6.5x25 CBJ

Car windshield shot from inside

CBJ Tech – Test protocol

Date: 2019-10-01	**Location**: Kungsbacka, Bunker (indoor test facility)	**Weather conditions**: Indoor, 21 deg C
Weapon systems tested: Universal receiver, 120mm barrel in 6.5x25 CBJ.		
Ammunition tested: 6.5x25 CBJ APDS		
Targets tested: Car windshield and cardboard witness sheets.		
People present: Mikael Johansson		
Additional information: Muzzle velocity was 730 m/s.		

Background, Purpose and Goal

Earlier tests regarding penetration of regular car windshields have been focused on shooting from the outside into the car, in order to evaluate the capability to defeat targets inside a normal car without armored glass. No tests have so far been done to evaluate the result when shots are fired from inside the car.

The purpose of this test is to evaluate the results when subcaliber projectiles from the 6.5x25 CBJ APDS is fired from inside the car at targets on the outside. The focus lies primarily on evaluating what kind of shrapnel are created and which direction they have, in order to determine risks for the shooter. Secondarily the deflection, or change of direction of the projectile, will be evaluated.

The goal is to prove that there is low or preferably no risk for the shooter inside the vehicle to shoot through the windshield with 6.5x25 CBJ APDS ammunition.

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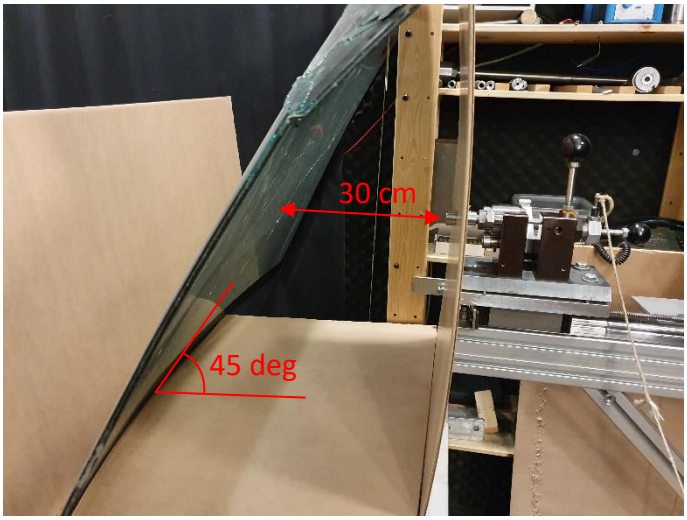
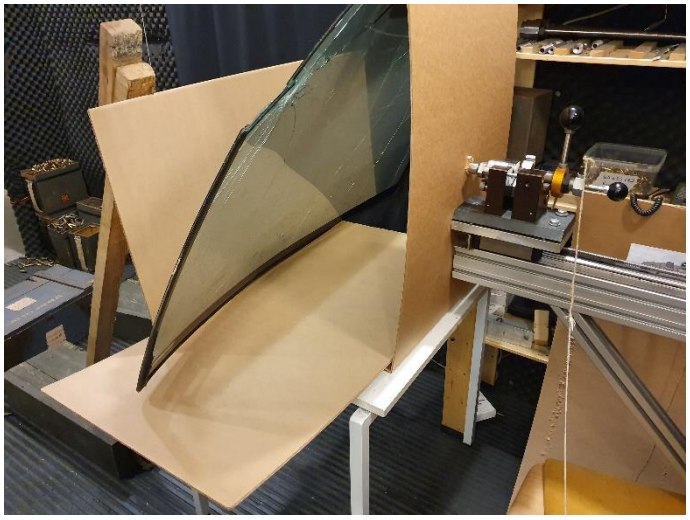
Test Setup

A car windshield was positioned in front of the Universal receiver. The angle of the glass was 45 degrees vertically and 0 degrees horizontally. The muzzle was positioned 30 cm from the impact point on the glass. Witness cardboard sheets were positioned vertically in front of and behind the windshield. The rear sheet had a hole and the muzzle of the barrel was pushed through. The horizontal sheet was positioned below the windshield, and there was a small flap above it. There were no sheets on the sides in order to improve visibility.





