

*Workshop on*

**“Technical and Manufacturing  
Aspects of Firearms Marking  
In the Context of  
UN Regulation Efforts”**

Brescia, Italy, 30 September- 1 October, 1999

***Preliminary report***

**Hosted by**

**The World Forum on the Future  
of Sport Shooting Activities**

Document presented by

Sporting Shooters Association of Australia  
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## 1. Executive Summary

An informal workshop, "**Technical and Manufacturing Aspects of Firearms Marking in the Context of UN Regulation Efforts**," was held in Brescia, Italy, 30 September - 1 October 1999, for the benefit of national government officials involved with drafting the UN Firearms Protocol. The Workshop was hosted by the World Forum on the Future of Sport Shooting Activities (WFSA).

Firearms marking was examined from both historical and technical perspectives. Participants heard from experts, government officials, and intergovernmental officials involved with firearms marking and tracing. Seven firearms manufacturers made presentations on numerous aspects of marking in relation to their manufacturing procedures.

A number of significant points seemed to emerge from the discussion:

- Firearms marking is primarily a tool to be used in the tracking and tracing of firearms by law-enforcement agencies and enhances criminal investigations and prosecutions. As a minimum marking should contain a serial number, name of manufacturer, place of manufacture and if appropriate name of importer.
- Depending upon the legal requirements in the country, of each Workshop participant, relevant tracing information can be kept by manufacturers, proof-houses, commercial enterprises or national governments.
- Firearms manufacturers attending the Workshop have well developed systems of marking and record keeping and they are highly regulated. There was concern about producers located in less regulated environments.
- There was consensus that there should be a requirement that all firearms be marked at the time of manufacture.
- Further discussion among interested parties, including industry, regarding adequacy of marking, reliability of marking and effective response to tracing requests can be beneficial to crime control efforts.

There was a discussion of the proposed requirement to mark firearms at import and re-export. Questions of technical feasibility and costs need to be resolved.

The Workshop felt that there should be an ongoing review of the possibility of future developments of techniques that may facilitate the marking and recovery of obliterated marks.

Participants considered the workshop very valuable and expressed a strong desire for this type of dialogue to continue in the future.

It was agreed that the firearms industry would submit a comprehensive report on marking, especially the means of developing minimum international standards through cooperative efforts. This report will be available by the December Ad Hoc Committee meeting.

## 2. Description of the Workshop

### 2.1 Background and Purpose

The World Forum on the Future of Sport Shooting Activities<sup>1</sup> formally began addressing the subject of firearms marking with the establishment of a "Marking Project Working Group" in early 1999. This was a response by hunting, shooting and firearms industry associations to the increasing international community's attention to firearms marking. In February of 1999 a paper was presented to a Swiss workshop on small arms entitled "Marking Firearms: A Contribution from the Manufacturing Community." A conference on firearms marking was contemplated as part of the proposal, as was an extensive report to the UN giving the views of firearms manufacturers on the subject.

Marking was also discussed at the April, 1999 meeting of the UN Ad Hoc Committee on the Elaboration of a Convention Against Transnational Organized Crime, which is drafting the "Protocol Against the Illicit Manufacturing of and Trafficking in Firearms..."<sup>2</sup> The topic was addressed extensively in other fora<sup>3</sup> and marking was mentioned prominently in the recent report of the UN Group of Government Experts on Small Arms.<sup>4</sup>

Subsequent to the Vienna Ad Hoc Committee meeting, it was agreed the WFSA would sponsor this Workshop on marking in view of the next Ad Hoc Committee meeting.

The purpose of the Workshop was primarily informational, i.e., so that officials involved with possible international instruments containing marking provisions, could hear directly from the firearms manufacturing community on the very subject.

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<sup>1</sup> ),The WFSA is a group of associations which includes hunters, sport shooters, and firearms manufacturers. Two of the associations are accredited UN NGOs; the Sporting Shooters Association of Australia and the National Rifle Association of America.

<sup>2</sup> United Nations Ad Hoc Committee on the Elaboration of a Convention Against Transnational Organized Crime. "Revised Draft Protocol Against the Illicit Manufacturing of and Trafficking in Firearms, Ammunition and Other Related Material Supplementary to the United Convention Against Transnational Organized Crime." Vienna, Austria: 19 July 1999, A/AC.254/4/Add.2/Rev.2. *Article IX* of the Protocol is on marking.

<sup>3</sup> Governments of Germany and Switzerland. "Report - Workshop on Industrial Aspects of Limiting Proliferation of Small Arms and Light Weapons." Baden, Switzerland: 28-30 June, 1999.

