1) Press stud for oil plunger.
2) Press bar for oil plunger.
3) Oil level indicator.
4) Thread guide (top of arm).
5) Arm top cover.
6) Machine pulley.
7) Front cover.
8) Arm
9) Upper thread tension regulator.
10) Thread controller.
11) Bed.
12) Stitch regulator push button.
13) Slide plate (right).
14) Needle clamp
15) Slide plate (front).
16) Hook saddle, (right)
17) Throat plate.
18) Hook saddle, (left)
19) Slide plate, (left)
20) Presser foot.
21) Needle bar.
22) Presser bar.
23) Thread guide (lower).
24) Thread guide (middle).
25) Face plate.
26) Thread guide (upper).
27) Pre-tension.
28) Feed reverse lever
29) Thread take-up lever

How to install and adjust the knee lifter

[Diagram of knee lifter installation and adjustment]
How to use the machine

1. To set the needles

Insert the needles into the needle clamp as far as they will go, with the long grooves facing each other. Then tighten the needle clamp screws.

Caution: Before making the following adjustment, be sure to turn off the power source switch.

Insufficient insertion

Needles facing the wrong direction.

2. To wind the bobbin

- When winding a bobbin with fine thread such as nylon or tetron threads, the bobbin should be wound loosely using a light tension.
- If bobbin does not wind evenly, move tension bracket to the left or right as required. If bobbin winds high on right, move bracket to left, and if bobbin winds high on left, move bracket to right.
- Bobbin should be wound to 4/5 of its capacity. For more thread on the bobbin, turn adjusting screw clockwise; for less thread, turn screw counterclockwise.

Note: Be sure to raise the presser foot when running the machine without material under the foot.
3. Threading the machine

Note: The thread guide (A) should be positioned just above the thread spool.

4. To adjust stitch length

Stitch length adjustment is achieved simply by depressing a button in the machine bed and turning the machine pulley.

1. Depress button and turn machine pulley slowly toward you until button sinks further into the machine bed and the machine pulley stops.
2. Depress the button harder and turn machine pulley toward you, or away from you, to set stitch length graduation on the marking on arm. Release the button when desired setting is obtained.

Caution: NEVER depress the button while the machine is running.

To change the direction of feed for back tacking, depress feed reverse lever to lowest position until back tack is completed.

5. To replace the bobbin

Hold bobbin so that thread will unwind in the direction shown in illustration below and place it in the bobbin case.
6. Threading the bobbin case

1) Pull thread into slot ① in bobbin case and draw it through between horn ② and bobbin case opener.

2) Hold needle threads with left hand and turn machine pulley until needles bring up bobbin threads. Pull ends of bobbin threads up through throat plate and place both needle and bobbin threads diagonally under presser foot.

7. Adjustment of thread tension

- Needle thread is adjusted according to the bobbin thread tension.
- Needle thread tension is adjusted by tension regulating thumb nut.

For special fabric sewing with special thread, the desired tension can be obtained by adjusting the tension and range of movement of the take-up spring.

8. Needle thread tension

9. Bobbin thread tension

10. Adjustment of presser foot pressure

Pressure on the presser foot is to be adjusted in accordance with materials to be sewn.
# Trouble & Repair

