

Ejector's Cut-Out Marks in Shotguns and their Comparison Value

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Keywords

Ejector cutout marks, Breda, Remington, Beretta, shotgun, class characteristics, individualities.

Abstract

This report discusses ejector cutout marks found on 12 gauge cartridge cases fired from different types of shotguns. These marks were never studied before, by Israeli firearms examiners, nor has the phenomenon ever been reviewed fully in professional literature.

Case Story

A game warden apprehended a poacher who tried to shoot down a big vulture, a rare bird in Israel. The warden seized the hunter's gun, a Breda semi-automatic shotgun, model Aries, caliber 12 gauge (*Fig. 1*), and sent it, along with a 12 gauge cartridge case found at the scene, to the Israel Police Firearms Identification Laboratory for comparison.

During examinations, the firearms examiner encountered difficulty in identifying sufficient individual characteristics to reach a positive comparison between evidence and test cartridge cases.

The firearms expert, of course, conducted examinations of all conventional marks such as firing pin marks, breach face marks, etc., but he could not arrive at a conclusive decision. Further examination of the cartridge cases revealed two cuts on the rim of the cartridges. (*Fig. 2*)

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These cuts, parallel to the ejector's marks and found on all of the cartridge cases, led to the conclusion that they originated from one of the weapon's parts and could be used for comparison.

Test Results

Inspection of the weapon showed that inside the frame there is a cutout, fitted for the ejector (*Fig. 3*). Measurements of the cutout proved that its width coincides with the distance between the cuts found on the cartridge case rims.

To be certain about the origin of the marks, extra cartridges were fired from the shotgun; this time, however, they were marked so that their position inside the weapon could be monitored. All the ejected cases bore the two cut-out's marks, and the marks were positioned parallel to the ejector's cutout. This test proved that the marks were made by the ejector's cutout (*Fig. 4*).

After the origin of these "new" marks was established, it was time to examine their value for comparison purposes. Examination of evidence and test cartridge cases, under the comparison microscope, clearly show a perfect match of the individual marks, inside the cutout marks. (*Fig. 5*)

Some observations about these marks can be made:

- i. The ejector mark is closer to the lower cutout mark. (*Fig. 4*)
- ii. The lower mark is wider and deeper than the upper mark.
- iii. Both marks contain individualities (for comparison purposes).

The loading and extracting of unfired cartridges showed that marks also appear on these cartridges as well. The marks, however, are weaker than those found on fired cartridges. Nevertheless, they are sufficient for comparison purposes.

Efforts were made to determine if these marks are unique only to the Breda shotgun. Hence, other shotguns were inspected. Similar marks were found in Beretta models A390 and RS200, and the Remington 870 MAGNUM (*Fig. 6&7*).

It is important to know that the cutout structures are not the same in the Beretta and Remington weapons. Nevertheless, they leave marks on both fired and unfired cartridge cases.

Conclusions

Ejector cutout marks can be used both as class and individual characteristics. Good quality of individual characteristics, inside the cutout marks, can assist the firearms examiner in his effort to come to a final conclusion concerning identification, be it positive or negative.



*Fig. 1- Breda shotgun, model Aries, caliber 12 gauge
Right hand view*

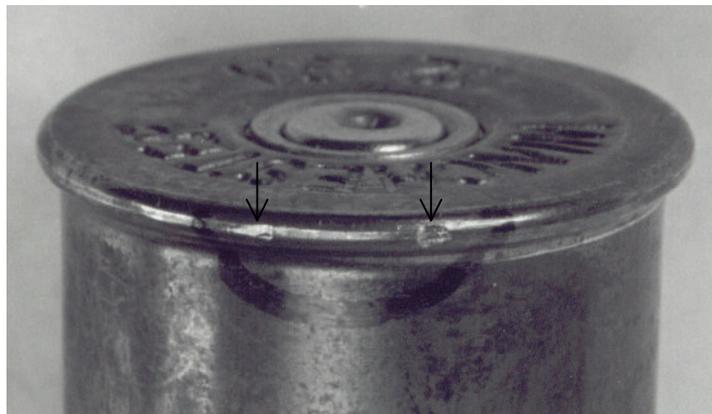
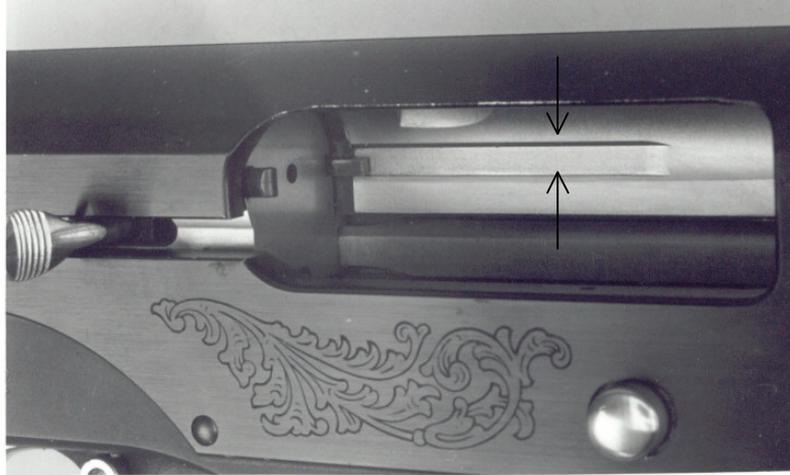
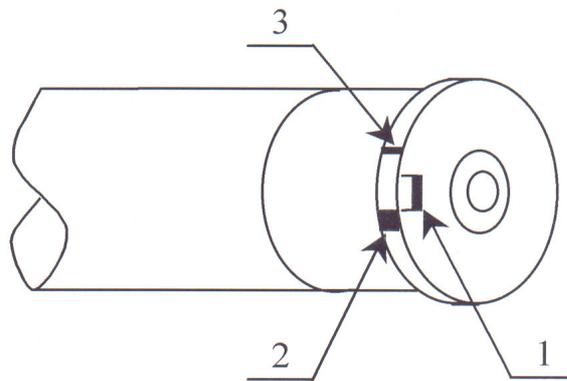


