

**MITSUBISHI  
INDUSTRIAL  
SEWING  
MACHINE**

Model

**DV-440**

classes

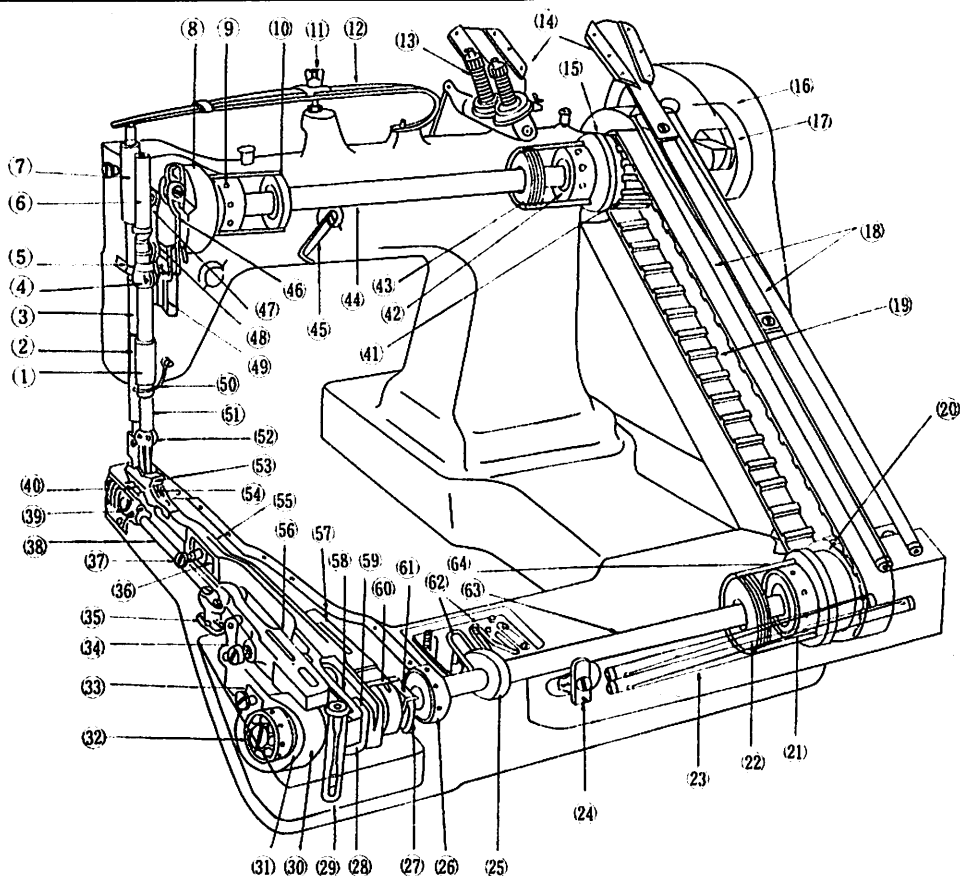


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 **MITSUBISHI ELECTRIC CORPORATION**

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## Main parts name of machine head