Results

The core projectile, the cylindrical part of the sabot and the gas check penetrated the windshield. The core projectile was unstable after penetrating the glass, but had minimal deflection.

The fingers on the sabot were cut of when the sabot penetrated the glass. They were mostly deflected downwards, and 5 of the 6 fingers hit the witness sheet under the windshield. No shrapnel from the projectile or debris hit the rear vertical witness sheet.

The cracks in the windshield shows a typical white opaque circle with diameter 3 cm around the hole.

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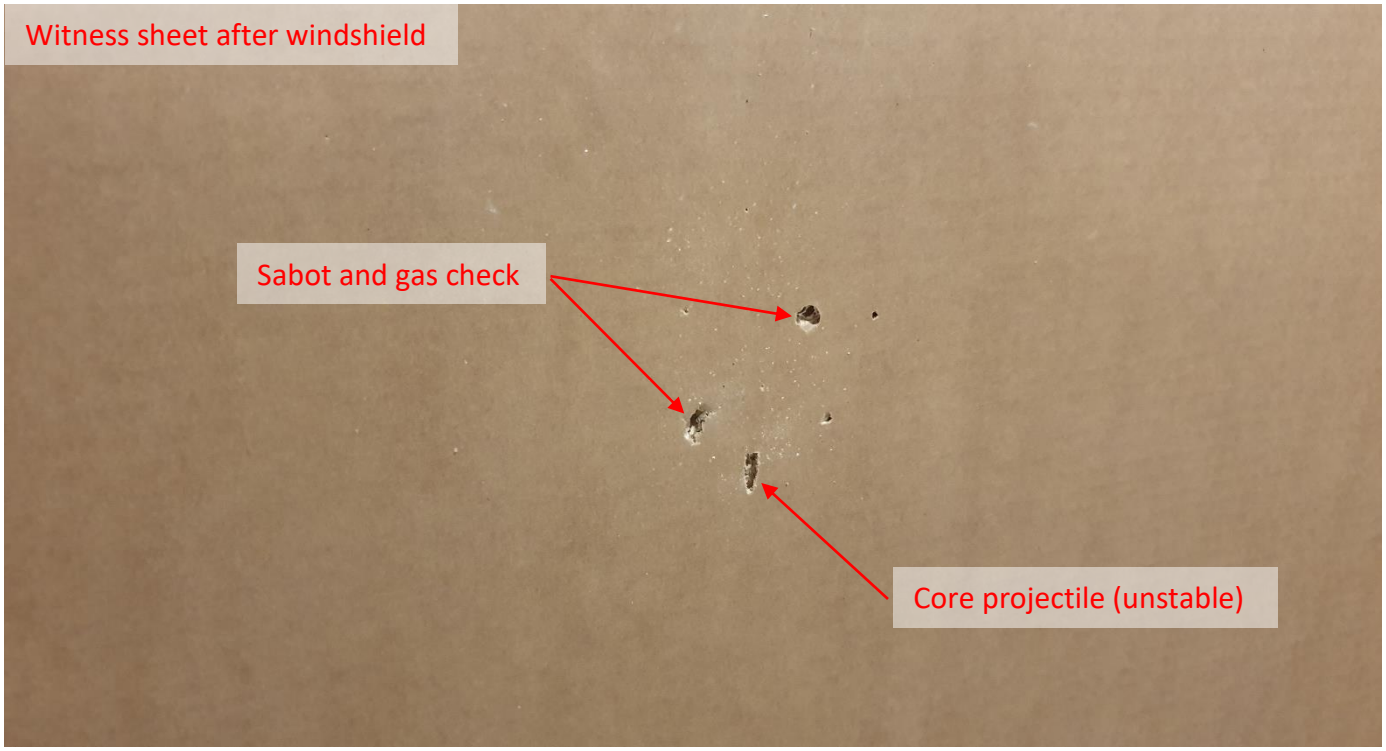

