



# Joint Fastening Optimization

## Joint Secure Process Cycle Time Reduced at Automotive OEM

**Client:**  
Automotive OEM

**Objectives:**

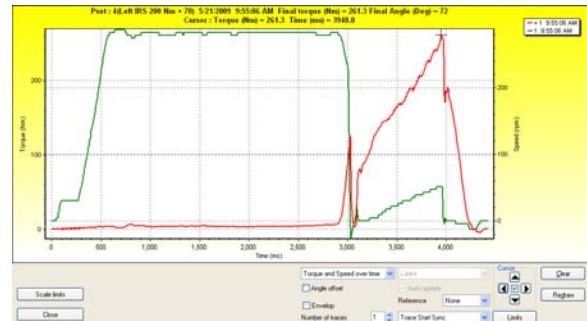
1. Review and analyze DC tool program for critical steering and suspension joints
2. Collect actual torque vs angle & torque vs time processing data
3. Develop recommended modifications to the tool programming to reduce cycle time while maintaining or improving resulting quality



Electronic Torque monitoring via DC Tools

**Project Description:**

Although torque results were within specifications, the cycle times for the secure processes were excessive and limited operations within the cell. Sandalwood provided fastening expertise to coordinate skilled trades and quality personnel at the automotive OEM. Torque vs angle and torque vs time traces from actual production joints were captured. Sandalwood's analyses of these torque traces provided DC tool programming recommendations to improve cycle time and cell capacity.



Current Process – Torque & Speed vs Time

**Results:**

- Recommended DC tool program changes were implemented with no interruption to production.
- The fastener secure process cycle times were improved by an average of 14%.
- Quality metrics, including residual torque measurements, were equal to or better than the original process.

Similar results have been obtained in other joint fastening optimization studies.



Improved Process – Torque & Speed vs Time

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