



# V-AK47-RK REPAIR/MAINTENANCE MANUAL

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## CAUTIONS AND WARNINGS

Read, understand and follow all warnings, training materials, and safety instructions for the V-AK47-RK.

CAUTION: CLASS 1M LASER, PRODUCT, LASER RADIATION. **DO NOT** stare into beam or view directly with optical instruments.

WARNING: V-AK47-RK kits are for training purposes only.

The repair/maintenance procedures described below are to be performed by trained personnel. For installation procedures, please refer to the V-AK47-RK 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 is sent to VirTra for repair.

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# I. RECOIL KIT COMPONENTS

## A. RECOIL KIT ASSEMBLY

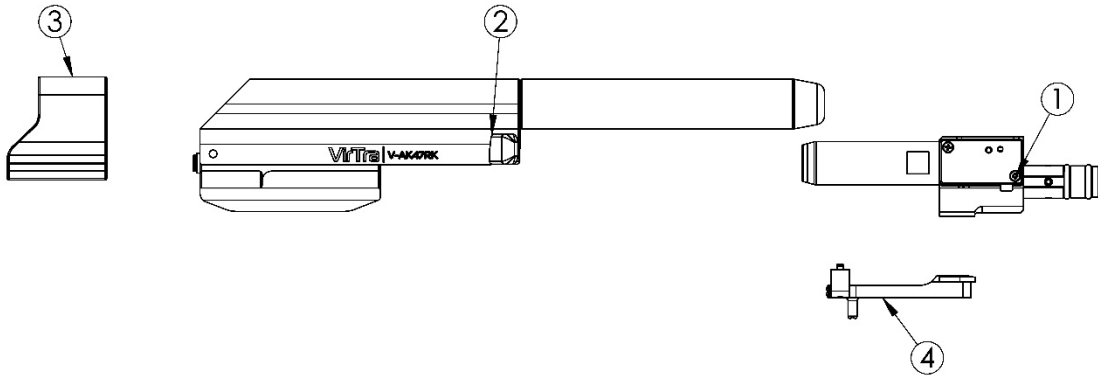
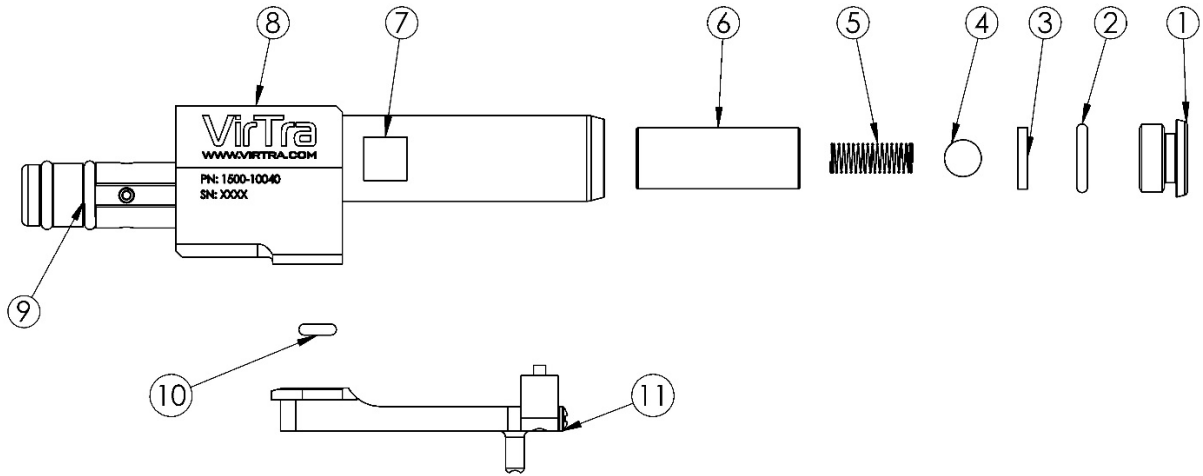


Figure 1: Recoil Kit Assembly

| ITEM NO | DESCRIPTION    |
|---------|----------------|
| 1       | Charge Chamber |
| 2       | Bolt Carrier   |
| 3       | Recoil Buffer  |
| 4       | Tail Piece     |

Table 1: Recoil Kit Components

## B. CHARGE CHAMBER ASSEMBLY



**Figure 2:** Charge Chamber Assembly

| ITEM NO | DESCRIPTION                       |
|---------|-----------------------------------|
| 1       | Charge Chamber Cap                |
| 2       | O-Ring, 011                       |
| 3       | Charge Chamber Seal               |
| 4       | 6mm Ball Bearing                  |
| 5       | Compression Spring                |
| 6       | Brass Insert                      |
| 7       | Charge Chamber Cylinder           |
| 8       | Charge Chamber Base               |
| 9       | Laser Housing Assembly            |
| 10      | Polyether Urethane 90 Duro O-Ring |
| 11      | Tail Piece Assembly               |