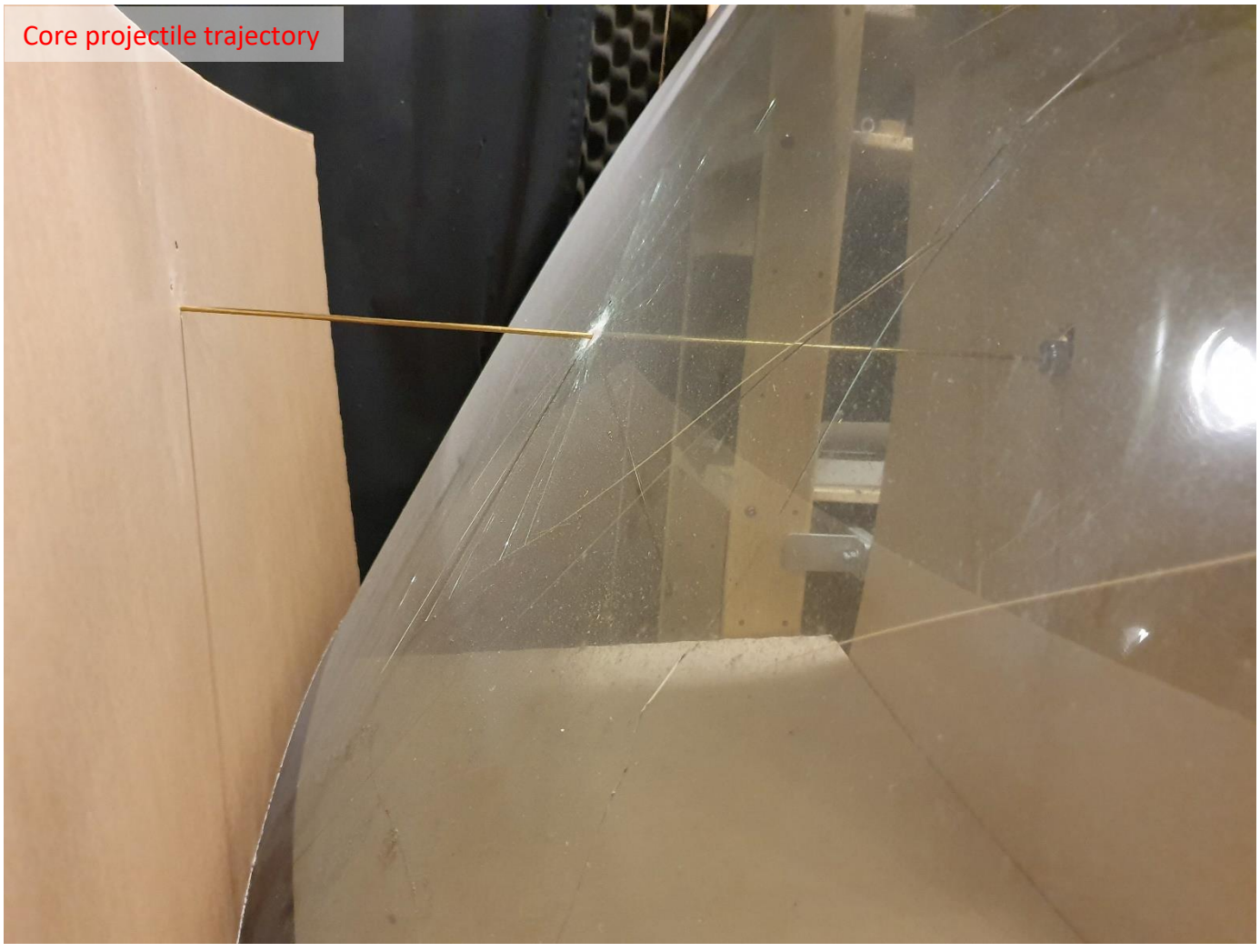

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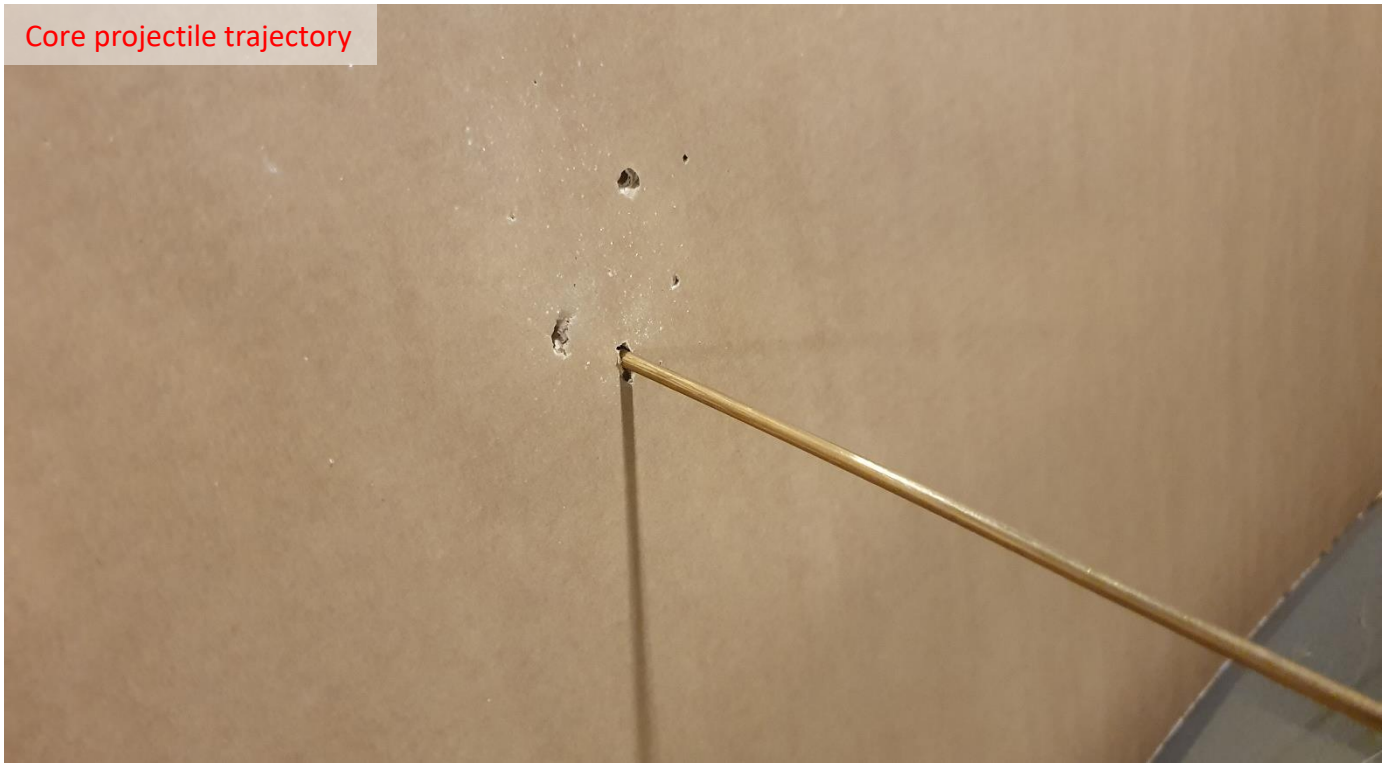
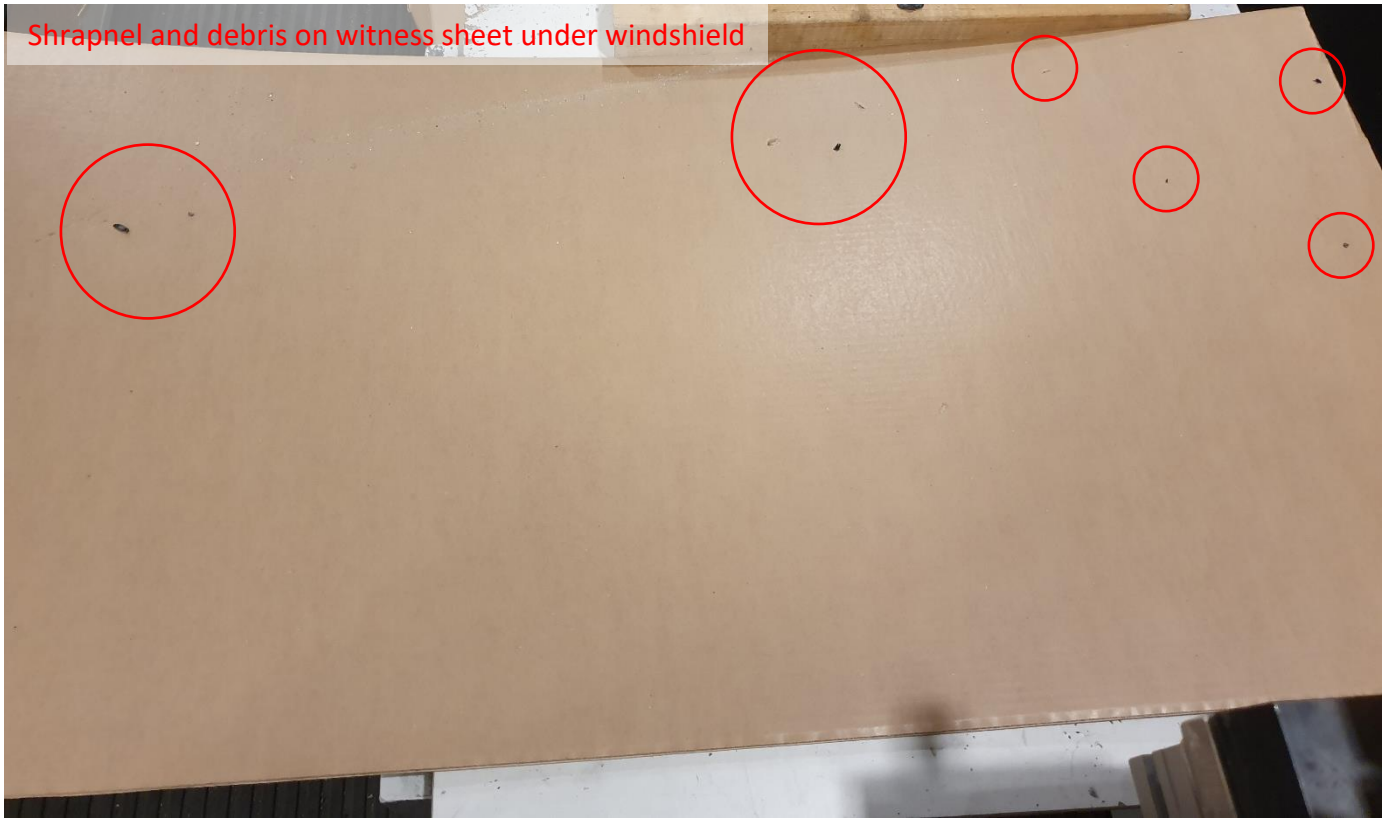
Core projectile trajectory



Core projectile trajectory

Shrapnel and debris on witness sheet under windshield

Shrapnel and debris on witness sheet under windshield



Summary

The projectile showed minimal deflection, even if it was unstable after penetrating the glass. The minimal amount of shrapnel and debris on the inside of the windshield was mainly directed downwards due to the angle of the glass. Nothing hit the rear witness sheet.

This leads to the conclusion that there is a relatively high probability to hit the intended target outside the vehicle at reasonable distances. The risk of shrapnel or debris coming back and hitting the shooter is minimal.

The size of the opaque circle of cracks around the hole in the glass is only 3cm in diameter, which is smaller than that of a typical 9x19 mm projectile. This reduces the effect of limited visibility for the shooter inside the vehicle after shooting through the windshield.