

# Jet Engine Manufacturer Case Study

**Tactical Engineering Solutions (TES)** provides practitioner-based consulting and training services that deliver measurable results for our clients. We work with our clients to understand their objectives, identify solutions that are capable of achieving them, and develop appropriate plans to achieve, validate, and sustain the intended benefits.

## **SERVICES:**

**Operations  
Performance  
Lean  
Six Sigma  
Rapid Improvement  
Logistics  
Quality Management  
Program Management  
Change Management  
Collaboration and Time  
Data Management  
Training &  
Certification**



**Problem:** A jet engine manufacturer was in a position of potential substantial growth. Consequently, the company asked TES to develop an accelerated production process. The customer was experiencing difficulty in achieving its current productivity goals yet needed to develop a stable production environment to enable production increases of 50% and higher for their engines.

## **Project Goal:**

Conduct analysis of constraint areas and develop improved layouts, processes and flow diagrams to increase throughput by 50% while maintaining quality levels.

TES conducted a baseline assessment through continuous monitoring of all built processes in the constraint area. Value Stream Mapping was conducted and a future state Map was developed. A major line layout revision and rebalance was proposed and machine allocation and assignments were revised. A Variance Reporting and Resolution process was implemented to communicate and resolve non-compliance to the master schedule. Work cell utilization was analyzed and increased through layout improvements, work rebalancing and changes to the flow of product through the work stations and machines. A Job Delay/Variance form was introduced to the operators and helped document root causes of delays as well as to improve communication from the floor to engineering.

Multiple process improvements were developed, including improved material transfer and flow, pre-work that could be done by material suppliers at a lower rate, revised gauge checks and improvements to enable quick changeover.

Efforts at this stage shifted to improving the machine time on specific machines and again attention was given to changeover times. Each constraint machine received capability and capacity assessments and plans were put in place for continuous monitoring and reporting of variances to schedule. TES improved the performance and throughput in the primary constraint area and respective machines to achieve the project goals.

## **Benefits of Project:**

1. Stable processes through standardized work
2. An immediate savings of \$3,018,090 per year from just the constraint area with plans to save \$4,115,578 through an additional 4% machine utilization
3. Ability to increase production by 39% through improvements in just the constraint area.

# Tactical Engineering Solutions Overview

## SOLUTIONS:

Continuous Monitoring  
Process Flow Mapping  
Workstation Layout  
(5S)  
Material Movement  
Problem Solving  
Workgroup Development  
End User Training  
Supplier Development  
Value Stream Mapping  
Standard Work  
Workload Optimization  
Simulation  
Six Sigma  
Facility Layout  
Visual Factory (Andon)  
Pull Systems  
Enterprise Performance

For more information on any of our products or services please visit us on the Web at:  
[www.tacteng.com](http://www.tacteng.com)

TES is a Manufacturing Engineering services firm focused on helping our clients develop **and implement** sustainable operational improvements that deliver measurable results. We work in a collaborative manner with you and your team through the difficulties of the implementation phase and we can ensure that changes deliver and sustain improvements for your customers and staff.

Our transformation work focuses on three elements:

- Developing new operating systems to improve productivity and flow using Lean Six Sigma techniques, with limited capital investments
- Creating the performance management system for leaders to monitor and improve performance
- Building realistic, practical capabilities and confidence that our clients will need to continuously improve

Our specialists in Lean Six Sigma can help clients deliver performance by:

- Developing transformation programs (e.g. labor and manufacturing efficiency improvements, process improvements)
- Creating performance management systems (e.g., tracking tools, accountability programs)
- Zero cost productivity improvements
- Supporting existing change initiative
- Conducting performance diagnostics
- On site facilitation for Value Stream Analysis and Kaizen events
- Building organizational capabilities
- Executive leadership and coaching

We bring best practices from leading manufacturers from around the world and a broad base of industries. We measure our success by the sustainability of our impact and the capability we transfer to clients.

## About Us

**Tactical Engineering Solutions** is a veteran-owned/women owned disadvantaged small business, serving the business needs of both private and public sectors. Headquartered in Michigan, our roots originate in the manufacturing industry and as we have grown, our portfolio of resources continues to expand upon this foundation into other industries, to include Transportation, Electronics, Aerospace, Healthcare, Power, Department of Defense, and more.

It is this rich heritage that allows TES Engineering Solutions to support our clients with a first-hand understanding of the challenges that businesses face.

Tactical Engineering Solutions is registered with Dunn & Bradstreet and the Federal Government's Central Contractor Registration system (CCR)

## VISION

TES executes programs that are on-time, on-budget and technically accurate to help our clients reduce overall cost and improve throughput while increasing customer satisfaction.



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