

A study on the dating of illegal firearms

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ABSTRACT

Although the dating of firearms is usually not included in the routine work of firearm identification, it is one of the essential skills for firearm examiners. Since the gun control policy has got stricter and stricter in the last few decades in Taiwan, it is hardly possible for any gun holders who acquired their firearm certificates long time ago to legally replace their old firearms with new ones. Consequently, some certificated owners transported their guns abroad in the name of repairing, and illegally replaced the old guns with non-certificated new ones with forged serial numbers. If the manufacturing date of suspected guns could be precisely determined, it may be helpful in the solution of this problem. Thus, this work was concentrated on the subject of the dating of firearms.

Firstly, relevant literatures and references were collected and carefully reviewed. Useful methods for the dating of firearms were extracted from these reference materials. The make, type, model, serial number, proof marks, and relevant specifications of each studied firearm were deliberately observed and analyzed; the results were then collectively employed to determine the manufacturing date. The information proved to be useful for the dating of firearms including (1) the model of firearm; (2) the characteristics of major components; (3) the unique commemorative marks; (4) the last possible manufacturing date or the cessation time of production; (5) serial numbers and ; (6) the date code implied in proof marks; (7) the "date clock" and (8) the obligated official marks.

The methods mentioned above have been successfully employed for dating a part of studied firearms that were either evidence submitted for examination or reference collection originated from confiscated weapons. This proved that the dating methods are practical to forensic examination of confiscated firearms. Hopefully, it will improve the performance of firearm examination, and be beneficial to criminal investigation, law enforcement, and justice.

Keywords: Forensic Sciences, Firearms Examination, Manufacturing Date, Serial Number, Proof Marks.

Introduction

Firearm identification is one of the essential skills for firearm examiners. It is hardly possible to obtain all necessary information of firearm exhibits without well-established examination procedures. The dating of firearms is usually not included in the routine work of firearm identification. However, in 2001, the FBI forensic laboratory in the USA conducted an examination to identify the authenticity of the famous Derringer which was used to murder the former US president Abraham Lincoln[1]. The case indicated that the importance of the dating of firearms should not be neglected. In 2002, some gun owners in Taiwan sent their certificated old firearms to the United States in the name of repairing, and exchanged the old guns with non-certificated brand new

ones stamped with forged serial numbers. All of these illegally altered guns were confiscated by local police department and sent to the author's laboratory for examination after being smuggled back to Taiwan. Since the gun control policy has got stricter and stricter in the last few decades in Taiwan, it is hardly possible for any authorized gun owners who acquired firearm permits long time ago to legitimately exchange their original old guns with new ones. Consequently, these gun owners illegally replaced their guns abroad under the cover of legitimate procedures.[2,3,4]Because the certificated firearms have only been roughly documented by the concerned authority, there are no individual characteristics except serial numbers recorded in the official file. Hence, the determination of manufacturing dates of confiscated

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firearms became the final approach to solve this problem. Thus, the purpose of this work is to formulate methods for the determination of firearm's manufacturing date.

According to the English Firearms Act 1968, certain types of firearms made before 1939 could be classified as antiques exempted from certificate control. The Firearms (Amendment) Act 1997 provides an exemption for ownership of certain classes of historic handguns. Handguns manufactured before 1 January 1919 are typical examples of historic handguns. [5] Besides, the American code also defines the gun made before 1898 as antique firearm. [6] Accordingly, the determination of manufacturing date is not only useful for forensic examination but also beneficial to firearms control.

Perhaps the better way to apprehend the age of a firearm is directly securing answer from customer service of manufacturers, nevertheless, most of the gun manufacturers are reluctant to provide necessary information relevant to firearms involved in criminal cases in Taiwan. Thus, it is advisable for local forensic scientists to develop practical methods for the dating of firearms.

Materials and Methods

A survey on the firearm dating methods

A number of books and journal papers concerning firearm examination [7,8], reference books of light weapons [9,10,11], products catalogues of firearm manufacturers [12,13], and firearm-related web sites [14,15] were carefully reviewed. Methods with the potential of age determination of firearms were kept for later use.

