

## THE MIAMI BARREL

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### Introduction:

The City of Miami Police Department had a series of high profile police-involved shootings, resulting in mass media attention due to the fact that the projectiles from the above cases were not identified to the Glock pistols of the shooting officers.

Due to the concerns raised by the City of Miami Police Department about the Metro-Dade Crime Laboratory's inability to consistently positively identify projectiles fired from Glock pistols, Glock Inc. modified their traditional gun barrel for them. This special order became known as "The Miami Barrel".

"The new design - if proven - would provide a unique signature on bullets fired from each Glock barrel, thus making it more identifiable than guns currently in use" [1].

### The Miami Barrel:

Glock Inc. placed marks in the barrel with a process described as the "electronic spark reduction method". The marks are small and generally rectangular in shape. The metal appears slightly depressed and melted. The intended purpose of these marks was to make the barrel more identifiable. The Metro-Dade Police Department Crime Laboratory received five of these modified barrels to examine. The number of marks placed in the barrel ranged from one to three. All were marked just inside of the muzzle (see photo).

### Testing:

The Metro-Dade Police Department was asked to participate in a evaluation of the below listed pistols and ammunition by the City of Miami Police Department.

Twenty-two 40 S&W caliber semi-automatic pistols and five separate Glock barrels marked with the "electronic spark reduction method" were tested using two brands of ammunition:

1. Winchester Ranger SXT, 180 grain cartridge
2. Speer Lawman Gold Dot, 180 grain cartridge

The firearms submitted for the testing were two each of the following:

Smith & Wesson, Model 4043  
Smith & Wesson, Model Sigma 40F  
Beretta, Model 96D  
Beretta, Model 96D-Police Special  
Beretta, Model 96D Centurion  
Sigarms, Model P229  
Ruger, Model P91  
Ruger, Model P94  
Heckler & Koch, Model USPV5  
Taurus, Model PT100  
Glock, model 22  
Five Glock barrels, marked by "electronic spark reduction method"

The purpose of the test was to microscopically compare bullets fired from the same gun against each other to determine the identifiability of that pistol's barrel signature.

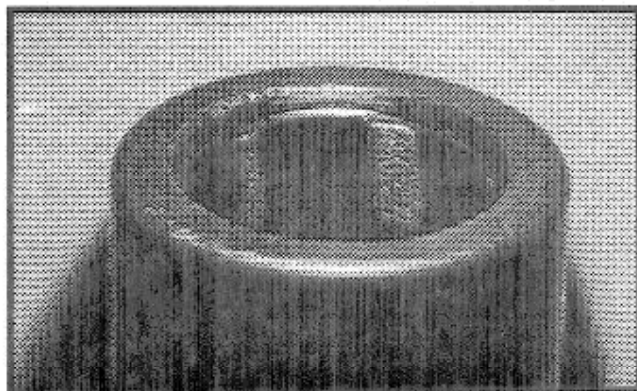
### Evaluation:

After test preparation and firing, microscopic examinations were conducted by three Firearm and Toolmark Examiners. Each of the three examiners spent approximately one day evaluating the test fired bullets. Each examiner was asked to independently give his opinion on both brands of ammunition and the identifiability of each brand to make and model pistol that fired them.

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The examiners were asked to state their results in one of two ways. Either the bullets were "readily identifiable" or the bullets were "not readily identifiable".



GLOCK BARREL MARKED WITH THE  
"ELECTRONIC SPARK REDUCTION METHOD"

The result of "readily identifiable" means that several areas of the bullet can be positively identified to other bullets of the same brand fired from that pistol. It further describes the signature of a fired bullet that is typically received in this laboratory as evidence and because of the quality of the signature, we expect to identify it with the comparison microscope.

The result of "not readily identifiable" means that tests of the same brand fired in the same pistol could not be positively identified or that the identification generally could only be made on a small or select area of the bullet. The term further describes the signature of a fired bullet that is typically received in this laboratory as evidence and because of the general lack of detail or repeatable markings that identifications are difficult or sometimes impossible. It should be noted that all of the test bullets examined are not damaged or expanded, and therefore, they have the potential of receiving maximum transfer of barrel signature for that brand and type of ammunition.

#### Conclusion:

All of the tested firearms, except for the Glock

and Heckler and Koch, marked both brands of the aforementioned ammunition in a "readily identifiable" manner. The standard Glock barrel and the five Glock barrels marked by electronic spark reduction were listed as "not readily identifiable" in that any identifications were generally confined to one area or small select areas and were more difficult to find than identifications on the tests fired in the other pistols tested.

The examiners found that the five Glock barrels marked by the "electronic spark reduction method" did not significantly enhance the identifiability of the bullets that were fired through them as compared to the original Glock barrel and to the other firearms in the study.

Two other brands of ammunition were then fired through the marked Glock barrels (Winchester 180 grain FMJ, and Federal 155 grain Hydra-shok) and the results were the same.

The New York Police Department did an in-depth study [2] on the New York Barrel, by Glock. The New York Barrel was a special order that had conventional rifling. NYPD compared tests fired from twenty Glock pistols with their traditional rifling, twenty Glock pistols with the New York Barrel, and twenty Smith & Wesson pistols. They found that the New York Barrels were a little improvement over the traditional Glock barrel, however, substantially less than the Smith & Wesson.

The Glock barrel is defined by Kasler [3] as hammer-forged hexagonal rifling. The resulting interior is smoother and more rounded than most other barrel types resulting in less barrel signature transfer to the bullet.

#### Acknowledgments:

The Firearm and Toolmark Examiners of the Metro-Dade Police Department.

Dominic Buccigrossi and the Ballistics Squad of the New York Police Department.

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**Footnotes:**

[1] Gates, Robert, quoted by Epstein, Gail, "Glock: New Barrels Will Mark Bullets", Miami Herald, June 1994, p. 1B.

[2] Buccigrossi, Dominic, "Ballistics Comparison of Polygonal and Conventionally Rifled Glock Barrels", dated May 21, 1996, New York Police Department Memorandum, pp. 1-10.

[3] Kasler, Peter, Glock - The New Wave In Combat Handguns, Paladin Press, 1992.

**References:**

Hart, Robert, "The Miami Barrel and Glock Identifications", Presented at the 26th AFTE Training Seminar, San Diego, Ca, May, 1995.