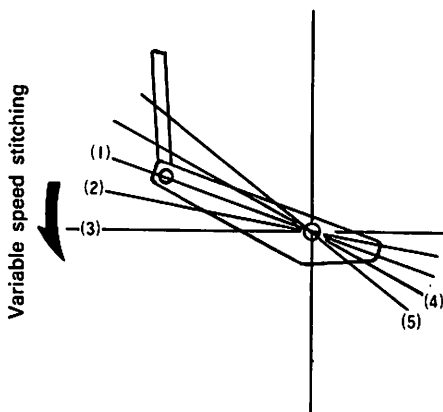
OPERATION FOR AUTOMATIC CORNER STITCHING

6 Stitching procedure

(Standard specification Pedal is deeply heeled down for corner stitching.)

- (1) Shallowly toe down the pedal to lift the presser foot.
- (2) Put fabrics in position.
- (3) For start backtacking and double-needle stitching, toe down the pedal.
- (4) Corner stitching is accomplished in the order ② ~ ⑤ shown below (stitching is repeated for the preset number of steps).

Note: When the present number of steps is completed, the counter is reset to "1".



- (5) When the knee switch is set to "ON", end backtacking is done and the threads are trimmed.
- (6) When the knee switch is held at "ON", the presser foot goes up.
- (7) Remove the fabrics.

Note: For adjustment of the pedaling force, refer to the description on page 22 of the Instruction Manual of LT2-230/250.

Operation

Stitching	① Start backtacking and double needle stitching	② Single-needle stitching with fixed number of stitches → Presser foot goes up.	③ Fabrics are turned → Presser foot goes down.	④ Single-needle stitching with fixed number of stitches	⑤ Double-needle stitching	⑥ End backtacking and thread trimming
Pedal operation	Pedal toe down	Pedal deeply heel down →	Continued → Neutral	Pedal toe down		Knee switch "ON"
Stitching pattern						

Note: Do not turn off the power during corner stitching.

If the power is turned off during corner stitching, double-needle stitching may not be resumed by toeing down the pedal. If the power is interrupted by mistake, start and continue single-needle stitching as in ③ on the previous page described to resume double-needle stitching.

AUTOMATIC CORNER STITCHING SPECIAL OPERATION PROCEDURE

• Besides the previously described standard operation procedure, automatic corner stitching may be made in the following way:

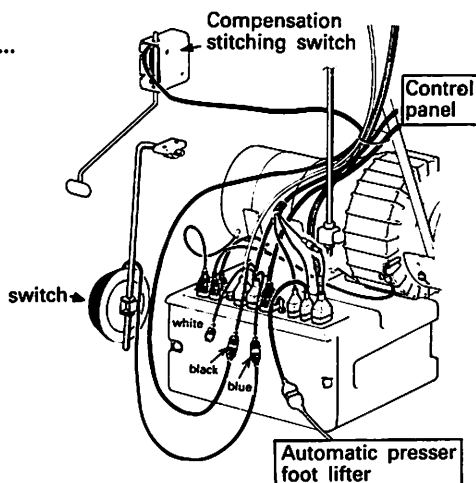
1 Corner stitching ... Knee switch operation

(1) For this operation, the automatic presser foot lifter, compensation stitch switch, knee switch and control panel should be wired as shown in the right figure.

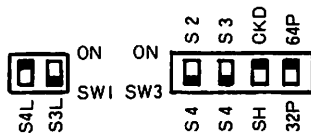
(2) Set the DIP switches "S4L", "CKD" and "64P" in the control box to "ON" as shown in the right figure.

(3) For corner stitching, perform the following operation in the following order:

Corner stitching Knee switch operation
Thread trimming ... Deep pedal heeling down
Presser lifter UP Shallow pedal heeling down



Stitching	① Start back-tacking and double needle stitching	② Single-needle stitching with fixed number of stitches → Presser foot goes up.	③ Fabrics are turned → Presser foot goes down.	④ Single-needle stitching with fixed number of stitches	⑤ Double-needle stitching	⑥ End back-tacking and thread trimming
Pedal operation	Pedal toe down	Knee switch ON →	Continued → Neutral	Pedal toe down		Pedal deeply heel down
Stitching pattern						

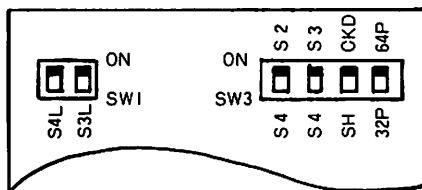


2 Corner stitching ... Shallow pedal heel- ing operation

(1) The wiring does not differ from that for standard corner stitching.

