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Damage to WALTHER P99 cal. 9 mm pistol during shooting

Summary

The aim of this article is to warn against the possible injury hazard for the shooter, resulting from the wear of the components of weapon during dry firing. The analyzed case presents the damages to a gun caused by multiple dry firing, i.e. without a cartridge in the chamber. As a consequence of the shots, the breech face of the pistol was damaged. Therefore, it should be considered to categorically ban dry firing with WALTHER P99 pistol.

Keywords pistol, dry firing, damage to a gun

Walther P99 cal. 9 mm pistol was designed and manufactured by the German company WALTHER. Since 2001 this weapon has been the part of the equipment of Polish Police and since the same year WALTHER P99 cal. 9 mm pistols have been manufactured in "ŁUCZNIK" Metal Works (now the "ŁUCZNIK" Arms Factory in Radom). The WALTHER P99 pistol is a hammerless semi-automatic weapon, operating on the principle of short barrel recoil. The pistol has a striker status indicator and a loaded chamber indicator. The WALTHER P99 pistol has a multi-stage safety system: a striker block safety, a trigger safety, a safety against an accidental shot and a pin release switch. These safeties allow carrying the pistol with a cartridge loaded in the chamber. An additional safety of this handgun is an anti-stress trigger mechanism. In order to deactivate the anti-stress mode, the trigger must travel 9mm. Figure 1 presents side view of WALTHER P99 cal. 9 mm pistol, figure 2 presents partially disassembled WALTHER P99 cal. 9 mm pistol and figure 3 presents view of the bottom part of the breech in WALTHER P99 cal. 9mm pistol (see Polish version).

Recently in the Police Training Centre (CSP) in Legionowo an incident happened that cast the safety of using this weapon in a negative light. During the training of police officers in CSP in Legionowo, a damage to WALTHER P99 pistol took place. While firing the weapon, gunpowder gases escaped to the rear, causing damage to the plastic, slide end cap and ejection of the striker (firing pin mechanism) in the direction of the shooter. Figure 4 WALTHER P99 cal. 9 mm pistol breech with the disconnected firing pin

mechanism (striker), firing pin release lever and slide end cap (see Polish version).

The components of the pistol, ejected to the rear, causing the damage to the safety goggles worn by the shooting person. This incident created a possible health hazard to the shooter and resulted in a quick investigation. The Police considered that the accident was caused by the damage to the plastic, slide end cap. Although they were wrong, the replacement of slide end caps in other WALTER P99 pistols, which were part of the police equipment, was instructed. It was a hasty action because they did not wait for the analysis of the broken pistol and the opinion of forensic expert in the field of firearms and ballistics examination. Replacing the slide end caps in WALTER P99 pistols did not eliminate the possibility of recurrence of such an incident.

All components of the pistol collected and preserved on the scene of incident were passed on for the forensic examination. These were the broken pistol, striker (pin mechanism), firing pin release lever and two pieces of the rear plastic slide end cap. Figure 5 presents slide end cap damaged during the incident and an undamaged one (see Polish version) and figure 6 presents damaged striker collected on the scene of the incident and an undamaged one (see Polish version).

In the course of the examination of the faulty WALTHER P99 pistol, it was found that the gunpowder gases produced during the firing of cartridge loaded into pistol's chamber caused tearing of the part of breech face. The gunpowder gases blasted a part of the breech face with the diameter of approximately

5 mm, thickness of approximately 1.5 mm and firing pin hole of approximately 2 mm in the centre. An accurate examination of the pistol breech showed that the diameter of the blasted part of the breech face corresponded to the diameter of the hole in which the striker (pin mechanism) moves. The blasting of breech face occurred at the notch between the space where the firing pin moves and the outer surface of breech face. The pressure of the gunpowder gases pushed the cartridge primer to the rear through the hole which was created (with a diameter bigger than the diameter of the pistol cartridge primer). The gunpowder gases escaping to the rear together with the primer shifted the striker (pin mechanism) to the rear. The striker moving to the back damaged the plastic slide end cap. As a result of the shot, the pressure of the gunpowder gases threw the primer to the rear as well as the torn piece of the breech face in the shape of a disc, the striker (pin mechanism) and the parts of a damaged, plastic slide end cap. These elements led to an injury hazard to the shooter. The shooting police officer was not injured because he wore safety goggles. It should be emphasised, however, that the police officers on duty do not wear safety goggles and they could experience a similar situation while taking shots.

The analysis showed that every time when the chamber does not contain a cartridge (or shell casing), the released tip of firing pin hits the inner surface of the breech face. This results in mechanical stresses in the point where the firing pin chamber of the breech meets with the inner surface of the breech face. These stresses are caused by the formation of microcracks in the material of the breech face, which can result in damaging it. The WALTHER P99 construction does not allow for dry fires, e.g. without cartridge (shell casing)

in the chamber. It has turned out that the police officers often take shots without ammunition, for example during shooting trainings. When using WALTHER P99 pistol (especially in the police training centres such as the Police Training Centre in Legionowo), thousands of shots are fired with and without cartridges (shell casings) in the chamber. So that, it is possible that in the course of using this handgun, there could be more similar cases of WALTHER P99 pistol damages.

Taking into account the results of carried out examinations all Walther P99 pistols, which are in use, should be checked for possible damage to their breech faces.

The above presented case of weapon damage leads to the conclusion that the WALTHER P99 pistol users should be categorically banned from dry firing, when the chamber is empty. Dry firing with WALTHER P99 pistol is possible if there is a cartridge (shell casing) with an ignited primer placed in the chamber. In such a case, the firing pin stops at the moment of hitting the primer and there is no impact to the inner surface of the breech face. The above information should be included in the WALTHER P99 pistol manual.

In order to eliminate the described defect of WALTHER P99 pistol, the construction of this handgun should be redesigned as soon as possible to exclude the possibility of formation of the abovementioned damage to its breech face.

Source

Figures 1–6: author

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