



Case Study | A Commercial Vehicle Manufacturer

Case Studies

Abstract

A Russian commercial vehicle manufacturer tasked itself with launching nine new vehicles across a 12-month period. Three of these vehicles were entirely new products off a new platform and the other six were CKD vehicles – kitted units brought into the country to avoid a recently imposed 25% vehicle import tax.

The company's leadership team was concerned about meeting the timing for the projects. The managers and SME's in the company were technically unfamiliar with 21st century manufacturing and quality standards on vehicles, traditionally made outside of Russia.

TPS was contracted to:

- Provide project management and engineering support on the three new complete in-house vehicle launches.
- Provide direction and support to the companies purchasing and supplier quality teams during the launch of these vehicles.
- Provide manufacturing and engineering technical support, oversee body shop construction and paint shop improvements.
- Improve the quality of the carry over vehicle systems, manage the suppliers producing new product through the entire VDP.
- Implement and manage an entire “batch and hold” process used across all the launches.

Then for the CKD products:

- Manage an entire assembly operation from SOP through acceleration covering two different models.
- Oversee and manage the entire paint shop operation that supplied finished vehicles to two assembly plants.
- Provide technical leadership to the paint shop as well as to two body shops and assembly plants.

Challenges & Execution

Program Management

It was important that a strategic, cross-functional approach be taken that included Engineering design reviews and freezes, controlled change management within the launch window, validation planning, testing, and review, internal and external supplier timing reviews and supply management responsibility. In order to teach the client this approach it was requested that TPS engage a Launch Director to manage this entire process.

Statistical Engineering Problem Solving

More than 20 longstanding quality and reliability issues were root caused and eliminated using our Statistical Engineering approach. Our Statistical Engineering method was enthusiastically embraced by our client and a large number of staff members across the organization were trained to the Apprentice level of sufficiency.



Case Study | A Commercial Vehicle Manufacturer

Case Studies

Purchasing Leadership Advisory

TPS was to develop and implement a standardized competitive sourcing process and enact a formalized process for the approval and certification of new suppliers. TPS developed and executed the following:

- Competitive sourcing process for supplier selection.
- Procedural process for supplier nomination.
- Plan for every Part (PFEP) in the vehicle portfolio.
- Commodity-specific based savings targets and tracking method on a buyer-to-buyer basis.

Supplier Quality Assurance

We recognized that the performance of the outside suppliers needed to improve to raise vehicle quality. Many suppliers used by the OEM were not familiar with the common global automotive industry standards. In order to improve the supply base, TPS:

- Conducted interactive classroom training for OEM and Supplier personnel in Advanced Product Quality Planning (APQP), Production Part Approval Process (PPAP), Failure Mode & Effects Analysis (FMEA), Statistical Process Control (SPC), Measurement Systems Analysis (MSA) and Gage R&R.
- Implemented a Level 3 PPAP process complete with record and sample retention requirements and established a PPAP Checking Room.

Materials, Supply Chain and Logistics Management

TPS was requested to provide three Supply Chain, Materials and Logistics problem solvers to optimize the OEM's current operations and assist the new vehicle launch initiative. Facilities for both current operations and new vehicles were outdated and created inventory management problems not seen even in Greenfield facilities. Further, the sprawling complex of production facilities and limited gate access created the need for innovative approaches to material flow and logistics. The TPS team assigned to tackle these issues was successful by:

- Improving work cell layouts, operator utilization and inventory planning.
- Eliminating wasted walk distances between inventory and work stations.
- Eliminating double handling of material and operator movement waste in tool retrieval.
- Improving the line side part delivery and presentation for seats, exhaust and molding.
- Establish metrics for supermarket; optimize the material flow from the supermarket to the production line.
- Implemented new software system and metrics to improve the performance of unload container yard.



Case Study | A Commercial Vehicle Manufacturer

Case Studies

Paint Shop Process Optimization

The paint shop was unable to meet the volume demands of the vehicle launches. The main issues were poor incoming quality, an absence of reliable data for problem solving and extensive dependence of repairs. We were able to identify a number of causes that were generating the poor performance and the issues that were assigned to TPS included:

- Improving the timeliness of the data as it became available to the technologists.
- Identifying and improving the throughput of the paint repair stations.
- Identifying, through data analysis and problem solving, the root causes driving poor FTQ off the line.
- Developing solutions and corrective actions for these specific root causes.
- Introduced quality gates throughout the production line to identify and prevent defective bodies from being shipped, TPS increased quality delivered to all customers.

TPS identified and resolved major issues which lead to a four-fold increase in quality and throughput.



Case Study | A Commercial Vehicle Manufacturer

Case Studies

Plant Management | Manufacturing Engineering | Quality Engineering | Lean Manufacturing

TPS supplied a number of Senior Consultants who became integral in Contract Manufacturing Operations. Our Consultants worked as Advisors and Managers within the OEM Manufacturing Management team.

- Lean Manufacturing concepts such as building quality-in-station and not passing defects forward were taught to the management team. The effectiveness of this strategy was demonstrated throughout the organization.
- Check stations were established at critical areas along the assembly process where Top 5 Issues lists were recorded. Statistical Engineering Projects were initiated on the largest problems facing assembly throughput.
- Effective containments were established at critical areas. Repair Floats were reduced in size and First In / First Out (FIFO) plans were established for repair stations. The team implemented a Lean manufacturing structure with an Andon system, and coached and led the OEM's supplier team through the launch of a new Rear Suspension Assembly for the new vehicles.
- The team implemented a Batch & Hold / quality audit process. They also trained the staff in how to conduct real first article inspections in the Press Shop. Quality gates were implemented in the body shop and then in the assembly plant. Continuous improvement initiatives were also facilitated in order to train the IE team.

Result

With this multi-disciplined approach TPS was able to assist our client in surpassing vehicle quality targets while meeting production acceleration goals. We were also able to institutionalize best practices within program management which will greatly enhance the OEM's ability to successfully launch future vehicles.