

REPORT ON GUN TRIGGER LOCKS

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WARNING:

This report is intended for adults only. If you are a juvenile, you are not authorized to read it, or to view the video files, or to distribute its contents. The information contained in this report, if improperly used, could lead to injury or death. We believe that these gun trigger locks are dangerous and should not be sold or used to protect any weapon from unauthorized access.



This eleven year old was able to remove three popular gun locks from a rifle in a matter of seconds. He demonstrated the procedure in order to warn adults that they should not use these devices to protect any weapon. His message to any young person that should happen to read this report, even though they are not permitted to do so: **“Do not touch any gun, whether it has a gun lock or not. A gun is not a toy. Assume that the gun is loaded. Its use can hurt or kill you or others around you. You should immediately report to your parents or other adult the fact that the gun lock is not safe, and it should not be used.”**



INTRODUCTION

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This report details the design defect within many of the gun trigger locks that are being sold to the consumer by sporting goods stores, gun stores, hardware stores and other locations. These locks are designed to prevent access to the trigger on handguns, shotguns and rifles by forming a protective cover over the trigger housing, making it impossible to fire a weapon. All products that we examined had warnings regarding the use of the devices on a loaded weapon. Although we agree that such devices should never be used with a gun with ammunition, the design of these devices would not deter their use if ammunition was readily available.

The gun trigger locks that are the subject of this report are all quite similar in design, and in fact, many manufacturers appear to have copied a basic design requiring that a two-piece clam-shell type mechanism be employed to completely cover the area around the trigger. Wafer, pin tumbler or combination locks are employed to prevent the two components from being removed improperly. Unfortunately, as will be shown, the mechanical design of virtually all of these devices obviates the need for a key or combination to open the lock. This report relates to the physical bypass of the devices, not a compromise of the key or combination lock.

This report examines several different brands of gun trigger locks, including those produced by Master Lock, The Club (Winner International), Remington, GSM Products, Hoppe's, Franzen, and DAC. All gun locks that utilize a similar interlocking thread design are at risk from bypass through mechanical means that can be accomplished by a child. We demonstrate the bypass of these locks through three video segments:

CONSUMER PRODUCT SAFETY COMMISSION REPORT

The CPSC issued a report on gun trigger locks in 2000 that demonstrated the same findings as in this report. Incredibly, the manufacturers, with the exception of Master Lock, appear not to have modified their designs to prevent the mechanical bypass of these locks. The modification implemented by Master Lock, after a recall of 750,000 units, does not in our opinion, effectively solve the problem, nor render the product secure.

NEWS from CPSC

U.S. Consumer Product Safety Commission

Office of Information and Public Affairs

Washington, DC 20207

FOR IMMEDIATE
RELEASE

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2000
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Company Telephone Number: (800) 308-9242

CPSC Consumer Hotline: (800) 638-2772

CPSC Media Contact: Ken Giles, (301) 504-7052

Company Media Contact: Wendi Kopsick/Mark Semer,
(212) 521-4800

CPSC, Master Lock Co. Announce Recall to Replace Gun Locks

WASHINGTON, D.C. - In cooperation with the U.S. Consumer Product Safety Commission (CPSC), Master Lock Co., of Milwaukee, Wis., is voluntarily recalling about 752,000 gun locks and providing free replacements to consumers. Due to a manufacturing discrepancy, the two halves of some gun locks can be manually separated without a key, giving children and others unauthorized access to a firearm.

Master Lock reports it has not received any consumer reports of locks being disabled as a result of this discrepancy. This recall is being conducted by Master Lock to prevent the possibility of injury.

The locks being recalled are keyed, trigger gun locks sold separately or in combination with certain Smith & Wesson and Walther handguns. The recalled gun locks were available for sale after June 20, 1999, and are either black or blue metal. Each half of the lock surrounds the trigger with a 1-inch locking post connecting them. The words, "Master Lock Tough Under Fire" are imprinted on the lock's black rubber pad. Affixed to the lock is a yellow sticker which reads, "Warning! Do Not Use On A Loaded Gun!" Master Lock brand gun locks sold separately were packaged with a green and black cardboard display card and with instruction sheets inside the package. Smith & Wesson gun locks were sold under its own name, and were packaged with blue display cards and instruction sheets inside the package. Model numbers found on the instruction sheets or packaging are 90, 90DSPT, 90KADSPT, 90TSPT, 90DS&W, 90KADS&W or 90TS&W. The words, "Made to exclusive Master Lock specifications in China" are on the back of the packaging.

Stores, such as Walmart, Kmart, Gander Mountain and Sports Authority, sold the gun locks nationwide between June 1999 and July 2000 for between \$8 and \$12.

Consumers should stop using the recalled locks immediately and call Master Lock at (800) 308-9242 between 8 a.m. and 5 p.m. CT Monday through Friday to receive a free replacement lock. As always, consumers are reminded not to use gun locks on loaded guns. Until the replacement lock is received, consumers should not use the recalled gun locks. Master Lock urges consumers to comply with all state and local laws requiring the use of gun locking devices. For more information, visit the company's website at <http://www.masterlock.com/recall.html>.

