



**JOHN DEERE 8000 SERIES TRACTOR HOOD  
ASSEMBLY PROJECT**

Entered by: Bemis Manufacturing Co.

**Molder**

Bemis Mfg. Co.  
300 Mill Street, Sheboygan Falls, WI 53085

**Designer**

Henry Dreyfuss Associates  
22 Passaic Street, Wood-Ridge, NJ 07075

**Moldmaker**

Triangle Tool Corp.  
8609 West Port Avenue, Milwaukee, WI

**Original Equipment Manufacturer (OEM)**

John Deere Agriculture Division  
Waterloo, IA

**Entry Description**

The John Deere 8000 series hood redesign represented some significant challenges to all involved. Perhaps most remarkable was the team work demonstrated by the material supplier, tool maker, design firm, machinery builder and custom molder who had to work in concert to make this product a reality. A unique material was designed; the tool maker had never built tools nearly so large, the design firm worked within the scope of manufacturability and attained the desires of the customer, the equipment manager designed and built a machine that was three times larger than any co-injection machine they had ever built before, and the molder had to design and build a facility to accommodate the equipment. What is less obvious is the desire and confidence needed from all involved to succeed in a project such as this. What may not have been attempted ten years ago was made possible with advances in CAD mold flow, FEA, tool manufacture, machine controls, material formulation and processing knowledge.

**Why is this Part Innovative?**

Besides being amongst, if not the, largest engineering grade material parts ever produced, the assembly contains other innovative characteristics. Although painted, the parts have molded-in color in case of severe abrasion. Unlike metal of SMC the appearance of a damaged part appears, well, less damaged. For proper fit to the engine/chassis it is necessary for the materials to flex and return to their normal shape when the hood is opened. The structural PBT space frame also serves to route cooling air, electrical wiring and serves as a heat shield between body panels and the engine. The final challenge was to provide an assembly of unlike materials, with unlike coefficients of thermal expansion, with unlike heat sources and temperatures that did not distort during use or simple outdoor exposure.

The new assembly also features an open and close capability; it has eliminated 13 components and has reduced assembly time and complexity for the customer. Finally, a tremendous amount of computer analysis and simulation was utilized to determine part, process, and material design for a product whose expected life is twenty years and beyond.

