



# Case Study | A Commercial Vehicle Manufacturer

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## Abstract

A commercial vehicle manufacturer in an emerging market tasked itself with launching a series of new vehicles to better position itself within a highly competitive market amidst the slow recovery from the 2007-2008 global economic downturn. Timely execution and flawless, high quality launches were paramount. TPS was requested to provide onsite leadership oversight to ensure all milestones were met. Our focus areas included the development of world class bodies across the fleet of vehicles, improving the quality of the paint and finish across the vehicle portfolio, improving the quality and cost of the vehicle and its supplied components and ensuring all vehicles met all quality and reliability "best in class" targets set for them by the client's leadership team.

## 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

Over 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 across the organization were trained to the Apprentice level of sufficiency.



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## 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)" for the vehicle portfolio.
- Establish commodity-specific based savings targets and ensure progress was tracked 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.



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### 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 out of date, creating inventory management problems not seen 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.

### 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.



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## 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 established for repair stations.
- Implemented Lean structure with an Andon system.
- Coached and led the OEM's supplier team through the launch of a new Rear Suspension Assembly for the new vehicles.
- Implemented Batch & Hold and PPAP audit processes by training staff in conducting first runs in the Press Shop.
- Established inspection techniques and procedures at quality gates in the body shop and assembly plant.
- Facilitated continuous improvement initiatives to train IE staff.

### 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.