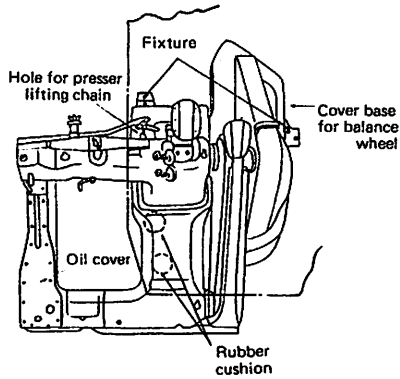


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| ① Needle bar lower bushing | ②③ Presser bar | ④ Needle bar connecting stud | ⑤ Presser bar lifting guide | ⑥ Needle bar upper bushing | ⑦ Presser bar upper bushing | ⑧ Crank | ⑨ Arm shaft front bearing | ⑩ Oil ring | ⑪ Presser adjusting butterfly nut | ⑫ Presser spring | ⑬ Upper thread tension regulator | ⑭ Thread intake plate | ⑮ Housing | ⑯ Balance wheel | ⑰ Arm shaft oil tank | ⑱ Under thread inclined guide pipe | ⑲ Timing belt | ⑳ Lower pulley | ㉑ Lower shaft back bearing | ㉒ Ring nut | ㉓ Under thread guide pipe (lower) | ㉔ Under thread tension regulator | ㉕ Under thread take-up | ㉖ Lower shaft center bearing | ㉗ Looper recess fork | ㉘ Feed lifting rock arm | ㉙ Oil gauge | ㉚ Looper rock arm | ㉛ Looper rock cam | ㉜ Lower shaft front bearing | ㉝ Looper rocking arm slide block | ㉞ Connecting rod | ㉟ Ball joint connecting rod | ㊱ Eccentric pin | ㊲ Looper shaft | ㊳ Looper holder | ㊴ Looper | ㊵ Upper pulley | ㊶ Arm shaft back bearing | ㊷ Upper ring nut | ㊸ Arm shaft | ㊹ Upper thread guide (B) | ㊺ Upper thread guide (A) | ㊻ Needle bar crank rod | ㊼ Upper thread take-up | ㊽ Needle crank guide | ㊾ Upper thread guide | ㊿ Needle bar | ① Needle clamp | ② Presser foot | ③ Feed dog | ④ Feed rock arm | ⑤ Loop enlarging arm | ⑥ Looper recess bearing | ⑦ Feed lifting rock fork | ⑧ Feed rock cam | ⑨ Feed rock regulator | ⑩ Looper recess cam | ⑪ Under thread take-up | ⑫ Lower shaft | ⑬ Lower housing | ⑭ thread guide |
|----------------------------|----------------|------------------------------|-----------------------------|----------------------------|-----------------------------|---------|---------------------------|------------|-----------------------------------|------------------|----------------------------------|-----------------------|-----------|-----------------|----------------------|------------------------------------|---------------|----------------|----------------------------|------------|-----------------------------------|----------------------------------|------------------------|------------------------------|----------------------|-------------------------|-------------|-------------------|-------------------|-----------------------------|----------------------------------|------------------|-----------------------------|-----------------|----------------|-----------------|----------|----------------|--------------------------|------------------|-------------|--------------------------|--------------------------|------------------------|------------------------|----------------------|----------------------|--------------|----------------|----------------|------------|-----------------|----------------------|-------------------------|--------------------------|-----------------|-----------------------|---------------------|------------------------|---------------|-----------------|----------------|

# How to use the machine

## 1. Mounting of machine head

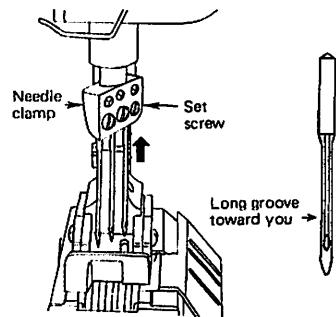
(1) Place a rubber cushion in each of 2 holes in the back of the bed and mount a fixture on the rear of machine and on the right side of the cover base for the balance wheel, each with a screw and spring washer. (see Fig.)



## 2. How to attach needle

Note: Before making the following adjustment, switch off the power source by all means.

Insert the needle upto the bottom of needle clamp and tighten the screw keeping the long groove side of needle toward you.