**Table 2:** Charge Chamber Components

C. MAGAZINE ASSEMBLY

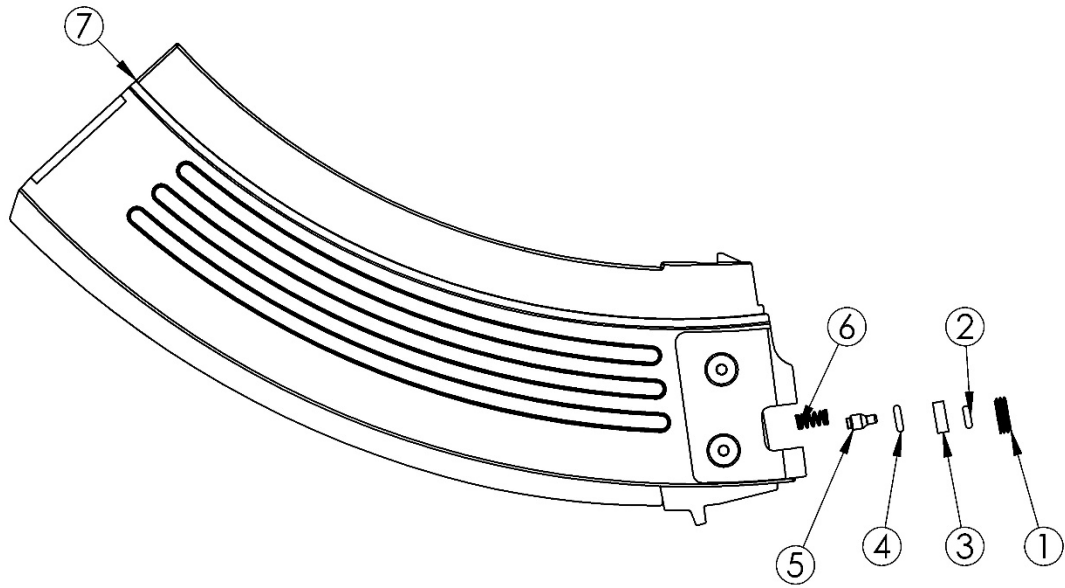


Figure 3: Double Seal Assembly

| ITEM NO. | DESCRIPTION        |
|----------|--------------------|
| 1        | Double Seal Cap    |
| 2        | Top O-Ring, 005    |
| 3        | Double Seal Spacer |
| 4        | Bottom O-ring, 007 |
| 5        | Double Seal Valve  |
| 6        | Compression Spring |
| 7        | Magazine Body      |

Table 3: Double Seal Components

## II. INSPECTION/MAINTENANCE GUIDELINES

### A. GENERAL CARE

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

All CO2 magazines should be depressurized at the end of the day to increase the lifespan of VirTra products. 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 two full magazines in less than 60 seconds. Doing so will reduce the temperature of the weapon and cause a reduction in the number of shots. If this happens, wait a few minutes between magazines.

### B. LUBRICATION

Refer to the manufacturer's manual for the firearm component lubrication guidelines.

Using the approved lubricants (Slip 2000 or Lucas Oil), apply approximately half a drop of lubrication to the bolt carrier and charge chamber cylinder of the V-AK47-RK as shown in Figure 4 and Figure 5.



**Figure 4: Bolt Carrier Lubrication**



**Figure 5: Charge Chamber Lubrication**

### 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 an AK47 weapon that contains a VirTra recoil kit. Fire the weapon in a safe direction away from yourself 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 greased with lubricant using the following procedures.

**Warning:** If using a CO2 kit, fully depressurize the magazine before proceeding. Refer to 'General Care' for depressurization procedures. If using a High-Pressure Air kit, be sure to disconnect the quick release at the bottom of the magazine.

- Remove the double seal cap (Figure 3, #1) using a thick blade screwdriver.
- Use a small pick or screwdriver to remove the 005 O-ring (Figure 3, #2) and double seal spacer (Figure 3, #3). 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 3, #4). Inspect the O-ring and replace if any damage/wear is present.
- Invert the magazine and allow the double seal valve (Figure 3, #5) and compression spring (Figure 3, #6) 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 thin layer of lubricant to the 007 O-ring and place into the cylinder.
- Apply a thin layer of 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: Make sure not to overtighten.

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 occurs 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.

- Unscrew the charge chamber cap (Figure 2, #1) using a 5/32 Allen Wrench. To ensure the charge chamber cylinder (Figure 2, #7) does not unscrew, use a wrench to hold it in place.
- Use a small pick to remove the 011 Charge Chamber End Cap O-ring (Figure 2, #2) and the Charge Chamber Seal (Figure 2, #3). Inspect both items and replace if any damage/wear is present.
- Invert charge chamber overhand and allow the ball bearing, compression spring, and brass Insert (Figure 2, #4, #5, #6) to drop free. Replace the compression spring if any wear or damage



is present.

- If any of the internal items are dirty or contain debris, wipe them clean with a soft, clean cloth.
- Place the brass insert, compression spring, and ball bearing back into the charge chamber.
- Place the charge chamber ball bearing seal into the charge chamber. Ensure the chamfered side (angle cut) faces the ball bearing.
- Screw the charge chamber cap back onto the charge chamber, taking care not to overtighten.

Reassemble the weapon and test. If a leak is still experienced, use the following steps to replace item #10 in Figure 2.

- Disassemble the firearm and remove the recoil kit according to the installation manual.
- Use a pick to remove the Duro 90 O-Ring (Figure 2, #10) from the underside of the charge chamber.
- Inspect O-Ring for any damage/wear. If any is present, replace the O-Ring.
- Reassemble in reverse order.

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

### **C. SHOT REGISTRATION**

Problems with shot registration can be solved by the following:

- Ensure that all of the lights are off in the training room while using the simulator. Also, make sure that no light from any other source shines on the screens.
- Be sure to verify that the weapon is fully charged by removing the charge chamber and plugging it into the supplied charging cable.
- For more comprehensive diagnostic instructions refer to the manual “Establishing and Assigning Weapon Laser ID.” It can be found in the VirTra User Manuals folder on the Instructor Station.
- 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. “Establishing and Assigning Weapon Laser ID.” It can be found in the VirTra User Manuals folder on the Instructor Station or in the VirTra V-RC Portal.

#### 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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