



MICRO DYNAMIC RIFLE
MDR
OWNERS MANUAL





Welcome to the proud family of Desert Tech firearm owners. In acquiring your new MDR (Micro Dynamic Rifle), you are the owner of the most versatile autoloading rifle in the world.

To get the most out of your MDR rifle, please read this manual from cover to cover before handling and operating the rifle for the first time.

CAREFULLY READ ALL OF THE OPERATING INSTRUCTIONS

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WARNING!

KEEP OUT OF REACH OF CHILDREN!

IT IS DANGEROUS TO ALTER OR MODIFY THIS FIREARM IN ANY WAY. ANY ALTERATION OR MODIFICATION OF THE FIRING MECHANISM WILL RESULT IN THE FIREARM BECOMING UNSAFE. ANY ATTEMPT TO ALTER OR MODIFY THIS FIREARM WILL NULLIFY ALL WARRANTIES. THE USE OF REMANUFACTURED OR RELOADED AMMUNITION OF ANY KIND WILL ALSO VOID ALL WARRANTIES.

ALWAYS keep the firearm pointed in a safe direction.
ALWAYS keep your finger off the trigger until ready to shoot.
ALWAYS be sure of your target and what is beyond it.
ALWAYS keep the firearm unloaded until ready to use.
ALWAYS wear eye and ear protection.
Know how to use the firearm safely.
Consult the owners manual before use of the firearm.
Use only the correct ammunition for your firearm.
Never use alcohol, over-the-counter prescription drugs, or other drugs before or while shooting.
Store firearms so they are not accessible to unauthorized persons and children.

For more information on firearm safety, visit the NRA Education and Training website:
gunsafetyrules.nra.org

WARNING!

Follow all local, state, and federal laws regarding legal use of your Desert Tech MDR rifle.

This item may be regulated for export by the U.S. Department of State or the U.S. Department of Commerce. Please see our export policy at deserttech.com for details.

FIREARM SAFETY

CAREFULLY READ ALL OF THE OPERATING INSTRUCTIONS

Remember that even the safest firearm is potentially dangerous to you and others when it is not properly handled. Carefully read the operating instructions to learn how the rifle works and how it is to be handled.

WARNING: Carry out the following operations before any rifle configuration, cleaning, or disassembly: Move safety selector to "Safe" (page 11), remove the magazine, open the bolt and lock to the rear, and visually ensure the chamber is clear (page 23).

Ensure the rifle is unloaded and safe whenever:

- Receiving or handing-off the rifle
- Transporting the rifle
- Cleaning or disassembling
- Optic mounting and rifle configuring
- You have stopped firing
- The rifle is not in use

Before firing the rifle:

- Always wear eye and ear protection
- Always be aware of the target and what lies beyond it

Make sure that the barrel is fully seated and barrel retention screws are tight before firing, as described on pages 12-13.

Incorrect handling and/or lack of maintenance may lead to malfunctions and reduced safety of the firearm. Unauthorized modifications to the rifle or damages caused by the application of force will void the manufacturer's warranty. Only a DT certified armorer is allowed to work on the rifle. Do not use force when disassembling or assembling your rifle. A firearm can only be safe as long as it is in a flawless mechanical condition.

For more information on firearm safety, visit the NRA Education and Training website:
gunsafetyrules.nra.org

WARNING!

Follow all local, state, and federal laws regarding legal use of your Desert Tech MDR rifle.

REMEMBER:

TREAT ALL FIREARMS AS ALWAYS LOADED.
 LOOKING INTO THE END OF THE BARREL (MUZZLE)
 IS NOT RECOMMENDED AT ANY TIME.

SPECIFICATIONS

Weight (Rifle weight with conversion)

Rifle empty, no magazine:	.223 Wylde	TBD
	.300 BLK	TBD
	.308 Win	8.35 lb (3.79 kg)

Length (Rifle length with conversion)

Minimum Length	.223 Wylde	26.2" (66.55 cm)
with 16" Barrel:	.300 BLK	26.2" (66.55 cm)
	.308 Win	26.2" (66.55 cm)

Length with 16" Barrel and flash hider:	.223 Wylde	27.75" (70.48 cm)
	.300 BLK	27.75" (70.48 cm)
	.308 Win	27.75" (70.48 cm)

Rate of Twist

.223 Wylde	1 in 7
.300 BLK	1 in 6
.308 Win	1 in 10

Torque Specs

Handguard Screws:	30 in/lb	3.38 nm
Barrel Retention Screws:	80 in/lb	9.04 nm
DTRO Mount:	30 in/lb	3.38 nm

Mechanical Features

Method of Operation:	Short Stroke Gas Piston
Method of Feeding:	Detachable Box Magazine
Ejection:	Right or left forward ejection, side ejection optional

Sights

Picatinny Rail (no taper)

Barrel

Type:	Melonite Coated Light Profile
Length:	16" (40.64 cm)

Firing Characteristics

Maximum Effective Range:	.223 Wylde	600 yards
	.300 BLK	500 yards
	.308 Win	900 yards

Safety Selector Switch:	Ambidextrous, Safe, Fire, and (optional for LE and Military only) Full Auto
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Magazine Releases:	Ambidextrous, above trigger and forward of magazine well
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Bolt Catches:	Charging handle lock-back, last round hold-back, bolt release catch behind the magazine well
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Handguards:	Standard and Reflex (for over-barrel suppression)
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FACTS ABOUT THE MDR

The MDR is designed for future defense needs. Its compact size and superior ergonomics maximize its portability without sacrificing speed, power, or precision. The MDR allows mission-specific adaptability by changing the rifle's length, sound signature, and caliber. Its fully-ambidextrous design allows seamless shoulder transitions. The MDR delivers advanced firepower for the future patriot.

KEY FEATURES

Portable

The MDR has unrivaled portability because it is lightweight, compact, ergonomic, and balanced, with an overall length of 26.2" with a 16" barrel and a weight of 8.35 pounds.

Adaptable

The MDR is adaptable in both size and caliber. It can quickly convert between multiple calibers, and its gas-block incorporated picatinny rail and the Desert Tech barrel retention system allows for consistent return-to-zero between conversions. The barrel is also truly free-floated by design so barrel whip does not affect accuracy.

Ambidextrous

The MDR is fully ambidextrous with no modification necessary. Our patented forward ejection mechanism and intuitive controls set a new bullpup standard for speed and precision.

ERGONOMIC FEATURE LIST

- Ambidextrous charging handle
- Ambidextrous magazine release above the trigger and central release forward of the magazine well, which facilitates rapid reloads
- Ambidextrous Fire Selector
- Last-round bolt catch/release for rapid reloads
- Ambidextrous forward ejection, allows shooters to fire right- or left-handed as well as swap the ejection sides in the field
- Forward-ejection dust cover prevents debris from entering the action and causing malfunctions
- Crisp 4.6 lb trigger
- Rear flush cup sling attachment points
- MLOK handguard slots for accessory and sling mounting option
- Weapon balance point is just rear of the pistol grip, giving the rifle a stable, yet highly maneuverable, weight distribution

FIREARM CONSTRUCTION

- The barrel is attached to the receiver by two barrel retention screws and a barrel locking lug
- The polymer handguard is attached securely to the upper receiver with a captured pin and two handguard reinforcement screws
- A full-length, MIL-STD-1913 rail runs along the top of the receiver and handguard, facilitating optics, night vision, thermals and other accessories. Rail segments attach to the sides for user-specified placement utilizing the MLOK attachment system
- The MDR is available in Black and Flat Dark Earth; all rifles are hard-coat anodized Black or Flat Dark Earth

RIFLE SETUP

WARNING: Carry out the following operations before dismantling: Move safety selector to "Safe" remove the magazine, open the bolt and visually ensure the chamber is clear (page 23).