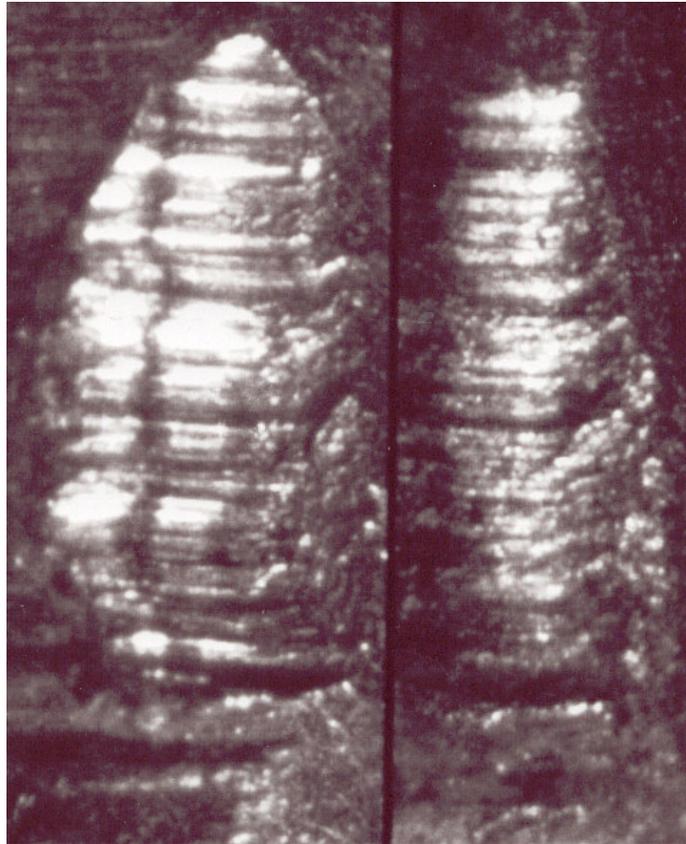
Fig. 2 – The ejector's cutout marks



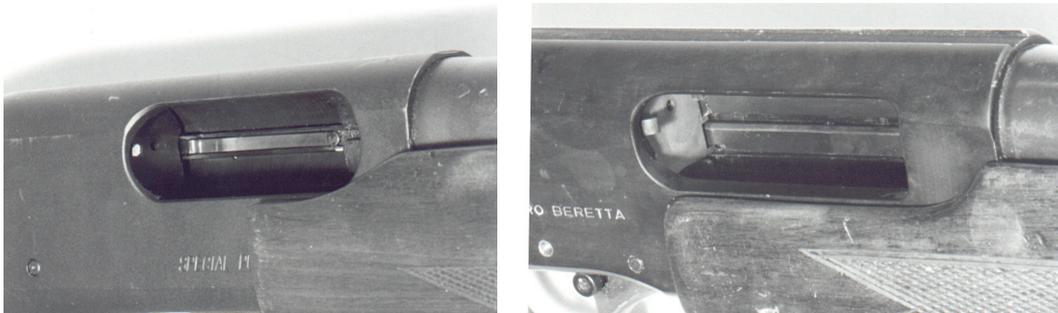
*Fig. 3 – Close view of the shotgun's frame
Arrows indicate ejector's cutout*



*Fig. 4 – A diagram of the marks.
1 – The ejector mark.
2&3 – The ejector's cutout marks.*



*Fig. 5 – Comparison of individual characteristics
Left – Evidence cartridge Right – Test cartridge*



*Fig. 6&7 – Different types of ejector's cut outs
Left – Remington 870 MAGNUM Right – Beretta A390*