



WRK Recoil Kit User Guide

HK G3 / PTR 91



Revision 1.0

MILO Range Training Systems

Introduction

The purpose of the HK G3 recoil kit is to quickly convert a live rifle into an effective training weapon that is both realistic and safe. No live ammunition can be loaded into, or fired from, the weapon when the recoil kit is installed.

When the weapon is fired with the recoil kit installed, and an infrared (non-visible) laser is mounted to the front of the barrel is fired, the weapon can interact with a MILO Range simulator.

ALL FIREARMS SAFETY RULES AND GUIDELINES SHOULD BE FOLLOWED AT ALL TIMES!

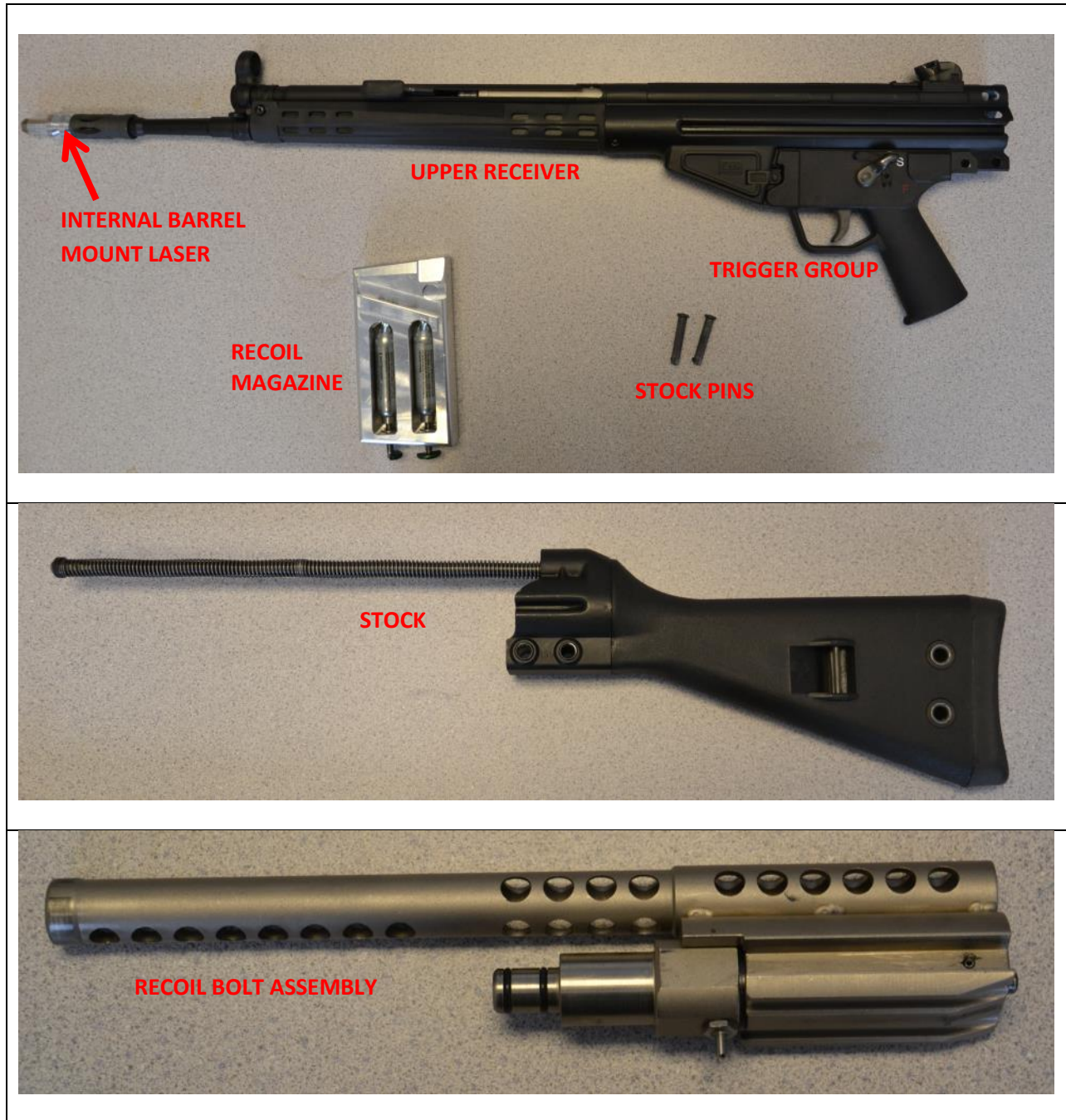


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Parts & Components of the Weapon & Kit

There are several parts of the original weapon needed, in addition to the recoil kit components, in order for proper operation.