WARNING: DO NOT REMOVE ANY OF THE TORX RECEIVER SCREWS ON EITHER THE RIGHT OR LEFT SIDES OF THE MDR! IT WILL VOID THE WARRANTY AND CAUSE THE RIFLE TO MALFUNCTION!

a) Conversion Kit Installation / Initial Setup

1. Remove the MDR receiver, barrel assembly, handguard, magazine, and the multi-tool from the MDR case.
2. Place the MDR on "Safe" by rotating the safety selector switch clockwise into the "Safe" position. (Counter-clockwise for left side manipulation) (Fig. a-1)
3. On the MDR handguard, use the T25 side of the multi-tool, loosen by two turns **DO NOT REMOVE** the two T25 torqueset handguard retention screws on the right and left side of the MDR Handguard. (Fig. a-2)

If removed, reinstall the handguard support backing plates to the inside of the MDR Handguard receiver with the raised portion facing to the outside of the handguard, and thread the handguard screws in from the outside of the handguard in until flush, then back them off two full turns. See page 65 for parts breakdown.

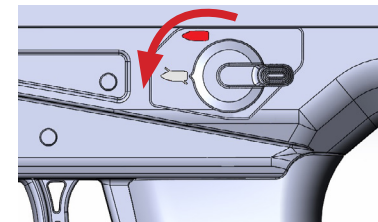


Fig. a-1

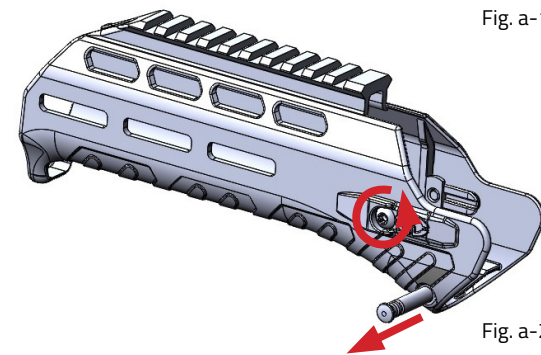


Fig. a-2

4. Gripping the charging handle (right or left side), press down and pull to the rear of the charging channel, then lock it to the rear by lifting the charging handle upwards into the locking cutout and releasing it. The charging handle should remain in the locking cutout. (Fig. a-3)

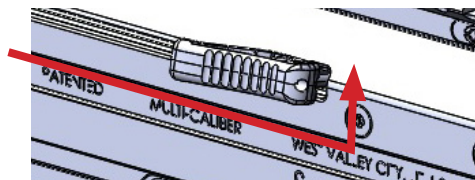


Fig. a-3

5. Ensure the barrel lock screw is in the "Unlocked" position, and the two barrel retention screws are loose. (Fig. a-4)

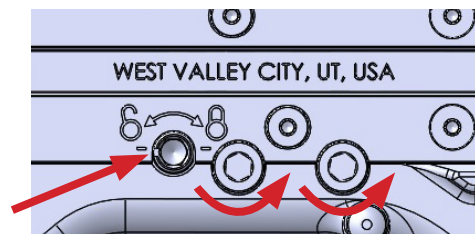


Fig. a-4

6. Ensure the bolt head matches the chambering of the barrel. (Fig. a-5)

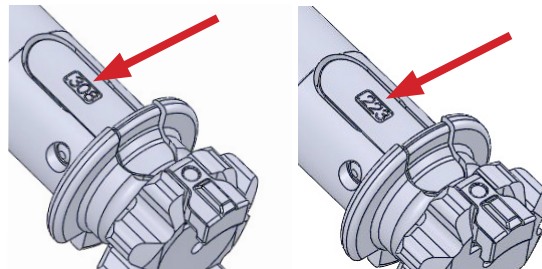


Fig. a-5

7. Insert the barrel assembly into the MDR receiver, barrel extension end first with the gas block rail at the 12 o'clock position. When properly seated in the receiver, there should be around a 1/16" (1.5mm) gap between the front edge of the upper receiver and the back edge of the gas block. (Fig. a-6)

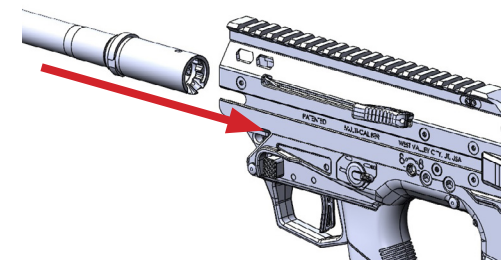


Fig. a-6

8. Release the bolt assembly by pressing the charging handle downward to disengage it from the locked-back position.

9. Rotate the rifle to the left side. Using the 5mm hex wrench side of the multi-tool, rotate the barrel lock screw to the "Locked" position. (Fig. a-7)

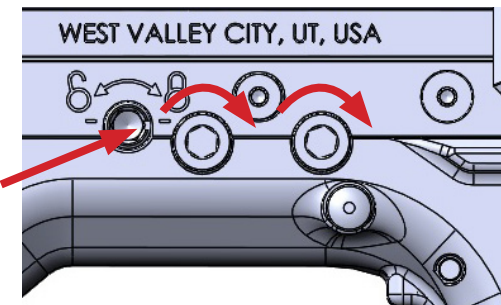


Fig. a-7

10. Tighten and torque the two 5mm barrel retention screws to 80 in/lb. (Fig. a-7)

b) Gas Adjustment

The MDR has three gas settings: "N" (Normal), for regular fire in generally good conditions and without a suppressor; "A" (Adverse), for fire in bad conditions (heavy dust, excess humidity, mud, etc.); and "S" (Suppressed), for fire with a suppressor on the rifle.

1. To set the gas setting to Normal, rotate the gas valve within the gas block until the "N" is centered over the detent and clicks into place. (Fig. b-1)
2. To set the gas setting to Adverse, rotate the gas valve within the gas block until the "A" is centered over the detent and the gas valve clicks into place. (Fig. b-1)
3. To set the gas setting to Suppressed, rotate the gas valve within the gas block until the "S" is centered over the detent and the gas valve clicks into place. (Fig. b-1)

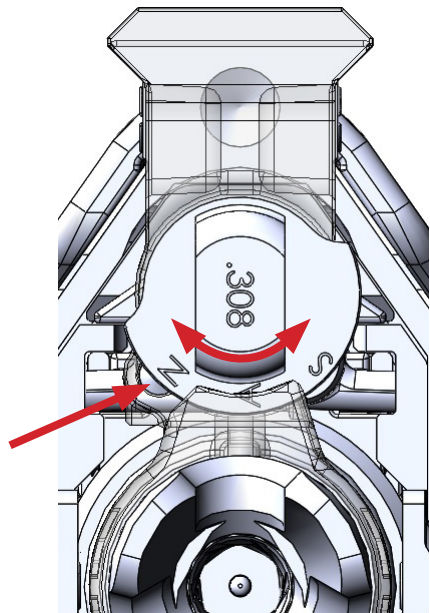


Fig. b-1

CAUTION: The gas block and gas valve may be hot if adjusting during a shooting session. In which case, it's recommended you use the tip of a cartridge to rotate the gas valve, if no other tools are readily available.

c) Handguard Installation

1. Install the handguard on the MDR by sliding it over the barrel assembly, Desert Tech logo end first, with the rail at the 12 o'clock position. (Fig. c-1)
2. Push the captured handguard retention pin through from the left side to the right side of the MDR receiver until it snaps into position, flush on each side. (Fig. c-1)
3. Tighten handguard retention screws with a torque wrench, using a T25 head, to 30 in/lb. (Fig. c-1)

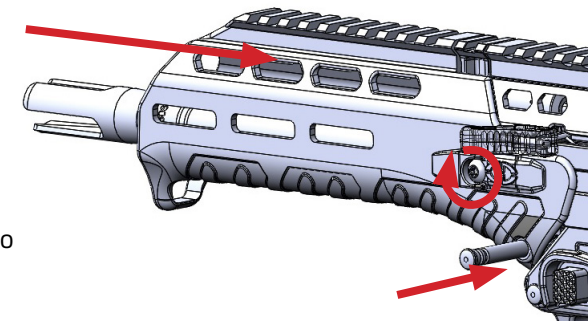


Fig. c-1

d) Ejection System

The MDR is 100% ambidextrous in its factory configuration; all user controls can be operated on either side and spent casings eject forward, away from the shooter's face. However, depending on shooter preference, the ejection side can quickly be changed from right to left.