## 3. Threading

Fig. 1

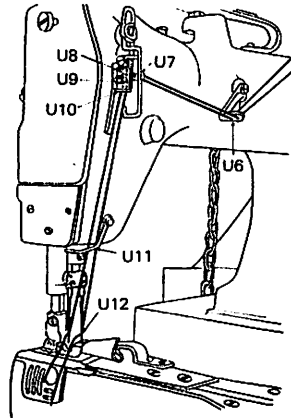


Fig. 2

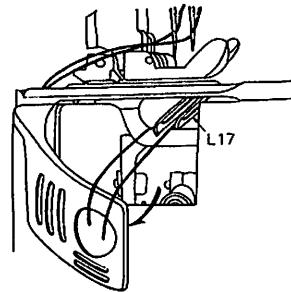


Fig. 3

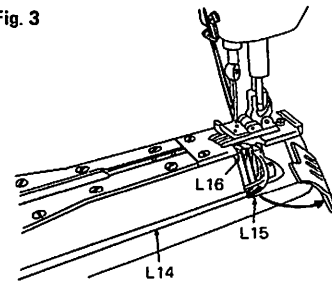


Fig. 4A

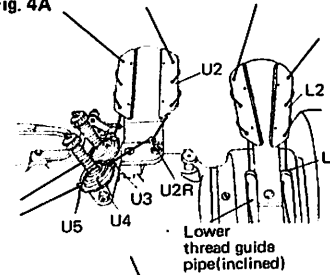
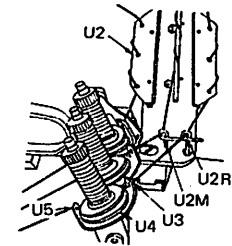


Fig. 4B



(2) Pass the thread through inlet (L3) of the under thread inclined guide pipe and take it out through a hole in the side by means of a pincette and then, after opening the thread guide cover as shown in Figs. 5B and 6B, pass the thread through the side hole and outlet (L4) of the guide pipe and put the thread inside the pipe through the slot extending between the above mentioned 2 side holes in the pipe. Pass the thread through under thread guide pipe (L) in the same manner as the above.

Fig. 5A

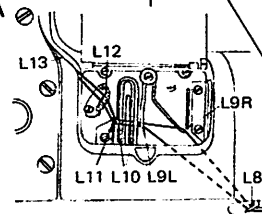


Fig. 5B

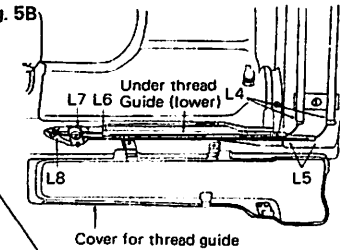


Fig. 6A

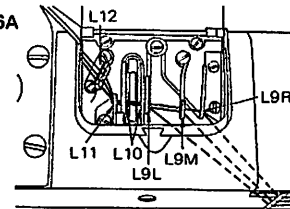
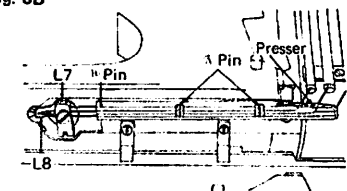
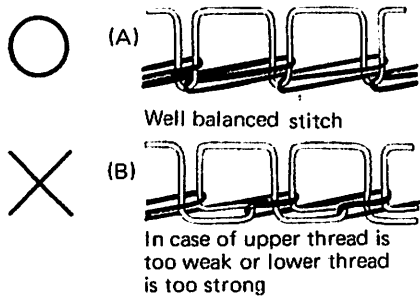


Fig. 6B



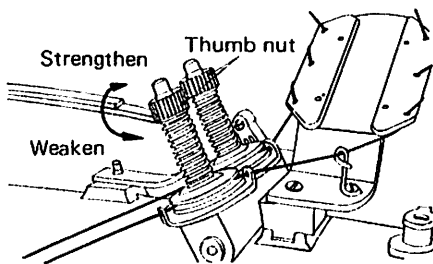
# How to use the machine

## 4. Adjustment of thread tension



## 6. Upper thread tension

- \*\* Upper thread is adjusted according to the lower thread tension.
- \*\* Upper thread tension is adjusted by tension regulating thumb nut.

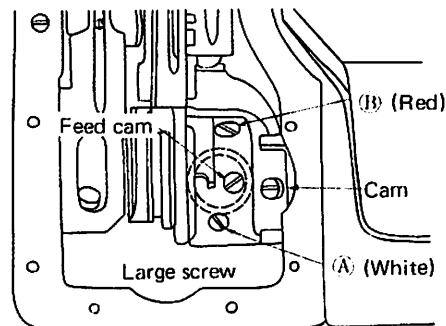
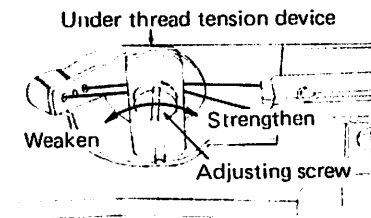


## 8. Adjustment of stitch length

(1) For adjusting stitch length, first remove the large screw (C) on the oil cover, and bring screw (A) (white) on the feed cam into the sight through the hole by turning the balance wheel.