Determination of the age of confiscated firearms

1. Materials

- (1) Sixty one firearms submitted to the Central Police University for forensic examination.
- (2) One hundred and eighty one firearms from the reference collection of the Central Police University. The reference collection was collected from confiscated firearms after the criminals were convicted.

2. Methods

The make and model of each firearm was identified firstly. The serial number, proof marks, unusual components and decorations, and other special marks were carefully observed and photographically documented. Characteristics concerning the age of weapon were extracted and compared with known references for confirmation. For the firearms that the age-related features were discovered, their age or possible period of

manufacturing date was determined employing the methods described in Results and Discussion.

Results and Discussion

A survey on the firearm dating methods

There are eight practical firearms dating methods obtained after a survey of reference materials. Although these methods are not exhaustive, they were successfully applied to the dating of confiscated firearms. The results are described later in this work. Each method is briefly introduced as follows.

- A. According to the data from commercial catalogues and reference books, a period of possible manufacturing date can be estimated for weapons that manufacturers and models are known.
- B. Firearm manufacturers often introduce different materials, new component design, and novel techniques to their production but still use the same model name. The change of these characteristics can be employed for the estimation the possible period of manufacturing date.
- C. Commemorative productions of certain popular models are occasionally made by famous manufacturers. Unique commemorative marks, design, decorations, and serial numbers of these firearms can be used to determine the manufacturing date.
- D. For weapons no longer in production, the last possible manufacturing date can be specified basing on the date that the production ceased.
- E. Some gun distributors put a date code into the serial number or publish serialization/manufacturing date data in books; they are very useful for accurate determination of manufacturing date.
- F. Some proof houses stamp a date code as integral part of the proof marks to indicate the date of proof. The code can be deciphered to determine the year of make.
- G. The possible age of Sig Sauer made firearms can be estimated by the "date clock" on grip panels and/or bottom plate of the magazine.
- H. According to the German Weapons Act (Waffengesetz) and the German War Weapons Control Act (Gesetz er die Kontrolle von Kriegswaffen), all armament of the Federal Armed Forces should be unambiguously marked with the information of manufacturer, month and year of delivery, serial number, and proof firing stamp. These obligated

official marks are useful for the determination of the age.

Determination of the age of confiscated firearms

Although only a part of studied weapons were exactly dated, the possible age or period of manufacturing date could be obtained for most of the weapons. This would be considered helpful for crime investigation and prosecution. Results of age determination using different methods are described as followings.

1. Estimate the period of manufacturing date by weapon model

The sources of reference firearms collection are

confiscated weapons including Glock pistols that are most frequently used in crime in Taiwan. There are 63 Glocks in the collection with various calibers and models including Glock17, Glock17C, Glock18, Glock19, Glock26, Glock23, Glock27, and Glock21. The period of manufacturing date of each model of Glocks is shown in Table 1. The period of manufacturing date of some other types of studied firearms were also successfully determined, typical examples are Winchester Super X Model II shotguns were manufactured since 1999 till present, BSA Gold Star Magnum air rifles were manufactured since 1991 till present, and Beretta-8000 Cougar F pistols were manufactured since 1995 till present.

Table 1 The period of manufacturing date of various models of Glock pistols

Mode	Caliber	Year of make	Model	Caliber	Year of make
17	9mmX19	1985~present	23CC	.40S&W	2000~ present
17C	9mmX19	1999~ present	24	.40S&W	1994~ present
17L	9mmX19	1988~1999	24C	.40S&W	1999~ present
Desert Storm Glock	9mmX19	1991~1991	25	.380ACP	1999~ present
17CC	9mmX19	2000~ present	26	9mmX19	1995~ present
18	9mmX19	1987~ present	27	.40S&W	1995~ present
19	9mmX19	1988~ present	19C	9mmX19	1999~ present
20	10mm	1990~ present	28	.380ACP	1999~ present
20C	10mm	1999~ present	29	10mm	1997~ present
20CC	10mm	2000~ present	30	.45ACP	1997~ present
21	.45ACP	1991~ present	31	.357Sig	1998~ present
21C	.45ACP	1999~ present	31C	.357Sig	1999~ present
21CC	.45ACP	2000~ present	32	.357Sig	1998~ present
22	.40S&W	1990~ present	32C	.357Sig	1999~ present
22C	.40S&W	1999~ present	33	.357Sig	1998~ present
22CC	.40S&W	2000~ present	34	9mmX19	1998~ present
23	.40S&W	1990~ present	35	.40S&W	1998~ present
23C	.40S&W	1999~ present	36	.45ACP	1999~ present