WARNING: The charging handle MUST be in the forward position before removing the ejection panel and chute panel (page 23).

1. Ensure the rifle is clear and safe, and the bolt assembly is in the charged, forward-most position.
2. Place the MDR left side up. Use any instrument that has a small, strong edge to it, (such as the open end of a spent cartridge) and press the ejection panel release tab forward (Fig. d-1) and up to remove the ejection panel. (Fig. d-2)
3. Rotate the MDR to the right side and, using the same method, remove the chute panel.
4. Replace the chute panel where the ejection panel was by inserting the front of the ejection panel front lips to the inside of the receiver ejection window, then pressing the back of the chute panel until the release tab snaps in place. See Fig. d-3, d-4 for panel reference images.

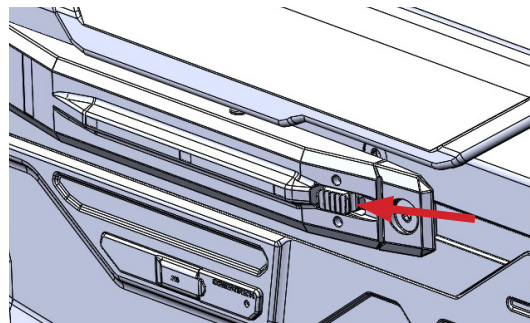
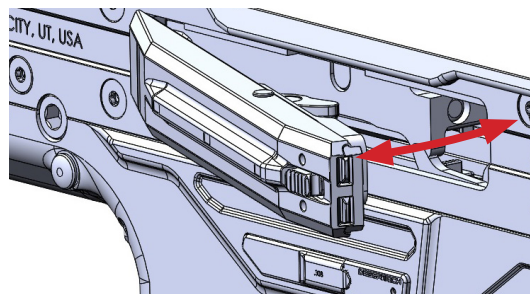


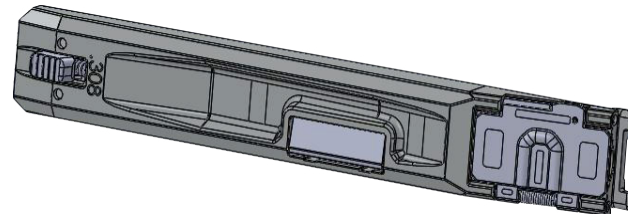
Fig. d-1



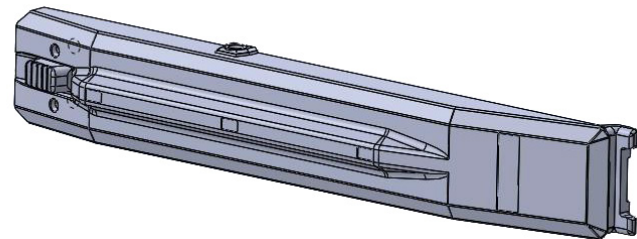
Ejection Panel Fig. d-2

5. Repeat this process on the left side with the ejection panel to complete the ejection side reconfiguration process.

The MDR may also be fired without the chute panel, in which case the empty cartridges will eject in the standard 90-degree fashion from the rifle. Be careful to note which side it ejects from in this configuration, as hot casings may potentially hit the shooter's face while firing if the ejection port is on the same side as the shooter's head.



Chute Panel Fig. d-3



Ejection Panel Fig. d-4

RIFLE OPERATION

Function Check, Loading, Reloading, Unloading, Firing

Before operating a firearm, ensure it is in a safe environment to do so, observing all the rules of firearm safety.

a) Function Check

1. Ensure the rifle is clear and safe by removing the magazine, placing the rifle safety selector on "Safe" and cycling the rifle multiple times to ensure a clear chamber, and visually inspecting the chamber to confirm, (see page 23).
2. Point the rifle in a safe direction, charge the rifle, and squeeze the trigger. The trigger should not disengage from the hammer when the safety selector is in the "Safe" position.
3. Change the safety selector to "Fire", then squeeze the trigger and release. The trigger should disengage from the sear, the hammer should make an audible 'snap' sound as it hits the firing pin/bolt carrier group.
4. Charge the MDR again and squeeze the trigger, this time holding the trigger to the rear. Re-charge the rifle and release the trigger. There should be an audible "click" sound as the trigger resets. Repeat this multiple times to confirm functionality.
5. Insert an EMPTY magazine and charge the rifle. Pull the charging handle to the rear and the bolt carrier group should catch on the last round holdback catch. Lock the charging handle forward, then press the bolt catch release. The bolt carrier group should release and go into battery.

b) Loading

1. To load the MDR, first ensure it is in a safe environment to do so, observing all the rules of firearm safety, and the safety selector switch is in the "Safe" position (page 11) Ensure the cartridges loaded into the magazine match the chambering of the conversion kit.
2. Insert cartridges into the magazine by pressing the cartridge (parallel to the magazine) downwards into the magazine. Ensure the face of the cartridge is at the rear-most position inside the magazine. (Fig. b-1)
3. Repeat until the magazine is full, or less, if desired.

Note: For reliable function with the .308/7.62 NATO chambering, it is recommended that only non-steel cased ammunition be used in the MDR.

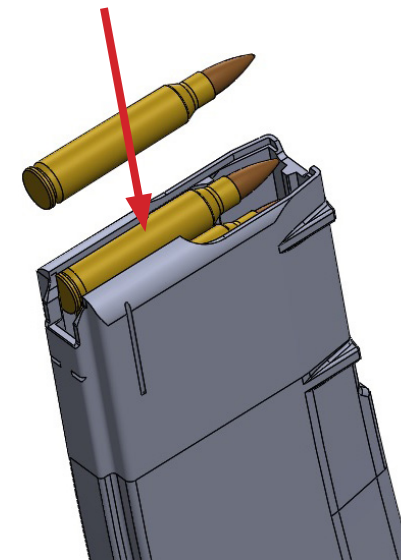


Fig. b-1

4. Ensuring the MDR is on "Safe" and pointed in a safe direction, insert the loaded magazine (bullets forward, Fig. b-1) into the magazine well until it is seated with an audible "click" sound. A quick tug down on the magazine is advisable to ensure it's locked in position.
5. Grasp the charging handle, press down and pull all the way to the rear of the charging handle channel, then release. Do not slowly release, or "walk", the bolt forward, as it may not fully seat the cartridge in the chamber.
6. The MDR is now loaded.

c) Chamber Check

There is a chamber check window in the chute panel of the MDR.

1. To do a fast chamber check, open the dust cover by pulling the top of the dust cover plate outwards. The retention spring will do the rest to open it. (Fig. c-1)

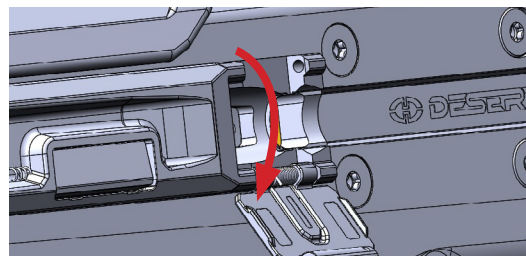


Fig. c-1

2. Press down and slowly pull back part way on the charging handle, observing the chamber check window as you do so. As the bolt face comes back, it will either be pulling a cartridge with it, indicating the chamber is loaded (Fig. c-2), or it will have nothing (Fig. c-3), indicating an empty chamber.