The following original weapon components are used:

- Upper Receiver and Stock

The following original weapon components are NOT used:

- Bolt assembly
- Magazine

The following recoil kit components are provided as part of the recoil kit:

- Recoil Bolt Assembly:
 - Recoil Bolt: Takes the place of the weapons' original bolt.
- Recoil Magazine (2): Takes the place of the weapon's original magazine.
- Internal Barrel Mount w/ Laser: Mounts to the inside the barrel of the weapon and holds a #53 laser on axis with the weapon barrel.
- Spare Parts & Tools:
 - Magazine top port gasket (2)
 - Magazine piercing nozzle gasket
 - Recoil Actuator recoil pad
 - Wrench, Bolt Oil & Magazine Grease

Recoil Kit Installation

- 1) Remove the original magazine from the weapon and ensure that the weapon is clear and safe.
- 2) Be sure to charge the weapon, so that the trigger is armed before proceeding. Otherwise, reassembly later will be very difficult.
- 3) Remove the Stock from Upper Receiver by removing two pins at the bottom, front of the stock.

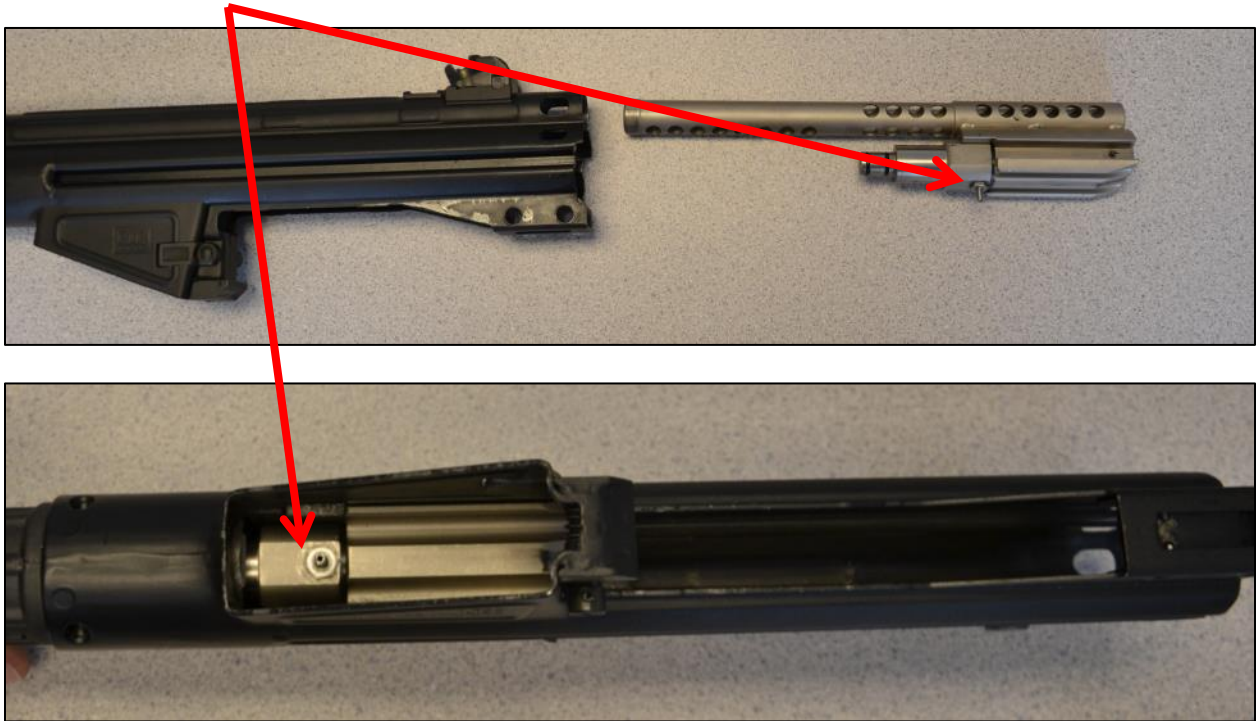


- 4) Pull the stock away from the upper receiver.
- 5) Swing the trigger group down and pull off of the upper receiver.
- 6) Use the weapon charging handle to push the weapon's bolt assembly out of the upper receiver.



