

ENHANCING TRACTOR ENGINE ASSEMBLY

Erkunt Enters New Era

IMPACT

- Increased operator efficiency
- Enhanced assembly process security
- Delivered overall quality product

**ERKUNT**

ABOUT THE CUSTOMER

Established in 2003, Erkunt Tractor is one of the largest tractor brands in Turkey. Offering advanced farm mechanisation solutions, Erkunt boasts a portfolio of global brands tailored to meet the diverse needs of farmers worldwide.

The company specialises in manufacturing tractors ranging in power from 50 to 110 HP. Renowned for their high performance and low fuel consumption, Erkunt tractors have earned the trust of Turkish farmers and are also exported across Europe, North America, Africa, Asia and the Middle East. In 2017, Erkunt Tractor was acquired by Mahindra & Mahindra.

THE PROBLEM

Because engines were formerly imported from Mahindra's plant in Nagpur, India, there were significant costs involved, so there was a need for local manufacturing, while maintaining high quality standards.

Additionally, because the engines were produced on a manual assembly line, when errors occurred, a lot of time was lost to root cause analysis as there was little control of those manual processes, such as the sequence of operations, how long they took and who performed the operation.



A NEW CHALLENGE

In 2022, Mahindra offered Erkunt Tractor the opportunity to work with Jendarmark India to develop and commission an Industry 4.0-enabled engine assembly line at their Ankara plant.

This project represented unknown territory for Erkunt, as it was the first time that the customer would be manufacturing its tractor engines in Turkey. Jendarmark India was tasked with the design, development and implementation of the manual assembly line.

From the outset, Erkunt wanted to avoid some of the common process security and product quality challenges associated with manual engine assembly. Its operators needed to be upskilled quickly to be able to handle the new assembly process correctly without a massive training burden.



CUSTOMER GOALS

Customer goals for the line included:

- Cost benefit and easy to set up
- Zero-error assembly process
- Improved process security and quality
- Cycle times achieved
- Digitalised assembly data for every part

SMARTER ASSEMBLY

Given that the majority of Erkunt operators are not proficient in English, ODIN Workstation's operator guidance system presents the work instructions in Turkish, with supporting visuals. This makes the process easy for new operators to understand and follow efficiently, and helped the customer reduce on-the-job training time.

Because operators are taken through the process step-by-step, they do not need to rely on memory for important details such as which bolts to tighten in which order, the correct torque required, and any fine measurements or tests to be carried out.

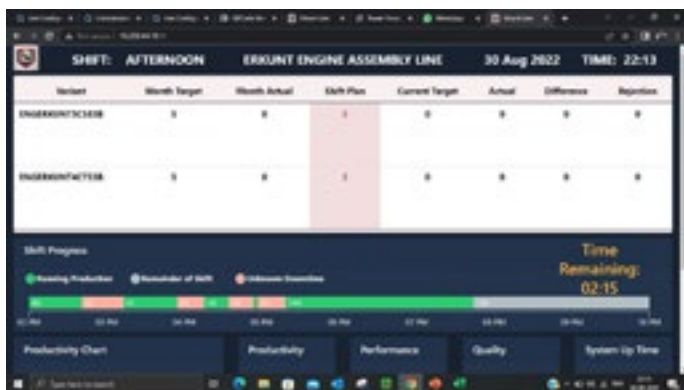
To ensure process security, operators must complete all operations in the correct order. The system does not allow the operator to proceed if a step or station has been skipped.

REAL-TIME REPORTING

The benefit of data-driven production is that every step in the assembly process is recorded, traced and reported on. The solution connects process data with quality assurance data for end-of-line or pre-dispatch inspection.

The detailed reporting functionality within the ODIN Workstation system provides full transparency and traceability for each assembled engine, allowing the customer to easily analyse the root cause should an error occur.

In addition, the customer can log in to the system and get a real-time production report for the day or shift straight from the line. Should a problem arise in the production process, the customer can take immediate corrective action.



MEASURING SUCCESS

Increased production rate

From 3 to 9 per shift
From 50 to 200 per month

Decreased error rate

From 2 to 0 per day

Reduced training time

From 30 to 5 minutes

Reduced downtime

From 1 hour to 10 minutes (initial phase)
From 10 to 0 minutes (after 6 months)



CONCLUSION

ODIN Workstation has proved to be the ideal integrated digital solution to error-proof Erkunt's first manual assembly line for tractor engines. This digital/manual combination has met the customer requirements effectively and surpassed expectations.

Providing comprehensive operator guidance in the local language ensures that every engine is assembled accurately and efficiently, while the built-in process security and data traceability also provide assurance that a quality product has been manufactured at the end of the day.

The ODIN system ensures the correct completion of the engine assembly. The best part is the detailed report provided by the system. With this solution, we are able to see all the steps the engine went through during assembly, and all the process data from start to finish. It informs us in a simple and transparent way, giving us the details of the assembled engine, and what is happening on the line."

Tuğçe Karakuş, PLC Engineer, Erkunt



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