



IES WRK Recoil Kit User Guide

SIG 239



Revision 1.0

IES Interactive Training

Introduction

The purpose of the Sig 239 recoil kit is to quickly convert a live pistol 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 at the front of the barrel is fired, allowing interaction with the IES 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:

- Slide
- Receiver (and all sub components, except for locking insert)
- Guide Rod

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

- Recoil Barrel: Takes the place of the weapon's original barrel.
- Recoil Magazine (2): Takes the place of the weapon's original magazine.
- Recoil Tube: Connects CO2 from locking insert to barrel.
- Recoil Locking Insert: Connects CO2 from recoil magazine to recoil barrel.
- #53 Recoil Laser: Installed at the front of the recoil barrel to provide indication of shots fired on an IES simulator. 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
 - Laser installation wrench (1/2" or 13mm)
 - Barrel 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 slide from the receiver following the normal Sig Sauer handgun disassembly method.
- 3) Remove the original weapon barrel from the slide.

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.

- 4) Remove the takedown lever from the receiver and remove the original locking insert.



- 5) Place the original slide catch lever spring into the recoil locking insert.



- 6) Rotate the trigger pivot so that it is near horizontal (about parallel to the top of the frame). Note that the trigger pivot is notched to allow the recoil locking insert to seat fully. The notches in the trigger pivot need to be facing down, as shown below.



- 7) Verify that the slide catch lever is properly situated against the outside wall of the receiver, to allow the recoil locking insert to fit in the next steps.



- 8) Place the recoil locking insert (with slide catch lever spring) into the receiver. When properly installed it will sit more or less flush with the top of the receiver and will be aligned to the hole for the takedown lever.



Locking Insert Fully Seated
Correct Trigger Pivot Position
Takedown Lever Hole is Clear



Locking Insert Blocking Takedown Lever Hole
Remove Recoil Locking Insert &
Rotate Trigger Pivot 180 degrees

NOTE: In some cases, it is easier to place the recoil locking insert part way into the receiver and while pressing down on the locking insert, slowly rotate the trigger pivot back and forth.

- 9) Install the takedown lever. Note that you should initially install it with the arm of the lever pointing up, and rotate the takedown lever as you push into place. Once installed properly it should sit flush to the receiver frame on both sides.



10) Leave the takedown lever arm pointing down.



11) Install the white soft stem tube to the recoil barrel CO2 inlet. If equipped with metal tube, take care not to damage the mini O-rings. If this is the first time the kit is being assembled, place a small amount of the magazine grease on each of the O-rings on the tube, to help them insert with minimal abrasion.



12) Install the recoil barrel to the slide and secure it with the guide rod and spring.



13) Install the slide to the lower receiver. The slide frame section where the guide rod sits should be flush to the receiver frame as shown below. If this is not the case, the guide rod and spring are

likely not aligned and have not seated inside the recoil locking insert properly. In this case, take the slide off, adjust the guide rod and spring to the left or right and try again.



14) Pull the slide back and secure with slide catch lever.



15) Rotate the takedown lever into place then let the slide go forward.



16) To load CO2 into the magazine, place a 12gram CO2 cartridge into the base of the hand held magazine charger. Screw the base up and into the body of the magazine charger to break the seal of the cartridge and charge the unit. Now hold the recoil kit magazine up right while coming down over top of the magazine with the magazine charger and push both the charger nozzle and magazine together firmly for 5 seconds to to charge the magazine fully.



If a Magazine Refill Station was purchased, you must connect the CO2 tank (filled by customer) to the refill station by the supplied hose and pressure valve with nozzle. Once connected and the valve is pressurized, place the magazine into the refill station and push forward on the handle firmly for 5 seconds to charge the recoil magazine fully.



- 17) Insert the magazine into the receiver and ensure that it is seated firmly in place. Note that the magazine may protrude from the magazine well.



- 18) If charging of the slide is required for this weapon, do so.
- 19) Test fire the recoil weapon.

NOTE: If the laser was not in the recoil barrel during installation, you will need to follow the Laser installation instructions contained in this user guide.

Recoil Kit Removal

To remove the recoil kit, take out the magazine and fire the weapon once to ensure the recoil barrel 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) Hold the slide back (like step 13) and rotate the takedown lever to point downward.
- 2) Let the slide go forward and pull it off the receiver.
- 3) Remove the recoil barrel from the slide.
- 4) Rotate the take down lever while pulling it out of the receiver.
- 5) Remove the recoil locking insert from the receiver.

Recoil Laser Information

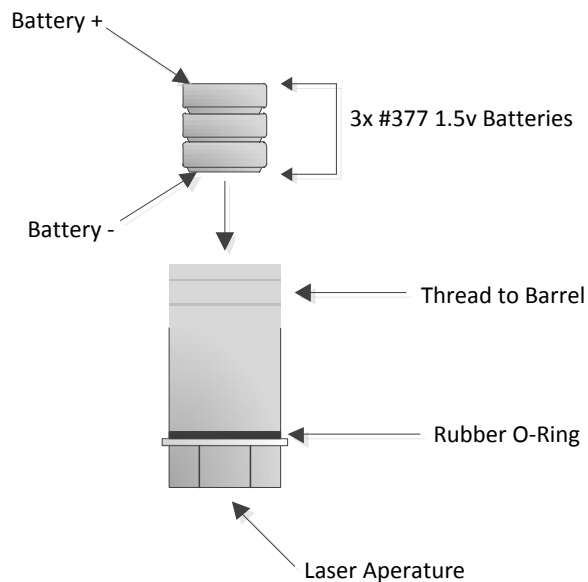
An infrared (IR) laser module is provided with each recoil kit. The IR laser emits a pulse of light each time the weapon is fired. The pulse is not visible to the human eye. The laser pulse is detected by the IES simulator and is used to indicate the shot location.

