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Modular Firearms - Old Technology - New Problems.

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Introduction

This paper discusses the problems faced by Australian law enforcement in identifying, recording and managing the legal movement of 'modular' style firearms that have multiple frames/receivers and barrels. Accessories (both cosmetic and practical) which can attach to modular firearms are not included in the discussion.

Modular firearm technology is not new. What is new is the need to account for this design of firearm when complying with recently implemented legislative processes and international agreements.

Recent reports¹ identify the accountability of military firearms that use different serialised² major components³ (major components). The swapping of major components between some military firearms creates logistical problems in tracking the movement of the firearm and identifying those persons responsible for its possession, destruction, use or misuse.

Australian law enforcement has ample evidence⁴ indicating that the problems associated with correct identification of many modular style non-military firearms (in those countries that require compulsory registration) does assist the diversion of licit firearms to the illicit market.

Old Technology becomes problematic

In 1853 the British Government established the *Royal Small Arms Commission* whose members in 1854 visited the United States of America (USA) to inspect armouries and production methods. This visit was instigated as a result of the USA capacity to manufacture large quantities of small-arms which had interchangeable parts and components, introduced as far back as 1812 by industry participants such as Eli Whitney. This 'American System' as it was called was practical, both economically and mechanically.⁵

The capacity to manufacture parts and components so they could be swapped between firearms was the foundation of what we now know as modular firearms. The firearm industry, predominantly at the behest of governments strove to further improve an army's capacity to maintain damaged small-arms in the field by cannibalising for parts severely damaged firearms.

Twentieth Century firearm design and manufacturing processes had developed to a level where not only small parts and components were interchangeable but also barrels, receivers, bolts and major components. This capacity progressed to where parts and major components interchanged between various models of firearms, even the same model manufactured by different producers.

¹ 'Behind the Curve - New Technologies, New Control Challenges' - Swiss Small Arms Survey - February 2015.

² The application of a factory generated unique serial number on an accountable component which is normally the frame or receiver.

³ Major components are defined as those serialized components such as the frame or receiver of the firearm or the barrel. The factory applied unique serial number isolates the identification of one same make and model firearm from another.

⁴ The Australian Crime Commission Firearm Trace Program commenced in 2004 and the resulting data has identified key methods of diversion of licit firearms to the illicit market.

⁵ 'Crimean Wars End Also Ended American Arms Firm' Marius B Peladeau - American Rifleman - January 1970

Australia definition of a firearm frame or receiver

Australian commenced registration of all firearms in 1996 with the introduction of the 1996 National Firearms Agreement (NFA) which mandated the compulsory registration of all firearms (including air rifles) including all standalone firearm frames and receivers. Whilst there are some minor differences between how each of the eight Australian state and territories define a firearm frame/receiver as, the following is a representative definition;

*'receiver' of a firearm means the body or frame of the firearm that is designed to hold the firing mechanism or the loading mechanism or both in place but does not include the stock or barrel of the firearm;*⁶

The term 'receiver' and 'frame' are each normally applied to a firearm of different types. Furthermore receivers can be identified as an 'upper' or 'lower' in those firearms which have split-receivers. (See Image 2)

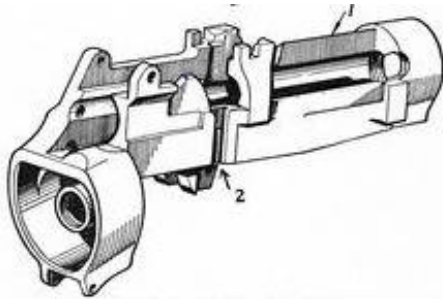


Figure 1: A one piece receiver of a SMLE No 4 rifle.