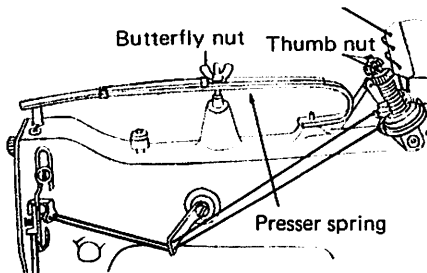
Loosen the screw (A) and then turn the wheel further until screw (B) (red) comes under the hole. (see Fig.)

(2) Counter-clockwise rotation of screw (B) increases the length of stitch and vice versa. After the adjustment, tighten screw (A). (see Fig.)



## 9. Adjustment of pressure on presser foot

Pressure on the presser foot is to be adjusted in accordance with materials to be sewn.



## 5. Thread tension in case of starting to sew

1. Lower thread: When threading is made regularly through looper eye and the end of thread is pulled, the lower thread is required to be pulled out smoothly in ease. The thread tension is recommendable to be weak.
2. Upper thread: Start weakly and strengthen gradually watching the trial stitches.
3. Irregular stitching: Check up the needle in its mounting side. Check up the wrong threading.

## 7. Lower thread tension

## 10. Cutting of thread

At the tip of the bed of the machine a thread cutter is provided, and by pulling the material downward when it is sewn up to that point, the thread can be cut.

## Adjustment

### 1. Mounting position of the upper thread guide (top of arm) (A)

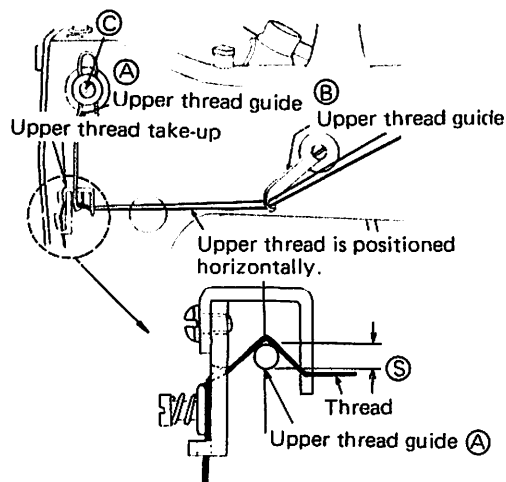
(Make proper loop with needle thread.)

When the thread take-up lever is at its lowest position, set the thread to be looped by the height of the diameter of the wire which the upper thread guide (arm) (S) is made of.

### 2. Mounting angle of the upper thread guide (B)

(Adjust tension of the thread take-up.)

When the thread take-up lever is at its lowest position, it is recommendable to make the thread between the upper thread guide (arm) and the upper thread guide become almost level.

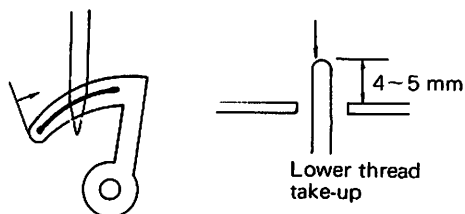


### 3. Mounting position of the lower thread take-up lever

When the looper is at its extreme left, the lower thread take-up lever is set at the place of 4 – 5 mm from the mounting plate making contact with the lower thread.

Thread take-up is improved in case of quick operation (high).