2. Estimate the period of manufacturing date by component characteristics

- (1) Grip and frame type: Glock pistols manufactured in and after early 1999 were assembled with grips having finger grooves as well as frame having rails. Older pistols will have the original pebble finish grips without finger grooves.
- (2) Compensated barrel: A ported barrel with matching cuts in the slide was equipped to C models Glocks. Model 24C is an exception, which has 4 round holes in the barrel and a large oblong cut in the slide. All C models Glocks were assembled in or after 1999.
- (3) Shape of stock: The shape and checkering of rifle and shotgun stock might be changed with the year of make. For instances, Beretta A-303 shotguns have been made since 1983, whereas shotguns borne the same model name but different stock shape were introduced since 1989.
- (4) Choke type of shotguns : For examples, a number of models of Remington shotguns were assembled with Remington chokes, a kind of patented interchangeable chokes introduced in 1986, as standard equipment since 1987.

3. Determine the age of commemorative and specially produced firearms

The followings are examples of specially produced Glock pistols.

- (1) Glock started with serial number "AA000" for pistols produced. The serial numbers went up to "AA999" and then rolled over to "AB000", etc. Once they reached "ZZ999", it rolled over to "AAA000", and so on. Pistols exported to the US have a "US" on the end of the serial number on the frame. However, there are two 9mmX19 Glock pistols with unusual serial numbers discovered in the University's reference collection, the model and serial numbers are Glock 19/AAA0223 and Glock 26/AAB0359. During 1996, Glock made a special production run of matching sets for AcuSport Corp. [8] Each set consisted of a Glock 19 and 26 with serialization as follows: Glock 19 [serial range AAA0000~AAA0499]and Glock 26 [serial range AAB0000~AAB0499]. During 1996 there were another special production run of .40S&W caliber matching sets for AcuSport Corp, each set consisted of a Glock 23 and 27 with serialization as follows: Glock 23 [serial range AAC0000~AAC1499]and Glock 27 [serial range AAD0000~AAD1499].

- (2) The commemorative Glock 17 pistols for the Operation of Desert Storm in 1991 were serialized from UD000 to UD999. They were also engraved with special marks. A list of names of all the coalition countries was engraved down the top of the slide; "Operation Desert Storm/January 16-February 27, 1991" was engraved on the right side. On the left side was "New World Order/Commemorative".

4. The last possible year of make of production ceased models

The date of ceasing production of many models of guns could be readily specified, thus the final year of make could be determined with confidence. For examples, S&W ceased their production of many models of revolvers in definite years, such as Model 57 ceased in 1993, Model 60 .38SPL Chiefs Special ceased in 1996, Model 648 ceased in 1994, and Model 651 Kit Gun ceased in 1993.

5. Determine the date of make by serial numbers

The majority of firearm manufacturers applied serial numbers to their products for keeping records of their production, inventory purposes, bookkeeping, billing and repair records. The serial numbers are usually stamped on at least one location such as the frame, slide, cylinder, barrel, and grip. The number is likely to include letters and digits and provide information including type, model, and age of the weapon. The age of a gun could be determined using its serial number as described below.

- (1) Dating of firearms by the date code included in serial numbers

Since 1976 date codes have been introduced to the serial numbers of all firearms made, assembled, and distributed under the name of Browning Arms Company in the USA. The two-letter-code is usually put between model code and serial digits. The date code indicates the last two digits of the year and can be deciphered as : Z=1, Y=2, X=3, W=4, V=5, T=6, R=7, P=8, N=9, M=0. Results of the dating of Browning firearms basing on date code in serial numbers are shown in Table 2. The date codes of Browning pistol and shotgun are shown as Fig.s 1 and 2 , respectively. In addition to Browning, Remington and Harrington & Richardson have put date codes on their production as well. Since the first of January 1995, serial numbers of Spanish guns are composed of four parts of codes where the final part is the last two digits of the manufacturing year.

