



**V-MP9|40**

**REPAIR/MAINTENANCE MANUAL**

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## CAUTIONS AND WARNINGS

Read, understand, and follow all warnings, training materials, and safety instructions for the Smith&Wesson M&P.

**CAUTION:** CLASS 3R LASER, PRODUCT, LASER RADIATION. DO NOT stare into beam or view directly with optical instruments.

**WARNING:** Smith&Wesson M&P recoil kits are for training purposes only.

The repair and maintenance procedures described below are to be performed by trained personnel. For installation procedures, please refer to V-MP9|40 Installation Manual. Any procedures not covered in either the installation or the repair/maintenance user manuals are considered Factory Maintenance & Repair and it is required that the item be sent to VirTra for repair.

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# I. COMPONENTS

## A. RECOIL KIT ASSEMBLY

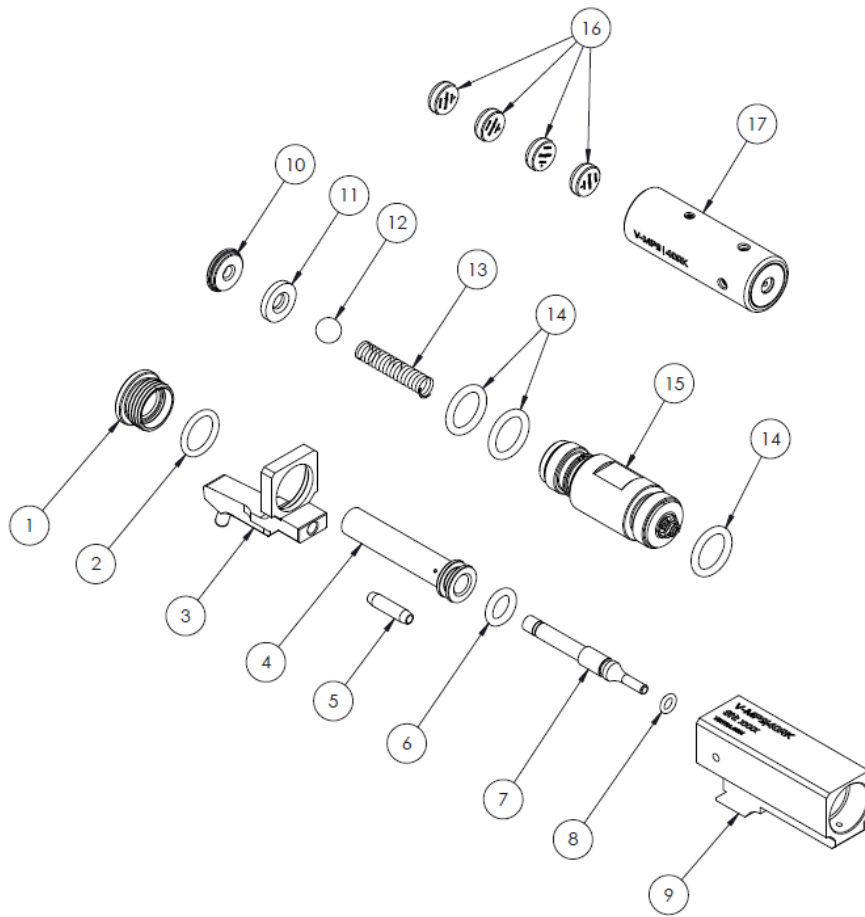


Figure 1: Recoil Kit Assembly

ITEM NO.	DESCRIPTION	ITEM NO.	DESCRIPTION
1	Tailpiece Fastener	10	Brass Washer
2	Tailpiece Fastener Seal	11	Charge Chamber Black Washer
3	Tailpiece	12	6mm Ball Bearing
4	Piston	13	Charge Chamber Spring
5	Air Tube	14	Charge Chamber O-Ring, -012
6	Piston O-Ring	15	Charge Chamber
7	Striker	16	Battery, Size 392 (LR41)
8	Striker O-Ring	17	Laser Housing Assembly
9	Barrel Block		

