



Recoil Kit User Guide

AR-15/M4/M16

Version 2



Revised 12/16/15

MILO Range Training Systems

Introduction

The purpose of the AR-15/M4/M16 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, an infrared (non-visible) laser installed with the in line barrel adapter is fired, allowing interaction with the MILO 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:

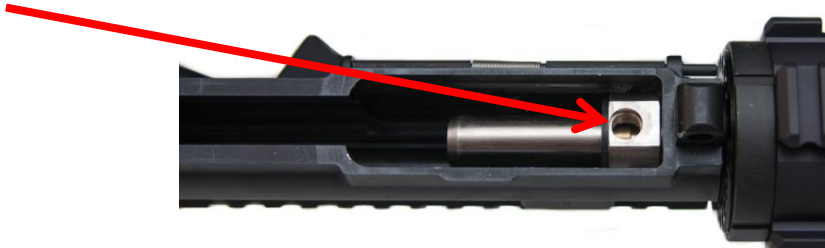
- Upper and Lower Receiver's (and all sub components)

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

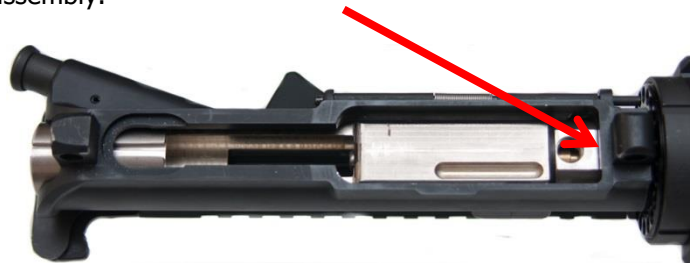
- Recoil Bolt Assembly: Takes the place of the weapon's original bolt assembly.
- Recoil Magazine (2): Takes the place of the weapon's original magazine.
- Bolt Connector: Connects CO2 from recoil magazine to recoil bolt assembly.
- In Line Adapter: Allows for the laser to be installed into the muzzle of the rifle.
- Laser: Installed into the in line adapter. Note the laser is infrared and is not normally visible. The laser is eye safe, but should never be pointed or fired at another person.
- Spare Parts & Tools:
 - Magazine top port gasket (2)
 - Magazine piercing nozzle gasket
 - Recoil Bolt Assembly Large replacement O-ring
 - Bolt Connector O-rings
 - Bolt Connector Installation Tool and Wrench
 - Bolt Oil & Magazine Grease

Recoil Kit Installation

- 1) Remove the original magazine from the weapon and ensure that then weapon is clear and safe.
- 2) Remove the lower receiver following the normal AR-15/M4/M16 rifle disassembly method.
- 3) Remove the original weapon bolt assembly from the upper receiver.
- 4) Install the recoil bolt assembly as shown in the picture below. Note that the small hole on the front end of the bolt assembly is oriented to face down toward the lower receiver. If this is the first time the kit is being assembled, place a small amount of the magazine grease along the outside of the recoil barrel assembly to aid in installation.



- 5) Ensure that the recoil bolt assembly is fully installed and fits flush against the forward end of the upper receiver assembly.



- 6) Install the bolt connector to the now installed recoil bolt assembly using the supplied installation tool and or wrench.



- 7) Install the lower receiver assembly to the upper receiver assembly. The recoil bolt assembly will be clearly visible through the shell extraction port.



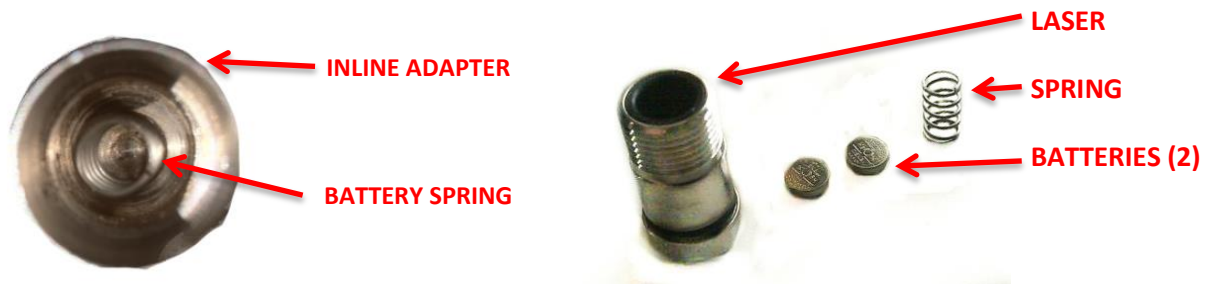
- 8) To install the in line barrel adapter you must slide it into the muzzle end of the rifle, compress the spring, and turn. This will cause the flanges to open and grab the inside of the barrel. Please note that this is a much softer metal that the barrel and no damage is being done to your rifling.



