



Square One – Bullet Proof Technology

Square One Amory has been building civilian armored vehicles since 1991. These vehicles are used by all types of civilian and governmental agencies. One of the key elements to Square One's armored vehicles is it is very hard to tell it is an armored vehicle. You could say they hide their vehicles in plain site.

The Problem

When armoring a vehicle the first step is to completely remove the interior. Once this is finished armor plating, thick bullet proof glass, larger window lift motors, advanced electronics and more is installed into the vehicle. Because of this, some trim and interior pieces have to be created or changed. Square One recently needed to armor the new Cadillac DTS. The problem was the interior door panels needed to be re-engineered to fit the glass and lift motors. Square One's traditional method of doing this was rulers, calipers and cardboard templates. Knowing this was time consuming and not very accurate Square One decided 3D scanning would be a better solution.

The Solution

Square one contact EMS to scan the door panels with its Z Scanner Z800 3D Scanner. Scanning each door panel took about 45 minutes while the conversation to a feature based Solid model took about a day using RapidForm XOR. This allowed Square One to import the model into their CAD software to begin the re-engineering process. What normally would take Square One about two weeks to do was done by EMS in a few days. In addition, the accuracy and detail achieved with the Z800 3D scanner would not be possible using their traditional method of manually measuring the panels.

Conclusion

When it came to a quick turn-around for a new vehicle that required armor plating, Square One turned to EMS. Using 3D scanning from EMS allowed Square One to quickly re-engineer these door panels. Had they used their traditional methods the process would have been much longer, more expensive and almost certain to have accuracy issues. This would make getting this vehicle to market on time very challenging.

Visit www.ems-usa.com for more information.



Stripped interior ready for armor



Door panel with targets applied and ready for scanning



Finished feature based solid model from scan data