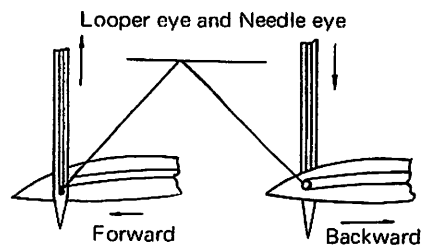
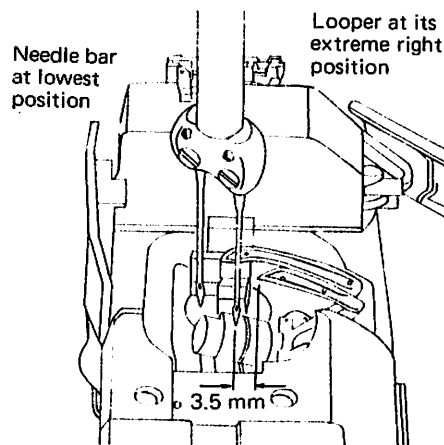
Thread take-up is not improved in case of slow operation (low).



### 4. Relation of needle and looper

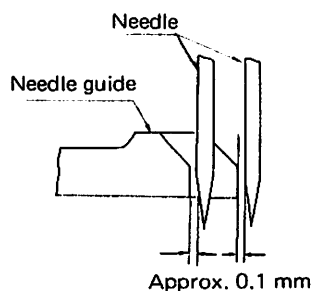
(1) When the needle bar is at its lowest position, the looper will be at its extreme right position where the distance between the center of needle and the tip of the looper should be 3.5 mm (9/64"). The distance can be adjusted by resetting the looper at the looper tightening screw.

(2) The height of the needle bar should be so adjusted that when the needle is going up from its lowest position, the needle eye meets with the eye in the looper which is in its advance motion, at the same level.



### 5. Position of needle guard

The clearance between the needle and guard should be approximately 0.1 mm and it can be adjusted after loosening the screw which can be reached from the bottom of tubular part.



## Precaution before starting to operate

1. Turn the balance wheel to bring the plug screw on the top, remove the plug screw, and fill the tank with oil to full. When the oil level drops below the center line, lubrication will stop. Give close checkings of the oil and replenish whenever it is low. (see Fig. 1)
2. Oil cut (C) at 3 places are to be oiled 5 cc each for the initial and thereafter 5 or 6 drops at least twice a week. (see Fig. 2)
3. Remove the oil gauge (A) in Fig. 3 and fill the tank with 150 cc of oil, which will give the level up to the mark on the gauge. The oil in tank should be checked at least twice a week and kept up to the mark on the gauge.

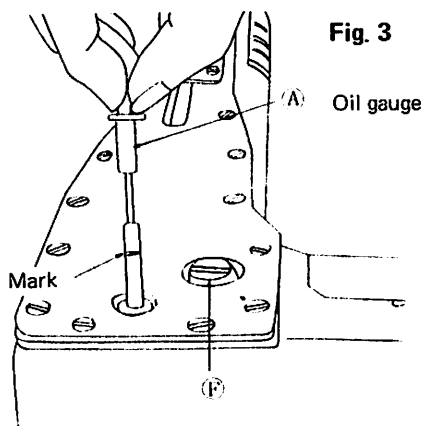


Fig. 3

### 4. Maintenance

1. As accumulation of dust on the feed dog affect a proper feed of the material, it should be periodically brushed off.
2. Often the looper function is impaired by the dust collected on it, and it should be cleaned periodically by removing its cover. Also at the same time clean the thread pathess.

### 6. Mounting and adjustment of lapper

Fit the guide plate of the lapper into the oval slot in the middle of the oil cover and press down as far as it touches the throat plate as shown in Fig. 4. Where the point of stitching on the material to be lapped is not properly located, adjust it after loosening screw A, and when the width of lap is not proper, adjust it by tightening screw B.