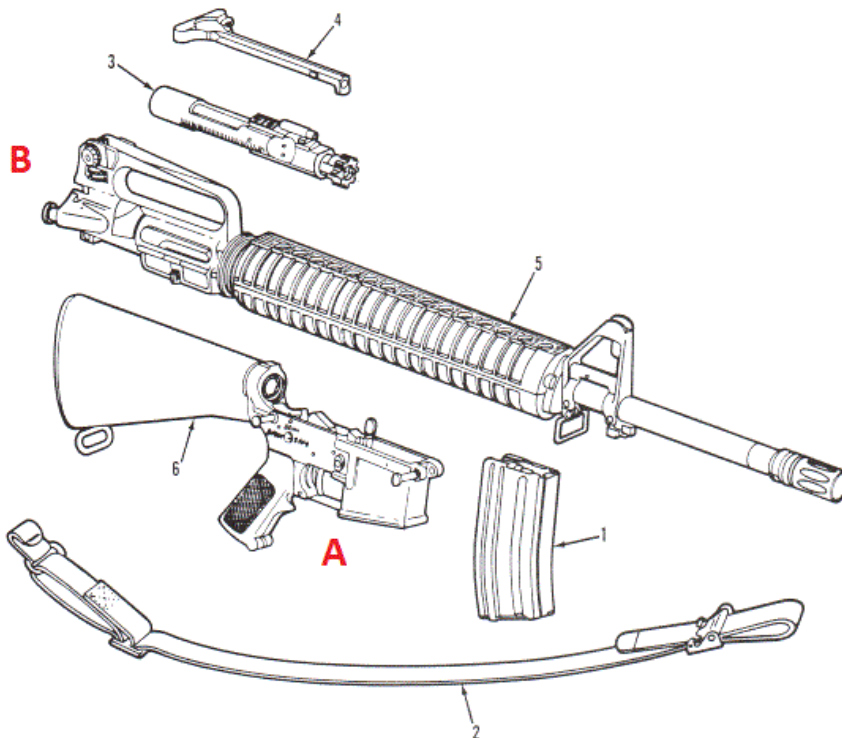


Figure 2: Lower (A) and Upper (B) split-receivers from a generic AR-15 style rifle.

⁶ Firearms Act 1977 - Section 5 Definitions - South Australia



Image 3: The AR-15 style of firearm is marked on the lower receiver with the factory serial number in accordance with USA federal legislation.

The terminology 'frame' is normally applied to a handgun (either semi-automatic or revolver) major component to which the trigger, cylinder, safety, magazine release (if applicable) and other components are attached. As with some rifles with split-receivers some handguns (predominantly the semi-automatic type) have upper receivers and lower frames. The split-receiver design of the Model P-08 pistol (See Image 4) facilitated stripping the handgun without tools for maintenance but has created problems associated with the accountability of the firearm.

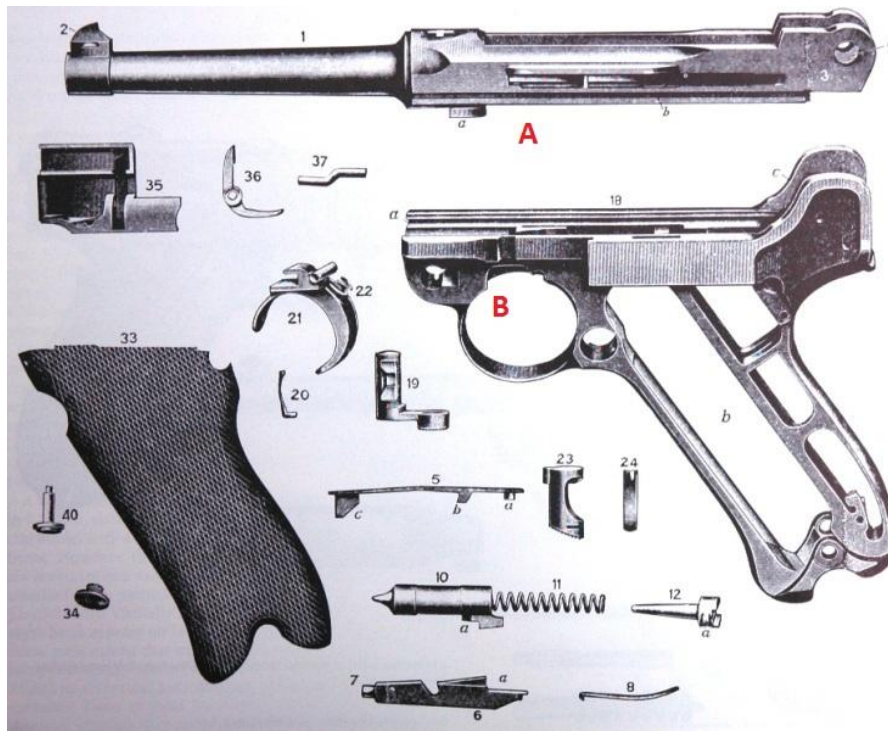


Figure 4: An upper receiver (A) and a lower frame (B) from a P-08 semi-automatic pistol.