Table 2 Results of the dating of Browning firearms by serial numbers

Firearm type	Caliber	Serial number (SN)	Year of make
Semiautomatic pistol	9mmX19	845NW84247	1994
Semiautomatic pistol	9mmX19	245NW58379	1994
Semiautomatic pistol	9mmX19	945NV02033	1995
Semiautomatic pistol	9mmX19	245NW55004	1994
Semiautomatic pistol	9mmX19	245NX70852	1993
Semiautomatic pistol	9mmX19	245PP52822	1988
Semiautomatic pistol	9mmX19	245PT09265	1986
Semiautomatic pistol	9mmX19	245NX83996	1993
Semiautomatic pistol	9mmX19	T356990	1969*
Semiautomatic pistol	9mmX17	PZ034931	1981
Semiautomatic pistol	.25AUTO	260214	1962*
Shot gun	12GA	14225NY653	1992
Shot gun	12GA	F51NV24578	1995
Shot gun	12GA	8B3RN1061	1979
Shot gun	12GA	01359NM211	1990
Shot gun	12GA	17034NV211	1995
Shot gun	12GA	08617NV151	1995
Shot gun	12GA	8M 16203	1958*
Shot gun	12GA	F51NV21747	1995
Shot gun	12GA	01361NR211	1997

Note: Pistol with a SN larger than T258001 was made in 1969, pistol with a SN between 251000 and 278999 was made in 1962, shot gun with a SN preceded with 8M was made in 1958.



Fig. 1 The "NX" in serial number of Browning pistol indicates the year of 1993



Fig.2 The "RN" in serial number of Browning shot-gun indicates the year of 1979

(2) Dating of Browning firearms by published data

The age of weapons distributed by Browning Arms Company before 1976 can be determined according to data published in certain books (10,11). The results are shown in Table 2. The serialization/manufacturing date data are also available in published books for other makes of guns. The followings are not exhaustive list and only shown as examples. Such as: Colt M1911 .45ACP pistols made before 1977, Colt single-action handguns made before 1984, shotguns made by Holland & Holland before 1993, and guns made by High Standard before 1984. Appropriate reference books or web sites should be consulted for more information.

6. Determine the age by the date code included in proof marks

In a number of countries, proof testing of new firearms is compulsory to protect the public from the sale of unsafe firearms. Various parts of a gun were stamped with proof marks during and after manufacturing after test firing with an over-charge of propellant and missile. Proof marks are valuable aid to firearm examiners since they can give information concerning not only the origin of a firearm but also the age of it. A number

of works in determination of the age of firearms according to the date code included in proof marks are described in detail as followings.

(1) From 1982 to 1991 all Glock pistols were assembled and proofed in Austria. Later pistols sold in American market were assembled and test fired at Glock Inc. in Smyrna, GA, USA. Those pistols proofed in Austria are marked with proof marks of an eagle, "NPv", and a three-letter-code for the date it was proofed. The first letter is the month, the second letter is the decade and the third letter is the year. Month codes can be deciphered as E=January, L=February, N=March, B=April, S=May, Z=June, G=July, P=August, I=September, C=October, V=November, A=December. The meaning of year codes are: O= 0, W= 1, K= 2, R= 3, F= 4, M= 5, H= 6, Y= 7, T= 8, D= 9. Most of the Glocks confiscated in Taiwan were assembled in the USA, thus no date code were stamped. Sixty three Glocks were examined in this work where only fifteen of them were successfully dated according to their date codes, the results are shown in Table 3. Typical Glock date code is shown as Fig.3.

Table 3 Results of the dating of Glock pistols by date code in proof marks

Model	Caliber	Serial number	Date code	Date of proof	Place of date code
17	9mmX19	PA072	SDO	1990/May	Chamber block
17	9mmX19	EHY948	GOW	2001/July	Chamber block
17	9mmX19	DC336	ZTT	1988/June	Chamber block
17	9mmX19	BSX996	EDH	1996/Jan.	Chamber block
17C	9mmX19	CVW905	PDT	1998/August	Chamber block
18	9mmX19	AN478	LTT	1988/Feb.	Chamber block
19	9mmX19	AWU070	BDF	1994/April	Chamber block
19	9mmX19	FM236	ZTD	1989/June	Chamber block
19	9mmX19	BPA531	PDM	1995/August	Chamber block
19	9mmX19	1102055224	VDF	1994/Nov.	Chamber block
19	9mmX19	FU375	ZTD	1989/June	Chamber block
19	9mmX19	AZC553	GDF	1994/July	Chamber block
19	9mmX19	KP185	ATD	1989/Dec.	Chamber block
19	9mmX19	BCC842	VDF	1994/Nov	Chamber block
35	.40 S&W	DWP172	POO	2000/August	Chamber block