<sup>4</sup> United Nations. "Report of the Group of Government Experts on Small Arms." New York: 19 August 1999, A/54/258.

## 2.2. Participants

A list of participants is attached. Nine firearms manufacturers were present at the Workshop, including: Beretta (Italy), Glock (Austria), Heckler & Koch (Germany), Mossberg (United States), Para-Ordnance (Canada), Remington (United States), Steyr-Mannlicher (Austria), Sturm-Ruger (United States) and Taurus (Brazil). There were also representatives from national and international firearms manufacturers groups: the Associazione Nazionale Produttori Armi e Munizioni (Italy), the Sporting Arms and Ammunition Manufacturers Institute (United States) and the Institute Européen de Armes de Chasse et de Sport (Europe). There was also a representative of Forensic Technologies, Inc., present.

## **3. Proceedings**

### 3.1 Welcome and Outline of the Workshop

The Workshop was opened 30 September, 1999 by Carlo Peroni the President of the World Forum on the Future of Sport Shooting Activities. He said this meeting was an historical first in that it was an opportunity for members of the firearms industry to talk with officials from the international arena. Ambassador Luigi Lauriola, Chairman of the UN Ad Hoc Committee, made brief comments and thanked President Peroni. Mr. Ted Rowe, Chairman of the WFSA Marking Project Workings Group, then outlined the Workshop program.

### 3.2 Presentations

#### 3.2.1 History of Marking and Marking Techniques

The first presentation was by Mr. Paul Dougherty, a forensic expert from the United States. He spoke on the "History of Marking and Marking Techniques." Mr. Dougherty traced the gradual development of firearms marking. Before firearms were marked with serial numbers, per se, they were given "proof marks" to denote they met certain safety standards.<sup>5</sup> These marks were applied with a die stamp.<sup>6</sup> Other early firearms had assembly part numbers applied to certain areas and these are sometimes mistaken for serial numbers. Mr. Dougherty also reviewed physical aspects of marking and

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<sup>5</sup> When a firearm is "proofed" it is fired with an extra heavy charge of propellant (usually an increase of 30%) using the reasoning that if it withstands the increased pressure of the heavy charge it will be safe for normal use.

<sup>6</sup> This is known as "die stamping." The "die" is a chisel with a raised metal symbol (letter, number, company logo, etc.) on the end instead of point or cutting edge. The die is placed against a metal surface of the firearm and struck with a hammer, thus the image is transferred into the metal.

techniques for recovering obliterated marks. An extensive bibliography of references on marking was distributed.

### 3.2.2 Permanent International Commission for Small Arms Testing - CIP

A paper was presented by Ricardo Fogari (Italy), representative of the "Permanent International Commission for Small Arms Testing," or CIP. This body is an intergovernmental organization instituted to put forth firearms safety standards.<sup>7</sup> Proof houses were first established in Europe in 1637. The CIP currently exists under the Brussels Treaty of 1 July 1969 and there are 13 signatories to this instrument. All civilian firearms must be tested in a national proof house and detailed records are kept. It is with these records that firearms are traced. Importers' names are not placed on arms, but records are kept of who imported the arms. Thus, the proof house serves two functions, safety testing and record keeping.

During the presentation by CIP, the possibility of requiring marking of firearms on import was discussed. One proposal would also have a firearm marked every time it was imported, the effect being there could be a series of markings on the firearm. It was asked if this was technically feasible. The view was expressed that industry input on this matter would be welcome. One participant observed that the important consideration was knowing where the relevant data, (such as who the importer was, etc.) is actually held under the particular national system. Another participant noted that marking showing the importer would aid law enforcement in quickly establishing the route taken by a firearm diverted or used by criminal elements.

### 3.2.3 Italian Presentations

Mr. Pierluigi Taviani, of the Italian Ministry of the Interior, gave a presentation on Italian firearms law. There are military firearms and civilian firearms or "*armi comuni*" in Italy. Included in the Italian marking system is a unique requirement that a "catalogue number," be applied to the firearms. These numbers are assigned to each model of a firearm during the licensing process.

The President of the Brescia Gunsmiths Consortium, Pierangelo Pedersoli (Italy), gave a presentation. He noted that under Italian law one cannot change the characteristics of a firearms once it has been registered in the catalog. Mr. Pedersoli observed that it cost between 40,000 to 60,000 Lira (\$25 to \$35 – US dollars) to meet the requirements of marking each firearm. He talked about the various methods of applying the marks: die stamping,<sup>8</sup> engraving,<sup>9</sup> roller die stamping,<sup>10</sup> matrix micro-dots<sup>11</sup> and laser.<sup>12</sup>

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<sup>7</sup> "Firearms safety" in this context means concern about whether or not the firearm itself will perform safely.