No other Master Lock gun locks are being recalled. Specifically, Master Lock trigger gun locks which were sold before June 20, 1999, (features to look for include: locks which were not sold with a yellow warning sticker or which state either "Milwaukee, Wis. U.S.A." on the rubber pad or "Made in U.S.A." on the packaging or the instruction sheets) or which have a locking post which measures over 1 1/4 inches in length are not included in this recall. Similarly, Master Lock cable gun locks or gun locks which lock with a combination rather than a key are not subject to this recall.



GUN TRIGGER LOCK DESIGN

The devices that are of concern all utilize a two-piece construction that is intended to surround the trigger guard and prevent access to the trigger mechanism. All of the listed manufacturers have employed similar designs, with the exception of the GSM combination lock and the DAC screw lock. Essentially, they have all copied each other's defective design, which allows the locks to be removed in seconds from virtually any weapon to which they are attached.



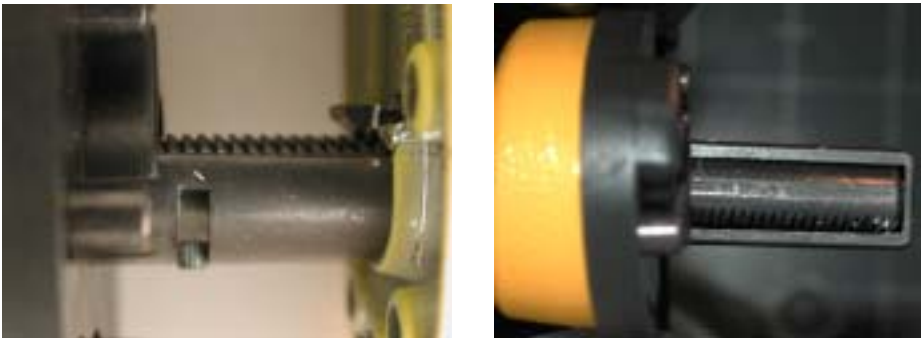


As can be seen, the lock is supposed to cover the trigger guard and prevent any movement of the trigger. When properly fastened, the locks should not move forward or backward, although they can often be rotated slightly.

The design of these trigger locks is quite simple. The two pieces are interlocked by the meshing of threads, as shown below. The lock portion on the mechanism, shown on the left, engages with mating threads on the right.



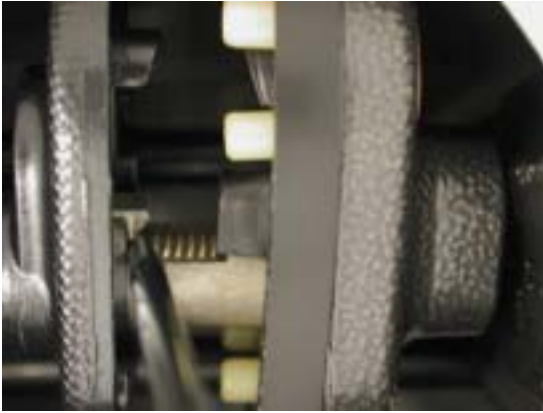
The male threaded portion is inserted through the trigger guard to engage the spring biased female mating portion. This design allows for the two halves to be squeezed together to create a tight fit around the weapon. To unlock with a key, the threaded portion is rotated ninety degrees until the threads no longer meet their counterpart on the other half. The two pieces can then be removed from the weapon.



These photographs show the mating portions from The Club, and the treaded half in an unlocked position.

MECHANICAL BYPASS OF THE MECHANISM

These mechanisms can be easily bypassed by lifting the spring biased locking tab so that it no longer interfaces its threads with those of the mating portion. Locking will only occur when the threads from the two halves fully mesh, regardless of the position of each half or how far they are engaged. An ice pick, thin knife, or similar sharp-pointed instrument will easily lift the locking tab, as shown in the photographs below. Simply insert the pointed object underneath the projecting piece and slightly lift. It can be accomplished quickly and easily, even by an eleven year old, as shown in the video.

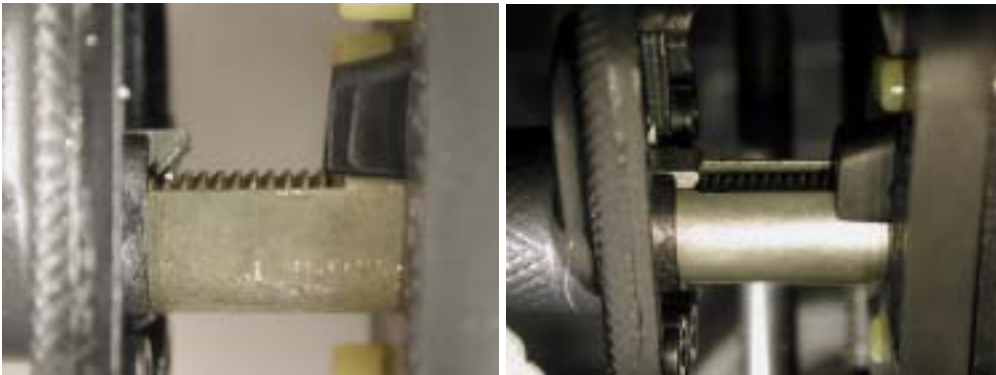


This photograph shows the insertion of the ice pick on a gun lock attached to a Glock automatic handgun. Just slightly lifting the locking tab will disengage the threads and allow the pieces to be separated.