Fig.3 The "VDF" in proof marks of Glock pistol indicates November 1994

Table 4 Results of the dating of Sig Sauer pistols by date code in proof marks

Model	Caliber	Serial number	Date code	Year of proof	Place of date code
P220	.45 AUTO	G131465	JE	1984	Frame under muzzle
P220	.45 AUTO	G243065	KF	1995	Frame under muzzle
P225	9mmX19	M621541	KE	1994	Frame under muzzle
P226	9mmX19	U547603	KF	1995	Frame under muzzle
P226	9mmX19	88018	KB	1991	Frame under muzzle
P226	9mmX19	U165091	JH	1987	Frame under muzzle
P226	9mmX19	U529835	KF	1995	Frame under muzzle
P226	9mmX19	U155247	JH	1987	Frame under muzzle
P226	9mmX19	U134670	JG	1986	Frame under muzzle
P226	9mmX19	U185176	JJ	1988	Frame under muzzle
P228	9mmX19	87004	KE	1994	Frame under muzzle
P228	9mmX19	B191243	KD	1993	Frame under muzzle
P228	9mmX19	B213306	KE	1994	Frame under muzzle
P228	9mmX19	B195476	KD	1993	Frame under muzzle
P228	9mmX19	B241084	KF	1995	Frame under muzzle
P228	9mmX19	B254892	KG	1996	Frame under muzzle
P228	9mmX19	88007	KE	1994	Frame under muzzle
P228	9mmX19	B196922	KD	1993	Frame under muzzle
P228	9mmX19	B176205	KD	1993	Frame under muzzle
P230SL	9mmX17	S011961	JH	1987	Slide
P230SL	9mmX17	88006	KD	1993	Slide

(2) Most of the Sig Sauer pistols were assembled in Germany and proofed at Kiel Proof House. They were stamped with proof marks and date code of two letters either on the frame right beneath the muzzle or on the side of the slide. The code represents the last two digits of the year and can be deciphered as : A= 0 , B= 1 , C= 2 , D= 3 , E= 4 , F= 5 , G= 6 , H= 7 , J = 8 , K= 9 . Note that "I" is not used. The results of the dating of Sig Sauer pistols basing on date code in proof marks are summarized in Table 4. Typical proof marks with date code of Sig Sauer pistols are shown as Fig.s 4 and 5.



Fig.4 The "JE" proof marks on the frame of Sig Sauer pistol indicate the year of 1984



Fig.5 The "JH" proof marks on the slide of Sig Sauer pistol indicate the year of 1987

(3) Heckler & Koch pistols were usually made in Germany and proofed at Ulm Proof House. They were stamped with date code a little different from that of Sig Sauer pistols proofed at Kiel proof house. The date code are composed of two letters which can be deciphered as : A= 0 , B= 1 , C= 2 , D= 3 , E= 4 , F= 5 , G= 6 , H= 7 , I= 8 , K= 9 . Note that "I" instead of "J" is used to represent number 8. The results of the dating of HK pistols by date code in proof marks are summarized in Table 5. Typical proof marks with date code of HK pistol are shown as Fig. 6.