<sup>8</sup> See footnote 5.

<sup>9</sup> Engraving is a process where the symbols are made by removing the metal, using a engraving chisel or a rotary engraving tool.

### 3.2.4 The UN Firearms Protocol

Mr. James Hayes (Canada) gave a presentation on the subject of the UN Firearms Protocol. He described the current drafting process and provided a copy of the Protocol to participants. Mr. Hayes said that firearms marking was essential requirement for distinguishing illegal transactions and for tracing efforts by law enforcement. He also noted that economic costs must be considered.

### 3.2.5 Panel Discussion on Reason for Marking

A panel discussion, "What are the Basic Reasons for Marking Under Possible International Instruments" was held. Participants were Wally Nelson (United States), Chairman; Owen Greene (United Kingdom); and Joerg Koehler (Switzerland).

The views of the UN Group of Government Experts on Small Arms, and their recent report,<sup>13</sup> were discussed. Although marking was important to the Group, and will be one of the subjects of the 2001 conference, the Group seemed more concerned with large numbers of military arms, being produced without markings and transferred to regions of instability. The view seemed to be expressed that all firearms, including military firearms, should be marked at the time of manufacture. The Group also considered marking and record keeping an essential tool of crime control. There was discussion of the need to clearly define what is considered "adequate and reliable" marking. (It was observed that the Firearms Protocol may do this.) There were also questions regarding record keeping and minimum response time to law enforcement tracing requests. A comment was made that there needed to be some mechanism by which the international community could address such issues.

Concern was expressed about the cost of marking to the firearms industry in developing countries and the cost to governments of record keeping. There was a need to ensure that any international marking standards would be cost effective to assure the widest acceptance by countries with less sophisticated infrastructure or fewer resources.

The Panel discussion then moved to possible new marking innovations to avoid obliteration. Techniques being developed under the auspices of the government of Switzerland were presented.

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<sup>10</sup> A "roller die" is a metal wheel that has a series of raised metal symbols on it. The process is similar to die stamping only the roller die is literally rolled across the metal surface under high pressure to force the image into the surface of the firearm.

<sup>11</sup> In this method the symbol is applied by either a single or multiple pins which rapidly strike the metal surface, creating the image.

<sup>12</sup> In the laser method the metal is burned away to create the symbol.

<sup>13</sup> Ibid. "Report of the Group of Government Experts on Small Arms."

The discussion also covered the numbers of requests for tracing in certain jurisdictions. In that context, it was stated that marking was primarily a law enforcement tool.

Finally it was noted that while the Firearms Protocol may not cover state to state transfers of firearms, the 2001 conference would possibly address this subject.

### 3.2.6 Manufacturers' Presentations

Seven manufacturers from five different countries made presentations. Several of the manufacturers accompanied their presentations with exhibits of marked firearms, firearm parts and marking equipment. Companies and their representatives were:

<u>Company</u>	<u>Representative</u>
Beretta	Antonello Torcoli and Michele Micheletti
Glock	Robert Glock
Mossberg	Georgia Nichols
Para-Ordnance	Thanos Polyzos
Remington	Ken Green
Sturm-Ruger	Ted Rowe
Taurus	Jose Fauri

Each manufacturer addressed a number of issues.

**Method of marking** - These include engraving, die stamping, roller die stamping, matrix microdots, laser and inclusion of metal strips in polymer frames.<sup>14</sup> Roller stamping was common and it was pointed by some participants that it seemed to be more readily recoverable because of the metallurgical deformation caused during the process. Roller stamping cannot be used in all cases, however. There did not seem to be a great deal of variation between companies and all were aware of the various technologies. There were questions from participants as to recoverability of obliterated markings, carried out with methods other than roller stamping. No consensus was reached on the recoverability of these markings. It was pointed out that different material and the thickness of the material demands different types of marking techniques. The depth of the marking for effective recovery was also discussed as were possible problems of marking various materials, e.g., polymers aluminum and other alloys.

**Location of mark** - The actual location of the mark on the firearms varied from jurisdiction to jurisdiction. Some only placed the mark on the receiver (or frame); others placed it on the receiver, barrel and bolt. One view is that while barrels and bolts wear out, receivers do not; they are the most

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<sup>14</sup> The strip is inserted as the frame is made during a process called "injection molding."



fundamental part of the firearm. Others argued that the more parts that are marked, the higher the probability of tracing or identifying the firearm.

**When is the mark applied** - Again there was variation between national jurisdictions. In Italy the mark is applied as the barrel is joined with the frame. In other jurisdictions it is applied to the frame as it made into an actual part in the manufacturing process.

