



# PAINT SHOP CONVEYOR SYSTEM SIMULATION

## PROJECT SUMMARY

AutoMod simulation of inverted power and free conveyor system in the paint shop of a major automotive manufacturing plant. The paint shop simulation included the moist sand decks, prep decks, 10 paint mods, the biased surge banks, repair deck, tutone mask deck and 2 finesse decks. The simulation was used to determine the following:

1. The current throughput can be maintained when a new truck model, which takes longer to paint, is introduced
2. If new paint routing requirements will affect system throughput.

The simulation showed that throughput could be maintained when the new truck model and the new conveyor of routings are introduced.

## SYSTEM DESCRIPTION

The paint shop contains two parallel moist sand decks followed by two parallel prep decks. For the most part, monotone and second color tutone jobs go over one deck, and first color tutone and repair jobs go over the other deck. Jobs on the monotone side then go to one of seven monotone paint mods; jobs on the tutone side then go to one of three tutone paint mods. After leaving the monotone paint mods, jobs go to one of the three finesse decks. If the job passes inspection, it leaves the paint shop. If the monotone job fails inspection, it is sent to the repair deck, and then back into the painting system through the tutone moist sand and prep decks. After leaving the tutone paint mods, jobs go to the tutone mask deck, then back into the painting system through the monotone moist sand and prep decks.

## OPPORTUNITY

The paint shop facility was preparing for new model trucks to be introduced to the system. Also, changes to the conveyor to accommodate the new models must be made. The client needed to determine if the paint shop will have the capacity to paint the new truck models at the same rate as the current models, and what is the best way to implement new paint routing requirements.

## APPROACH

The objective of the study is to determine if system throughput will decrease when the new model trucks are introduced and the proposed conveyor changes are made. If there is a throughput reduction, determine changes in conveyor routings or operational policies that will eliminate the throughput reduction.

## SOLUTION

The simulation determined that a small throughput reduction would occur when the new truck models and conveyor routings were introduced. The reduction could be eliminated by allowing some monotone jobs to use the tutone paint mods. After testing several alternative changes to the conveyor route, an implementation of the new paint routings included consolidation of the 2 prep decks, resulting in a savings in manpower.