WARNING: This does not replace a full visual inspection inside of the chamber, which requires removal of the chute panel.

3. Once satisfied, release the charging handle back into battery. It is advisable when clearing the rifle to do multiple chamber checks to ensure the rifle is absolutely clear of any cartridges.

d) Firing

Follow all firearm safety rules when firing a weapon. Eye protection and hearing protection is recommended when operating any firearm. Permanent hearing and vision damage is very likely if ignored.

1. Shoulder the rifle by placing the recoil pad to the pocket of your shoulder, and resting your cheek on the MDR cheekrest.
2. Grip the pistol grip with your firing hand, and the handguard with your support hand. Use your support hand to keep the rifle pressed to your shoulder, and keep your firing hand firm but not tight on the pistol grip.

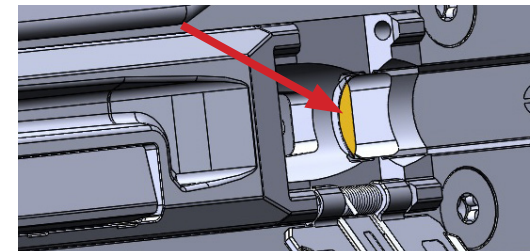


Fig. c-2

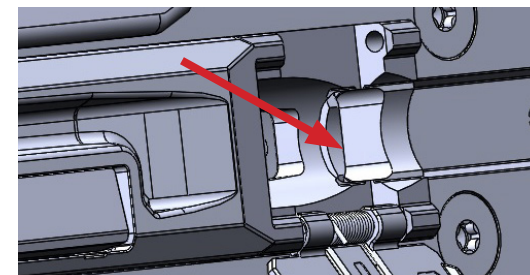


Fig. c-3

3. When on target and ready to fire, rotate the safety selector switch to "Fire." (Fig. d-1)
4. Squeeze the trigger until the rifle fires. Release the trigger so it resets, and repeat the process until the magazine is empty or until desired firing is complete.

e) Reloading

The MDR comes with two ambidextrous options for releasing the magazine.

- 1a. Primary Magazine Release:
Press the square magazine release button above trigger and the magazine will release. (Fig. e-1,)
- 1b. Secondary Magazine Release:
Press the magazine release catch in front of the magazine well and the magazine will release. (Fig. e-2, A)
- 1c. Magazine Empty Reload:
Upon firing the last round, the bolt will lock to the rear, enabling faster reloads than from a closed bolt. (Fig. e-2, B)

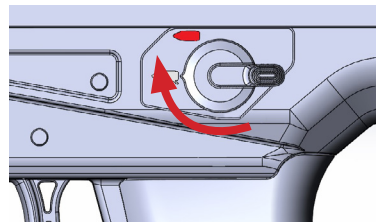


Fig. d-1

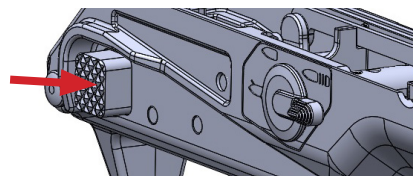


Fig. e-1

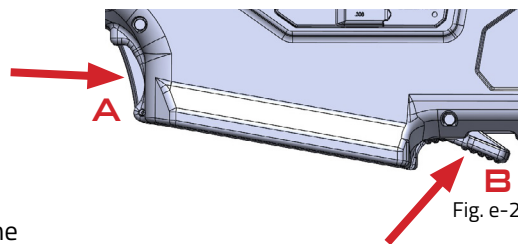


Fig. e-2

Note: Upon firing the last round, the empty casing will be retained in the chute panel until the bolt is sent back into battery, at which time the empty casing will be ejected. This is normal and not a malfunction.

f) Unloading / Clearing

1. To unload/clear the MDR, first rotate the fire selector switch to "Safe" (Fig. f-1)
2. Remove the magazine by pressing the magazine release button above the trigger or by pressing the magazine release down (in front of the magazine well) and pull the magazine downward until it clears the rifle. (Fig. f-2)
3. Pull the charging handle quickly to the rear and release multiple times to clear any remaining cartridge(s). Pull the charging handle rearward quickly to reliably eject non-fired cartridges from the rifle. Ejecting them slowly can cause malfunctions as they enter the ejection chute. (Fig. f-3)
4. Pull the charging handle back slowly and view the chamber check window to ensure and confirm there's no cartridge still in the chamber. (Fig. f-4)

WARNING: This does not replace a full visual inspection inside of the chamber, which requires removal of the chute panel. (See pages 16-17)

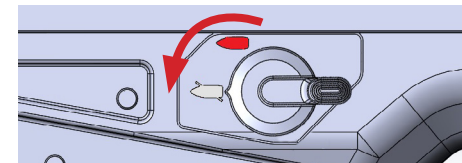


Fig. f-1

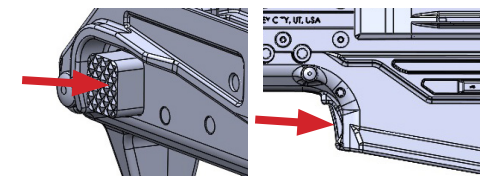


Fig. f-2

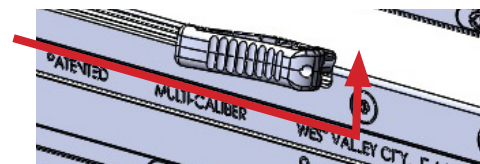


Fig. f-3

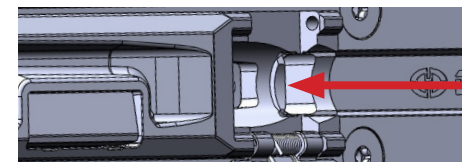


Fig. f-4

CALIBER CONVERSION / DISASSEMBLY / REASSEMBLY

Ensure the rifle is safe by following the Unloading/Clearing procedures on page 23.
Follow steps a-h (pages 24-33) for caliber conversion process.

a) Conversion Kit Removal

- Using the T25 side of the multi-tool, loosen the handguard retention screws. Press the captured handguard retention pin through from the right side to the left side of the MDR receiver until it snaps into position. (Fig. a-1)
- Slide the handguard off the front of the MDR. (Fig. a-1)
- Lock the charging handle to the rear of the charging channel.
- Using the 5mm hex side of the multi-tool, loosen the two barrel retention screws one full turn each and rotate the barrel locking screw to the "Unlock" position. (Fig. a-2)

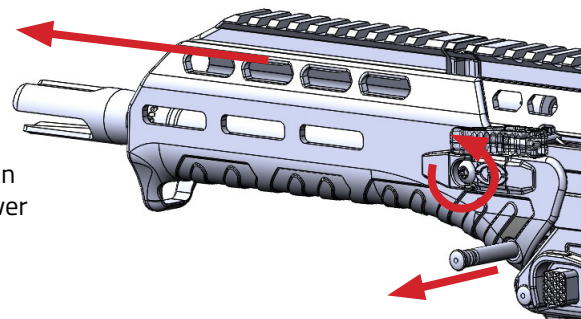


Fig. a-1

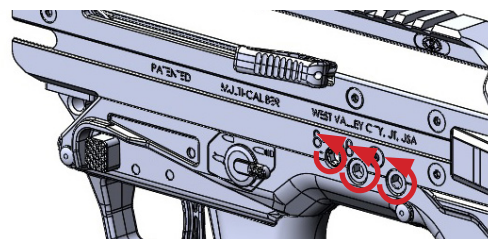


Fig. a-2

- Remove the barrel assembly. (Fig. a-3)
- Slowly release the charging handle, allowing the bolt assembly to go to the forward-most position.
- Place the MDR on its right side. Use any instrument that has a small, strong edge to it, (such as the open end of a spent cartridge) press the ejection release tab forward and up to remove the ejection panel. (Fig. a-4)
- Press the captured rear and middle takedown pins out from the right to the left and tilt the rear of the upper receiver up. (Fig. a-5)
- Pull down and rearward on the charging handle to bring the bolt carrier assembly rearward, then grasp the bolt carrier guide plate and pull the recoil spring support rearward and out of the rifle.

