## 5.8 Electronic Take-up Motion

Figure 5.13 shows a schematic diagram of the electronic take-up motion found in Somet looms. The take-up motion is fitted on the right-hand side of the loom and runs in an oil bath. A sensor, placed below the take-up roller, is connected to an electronic gear-box and a `Socos' on-board computer. The electronic gear-box is also connected to an ETD motor.

In the Socos on-board computer, the required pick density is programmed. This can be varied from 1.3 to 200 picks/cm. If there is any variation in pick density within the pre-selected parameters, the sensor constantly senses it and sends signals to the control system electronic gear-box and ETD motor. If there is any variation in pick density

through the ETD motor, the speed of take-up roll is altered to maintain uniform pick density. Any variation in pick density outside the pre-selected parameters causes the loom to be stopped and a corresponding message is displayed.

The load-cell constantly feels the warp and sends a continuous signal to the control

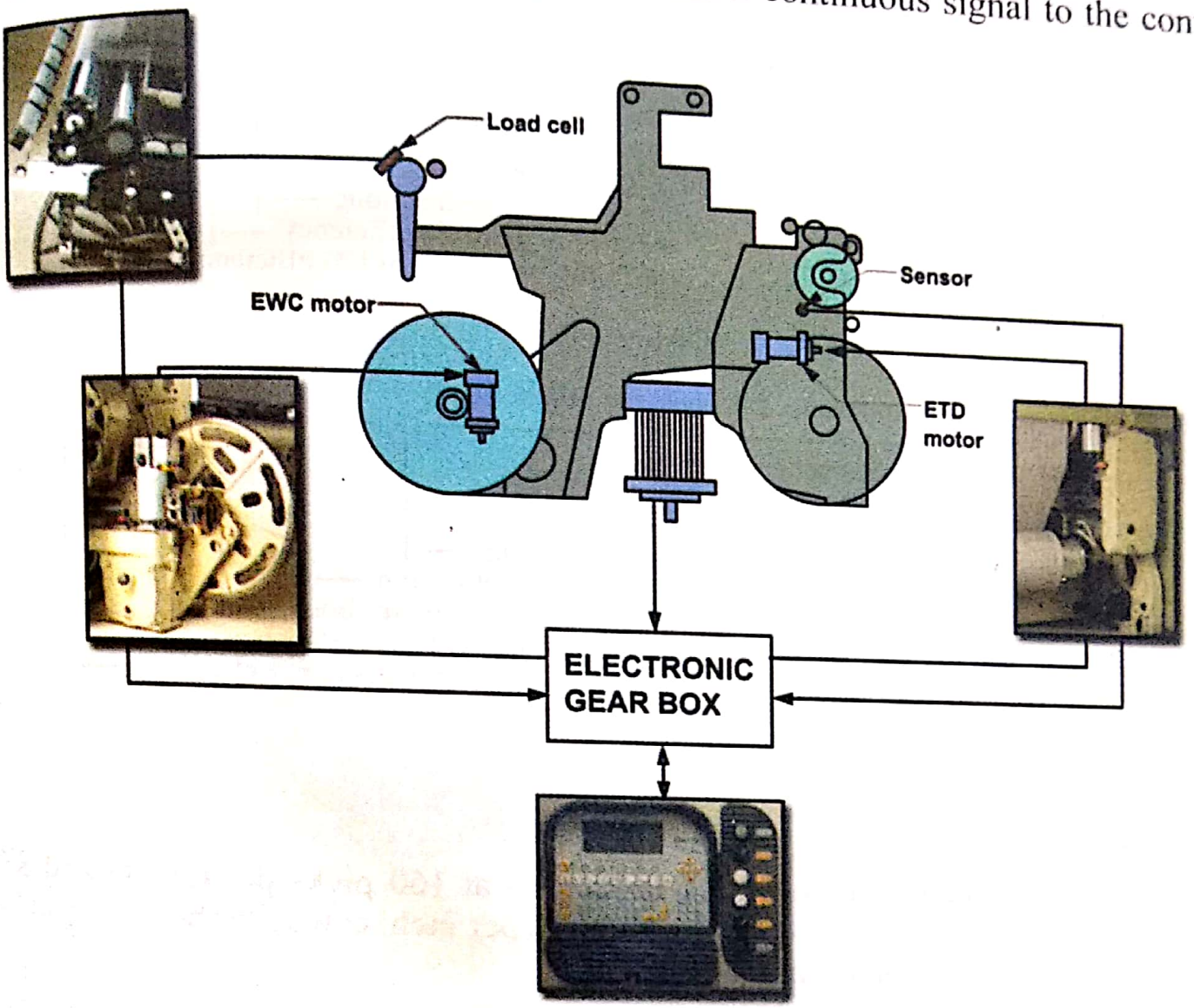


**Figure 5.13 Electronic take-up motion**

system for the small let-off motion EWC motor. This signal is directly proportional to the actual warp tension and the speed of the let-off motor is regulated in accordance with the signal received during the weaving process. This precise control results in a constant warp tension throughout the weaving process.

## 5.9 Loom Production Calculation

The production of a loom is calculated by using the following parameters.

Loom speed in picks per minute (ppm)

Picks per inch in the cloth (ppi) or Picks per cm in the cloth (ppcm)

Time

Nodal Cent...

## Efficiency

The loom production is calculated by the following formula:

$$\text{Loom production in metres/shift of t hours at E\% efficiency} = \frac{\text{Loom speed in picks per minute(ppm)}}{\text{picks per inch in the cloth (ppi)}} \times \frac{1}{36} \times 0.9144 \times 60 \times t \times \frac{E}{100}$$

inches/min — $\frac{1}{36}$
yards/min — 0.9144
metres/min — 60
metres/hour — t
metres/t hr at 100% efficiency — E
metres/t hours at E% efficiency — $\frac{E}{100}$

[OR]

$$\text{Loom production in metres/shift of t hours at E\% efficiency} = \frac{\text{Loom speed in picks per minute(ppm)}}{\text{picks per cm in the cloth (ppcm)}} \times \frac{1}{100} \times 60 \times t \times \frac{E}{100}$$

cm/min — $\frac{1}{100}$
metres/min — 60
metres/hour — t
metres/t hours at 100% efficiency — E
metres/t hours at E% efficiency — $\frac{E}{100}$

### Example 1

An ordinary 40 reed space overpick loom runs at 160 picks per minute and 85% efficiency. If the woven cloth contains 40 picks per inch, calculate the loom production in metres per shift of 7 hours.

$$\text{Loom production in metres/shift of 7.5 hours at 85\% efficiency} = \frac{160}{40} \times \frac{1}{36} \times 0.9144 \times 60 \times 7.5 \times \frac{85}{100}$$

$$= 38.86 \text{ metres}$$

**Example 2**

Calculate the loom production in metres per shift of 8 hours, if the loom runs at 150 ppm and 90% efficiency. The woven cloth contains 20 picks per cm.

$$\left.\begin{array}{l}\text{Loom production in}\\ \text{metres/shift of 8 hours}\\ \text{at 90\% efficiency}\end{array}\right\} = \frac{150}{20} \times \frac{1}{100} \times 60 \times 8 \times \frac{90}{100}$$

$$= 32.40 \text{ metres}$$