SIG 239 recoil kits use a #53 IES recoil laser



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.



CLASS 3R LASER PRODUCT
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 barrel. This spring completes the battery circuit, in order to energize the laser. Before installing a laser, and after removing a laser, check the recoil barrel to ensure that the battery spring is present and positioned correctly in the barrel. Typically this spring installed at the factory for you, but in some cases you may need to install it. Note that the battery spring should be fully seated in a recessed area of the barrel 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 the recoil kit is installed in the weapon.
- 2) Verify the battery spring is in place in the recoil barrel according to the pictures above.
- 3) Verify that you have 3 batteries properly installed in the laser.
- 4) Remove the magazine from the recoil weapon and fire the weapon once to ensure the recoil barrel is not charged.
- 5) Hold the recoil weapon pointing at the ground.
- 6) Insert the laser into the barrel, battery end first.
- 7) While continuing to hold the recoil weapon pointed at the ground, so that the batteries do not fall out of the laser, screw the laser into the barrel using clockwise motion.
- 8) Once the laser is tightened by hand, use the wrench (1/2" or 13mm) with light torque to tighten the laser until it is completely mated to the barrel. **DO NOT OVERTIGHTEN THE LASER!**

Laser Removal

- 1) Remove the magazine from the recoil weapon and fire the weapon once to ensure the recoil barrel is not charged.
- 2) Aim the recoil weapon at the ground to prevent batteries from falling out during removal.
- 3) Unscrew the laser from the barrel using the wrench (1/2" or 13mm) turning in a counter-clockwise motion.
- 4) Ensure that the battery recoil spring did not come out. If it did, place it back in the recoil barrel and use a screw driver or other tool to press it firmly into position.

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

Place a single drop of oil on the underside of the recoil barrel

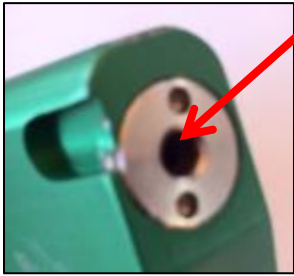


Lubrication of magazine port:

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 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.

Air leak in gun when magazine is installed in weapon

Depending upon the model of the weapon, there are several places that can leak due to worn O-rings or post-production tolerances being exceeded. In many cases, it is difficult to tell where the leak may be coming from, so the following list is provided in the order of most-likely. If you are unsure of where the leak is coming from, follow this list in order to resolve the leak.



Leak from barrel-to-locking insert tube (white plastic tube models):

The small white tube that passes CO2 from the tail piece to the barrel can wear over time and/or become damaged during installation/removal. When this occurs, the CO2 can escape through a tear or hole in the white tube. Simply replace this tube according to the repair guide.



Leak from barrel-to-locking insert tube (metal tube with O-rings):

The small metal tube that passes CO2 from the tail piece to the barrel has several small O-rings on it which can wear over time and/or become damaged during installation/removal. When this occurs, the CO2 can escape around the side of the tube. Simply replace this tube according to the repair guide.

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.



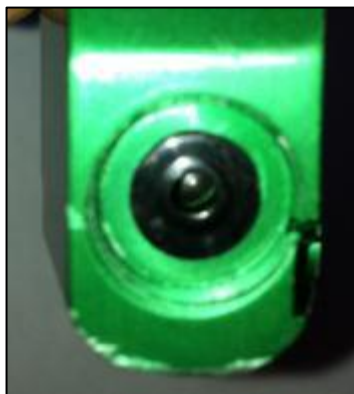
- 3) Pull the black gasket out of the magazine and discard it. Do not lose the ball bearing.



- 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.



CORRECT



WRONG

- 6) Secure the coupler back onto the magazine.

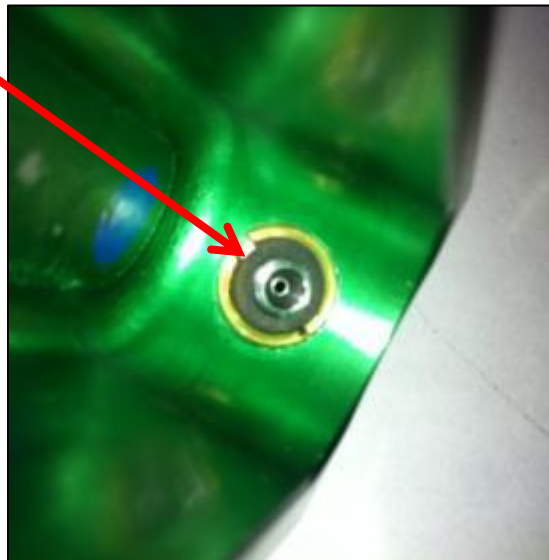


- 7) Grease the opening at the top of the magazine.



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.



Barrel to Locking Insert Tube / O-rings

White Plastic Tube Models: Simply replace this tube using one of the spare tubes provided with the recoil kit. Note that for installation, the tube should be placed in the barrel not in the locking insert.

Metal Tube w/ O-Ring Models: Simply replace the small O-rings on the metal tube using the spare O-rings provided with the recoil kit. Place a small amount of the magazine grease on each of the O-rings on the tube, to help them insert more smoothly. Note that for installation, the tube should be placed in the barrel not in the locking insert.