Table 5 Results of the dating of HK pistols by date code in proof marks

Model	Caliber	Serial number	Date code	Year of proof	Place of date code
USP	9mmX19	24-7050	KD	1993	Slide
USP	9mmX19	24-9864	KE	1994	Slide
USP	9mmX19	34-08496	KF	1995	Slide
USP	9mmX19	24-708	KD	1993	Slide
SP89	9mmX19	87014	KC	1992	Slide
P2000	9mmX19	116-000021	AA	2000	Slide
USP	.45 AUTO	25-033961	KH	1997	Slide
Mark 23	.45 AUTO	23-2183	KG	1996	Slide
Mark 23	.45 AUTO	23-3926	KH	1997	Slide
USP Tactical	.45 AUTO	25-053057	KK	1999	Slide
USP Expert	9mmX19	24-055480	KI	1998	Slide
P7	.22 LR	VM0037	IB	1981	Slide
P7 A13	9mmX19	27854	IB	1981	Slide
P7 K3	9mmX17	8711	IF	1985	Slide
USP	9mmX19	22-051	KD	1993	Slide
USP	.40 S&W	22-008	KC	1992	Slide
USP	.45 AUTO	25-000038	KF	1995	Slide
USP	9mmX19	24-050380	KH	1997	Slide



Fig. 6 The "KD" proof marks on the slide of HK pistol indicate the year of 1993

(4) Only a small part of Beretta pistols confiscated in Taiwan were made, assembled, and proofed in Italy. The rest of confiscated Beretta pistols were either made in Italy but assembled in other countries or made in the USA. Only those proofed in Italy possessed date code of Italian proof house. Ex-

amples of date codes used from 1975[AA]till 2000 [BN]were sequentially listed as followings : AA, AB, AC, AD, AE, AF, AH, AI, AL, AM, AN, AP, AS, AT, AU, AZ, BA, BB, BC, BD, BE, BF, BH, BI, BJ, and BK. Date code was stamped on the side of trigger guard accompany with other proof marks. Firearms made by other Italian manufacturers, such as Fratelli Tanfoglio, have the same date code on their proof marks. However, there is only a letter "P" stamped on the same place for the pistols proofed at the Beretta factory in the USA. The letter "P" indicates that the gun has been successfully proofed. In the reference collection of our university, only one fifth of the Beretta pistols contained date code. Seven Beretta pistols with successfully deciphered date code are shown in Table 6. Typical date code on Beretta pistol is shown as Fig. 7.

Table 6 Results of the dating of Beretta pistols by date code in proof marks

Model	Caliber	Serial number	Date code	Year of proof	Place of date code
M92FS	9mmX19	E40864Z	AZ	1990	Trigger guard
M92FS	9mmX19	E97240Z	BB	1992	Trigger guard
M92FS	9mmX19	L14036Z	BA	1991	Trigger guard
M92FS	9mmX19	E27278Z	AZ	1990	Trigger guard
8000cougar	9mmX19	034908MC	BH	1997	Trigger guard
M92F	9mmX19	D15097Z	AS	1987	Trigger guard
M92F	9mmX19	C90700Z	AP	1986	Trigger guard

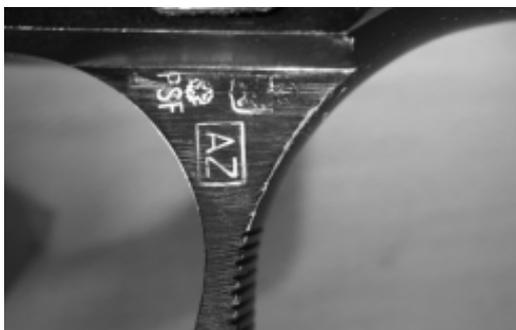


Fig. 7 The "AZ" proof marks on the trigger guard of Beretta pistol indicate the year of 1990

7. Estimate the possible date of make by "date clock"

For Sig Sauer pistols could not be dated using date code on proof marks, there is another way to estimate the approximate age by the "date clock" on the inside of grip panels and/or bottom plate of magazine. The clock

was molded into the plastic with a circular ring of numbers from one to twelve and an arrow in the center pointing to one of the numbers to indicate the month of make. On either sides of the arrow shaft are two numbers indicating the last two digits of the year of make. Both the year and month indicated refer to the manufacturing date of grip panels and/or the magazine rather than that of the pistol. There are a couple of disadvantages with using this method to estimate the age of pistols. One problem is that the grip panels or magazine bottom plate might be stored for quite a long time before being assembled into a whole gun; the other is that new replacement parts can be bought that could be newer than original ones. The date clock and date code on proof marks for the same pistols studied in this work are generally agreed to each other, a typical example is

the gun with serial number of B195476 described in Tables 4 and 7. The results of the dating of Sig Sauer

pistols basing on date clock are shown in Table 7. Pictures of date clock are shown as Figs 8 and 9.