**Actual Content of the mark** - Most marks contained the manufacturer's or importer's name, address and unique serial number. This was considered the minimum requirement. Other information can also be supplied such as caliber of the firearm. Some serial numbers contained coded information (month/year of manufacturer, lot number, etc.). Companies also applied other marks such as inspector's proof marks, which can help in the tracing of firearms.

**Integrity of the mark** - All manufacturers had systems to avoid duplication of serial numbers and all companies maintain their records indefinitely.

**Response to law enforcement authority requests** – Response time to law enforcement requests varied, but most companies were able to reply within a 24-hour period.

The companies making presentations also noted that they all operated in a highly regulated environment.

#### 3.2.7 Sporting Arms and Ammunition Manufacturing Institute - SAAMI

After the manufacturers' presentations, there was a brief discussion of the Sporting Arms and Ammunition Manufacturing Institute (SAAMI), the American counterpart to CIP. The body was established in response to US government concern about the safety of firearms. American firearms are proofed by the manufacturers themselves.

#### 3.2.8 Possible Advanced Technology

There was a presentation by Mr. Robert Walsh (Canada), of Forensic Technology Inc., on the use of computers and advanced technology in firearms tracing.

### **4. Marking Demonstration**

On 1 October 1999, participants were taken to the Beretta factory at Gardone outside of Brescia. They were given demonstrations of how this particular manufacturer marks firearms.

## **5. Further Proceedings**

### **5.1 Panel Discussion on the Economics of Marking**

A further panel discussion entitled “The Economics of Marking” was presented. Panel members included James Chambers (United States), Chairman; Paul Dougherty (United States); and Ken Green (United States).

It was observed, by both panel members and participants, that established manufacturers (such as those that made presentations) had fairly effective systems of markings. There was concern expressed whether manufacturers in less regulated countries were meeting the same standards.

It was also noted that any significant change in current practices could have economic impact. Particular concern was expressed about the possibility of having to remark firearms every time they were exported or at time of importation. (This topic was considered above in the section on the CIP presentation.) A panel member asked a series of questions about remarking: who would do it, when would it be done, how would it be done, how would it affect product liability considerations vis-a-vis the firearm being altered by the remarking, and what would the administrative costs be? There was also concern about the available surface area on some small firearms and the types of marking that would useable on various types of material. There were also possible safety concerns.

One panel member stated that from the standpoint of a forensic investigator the more marks applied the better. He also said that from an investigative standpoint uniformity was also desirable.

Another panel member pointed out everything done in the manufacturing process has costs. He said that one major company he worked with was interested in changing to laser marking because it was more economical.

## **6. Comments – Significant Points**

At the conclusion of the Workshop a discussion was held to hear comments from the participants and to receive their reactions to a possible list of significant points gleaned from the earlier proceedings.

Comments included the following:

- Although there are accepted methods of marking, there should also be an awareness of possible new techniques.
  
- Cooperation is the key not only between governments but between government and industry.

- Participants found the meeting useful and wanted to continue the dialogue with future meetings.
- There was strong interest in industry assisting with the possible development of standards or model regulations for use with the Firearms Protocol. A written report would be useful.
- It was pointed out that there was no opposition to the imposition of a basic requirement that all firearms be marked at time of manufacture.
- Emphasis was placed on the important role played by firearms marking in tracing of weapons by law enforcement agencies.

It was also suggested that there should be several “policy points” on marking itself:

- Markings should be difficult to erase and easy to recover, if obliterated.
- Markings should be easily understood.
- Marking technology should be easily available and not too costly.

Five proposed significant points of the Workshop were discussed. The points were modified to reflect the earlier discussion and suggestions of the participants.

- Firearms marking is primarily a tool to be used in the tracking and tracing of firearms by law-enforcement agencies and enhances criminal investigations and prosecutions. As a minimum marking should contain a serial number, name of manufacturer, place of manufacture and if appropriate name of importer.
- Depending upon the legal requirements in the country, of each Workshop participant, relevant tracing information can be kept by manufacturers, proof-houses, commercial enterprises or national governments.
- Firearms manufacturers attending the Workshop have well developed systems of marking and record keeping and they are highly regulated. There was concern about producers located in less regulated environments.
- There was consensus that there should be a requirement that all firearms be marked at the time of manufacture.
- Further discussion among interested parties, including industry, regarding adequacy of marking, reliability of marking and effective response to tracing requests can be beneficial to crime control efforts.

It was agreed that the firearms industry would submit a comprehensive report on marking, especially the means of developing minimum international standards through cooperative efforts. This report will be available by the December Ad Hoc Committee meeting.

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