NOTE: Before proceeding, ensure that the weapon is properly cleaned to avoid live ammunition residue and excess weapon oil from entering the recoil kit components and causing degraded performance.

- 7) Install the recoil bolt assembly to the upper receiver. Note the nozzle on the bolt assembly must be oriented down into the magazine well.



- 8) Reattach the trigger group to the upper receiver. NOTE: If you did not charge the weapon before separating the receivers in the first stapes, then you will not be able to insert the lower receiver. You will need to manually push the trigger hammer back. Remove the original weapon bolt assembly.
- 9) Connect the stock to the upper receiver. Note that the guide rod spring must align to the hole in the recoil bolt. Secure the receivers together with the two stock pins removed earlier.



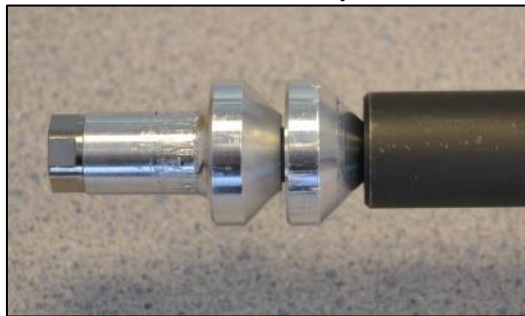
- 10) To install the CO2 cartridge to the magazine, place the smaller diameter portion of the cartridge into the magazine first and align it with the piercing nozzle at the top of the magazine. Then, firmly tighten the thumb screw at the bottom of the magazine to secure the CO2 cartridge in place and pierce it for use.



- 11) If charging of the slide is required for this weapon, do so. Test fire the recoil weapon.
- 12) Install the laser to the internal barrel mount then install the barrel mount to the weapon.

NOTE: Install the laser to the barrel mount BEFORE installing the barrel mount to the weapon!

Internal Barrel Mount w/ Recoil Laser



Insert into barrel, hold the mount base snug against the barrel and tighten the outer housing slightly beyond finger tight using supplied wrench.

Recoil Kit Removal

- 1) Take out the recoil magazine.
- 2) Charge the bolt/trigger and fire the weapon once to ensure the recoil bolt is not charged with CO2. Note that some recoil kits may require you to release the magazine and manually pull on the magazine to release it.
- 3) Remove the laser mount from the barrel.
- 4) Charge the bolt/trigger (so it is easier to reassemble the weapon later).
- 5) Remove the stock pins to separate the upper and lower receivers.
- 6) Use the charging handle to push the recoil bolt out of the upper receiver. If part of the bolt assembly remains in the magazine well, simply use a screwdriver to gently pry it out.

Laser Information

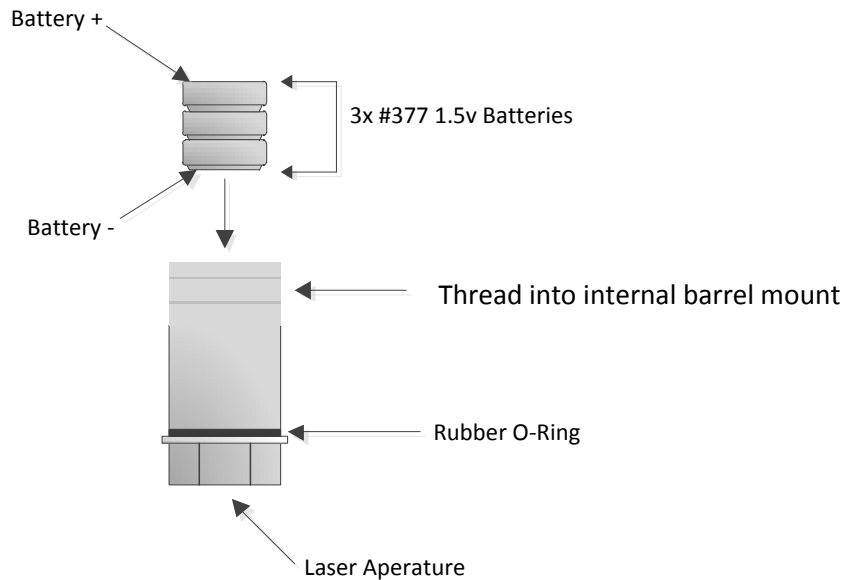
An infrared (IR) laser module is provided with each recoil kit. The IR laser emits a pulse of light each time the weapon is fired. The pulse is not visible to the human eye. The laser pulse is detected by the simulator and is used to indicate the shot location.