Table 7 Results of the dating of Sig Sauer pistols by date clock

Model	Caliber	Serial number	Date code: Year/month	Place of date clock
P229	9mmX19	88005[9E?????]	94/4[1994/April]	Grip panels
P229	.40S&W	AE14405	95/1[1995/Jan.]	Grip panels & magazine
P228	9mmX19	B195476	93/8[1993/August]	Grip panels
P239	9mmX19	SA28288	95/10[1995/Octo.]	Grip panels
P239	9mmX19	SA20435	95/11[1995/Nov.]	Grip panels



Fig. 8 The date clock on grips panel of Sig Sauer pistol indicates October 1995

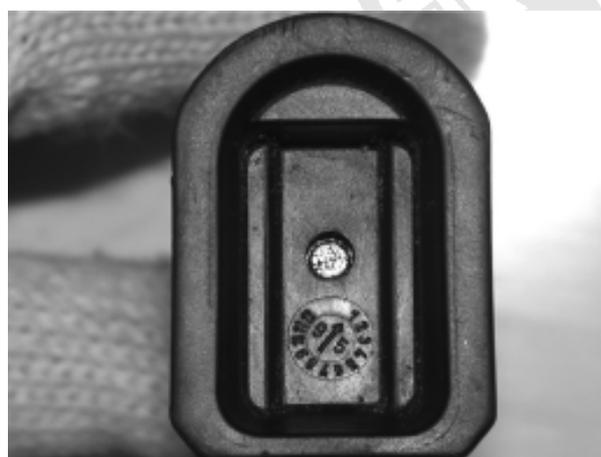


Fig. 9 The date clock on magazine bottom of Sig Sauer pistol indicates January 1995

Conclusions

A number of applicable methods for determining the age of firearms were described in this work. Several models of weapons most frequently used in crime in Taiwan could be successfully dated using these methods. Some

types of firearms could not be accurately dated because of the absence of date codes and published serialization/manufacturing date data, but the period of possible manufacturing date could still be postulated according to other date related characteristics.

Conclusively, the results of this work would be very helpful for the investigation, prosecution, and trial of criminal cases where the manufacturing date of confiscated firearm is the critical evidence. Hopefully, the number of firearms in the reference collection of the Central Police University will increase; more confiscated firearms will be available for further study. The author will continue the research in the dating of firearms to improve the described methods.

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References

1. Schehl SA and Rosati CJ, The Booth Deringer- Genuine artifact or replica?, *Forensic Sci. Communications*, 2001, 1, 3, Case report.
2. <http://tw.news.yahoo.com/2002/10/15/polity/twdaily/3590549.html>
3. <http://tw.news.yahoo.com/2002/10/16/polity/twdaily/3592576.html>
4. Old guns exchanged to new guns, *Chinese Times*, 13 September 2002, Wednesday.
5. Firearms Law- Guidance to the police, The stationary office, Home Office, London, UK, 2002, 34-43.
6. US Code Collection, Crimes & Procedures>Crimes>Firearms>Definitions, Legal Information Institute,

- USA, 2002.
7. Warlow TA, Firearms, the Law and Forensic Ballistics, Taylor & Francis Ltd., London, U. K., 1996.
 8. Heard BJ, Handbook of Firearms and Ballistics-Examining and Interpreting Forensic Evidence, John Wiley & Sons, UK, 1997.
 9. Gander TJ and Cutshaw C Q, Jane's Infantry Weapons, 27th edition, Jane's Information Group Ltd., UK, 2001-2002.
 10. Fjestad SP, Blue Book of Gun Values, 23rd Ed., Blue Book Publications, Inc., USA, 2002.
 11. Schwing N, Standard Catalog of Firearms, 13th Ed., Krause Publications, USA, 2002.
 12. Kersten M and Schmid W, Heckler & Koch-Die offizielle Geschichte der Oberndorfer Firma Heckler & Koch, Verlag Udo Weispfennig, Wuppertal, Germany, 1999.
 13. Weapons System- Military & Law Enforcement, Heckler & Koch, Germany, 2003.
 14. <http://www.glockfaq.com>.
 15. <http://www.gunproof.com>.



