



SOUTH AUSTRALIA POLICE
KEEPING SA SAFE

Your Ref:
Our Ref: 21/0036
Enquiries:
Telephone: 7322 3347
Facsimile: 7322 4180

[Redacted]
Email: [Redacted]

Dear [Redacted]

Re: Freedom of Information Act application

In reference to your application made pursuant to the Freedom of Information (FOI) Act 1991, access was sought to:

"The full ballistics examination report done on Gel Blasters referred by Hon Corey Wingard in a letter dated 11th of June reference number to email is 20POL0526"

It is determined to **release in full** ballistics examination report on the subject of 'Gel blaster firearms' dated 10 December 2019 and consisting of three (3) pages.

In accordance with the requirements of Premier and Cabinet Circular PC045, details of your FOI application, and the documents to which you are given access, will be published on the SAPOL website Disclosure Log. A copy of PC045 can be found at <http://dpc.sa.gov.au/what-we-do/services-for-government/premier-and-cabinet-circulars>. If you disagree with publication, please advise the undersigned in writing by **19 September 2020**

Yours sincerely,

Senior Sergeant First Class Tracy Gentgall
Officer in Charge
Freedom of Information Unit
(Accredited Freedom of Information Officer)

19 August 2020



**OFFICER IN CHARGE
FIREARMS BRANCH**

Via

**OFFICER IN CHARGE
FORENSIC RESPONSE SECTION**

SUBJECT: Gel blaster firearms.

REFERENCE:

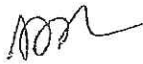
1. SAPOL Firearms Branch have obtained an example of a gel-blaster firearm and submitted this to Forensic Response Section for assessment against the Firearms Act 2015 and Firearms Regulations 2017. The purpose of this assessment is to determine if the article falls within the definition of a toy firearm.
2. The article is designed to simulate the size and appearance of an M4 / M16 - style automatic rifle. An initial assessment of this matter was described in an earlier report (dated 04/07/2019) wherein a preliminary opinion was provided that the item was a toy firearm (Regulation 5, Firearms Regulations, 2017). The firearm was then returned to Firearms Branch for display to other interested parties, and was returned to FRS for a more detailed assessment in November, 2019.
3. At the time of my initial report the firearm had not been dismantled to allow inspection of the internal mechanism. This has now occurred and my findings are as follows:
4. The firearm is a battery powered firearm designed to discharge 7mm gel pellets. These pellets start as small plastic beads which are expanded to 7mm diameter by absorption of water – the expanded gel pellets weigh approximately 191 mg (2.94 grains). Pellets are loaded into a detachable magazine and are fed into the firearm mechanism by a battery powered feeding motor.
5. The firearm is fitted with a three-position fire selector, having positions marked as "Safe" "Semi" and "Auto." This selector enabled the shooter to discharge pellets in either self-loading (i.e. semi-automatic) or continuously in automatic mode – the mechanism was found to be effective and functional when examined.
6. A steel piston body was fitted which contained a spring-loaded piston. The front of the piston body was fitted with a spur which would reciprocate to feed a pellet from the feeding mechanism into the chamber. This spur was itself fitted with a rubber ring which would seal against the rear of the chamber – when the piston was released it would compress a quantity of air and force this through the spur into the chamber of the barrel – this compressed air is the propulsive force used to discharge a gel pellet out of the barrel.
7. The internal mechanism was driven by an electric motor contained within the pistol grip. This activated a three-gear mechanism inside a plastic housing

contained in the lower receiver. Pulling the trigger would cause the gear mechanism to retract the piston against spring pressure, reciprocate the loading mechanism, and then release the piston to propel the loaded pellet.

8. The barrel of the firearm was made from a thin-walled metal tube (7.31 mm internal diameter). The firearm was substantially constructed from various plastic parts, except for assembly screws, springs, and the barrel.
9. No malfunction was identified when the firearm was discharged in either semi-automatic or automatic fire modes. The average velocity of a quantity of pellets discharged ($n=12$) from this firearm was found to be 131.5 ± 29.4 feet per second (40.0 ± 8.9 m/s) within a range of 108 to 160 fps (32.9 to 48.8 m/s). In 2019 a published medical report¹ detailed eye injuries sustained by people struck by gel-blaster firearms however this report did not detail the muzzle velocity of firearms used in those matters.
10. The spring powered piston communicating through a gas-sealed spur into the chamber is mechanistically very similar to other firearms commonly known as airsoft firearms. Such firearms have been examined by the undersigned and other examiners at FRS – while most of these are manually operated, electrically powered variants have also been examined (e.g. FR288708). It is unlikely that parts from different manufacturers are interchangeable between different makes of airsoft or gel-blaster firearms.
11. Whereas my preliminary findings were that this item should be regarded as a toy firearm (Regulation 5(1), Firearms Regulations 2017), this further examination has led me to form the opinion that the internal mechanism is substantially similar to that of an air-soft firearm, and that it should be therefore excluded from the definition of a toy firearm (see Reg 5(2)(b)).
12. On the basis that this firearm discharges a projectile (gel pellet) by means of compressed air it is a firearm as defined by the Firearms Act, 2015. The fact that it is an automatic firearm means that it is a Prescribed Firearm (Section 5(1)(f)(i), Firearms Act, 2015).
13. There is no industry or other standard definition of what constitutes an airsoft firearm known to me. As an airsoft firearm uses an internal piston to discharge a projectile by means of compressed air it meets the base definition of a firearm (airgun). Features which are common to airsoft firearms examined by me, which are not present on other airguns (e.g. air rifles commonly regulated as either Category A or H firearms) are:
 - a. The predominate use of plastic for functional components, including the receiver, piston, piston housing, gas seals and conduit channels.
 - b. The minimal use of metal components except for springs, assembly pins and screws.
 - c. Smooth bore barrels designed to discharge spherical non-metallic projectiles, but is not designed to discharge paintball or other marking projectiles.

¹ Hayes, R. and Dal, S., 2019, Occular injuries from gel blasters: not just a harmless toy, *BMJ Case Reports*, 2019, 12: e229629.

14. Irrespective of the appearance of the firearm, the operating mechanism of an airsoft firearm may be manual (the shooter pulls back on some feature to compress the internal spring piston, thereby cocking the firearm), or battery powered incorporating an electric motor and gearbox mechanism.
15. Whereas in the past gel blasters that have been examined at FRS may have been concluded to be toy firearms (i.e. by not being sufficiently similar to Airsoft firearms), this matter highlights that due to the variety of gel blaster technology on the market today each item needs to be considered on its own merits.



Andrew Plummer
B/Sgt 57037
Forensic Response Section
10 December, 2019