The HK G3 recoil kits use a #53 recoil laser installed in an internal barrel mount.



Laser Batteries

To power the laser, 3x #377 batteries are used. Batteries should last 100,000 shots, or about 6 months. The batteries should be installed with the negative (-) side facing into the laser, as shown below.



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INVISIBLE LASER RADIATION
AVOID DIRECT EYE EXPOSURE

Laser Installation & Removal

Battery Spring

For proper functioning, the laser requires that a battery spring be installed in the internal barrel mount. This spring completes the battery circuit, in order to energize the laser. Before installing a laser, and after removing a laser, check the internal barrel mount to ensure that the battery spring is present and positioned correctly. Typically this spring installed at the factory, but in some cases you may need to (re)install it. Note that the battery spring should be fully seated in a recessed area of the internal barrel mount and therefore should stay in place when the barrel is pointed at the ground. If not, press the spring into the recess using a flat tool such as a pen cap.



RECESS AREA



CORRECT



WRONG

Laser Installation

- 1) Verify that you have 3 batteries properly installed in the laser.
- 2) Verify the battery spring is in place in the internal barrel mount according to the pictures above.
- 3) Install the laser to the internal barrel mount **BEFORE** installing the mount to the weapon!
- 4) Hold the recoil weapon barrel pointing up with stock resting on the floor.
- 5) Insert mount into barrel, hold the mount base snug against the barrel and tighten the outer housing slightly beyond finger tight using supplied wrench.

Laser Removal

- 1) Remove the magazine from the recoil weapon and fire the weapon once to ensure the recoil barrel is not charged.
- 2) Hold the recoil weapon barrel pointing up with stock resting on the floor.
- 3) Remove the internal barrel mount using the supplied wrench.
- 4) Remove the laser from the barrel mount using the wrench turning in a counter-clockwise motion.
- 5) Ensure that the battery recoil spring did not come out of the mount. If it did, place it back in the recoil barrel and use a tool to press it firmly into position.

Maintenance

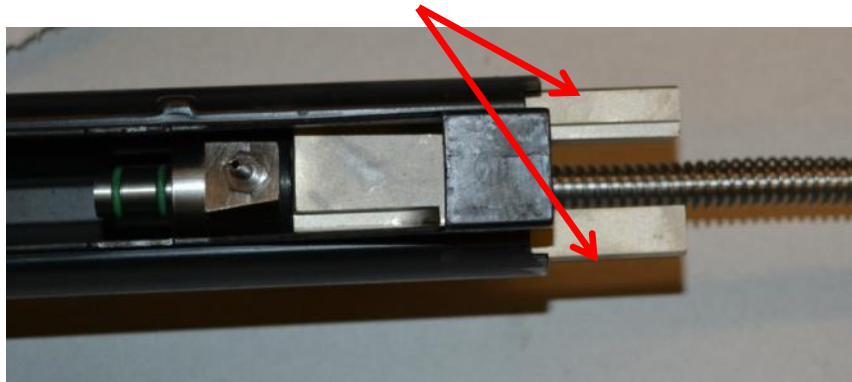
Every 500 shots, or as needed, you should perform the following maintenance on the recoil kit:

Lubrication of weapon

If your weapon normally requires lubrication, be sure to apply it.

