

## **Development and Optimization Methodology for Implementation of New Body Shop Area in Car Manufacturing Plant -A Case Study**

**Timir Gandhi and S.M. Bhatt**  
**Mechanical Engineering Department**  
**L.D. College of Engineering, Ahmedabad**  
**India**

### **Abstract**

As per today's scenario the automotive production / Manufacturing plant has marvelous development. One critical element of the car making process, which significantly effects quality, is the Body Shop that is used for BIW (Body In White) Manufacturing. Before manufacturing and production of a BIW sedan car vehicle several significant factors need to focus for New Body Shop readiness. This paper considers a case study which provides an example of lately development of new Body Shop area implementation to meet global manufacturing facilities requirements in a reputed automobile company. In this paper it is shown and described the activity done during implementation for new Body Shop manufacturing area.

- Study and optimization of Body Shop Layout based on Jobs per Hour Production requirements and future upcoming new vehicle models.
- Beam-Column Structural Design - development and its analysis.
- New material handling concept implementation to meet Global Manufacturing system facilities requirements with comparatively difference between previous system and lately material handling concept.
- Optimization in Facilities readiness for BIW Manufacturing.
- Cost reduction in various machines and tooling through technical study and analysis.
- Crucial Issues faced and resolved during New Body Shop Facilities readiness, manufacturing, and tryout phase.
- Various tests performed for Body Shop welding Fixtures, tooling and machines Validation.
- Ergonomic factors consideration- issue tracking and resolved during tryout phase.

The end goal is to arrive at a common platform that can be utilized by global Body Shop manufacturing plant. After some strenuous work and continuous issue tracking our effort lead to the successfully implementation of New Body Shop area in one of the reputed Indian automobile manufacturing company (OEM) based on global manufacturing requirements. Also this is worthy as a reference for future Automotive manufacturing sector.