Fig. 1

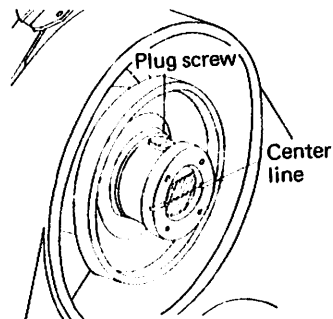
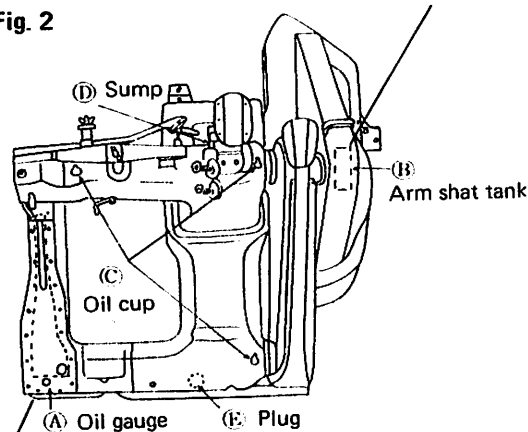


Fig. 2

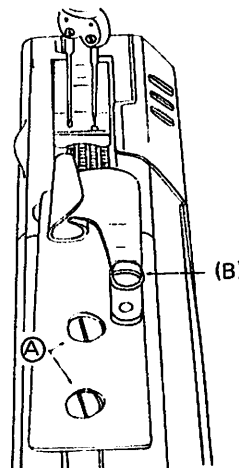


### 5. Draining of waste oil

1. Excessive oil in the arm is collected in sump (D) and in the lower part of the plate at the jaw of the arm, and it should be periodically removed by means of a spuit or a piece of waste cloth. (see Fig. 2)
2. Waste oil in the bed is drained through the hole under the bed by removing plug (E). (Fig. 2)

Accumulation of oil in the bed wets the lower thread take-up and, therefore, the thread. A special care should be taken in periodical draining of the waste oil.

Fig. 4



## Specifications

|                                  |         |                    |         |     |                 |     |                  |         |     |
|----------------------------------|---------|--------------------|---------|-----|-----------------|-----|------------------|---------|-----|
| Model DV-440 + suffix            |         | -21                | -20     | -30 | -22             | -32 | -23              | -23-U   | -33 |
| Material weight                  |         | Light              | Medium  |     | Medium & heavy  |     | Denim            |         |     |
| No. of needles                   |         | 2                  | 2       | 3   | 2               | 3   | 2                | 2       | 3   |
| Max. speed (spm)                 |         | 4000               |         |     | 3500            |     |                  |         |     |
| Max. stitch length               |         | 4.2mm (6 spi)      |         |     |                 |     |                  |         |     |
| Needle-bar stroke                | mm      | 27                 | 30.2    |     | 33              |     | 36               |         |     |
|                                  | in      | 1-1/16             | 1-3/16  |     | 1-5/16          |     | 1-27/64          |         |     |
| Presser-foot type                |         | Regular            |         |     |                 |     | Union            | Regular |     |
| Presser-foot clearance           |         | 10mm (3/8")        |         |     |                 |     |                  |         |     |
| Min. cylinder circumference      |         | 178mm (7")         |         |     |                 |     |                  |         |     |
| Needle type                      | Organ   | TVx1 #7 – 18       |         |     | TVx5 #11 – 22   |     | TVx5 #14 – 23    |         |     |
|                                  | Singer  | 149x1 #7 – 18      |         |     | 149x5 #11 – 22  |     | 149x5 #14 – 23   |         |     |
|                                  | Schmetz | 27:45 Nm 70–110    |         |     | 44:31 Nm 80–110 |     | 44:31 Nm 90--160 |         |     |
|                                  | mm      | 3.2, 4.8, 6.4      | 3.2+3.2 | 6.4 | 3.2+3.2         |     | 6.4              | 3.2+3.2 |     |
|                                  | in      | 1/8, 3/16, 1/4     | 1/8+1/8 | 1/4 | 1/8 1/8         |     | 1/4              | 1/8+1/8 |     |
| Weight (net/gross)               |         | 54/67kg            |         |     |                 |     |                  |         |     |
| Shipping measurement (head only) |         | 0.21m <sup>3</sup> |         |     |                 |     |                  |         |     |

- Needle type (Organ needles are standard)



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