(2) The DIP switches "S4L", "S3L", "S2", "CKD" and "64P" in the control box should be set to "ON", as shown in the right figure.

(3) Install the foot switch (option), as shown in the next figure. The foot switch is used to lift the presser foot in the middle of stitching.



- (4) For corner stitching, perform the following operation in the following order:

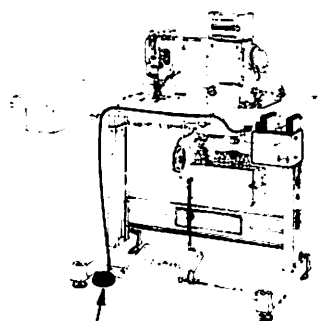
Corner stitching Shallow pedal heeling down

Thread trimming ... Knee switch operation

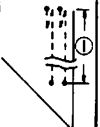
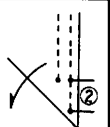
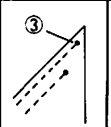
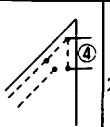


Presser foot lifting at start of stitching
..... Knee switch operation or shallow pedal heeling

Presser foot lifting in the middle of shallow stitching

..... Foot switch operation



Foot switch

Stitching	① Start back-tacking and double needle stitching	② Single-needle stitching with fixed number of stitches → Presser foot goes up.	③ Fabrics are turned → Presser foot goes down.	④ Single-needle stitching with fixed number of stitches	⑤ Double-needle stitching	⑥ End back-tacking and thread trimming
Pedal operation	Pedal toe down	Pedal shallow heel down →	Continued → Neutral	Pedal toe down		Knee switch "ON"
Stitching pattern						

Note: Foot switch (LE-CFT-3) is optionally available.

SPECIFICATIONS

•Sewing machine head

Model	LT2-250-M1ATW		LT2-250-A1AT	LT2-250-B1AT	
Application	Light to medium-heavy		Medium-heavy	Medium-heavy to heavy	
Max. speed spm	3,500	3,000	3,000	3,000	2,500
Stitch length mm (inch)	4 (5/32)	5 (3/16)	5 (3/16)	6 (15/64)	7 (9/32)
Presser foot stroke Automatic/manual mm (inch)	9/7 (11/32/9/32)				
Needle	DP x 5 #14, 135 x 5 #14, 134 Nm 90		DP x 5 #16, 135 x 5 #16, 134 Nm 100	DP x 5 #18, 135 x 5 #18, 134 Nm 110	
Hook (for thread trimmer use)	Horizontal type standard hook with bobbin case (with thread slack pre- vention spring)		Horizontal type large-sized hook with bobbin case (with thread slack prevention spring)		
Bobbin	Aluminum bobbin for thread trimmer use				
Lubrication system	Automatic lubrication				
Compensation sewing	Provided				
Touchback	Provided				
Wiper	Provided		Not provided		
Needle gauge mm (inch)	Standard—6.4 (1/4), Optional—3.2, 4.8, 8, 9.5, 12.7 (1/8, 3/16, 5/16, 3/8, 1/2)				

Note: • For feed dog, throat plate, slider plate, bobbin case and bobbin, use those for thread trimmer application.
• Bobbin should be of good quality that is not deformed.

•Applicable Equipment

Motor	CA-Z402E	CB-Z402E
Control box	LE-MDF	

•Auto-Changer Kit

Model	LE-CNA-KM (Standard)	LE-CNA-KA (Option)
Automatic presser foot lifter	LE-FM-2 (Electromagnetic type)	LE-FA (Pneumatic type)
Control panel	LE-CNA	
Knee switch	LE-FM-CFT	

•Control Panel

Model	LE-CNA
Backtacking	4-dial system (0 to 9 stitches), start and end
Number of corner-stitching steps	Max. 8
Number of corner stitches	0 to 9 stitches
Process return	Possible
Continuous single-needle stitching	Possible for right and left needles



MITSUBISHI ELECTRIC CORPORATION
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