A broader time-line of modular firearms

The production of modular style firearms was introduced much earlier time than what has been recently identified. Since the beginning of the 20th Century both military and non-military firearms have been designed with the capacity to swap major components as the benefits of specialised mass-production techniques evolved. Intertwined by the manufacturer in these new manufacturing techniques was the intentional capacity to disassemble some firearms into major sub components for the purpose of carriage and compactness⁷

The presence of the 'modular' firearm within the Australian community did not create management problems until the 1996 NFA when it became apparent that registration and management of firearms in line with uniform national legislation required accurate identification of the product. These identification problems and the swapping of major components by some owners have led to the eventual diversion of firearms (predominantly handguns) to the illicit market.

Case Study 1

Australian law enforcement identified the illicit production of a large number of illegal semi-automatic 22LR calibre handgun 'top-half' barrelled receivers which were fitted to the unregistered lower frame of a large number of factory manufactured handguns. The defendant⁸ in this matter legally purchased a large number of complete handguns, separated the factory serialised top receiver from the lower frame and surrendered these receivers to the jurisdictional police. Police adjusted the firearm register to acknowledge that the handgun had been surrendered and was no longer accountable by the dealer. Some time later the defendant illegally manufactured a large number of top un-numbered receivers and assembled a large number of illicit handguns.

This illegal act was facilitated by the following;

- The firearm was only serialised on the top receiver.
- Legislation did not require the two major components (frame and receiver) to be surrendered together to formalise the total surrender of the firearm.

Case Study 2

Australian law enforcement identified an attempt by the defendant to register eight unregistered Model P-08 handguns which he declared had been surrendered to him by persons unknown. A diligent firearm registry employee noted that several of the handguns fitted some descriptors of Model P-08 handguns previously surrendered to another jurisdiction during a buy-back program, albeit with only partial serial numbers. The defendant applied for registration of the handguns using the factory serial number without recording the suffix within the serial number. He also used a generic name (Luger) commonly used for this type of firearm instead of the specific name (DWM, Erfurt and Mauser) (See Image 4) which was marked on each of the firearms.

It appears that during a compulsory handgun buy-back the previous owner of these valuable firearms transferred the factory serial number of each of the complete

⁷ Introduced in 1914 the Belgium Fabrique Nationale (FN) designed '22 Automatic' was such a firearm.

⁸ The defendant was a firearm dealer within his community.

firearms to an unregistered handgun frame and then presented these secondary poor quality handgun frames representing they were the valuable firearms. With poor identification processes in place the replacement frames were accepted as the original handguns and ownership was removed against the owners name.

This illegal act was facilitated by the following;

- Access to previously unregistered handgun frames
- The firearm subject to diversion could be broken down into two major components, upper receiver and lower frame. Each had a factory serial number on it, albeit the upper receiver was factory marked without the suffix.
- The defendant thought he could rely upon using the generic name of 'Luger' instead of specific manufacturers name and partial serial numbers to accomplish the re-registration of the handguns. If not for the diligence of the registry employee this ploy would have succeeded. This diligence, sadly, is the exception rather than the rule.
- Legislation did not require the two major components (frame and receiver) to be surrendered together to formalise the total surrender of the firearm.



Image 5: The manufacturer's markings on the 'Luger' Model P-08 handgun. The word 'Luger' does not appear on the firearm.



Image 6: The complete (with suffix) serial number (6000g) appears only on the lower frame of the Model P-08 pistol. The top receiver carries the matching serial number sans suffix.

