Automobile

Issue

Relatively close tolerances must be kept on the header length of the rear door glassrun. Currently, two people per shift are dedicated to 100% inspection of length of the glassrun. Identifying the causes of variation would allow reducing 100% inspection into hourly audits.

Breakthrough Strategy

Measure	A process flow diagram characterized the process. The cause and effect matrix indicated the two main inputs were loading in B-corner and loading in C-pillar. The original Gage R&R was inadequate for the tolerances required. Operator error was corrected with a change to the gage.
Analyze	One-way Analysis of Variance revealed only one cell had significant difference between front and back molds. However, the conclusions of the cause and effect matrix was loading procedure was the main cause of length variation. More One-way analysis of variance tests ruled out the B-corner as the source of variations. The problem apparently rests in the C-corner.
Improve	Now it was time to re-study capability given that the gauging system was improved. It appears that a capable process was in place all along, but the gauging system was hiding it.
Control	The change in PPM from 60,000 to less than 2,000 reflects the problem in the measurement system. The only step needed for control is to maintain mold set-ups such that header length begins correctly.
Results	The lack of an adequate gauging system lead to blame length variations on causes that could not be verified such as the B-corner molding and compound weights.
Savings	Savings of $100,000 per year by reduction of one person per shift from 100% inspection. An additional $30,000 was saved from reduced scrap.