- 9) This image shows a properly installed in line adapter, again this is accomplished by compressing the spring and rotating the knurled portion of the adapter. Once the adapter is tight in the barrel, release the spring



- 10) Next install the laser and batteries, you must ensure that the battery spring is installed into the adapter first, next install two size 377 batteries into the laser, ensuring the positive side is facing out. Screw the laser into the adapter until the black O-ring is no longer visible.



PROPERLY INSTALLED LASER

- 11) 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.



Recoil Kit Removal

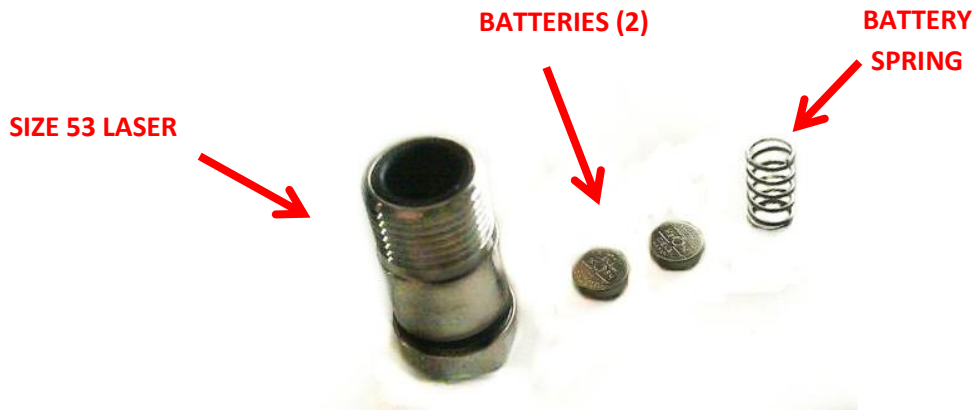
To remove the recoil kit, take out the magazine and fire the weapon once to ensure the recoil bolt is not charged. Note that some recoil kits may require you to release the magazine and manually pull on the magazine to release it.

- 1) Remove and separate the upper receiver from the lower receiver. Place the upper receiver upside down so that the recoil kit components are clearly visible.
- 2) Using the supplied recoil tool and or wrench gently unscrew the bolt connector plate from the recoil bolt assembly and remove.
- 3) Gently pull the recoil bolt assembly out and away from inside the upper receiver.
- 4) Remove the in line barrel adapter, compress the spring and rotate until loose. Pull gently and the adapter should slide out with no resistance.

Laser Information

An infrared (IR) laser insert 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 IES simulator and is used to indicate the shot location.

Recoil Rifles use standard SIZE 53 recoil lasers.



Laser Batteries

To power the laser, 2x #377 batteries are used. A set of batteries should last 3 weeks, depending on use. The batteries should be installed with the negative (-) side facing into the laser.



CLASS 3R LASER PRODUCT

INVISIBLE LASER RADIATION

AVOID DIRECT EYE EXPOSURE

Maintenance

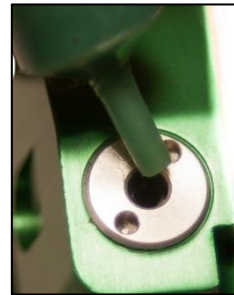
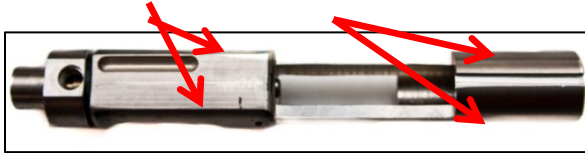
Every 5000 shots, or as needed, you should perform the following maintenance on the recoil kit:

Lubrication of weapon

If your weapon normally requires lubrication on slide rails or elsewhere, be sure to apply it.

Lubrication of recoil barrel and Magazine port

Place a few drops of oil or grease on the top of the recoil bolt assembly and also 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 worn gasket. Follow the repair guide for magazine gasket replacement. If the magazine continues to leak afterwards, contact IES 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 IES Customer Service.

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. Verify that the ball bearing is still in the magazine.



- 4) 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.



**NEW SEAL INSERTED
INTO THE SEAL
REPLACEMENT TOOL**



**INSERT SEAL REPLACEMENT
TOOL INTO THE TOP PORT
OF MAGAZINE**



**PRESS THE PLUNGER
INTO THE SEAL
REPLACEMENT TOOL,
UNTIL YOU FEEL THE
SEAL CLICK INTO PLACE**



**PROPERLY REPLACED TOP
SEAL**

- 5) Secure the coupler back onto the magazine.



- 6) 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.