<table>
<thead>
<tr>
<th>Trouble</th>
<th>Causes</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Skip Stitching</strong></td>
<td>1) Needle</td>
<td>Change the needle with a new one. Replace with needle suited for thread being used.</td>
</tr>
<tr>
<td></td>
<td>o Bent needle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>o Not suited for thread being used</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2) Improperly set needle</td>
<td>Insert properly as instructed in manual.</td>
</tr>
<tr>
<td></td>
<td>o Insufficient insertion</td>
<td>Set needle holes parallel to front edge of bed.</td>
</tr>
<tr>
<td></td>
<td>o Incorrectly inserted needle</td>
<td>Set the needles with long grooves facing each other.</td>
</tr>
<tr>
<td><strong>Loose Stitches</strong></td>
<td>1) Needle thread tension too loose</td>
<td>Turn tension regulating thumb nut clockwise to increase tension.</td>
</tr>
<tr>
<td></td>
<td>2) Take-up spring tension too weak</td>
<td>Turn tension stud clockwise to increase tension.</td>
</tr>
<tr>
<td></td>
<td>3) Bobbin thread tension too loose</td>
<td>Turn bobbin case tension screw clockwise to increase tension.</td>
</tr>
<tr>
<td><strong>Thread Breakages</strong></td>
<td>1) Poor quality thread</td>
<td>Use better quality thread.</td>
</tr>
<tr>
<td></td>
<td>2) Needle</td>
<td>Change the needle with a new one. See item 2) of skip Stitching.</td>
</tr>
<tr>
<td></td>
<td>o Bent needle</td>
<td>Replace with correct size needle for thread being used.</td>
</tr>
<tr>
<td></td>
<td>o Improperly set needle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>o Needle too small for thread being used</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3) Needle thread tension too tight</td>
<td>Turn tension regulating thumb nut counterclockwise to decrease tension.</td>
</tr>
<tr>
<td></td>
<td>o Lint accumulated between tension discs</td>
<td>Remove thumb nut and tension discs and clean with a lint brush.</td>
</tr>
<tr>
<td></td>
<td>o Uneven or over wound bobbin</td>
<td>Replace with bobbin evenly wound to 4/5 of its full capacity.</td>
</tr>
<tr>
<td></td>
<td>o Lint accumulated in bobbin case</td>
<td>Remove bobbin case and clean with a lint brush.</td>
</tr>
<tr>
<td></td>
<td>o Broken or bent bobbin case tension spring</td>
<td>Replace with a new one.</td>
</tr>
<tr>
<td></td>
<td>o Improperly inserted bobbin</td>
<td>Insert bobbin correctly so that it will rotate in counterclockwise direction when the thread is pulled out.</td>
</tr>
<tr>
<td><strong>Puckering</strong></td>
<td>1) Size of needle and thread incorrect for fabric being sewn</td>
<td>Use correct size needle and thread for the fabric being sewn.</td>
</tr>
<tr>
<td></td>
<td>2) Needle and bobbin thread tensions too tight</td>
<td>Adjust needle thread tension by adjusting tension thumb nut and take-up spring. Adjust bobbin thread tension by turning tension screw.</td>
</tr>
<tr>
<td></td>
<td>3) Excessive presser foot pressure</td>
<td>Decrease pressure on presser foot by turning pressure regulating screw counterclockwise.</td>
</tr>
</tbody>
</table>
Before Starting the machine . . . . .

1 Lubrication—1

Before starting the machine, the oil reservoirs shown in illustration below must be filled with oil. Run machine at a moderate speed for 10 to 15 minutes until the oil is circulated to all parts in movable contact.

1) Arm oil reservoir
Oil plunger

Be sure to depress the press bar for oil plunger when using the machine.

Depress press stud to raise press bar when machine is not in use.

Press stud

Oil indicator
high level point
(DO NOT OVERFILL)

2) Bed oil reservoir
Oil filler hole

Open slide plate \(A\) and apply oil to all wicks just under the slide plate.

3) Hook saddle oil reservoir (left & right)
Oil gauge
Oil filler hole

Increase
Decrease

Increase
Decrease

Adjusting screw Nut
Hook saddle
Hook saddle
Nut
Adjusting screw

2. Adjustment of rotating hook oil flow regulator

Slide plate (left) Mark
Slide plate (right)
Cleaning

Machine should be periodically cleaned with small brush to remove all lint and other waste which accumulates around the hooks, throat plate, feed dog, thread tension regulator and thread controller disc:

Installation of rubber cushions

Four rubber cushions are used to prevent excessive vibration and noise of the machine. These are fitted in the four corners of the table cut-out.

- Cut 20mm (13/16") radius and 13mm (1/2") deep seats for the rubber cushions as shown in the diagram, paying particular attention to the depth of corners.

- Fasten the rubber cushions to the four corners of the table cut-out with nails as shown in the diagram.

Specifications

<table>
<thead>
<tr>
<th>Specification</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Number of needles</td>
<td>Two</td>
</tr>
<tr>
<td>Speed</td>
<td>3,500 s.p.m.</td>
</tr>
<tr>
<td>Rotary hook</td>
<td>Regular size</td>
</tr>
<tr>
<td>Max. stitch length</td>
<td>5mm (5 s.p.i.)</td>
</tr>
<tr>
<td>Needle bar stroke</td>
<td>33.4mm (1 5/16&quot;)</td>
</tr>
<tr>
<td>Presser foot lift</td>
<td>7.2mm (9/32&quot;)</td>
</tr>
<tr>
<td>Space at right of needle</td>
<td>245mm (9 11/16&quot;)</td>
</tr>
<tr>
<td>Needles</td>
<td>CAT. No. 1901 #14</td>
</tr>
<tr>
<td>Feed reverse lever</td>
<td>Hand or foot operated</td>
</tr>
<tr>
<td>Gauges (Standard)</td>
<td>4.8mm (3/16&quot;) and 6.4mm (1/4&quot;)</td>
</tr>
<tr>
<td>Bed dimensions</td>
<td>517mmx178mm (20-3/8&quot;x 7&quot;)</td>
</tr>
</tbody>
</table>