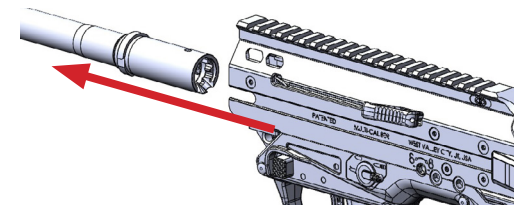


Fig. a-3

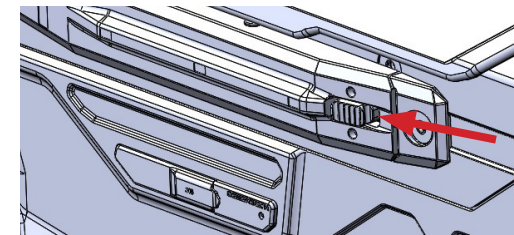


Fig. a-4

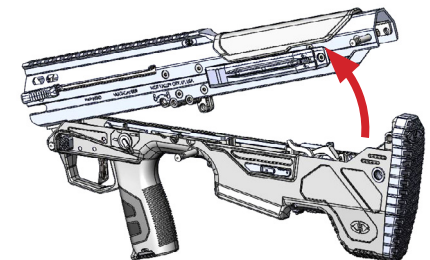


Fig. a-5 25

b) Bolt Head Removal / Bolt Carrier Group Disassembly

1. Use a pen or a 1/8 Punch, press the firing pin retaining pin (FPRP) out of the bolt carrier group from the right to the left. (Fig. b-1)
2. Tilt the bolt carrier group upwards and drop the firing pin out. (Fig. b-1)
3. Press and rotate the bolt head to the rear, then rotate the bolt guide pin 90-degrees to remove; pull it up and out. (Fig. b-2)
4. Pull the bolt head out from the bolt carrier. (Fig. b-2)

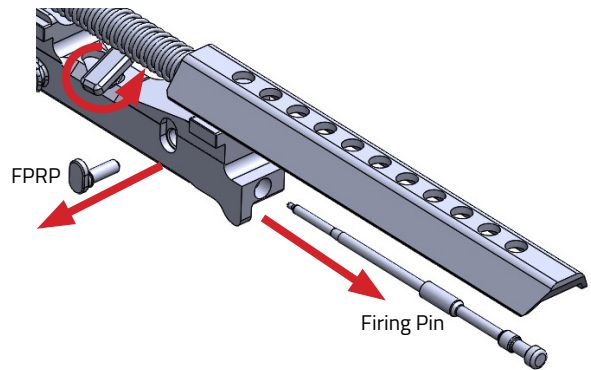


Fig. b-1

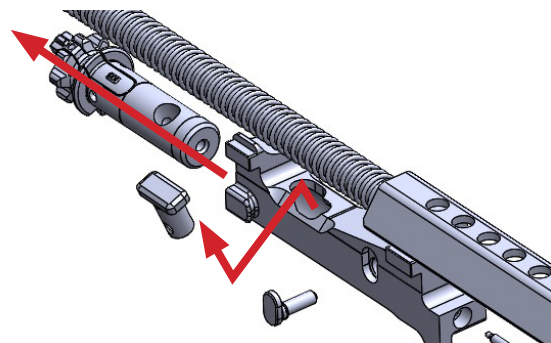


Fig. b-2

c) Bolt Head Swap

1. When swapping the bolt head during a caliber conversion, ensure the bolt head caliber label on the extractor matches the chambering of the conversion kit being installed. (Fig. c-1)
2. Follow the Bolt Head Installation / Bolt Carrier Group Reassembly steps on page 28 for bolt head installation instructions. For further bolt head disassembly, refer to Advanced Disassembly on page 37.

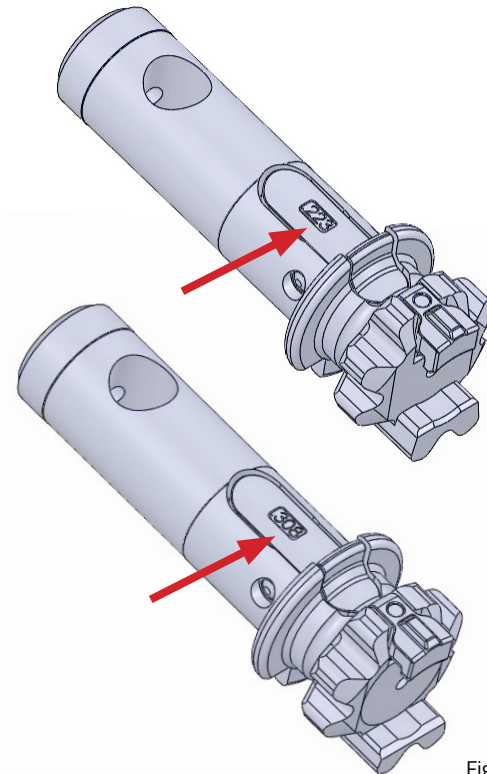


Fig. c-1

d) Bolt Head Installation / Bolt Carrier Group Reassembly

1. Insert the bolt head into the bolt carrier, with the large bolt guide pin hole in the 12 o'clock position. (Fig. d-1)
Note: Ensure the caliber on the bolt head matches the barrel you have installed. (page 12, Fig. a-5)
2. Rotate the bolt head to approximately the 1 o'clock position and insert the bolt guide pin, with the top plate of the pin parallel to the bolt carrier. (Fig. d-1)
3. Pull the bolt head forward and rotate the bolt guide pin 90 degrees, then insert the firing pin (small tip forward) into the bolt carrier until it sits just below, flush with the back of the bolt carrier. (Fig. d-2)
4. Insert the firing pin retention pin in the bolt carrier from the left, and press until flush. (Fig. d-2)

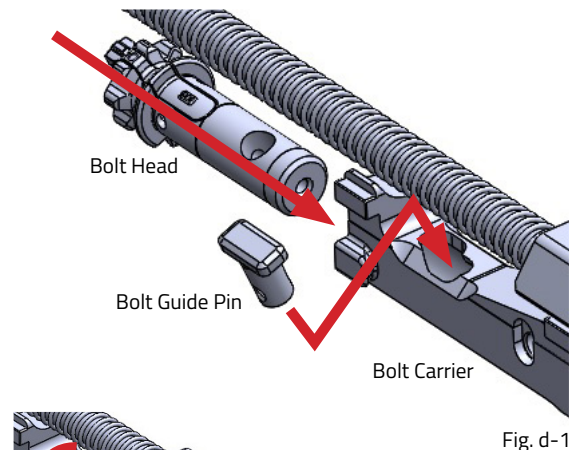


Fig. d-1

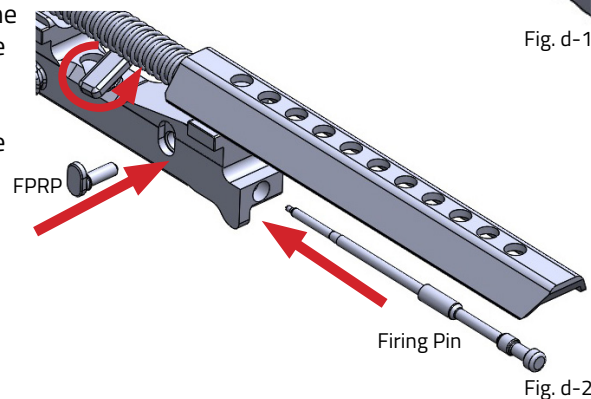


Fig. d-2

e) Magazine Spacer Installation (.223 and .300 BLK)

1. To install the magazine spacer for AR-15/M16 magazine compatibility, ensure the rifle is clear and the bolt is forward.
2. Press and hold the magazine release. (Fig. e-1)
3. Insert the magazine spacer into the magazine well in the lower receiver from the bottom until it snaps into position. (Fig. e-1)
4. Release the magazine release.