Master Lock modified their design to make it slightly more difficult to bypass, but the basic problem persists. As shown in the photographs below, the manufacturer enhanced the sleeve so that it is more difficult to make contact with the locking tab. However, the newer design can still be bypassed, and in our view, should not be relied upon. The newer locks are blue-grey in color..



The modified design of the shroud surrounding the locking tab is shown on the right (top left photograph) and in the photograph (top right). Note that it would appear to be more difficult to access the tab with a sharp pointed object. A comparison of the two locking systems demonstrates the difference in design.



The mechanism utilized by most manufacturers is shown on the left. Note the exposure of the locking tab. The modified Master Lock design is shown on the right. The locking tab is still accessible, however. Unfortunately, although the newer Master locks have been modified, the author was able to purchase the older design at most locations.

DAC MTL 100 Trigger Lock

This design also relies upon the mating of two pieces around the trigger guard. A threaded screw is turned by a key in order to join the halves. As shown in the accompanying video, a drinking straw can be used to unscrew the components and remove them from the weapon.

BYPASS OF COMBINATION LOCKS

We looked at the Master Lock and GSM combination locks, as well as the Winchester gun case. Each of these could be easily decoded and opened, much in the same manner as the Targus computer cable locks and TSA-approved padlocks that were described in earlier security alerts. In each of these products, the locks could be opened by determining the combinations from the position of each of the gates associated with the thumb wheels.

Master Lock

The trigger lock produced by Master Lock requires the entry of a combination to be opened, and is extremely easy to decode. The correct number for each thumb wheel is associated with a gate,

as shown in the photograph below. The design of the inner wheel provides a flat spot at the correct number plus two digits. The photograph (right) shows one thumb wheel installed, and two open positions. In the first position (left) the inner wheel would be properly aligned, as indicated by a flat spot. In the middle thumb wheel position, the internal wheel is not properly aligned; it appears round.



The photographs below show the lock in the standard mode, which allows the thumb wheels to be turned to the correct combination.



The lock can be reprogrammed by first entering the correct combination, then sliding the side tab to "programming" mode. This allows the relationship between the thumb wheel and the internal wheel with the gate to be altered, so that it can be moved to a different position. This is accomplished by forcing the center spindle forward, so the protruding tabs that normally lock each internal wheel into position no longer perform that function. The photograph below shows the programming tab in the "program" position, which forces the spindle forward.



The photographs below show the proper insertion of a piece of plastic or paper to detect the flat spot on each internal wheel. The correlation between gate position and indicated number is the decoded number minus two digits. Thus, if the flat spot is detected, as shown at numbers 1-6-2, then the opening combination would be 9-4-0.



GSM Gun Trigger Lock

This distinctively red two-piece combination lock actually has a secure mechanism to engage the trigger guard. Unfortunately, the lock is extremely easy to decode by utilizing a thin piece of plastic or paper to detect the gate position for each wheel. The combination is programmable. When the programming tab is depressed, the inner and outer portions of the thumb wheel become disengaged, allowing their relationship to be altered with respect to the gate.



These photographs (above) show the lock in the normal (left) and programmed (right) position.



These photographs show the design of the individual gates. In the photo (above) the combination is 731. It can be seen that all three of the gates are aligned adjacent to the correct number. The photograph below shows the internal ring that contains the gate, and the external thumb wheel.



Proper placement of the plastic or paper probe is as shown for each thumb wheel. This will indicate the gate position as each wheel is turned. The actual combination is the same as the decoded gate position. In the photograph, 301 is decoded and would also open the lock.

Winchester Gun Case

The Winchester gun case uses a combination lock that can be easily decoded and opened with the same procedure as the Master Lock and GSM lock.



Each wheel is probed, as shown. The gate location directly correlates to the combination and are in the center row, just as the combination would normally be dialed.

CONCLUSIONS

In our opinion, the trigger locks that have been detailed in this report are not sufficient to protect any handgun from unauthorized access and are unsafe for use by the consumer. We believe that the manufacturers could have made them secure with slight modification. We recommend the use of cable locks to secure a weapon. If you are a vendor, this report should place you on notice of the potential harm that could result from the use of these products. If you are a consumer, we believe you should return your locks and demand a refund. The author may be contacted at mwtobias@security.org.