Table 1: Recoil Kit Components

## B. MAGAZINE ASSEMBLY

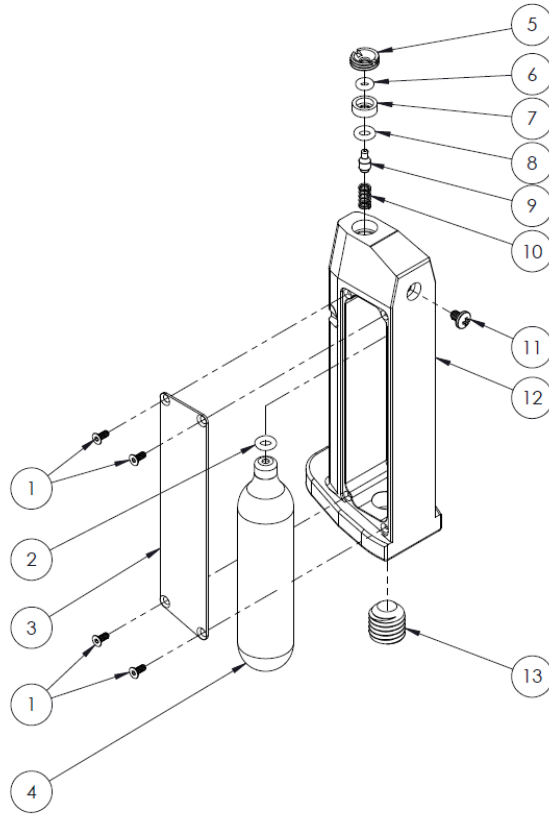


Figure 2: Double Seal Assembly

ITEM NO.	DESCRIPTION	ITEM NO.	DESCRIPTION
1	Mag Cover Screw	8	Bottom Seal
2	Canister Seal	9	Double Seal Valve
3	Mag Cover	10	Valve Spring
4	CO2 Canister	11	Seal Screw
5	Double Seal Cap	12	Mag Body Assembly
6	Top Seal	13	Canister Set Screw
7	Double Seal Spacer		

Table 2: Double Seal Components

## II. INSPECTION/MAINTENANCE GUIDELINES

### A. GENERAL CARE

It is recommended that specific (non-duty) firearms and/or firing pins be dedicated for use with the CO2 recoil kits.

All CO2 magazines should be depressurized at the end of the day to increase the lifespan of VirTra products. Long term pressure on seals causes them to get stuck or decay prematurely. To depressurize a VirTra magazine, first insert the depressurization tool until all CO2 has been expelled. Allow magazine to rest for at least 30 seconds, then insert the tool again to be sure all CO2 has been exhausted.

CO2 recoil kits are capable of expending at least 2 full magazines in less than 60 seconds. Doing so will reduce the temperature of the weapon and cause a reduction in number of shots. If this is experienced, wait a few minutes between magazines.

### B. LUBRICATION

The V-MP9|40 should be checked for lubrication daily. If none is observed, follow these steps to properly lubricate the V-MP9|40 Recoil Kit using **Slip 2000 or Lucas Oil**.

- Remove weapon slide and use a cotton swab or microfiber cloth to apply a thin layer of approved lubricant to the frame rails (Figure 3).



Figure 3: Lubrication of Frame Rails

- With Recoil Kit installed in weapon, use a cotton swab or microfiber cloth to apply a thin layer of approved lubricant to the portion of the recoil kit that is visible thru the ejection port (Figure 4).



Figure 4: Lubrication of Recoil Kit thru Ejection Port

- Lock the slide to the rear position. Apply a thin layer of approved lubricant to the portion of the recoil kit that protrudes thru the front of the slide (Figure 5).



Figure 5: Lubrication of Recoil Kit Barrel

- Internal components such as the piston, striker, and O-rings (Figure 1) should be lubricated with approved lubricants only.

### C. TAILPIECE

Before beginning training, always ensure the tailpiece fastener is secured tightly and the tailpiece is in place.

- Pull the slide towards the rear of the gun, exposing about an inch of the chamber. Insert the tailpiece wrench into the mating holes on the tailpiece fastener. Turn wrench in a clockwise direction until tailpiece fastener is completely snug and cannot turn anymore (Figure 6). Make sure the tailpiece and barrel block edges line up correctly. Misalignment can cause premature wear on the air tube and possible kit malfunction.



Figure 6: Tailpiece Tightening

- Once weekly, remove the Tailpiece Fastener and inspect the Tailpiece Fastener Seal (Figure 1, #2). Replace if damaged.



#### D. PISTON, STRIKER AND ASSOCIATED O-RINGS

Inspection of the striker and piston O-rings (Figure 1) should be done once weekly. These O-rings are essential to ensure consistent and high-quality recoil and should be cared for accordingly.

- Disassemble the firearm and remove the barrel assembly.
- Remove both the piston and striker (Figure 1, #4, #7) and wipe down with a non-linting rag or paper towel.
- Inspect both the piston and striker O-rings (Figure 1, #6, #8) and replace if any damage/wear is present.
- Inspect the striker pin for any unusual wear or damage. If any damage is noticed, it should be replaced. Examples of unusual wear include gouges, large dimples, and “mushrooming.”
- Use a non-linting cotton swab to clean the inside of the piston as well as inside of the barrel block, making sure to remove all buildup or debris.
- Apply a thin layer of approved lubricant to piston and striker O-rings.
- Replace freshly lubricated piston into the barrel block and move piston back and forth to distribute lubricant.
- Inspect the tailpiece and tailpiece fastener to ensure no large chips or breaks have occurred in any of the parts. If damage is noticed in either part, the kit should not be used.

#### E. AIR TUBE

Inspect the air tube (Figure 1, #5) once monthly. If any excessive wear or damage is noticed, it should be replaced. Refer to the picture below of a worn air transfer tube (Figure 7).