In response to this incident the ACC created a Model P-08 identification leaflet for use by partner Australia law enforcement agencies. (Attachment A)

Case Study 3

The Australian Crime Commission (ACC) has traced firearms since 2004 and in that time has identified many cases of where a firearm (predominantly a semi-automatic pistol) has been located. Records indicate however that the firearm has previously been recorded as destroyed by or surrendered to police. Subsequent enquiries with the investigating officer reveals that the serial number sent to the ACC for tracing came from the unaccountable slide assembly of the pistol, with the frame serial number being defaced.⁹

It is known that many semi-automatic handguns have been stripped for parts by dealers and the accountable frame of the handgun surrendered to police. That surrender of the frame removes the owner's requirement to account for the handgun. The other components (barrels and slides included) are then moved into the firearm industry for re-sale. Many of these slides and barrels have then been used to assemble complete illicit handguns (albeit with frame serial number removed) for sale within the illicit market.

This illegal act was facilitated by the following;

- The handgun could be easily stripped into major components.
- Major components can be easily swapped between individual handguns.

⁹ The correct identification of firearms by law enforcement officers is a dominant factor in undertaking successful tracing of a firearm in a timely manner.

- Only the firearm frame was accountable in the jurisdiction where the activity took place.

Firearms with multiple barrel assemblies

The manufacture of non-military firearms that have (modular) interchangeable barrels is a feature of the firearm industry for over 150 years. Australia has seen the importation of this type of firearm since the late 19th Century varying from very expensive side by side and over and under shotguns to centre-fire rifles.

Barrel assemblies are an important identification factor as they produce (with barrels that have rifling) unique markings on the cartridge projectile as it exits the barrel when the firearm is discharged. This unique identification has been well-known to forensic officers for decades, and its presence has been further enhanced by the introduction of the Integrated Ballistic Identification System (IBIS) a software program which automates the efficient matching of sample crime scene projectile and cartridge case markings.

From an Australia law enforcement perspective the use of IBIS is seen as a valuable tool which will expose investigators to more leads in the solving of a firearm related crime.

Case Study

The Finland manufactured Sako Model P04R Quad rifle is available in the Australian market. The firearm has a single receiver¹⁰ and comes with four separate barrels each in a different calibre¹¹ all sold together as a package. (See Image 8) Each of the four barrels has a factory unique serial number placed upon it. (See Image 9)



Image 7: The Sako Model P04R Quad receiver

¹⁰ The Sako Quad receiver is stamped with the factory serial number

¹¹ 22Long Rifle, 22 Magnum, 17 Mach II and 17 Hornady Magnum Rim-fire



Image 8: The Sako Model P04R Quad rifle is supplied with four different calibre barrels each with a unique serial number.



Image 9: The Sako Model P04R rifle barrel with serial number 004239.

The accountability of the receiver and four barrels can pose significant challenges for the firearm registries within Australia as some states require registration of the barrel and others don't. The barrel can be lawfully sold from one jurisdiction to another without any regulatory controls, other than the owner of a registered barrel advising the host registry of the disposal of the barrel interstate. Multi-barrel modular firearms where the spare barrel assemblies are required to be registered create the following concerns;

- an increase in data fields within registry databases to accurately record the identification of these items
- the on-going registry resources required to maintain linkages between owners and five (receiver and four barrels) regulated items.
- the increased bureaucratic systems to issue and acquit permits to acquire on these regulated items.
- the removal of the linkage between owner and a barrel when the barrel is sold to a jurisdiction which does not require registration of that item.

- the illicit stamping of false serial numbers on barrels that are presented as the original.

SUMMARY

Modular firearms are not unique to the military arena. They are not a new phenomenon and have existed in the 'civilian' firearm owning community for many decades.

More can be done to correctly identify those makes and models which allow diversion to the illicit market by way of poor regulation of major components.

To regulate firearm 'modules' however will come at a major burden on human resources and finances. Regulating the legitimate commercial trade of firearm parts will require immense support from Government.

Countries which have a robust system of compulsory firearm registration will still find it problematic to initiate the introduction of mandatory regulation (registration) of both minor and major firearm components.