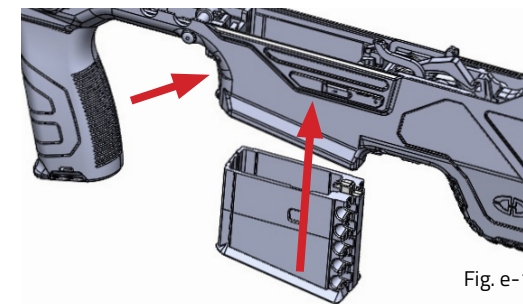


Fig. e-1

f) Magazine Catch Installation / Conversion

1. Push inward on the magazine release rod. (Fig. f-1)
2. Rotate the magazine catch down. (Fig. f-2)

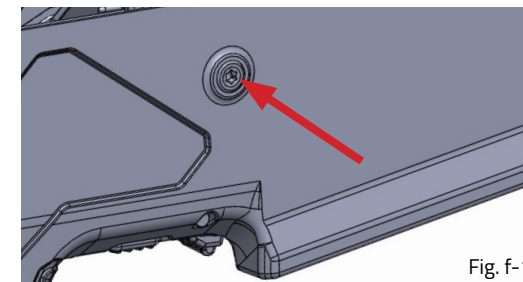


Fig. f-1

- Using a small flat tool, tap the back of the magazine conversion bar until it slides off. (Fig. f-2)

- Press the .223/.300 BLK magazine conversion bar onto the magazine release main bar and rotate the magazine catch back into place. (Fig. f-3)

g) Magazine Spacer Removal (.223 and .300 BLK)

- Push the rear and middle takedown pins to their furthest outward position.
- Lift the back of the upper receiver to expose the magazine conversion latch.
- Push the magazine release while pushing the magazine conversion latch in and down. The magazine spacer should slide out the bottom of the magazine well. (Fig. g-1)

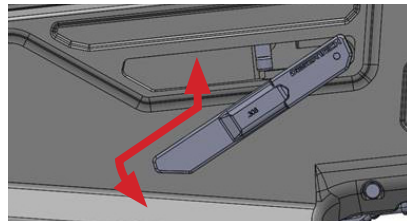


Fig. f-2

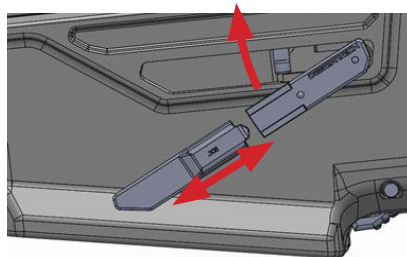


Fig. f-3

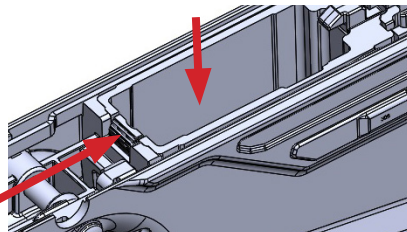


Fig. g-1

h) Conversion Kit Installation

- Insert the barrel assembly into the MDR receiver, barrel extension end first with the gas block rail at the 12 o'clock position. When properly seated in the receiver, there should be a 1/16" (1.5mm) gap between the front edge of the upper receiver and the back edge of the gas block rail tower. (Fig. h-1)
- Rotate the rifle to the left side. Using the 5mm hex wrench side of the multi-tool, rotate the barrel lock screw to the "Locked" position, and torque the barrel retention screws to 80 in / lb. (Fig. h-2)
- Open the upper receiver by pressing the rear and center takedown pins to the outward most position and tilt the upper receiver up from the lower receiver, if it's not already open.

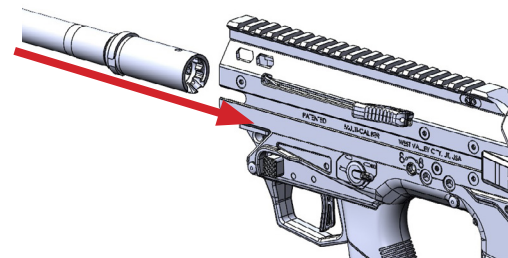


Fig. h-1

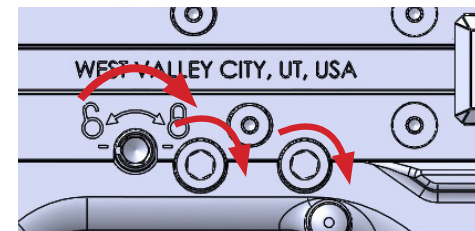


Fig. h-2

4. Ensuring the bolt head is fully forward, install the bolt carrier assembly into the back of the MDR upper receiver first ensuring the charging handle is forward. Next, align the slots of the operating rod guide with the MDR upper receiver operating guide rod channels as well as the bolt carrier slot alignment with the upper receiver channels just below them, then seat the bolt carrier group fully forward. (Fig. h-3)

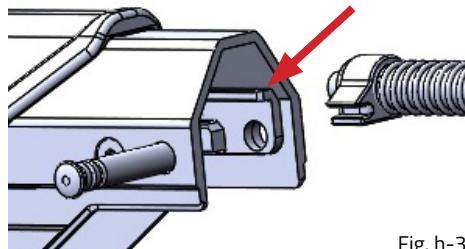


Fig. h-3

5. Replace the ejection panel by inserting the front of the panels lips to the inside of the receiver ejection window, then pressing the back of each sides panels until the release tab snaps in place. (Fig. h-4)

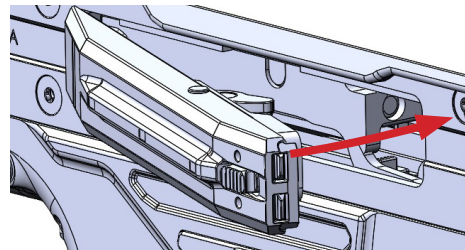


Fig. h-4

6. Close the receiver and press the takedown pins into place.

7. On the MDR handguard, pop the captured handguard retention pin out to its open-most position. (Fig. h-5)

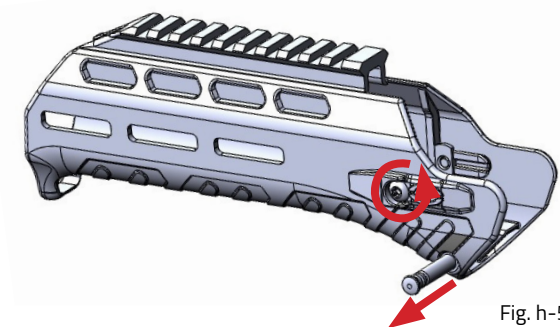


Fig. h-5

8. Install the handguard on the MDR by sliding it over the barrel assembly, Desert Tech logo end first, with the rail at the 12 o'clock position. (Fig. h-6)