Figure 7: Damaged Air Tube

### III. TROUBLESHOOTING

#### A. MAGAZINE LEAKS

New magazines may leak at the double seal top cap the first few times they are filled up. If this should happen, insert the magazine into a Smith&Wesson M&P weapon that contains a VirTra recoil kit. Fire the weapon in a safe direction a few times and remove the magazine from the weapon. If this leak persists, repeating this process of test firing the weapon may help eliminate the leaking. This can be repeated 2 to 3 times.

If the magazine continues to leak, the seals may need to be lubricated using the following procedures.

- **Warning:** Fully depressurize the magazine before proceeding. Refer to 'General Care' for depressurization procedures.
- Remove the double seal cap (Figure 2, #5) using a thick blade screwdriver.
- Use a small pick or screwdriver to remove the 005 O-ring (Figure 2, #6) and double seal spacer (Figure 2, #7). Inspect the O-ring and replace if any damage/wear is present.
- Use a small pick or screwdriver to remove the 007 O-ring (Figure 2, #8). Inspect the O-ring and replace if any damage/wear is present.
- Invert the magazine over a work surface and allow the double seal valve (Figure 2, #9) and compression spring (Figure 2, #10) to drop free. Inspect the spring and replace if any damage/wear is present.
- Place compression spring onto the double seal valve and install in the cylinder.
- Apply a drop of approved lubricant to the 007 O-ring and place into the cylinder.
- Apply a drop of approved lubricant to the 005 O-ring, fit into the cup of the double seal spacer, then place into the magazine with O-ring facing up.
- Apply Loctite onto the double seal cap according to VirTra Loctite instructions and install using a thick blade screwdriver. Note: Do not overtighten. Allow Loctite to cure before use.

If the leak coming from the double seal of the magazine will not stop after going through the above procedures, or if the leak is coming from a different area such as the bottom of the magazine, fully depressurize the magazine and contact the VirTra Service Department for further assistance.

## B. WEAPON LEAKS

If a leak is experienced when the magazine is inserted into the weapon, and the leak is not coming from the magazine, or if it is determined that a leak is occurring within the recoil kit, follow the steps below.

First, refer back to the previous sections associated with the list below to check for possible causes of a leak. Be sure to check all O-rings for excessive wear and check tightness where applicable.

- Section II-C Tailpiece
- Section II-D Piston, Striker, and Associated O-Rings
- Section II-E Air Tube

Test the weapon. If the recoil kit is still leaking, use the following steps to disassemble and inspect the charge chamber:

- Remove the magazine.
- Disassemble the firearm and remove the barrel assembly.
- Unscrew the charge chamber (Figure 1, #15) from the barrel block (Figure 1, #9) using a ½ inch wrench on the charge chamber and an adjustable wrench on the barrel block.
- Remove the brass washer (Figure 1, #10), Charge Chamber Black Washer (Figure 1, #11), ball bearing (Figure 1, #12), and charge chamber spring (Figure 1, #13). NOTE: the charge chamber spring will be compressed and may eject the other components during disassembly. Take care not to lose any components.
- Inspect the Charge Chamber Black Washer (Figure 1, #11) and charge chamber O-rings (Figure 1, #14). Replace the seals if any damage/wear is present.
- Install parts in this order: charge chamber o-rings, charge chamber spring, ball bearing, Charge Chamber Black Washer, and brass washer. **Installation note:** Ensure the orientation of the charge chamber seal matches its inner chamfered side to the ball bearing and the brass washer inner chamfered side matches the insertion of the striker pin.
- Screw the charge chamber onto the barrel block. Note: Do not overtighten.

If leaks continue after test firing, contact the VirTra Service Department for further assistance.

### C. SHOT REGISTRATION

Problems with shot registration can be resolved by the following:

- Ensure that all of the lights are off in the training room while using the simulator. Also ensure that no light from any other source shines on the screens.
- Replace the batteries in the barrel assembly.  
Use a ½ inch wrench to hold the charge chamber (Figure 1, #15) and use your hand to unscrew the Laser Housing (Figure 1, #17). Replace the batteries (Figure 1, #16) and reassemble.  
**Installation Note:** When placing the batteries in the housing, make sure the polarity is correct by placing the flat part of each battery into the housing first (Figure 8).



Figure 8: Battery Installation

- For FREE FIRE diagnostic instructions refer to the VOS manual. It can be found in the VirTra User Manuals folder on the Instructor Station.
- Ensure that your tracking camera calibration is accurate. Another cause of failed shot registration on the system is a poor calibration or change in lighting that requires a calibration of the system. Refer to the V-Tracking™ Calibration Section of the VOS Manual. It can be found in the VirTra User Manuals folder on the Instructor Station or on the V-RC Portal.

### D. APPROVED LUBRICANTS

Lubricate the weapon following normal manufacturer instructions using approved lubricants.

Approved Lubricant: **Slip 2000** and **Lucas Oil**

See repair/maintenance manual for more specific instructions.

#### IV. CONTACT VIRTRA

For any questions or additional help with any part of this manual, please contact VirTra via the information below.

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