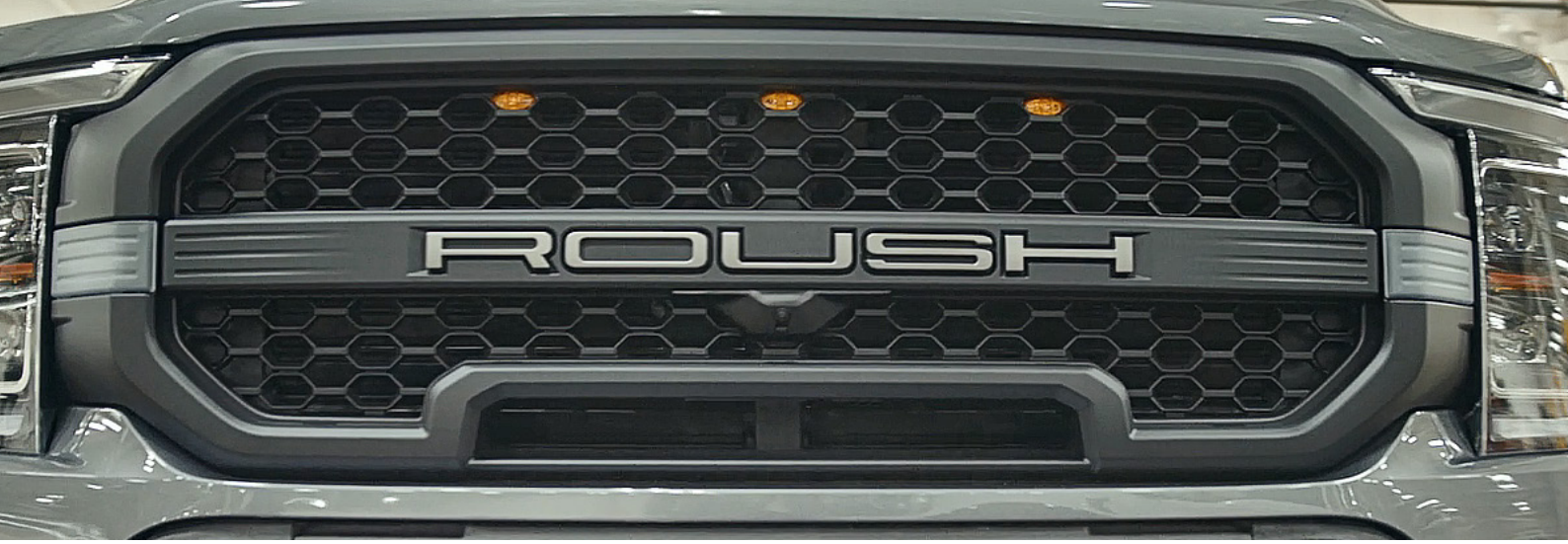


Roush Performance

Use Case – Auto Grill Camera Mount

Customer Profile

Founded by motorsport legend Jack Roush, Roush Performance develops aftermarket style and performance improvements for OEM vehicles like the Ford Mustang and F-150 pickup truck and upgrade packages for other select vehicles.

Challenge

A late-stage design change for the front grill camera location became necessary on the Roush F-150 pickup truck due to an ADAS (Advanced Driver Assistance System) issue. The solution involved either redesigning the grill or the camera mount. Since the grill was already in production with finished units, a redesigned support offered a better alternative. However, that option required new injection mold tooling, jeopardizing the ability to meet the truck's production and delivery schedule.

Solution

Instead of injection molding, Roush engineers 3D printed the mounts with SAF™ (Selective Absorption Fusion™) technology using the H350™ printer. This powder-bed process provided sufficient throughput over several build cycles to make several thousand parts for the entire production run of F-150 vehicles. The SAF process also produces parts with nearly isotropic mechanical properties and the consistency needed to satisfy PPAP (production part approval process) quality specifications.

Impact

3D printing the camera mount resulted in at least a 50% cycle time reduction compared to injection molding, allowing Roush to meet its production schedule. The injection mold solution would have taken three to four months to get from the initial tool design to the final parts and cost approximately $30K. The cost to print the SAF parts was about $19.5K, for a 35% savings, and cycle time was cut to eight weeks. Additionally, a 3D printed prototype of the new mount design showed that it was not optimal. Roush was able to quickly 3D print a better design and print the final parts, avoiding additional delays and costs to rework a mold for the redesigned part.



The 3D printed camera mount bracket with retention clip shown behind.



The finished camera and 3D printed bracket shown mounted to the F-150 truck grill.

Production Cycle Time Savings

50%

Cost Reduction

35%

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