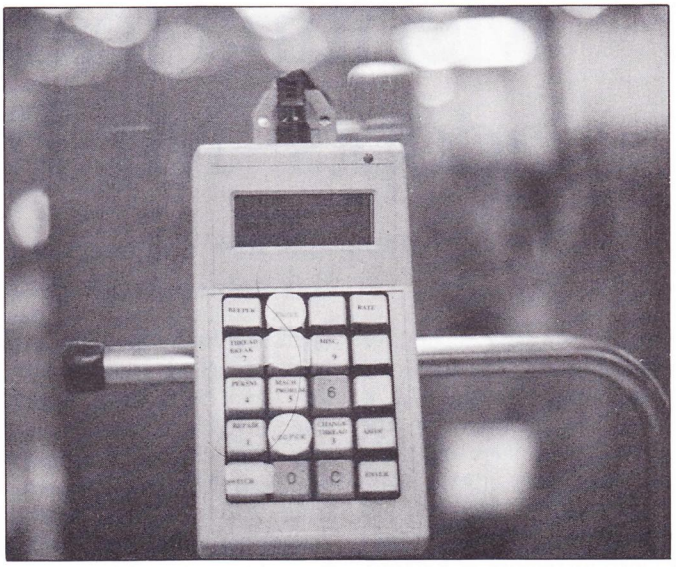
Meritina decided to carry out trials using a small two-key pad version of Mr Engineer to see what benefits it could provide their company.

By the middle of last year this had been expanded to eight keypads enabling the company to study up to eight operators simultaneously, each of whom may be working on different teams, on different operations with different standard minute values, and each operator working at different performances with different problems occurring. **By using the information thus obtained, an average of 10% improvement in performance was achieved.**

Meritina had, therefore, seen and proven the results that were achievable in conventional manufacturing by using the system and were convinced that even greater results would be possible by introducing Mr Engineer on to the teams, where data collection via conventional industrial engineering techniques was proving difficult, time consuming and of limited accuracy.

Picture above shows team system working at Meritina, using Mr Engineer. Below, the Mr Engineer operator keyboard providing the following features: Name. Rate for Job. Expected Performance. Stitches Sewn on Garment. Actual Efficiency. Cycle Countdown. Red Pacing Light.



Team-work solution

There was, however, one problem. At the time, the data collection devices were designed in such a way that the system expected one operator to be working on one operation at one workstation during the study a situation that was totally satisfactory for factories that use conventional manufacturing methods or unit production systems. The team approach, however, necessitates operators moving rapidly between machines, often doing two, three, four, or more operations in sequence before the garment is handed on to the next operator, the team self balancing itself throughout the day.

Meritina, together with Coats Viyella's Management Services Department, gave this aspect considerable thought and discussions were held with the development team at Mr Engineer, who are based at Guiseley, West Yorkshire.

The original system works in the following manner. A piece of reflective strip is stuck to the flywheel of the sewing machine, and a light sensor is placed at the back of the machine positioned to collect the reflected light when the machine is operated. Every revolution of the machine can be monitored and time stamped.

A small hand-sized operator terminal, containing a selection of buttons, is positioned at the operator's workstation. These are designed to record problems as they are encountered. For example, if the thread breaks the operator presses the appropriate thread break button on her terminal and carries on working normally. Each problem can be user defined for each study if there are specific areas of concern relating to that machine, operator, operation or team, and a standard list can be set as defaults for general studies. Other buttons on this terminal are used to start or pause a study. A small finger-operated keypad is ergonomically situated on the machine top which the operator presses each time she completes an operation.

Information from these three data collection devices is automatically fed back into a personal computer, time stamped and analysed to provide details such as:

- Actual time spent on every cycle, average cycle time and the total number of cycles completed.
- The number of occurrences of each particular problem, the total time spent on each problem type, the percentage of study time spent on each problem, a comparison of time spent on these problems compared to the overall allowance set within the standard minute time.
- Actual time spent on each bundling element, total time spent on bundling, number of bundles completed and average bundling time per occurrence.
- Percentage efficiency with and without problem cycles included, per minute of study, per quarter of an hour, per half hour, per hour, per cycle, per study.
- Amount of time and percentage time spent sewing per cycle, per study, etc.
- Comparisons between times spent on handling and sewing.
- Number of bursts of sewing in each seam, number of rpm per burst.
- Number of stitches per seam and in each burst of sewing.
- Distribution of number of stitches per seam over the study.
- Distribution of performance per cycle over the study.

Apparel INTERNATIONAL

Meritina team system adopts 'Mr Engineer'

How this new engineering control system has helped boost performance

A clothing company recognised as being at the very forefront of technology in the UK is Meritina Ltd, part of the Coats Viyella Plc, who were the first company in the country to change from conventional production methods to team manufacturing, introducing the system in 1987 into its factory at Retford, Notts.

This proved so successful that they have been gradually replacing the method of production in all their factories, a project which should be finally completed by the end of 1992, when all seven plants will be totally using the 'Meritina Team Approach'.

Always on the lookout for further improvements, Meritina have been highly delighted to be introduced to Mr Engineer, the revolutionary new industrial engineering system, designed to optimise the potential of both the workforce and machinery, and thus improve productivity and the profitability of a company.

Indeed, the company were the first worldwide to introduce the recently modified and enhanced system when it was installed in their Retford factory.

Mr Engineer is an easy-to-use manage-ment tool that collects data automatically from up to 32 workstations at any one time, analyses what problems are occurring in each particular operation, and highlights why performances are not being achieved. Minimum human intervention from either the operator, supervisor, management or industrial engineer is required to collect information about what is happening, or in the calculation and analysis of the results. Operating in real-time and providing direct feedback, Mr Engineer also assists operators to pace themselves evenly throughout the day and motivates them to increase their performance.

Picture above shows Meritina production executives at a study start-up of Mr Engineer. Pictured below is the PC at the end of the line which shows — for up to 32 operators under study — operation description, time last action on operation/stitch count, what action was, efficiency on operation, and overall team efficiency.