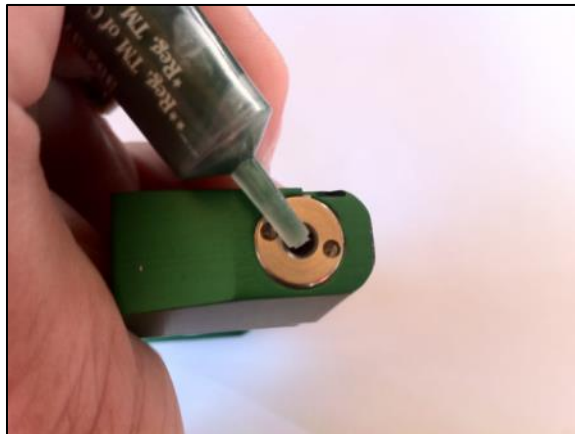
Lubrication of recoil barrel

Place a few drops of oil on the SIDES (not bottom) of the recoil bolt assembly.

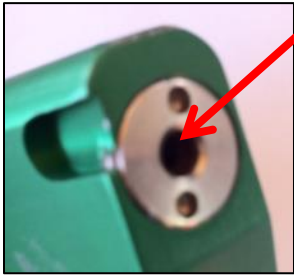


Lubrication of magazine port:

Place a small amount of grease in the top port of the magazine.



Troubleshooting



Air leak on top port of magazine when not in weapon

An air leak from the top port of a magazine that is not installed in a recoil weapon is an indication that the magazine itself has a loose coupler or a worn gasket. Tighten the coupler with the provided tool and if the leak persists, follow the repair guide for magazine gasket replacement. If the magazine continues to leak afterwards, contact Customer Service.



Air leak at top of CO2 cartridge in magazine when not in weapon

An air leak from the top of the CO2 cartridge is an indication that the gasket around the piercing nozzle of the magazine is worn or missing. Follow the repair guide for piercing nozzle gasket replacement. If the magazine continues to leak afterwards, contact Customer Service.

Weapon cycles multiple times from a single trigger pull

Depending upon the frequency of use of the weapon, the recoil pad on the recoil actuator can become worn, allowing the firing pin located in the recoil bolt to repeatedly actuate the recoil cycle of the kit. To resolve this, replace the recoil pad on the recoil actuator.



Repair Guide

Magazine CO2 Port Gasket

- 1) Remove any CO2 cartridge in the magazine.
- 2) Hold the magazine and remove the coupler from the top of the magazine using the provided tool.



- 3) Pull the black gasket out of the magazine and discard it. Do not lose the ball bearing.



- 4) Verify that the ball bearing is still in the magazine.



- 5) Place a new gasket into the magazine and secure it firmly in place using the provided gasket installation tool. Make sure that it is seated fully in the recessed area.

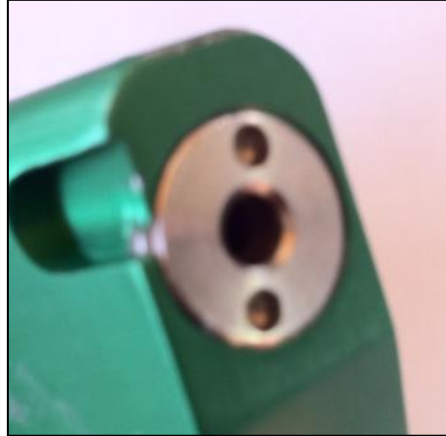
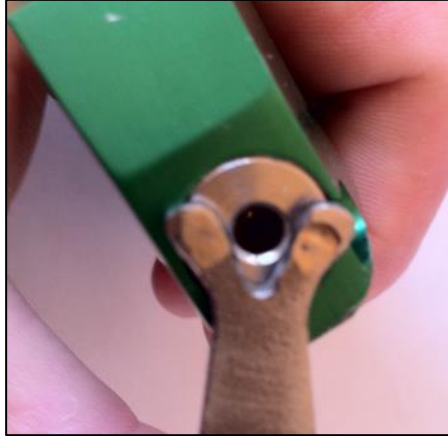


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- 6) Secure the coupler back onto the magazine.



- 7) Grease the opening at the top of the magazine.



Magazine Piercing Nozzle Gasket

- 1) Remove any CO2 cartridge in the magazine.
- 2) Hold the magazine upside down and pry out the piercing nozzle gasket.
- 3) Place a new gasket on the piercing nozzle and ensure that it is fully seated.