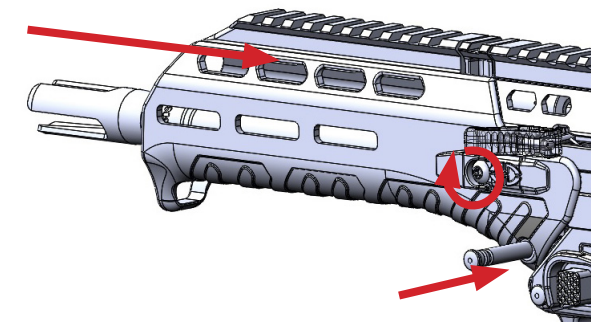


Fig. h-6

9. Press the captured handguard retention pin through from the left side to the right side of the MDR receiver until it snaps into position, flush on each side. (Fig. h-6)
10. Tighten handguard retention screws with a torque wrench, using a T25 head, to 30 in/lb. (Fig. h-6)

DESERT TECH REFLEX OPTIC (DTRO)

a) DTRO and DTRO Mount Installation

1. To mount the DTRO to the MDR using the DTRO mount, begin by loosening the rail attach point screw on the DTRO mount with the supplied 2.5mm hex key. Then place the DTRO mount on the MDR gas block rail section with the DTRO mount angled back toward the shooter and tighten the DTRO mount screw with a torque wrench to 30 in/lb. (Fig. a-1)
2. Install the CR2032 3v battery in the bottom of the DTRO with the positive side facing down. (Fig. a-2)
3. Install the DTRO to the DTRO mount by aligning the DTRO mounting pegs with the DTRO Seal Plate and the bottom of the DTRO, ensuring the lens is at the front of the DTRO mount. (Fig. a-2)
4. Fasten the DTRO to the DTRO mount using the two supplied 2.5mm hex screws with the supplied 2.5mm hex key. Tighten snug, taking caution to not strip out the hex screw head, or to over-tighten the screws on the sight body. (Fig. a-2)
5. Removal is the reverse of installation.

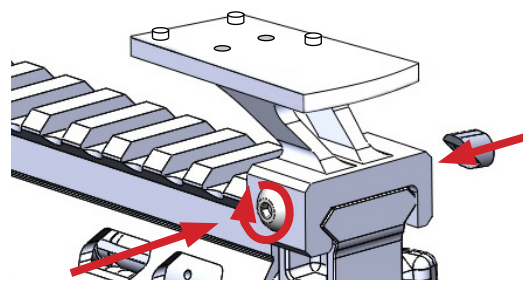


Fig. a-1

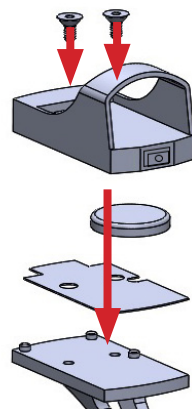


Fig. a-2

b) Using and Zeroing the DTRO

1. To turn the DTRO on, press the button at the front of the optic. To turn it off, press and hold the button for approximately two seconds. (Fig. b-1)
2. The DTRO takes a CR2032 3v battery. It is located on the bottom of the optic. Once mounted, optic removal will be necessary to change the battery. (Fig. a-2, page 34)
3. The DTRO has two adjustment screws, and two lock screws. The top screw adjusts the up/down and the right side screw adjusts the left/right. (Fig. b-2)
4. Before adjusting the zero, use the included flathead screwdriver to loosen **(DO NOT REMOVE)** the two set screws on the back of the DTRO.
5. To move the dot left or right, use the included screwdriver to turn the screw on the right side of the DTRO counter-clockwise or clockwise, respectively. (Fig. b-3)

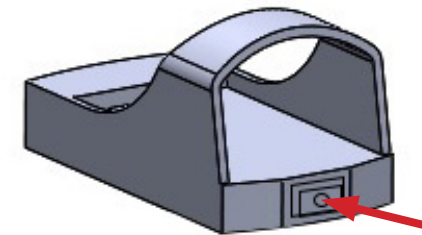


Fig. b-1

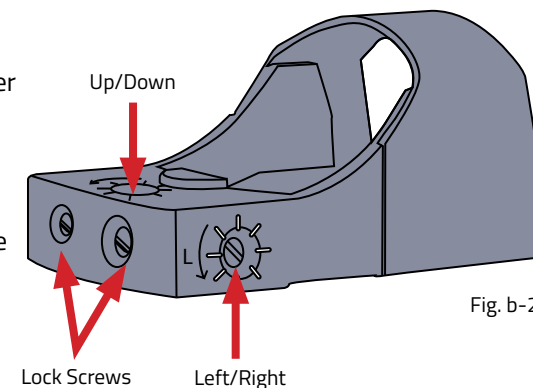


Fig. b-2

6. To move the dot down or up, use the included screwdriver to turn the top screw counter-clockwise or clockwise, respectively. (Fig. b-4)
7. After each zero adjustment, re-tighten the lock screws to ensure no zero shift occurs during firing.

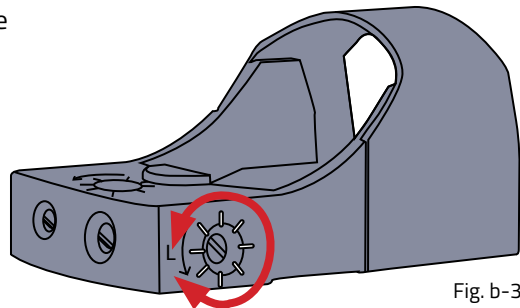


Fig. b-3

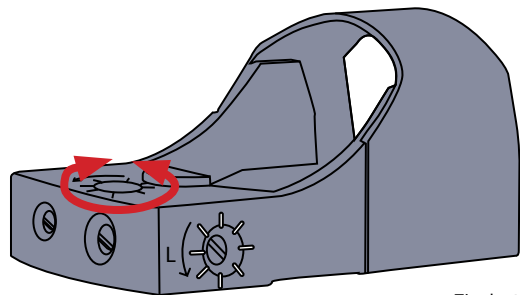


Fig. b-4

ADVANCED DISASSEMBLY

a) Bolt Head Disassembly

1. Place the bolt body on a solid surface and press down on the extractor with your finger behind the rib, right above the extractor pin. Using a 3/32 punch and mallet or brass hammer, press the extractor pin out from the left to the right to remove the pin and release the extractor assembly from the bolt body. (Fig. a-1)
2. Separate the extractor spring assembly from the extractor by pulling it off the extractor. (Fig. a-2)
3. Separate the extractor bump stop by popping it out of the extractor spring with your finger or a small pointed object if it's stuck. (Fig. a-3)

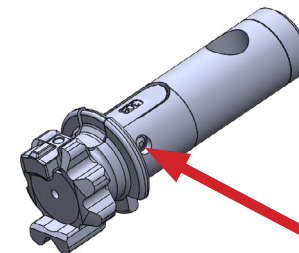


Fig. a-1

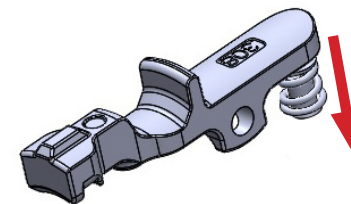


Fig. a-2

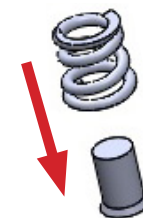


Fig. a-3

b) Bolt Head Reassembly

CAUTION: Before reassembling the bolt carrier group, ensure you have the correctly chambered extractor for the conversion kit you intend to install (Fig. b-1). Failure to comply can cause malfunctions, internal damage, or a complete failure of the firing cycle.

1. Press the extractor bump stop into the extractor spring. (Fig. b-2)
2. Press the extractor spring assembly onto the extractor spring catch point, until it snaps in position. (Fig. b-3)
3. Press the extractor assembly into the extractor slot on the bolt body, aligning the pin hole cutouts, then press the extractor pin through from right to left. It may be necessary to lightly tap the pin through the hole using a brass hammer. (Fig. b-4)

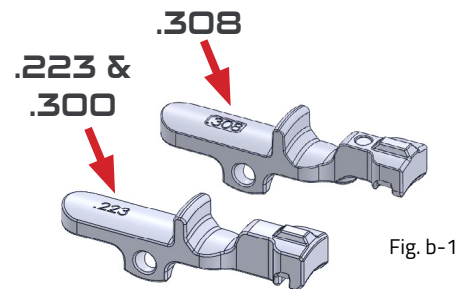


Fig. b-1

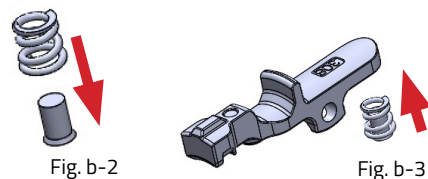


Fig. b-2

Fig. b-3

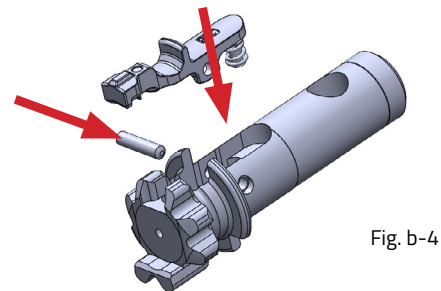


Fig. b-4

c) Gas Block Disassembly

1. Rotate the gas valve 180 degrees to where the "A" firing condition rib is at the 12 o'clock position, then pull the gas valve out of the gas block. It may be necessary to depress the detent to allow rotation. Use a punch tool if necessary. (Fig. c-1)

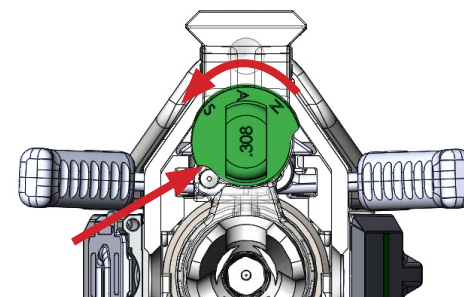


Fig. c-1

2. Using a 5/16" punch or similar object, push the piston out the front of the gas block from the back. (Fig. c-2)

WARNING: Do not remove the rings from the gas piston, it is unnecessary for maintenance or cleaning and will void the warranty if tampering is evident.

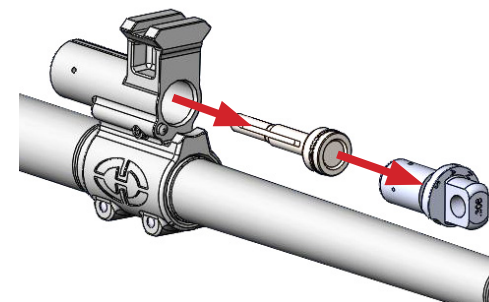


Fig. c-2

d) Gas Block Reassembly

1. Install the piston into the gas block, pressing it to the rear-most position. (Fig. d-1)

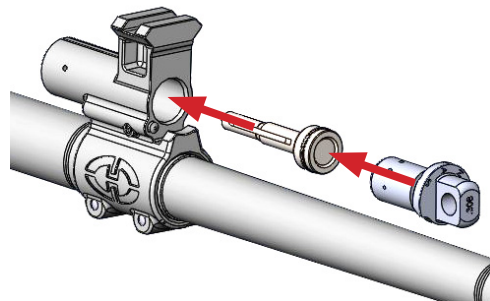


Fig. d-1

2. Install the gas valve in the front of the gas block with the firing condition rib at the 12 o'clock position, then rotate it until the detent clicks into the desired firing condition setting. (Fig. d-2) Use a punch tool to depress the detent to allow initial rotation.

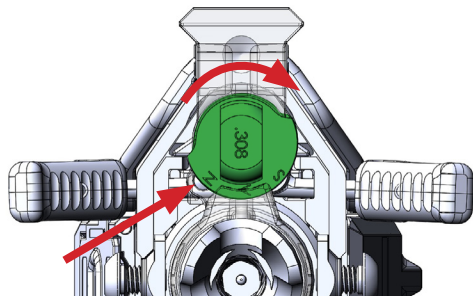


Fig. d-2

CLEANING AND MAINTENANCE

GENERAL

Comprehensive knowledge of how to service and handle firearms is of great importance. Experience has shown that most failures, which occur while operating a firearm, are due to negligence in maintenance. Special attention must be paid to cleaning, lubricating, and inspecting the rifle; this will determine whether or not the rifle will function properly. In order to maintain accuracy, the barrel must be maintained properly. The receivers, bolt carrier group, and other moving parts of the rifle must be kept clean and lightly lubricated to ensure proper operation of the rifle.

Desert Tech recommends cleaning the barrel when accuracy begins to deteriorate, using bore cleaning foam and the properly sized bore snake. Follow cleaner product instructions when cleaning the barrel.

Desert Tech recommends cleaning the MDR every 1000 rounds in clean environments. Dependent upon environmental conditions, cleaning more often may become necessary.

FIELD CLEANING

Note: When the rifle is purchased, or after it has been stored for long periods of time, the rifle should be cleaned before use.

Ensure the rifle is clear and safe by removing the magazine, placing the rifle fire selector on "Safe" and cycling the rifle multiple times to ensure a clear chamber, visually inspecting the chamber to confirm.

a) Receivers

1. Separate the upper receiver from the lower receiver by popping out the three (3) captured takedown pins. (Fig. a-1)
2. With a brush and CLP, scrub the magazine well, then wipe it clean with a rag.
3. If the hammer and sear mechanisms are dirty, scrub them lightly with a brush and wipe clean as best as possible. (Fig. a-2)
4. Apply a drop of CLP to the trigger sear.
5. Using canned air or a low-PSI air compressor, blow out the lower receiver if there are signs of excess dust or fouling buildup. Wipe clean with a rag and/or soft brush.

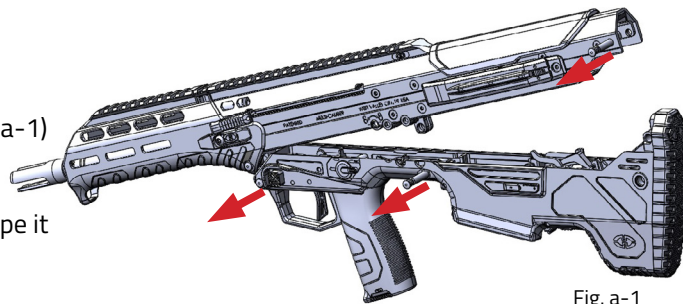


Fig. a-1

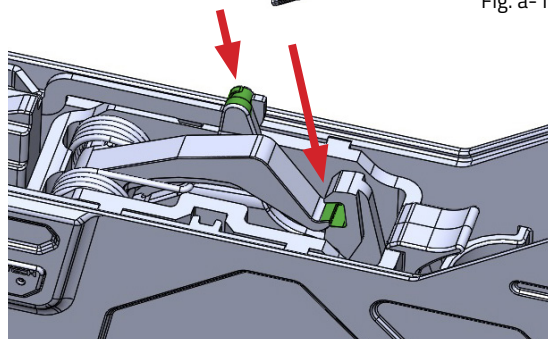


Fig. a-2

b) Bolt Carrier Group (Assembled)

1. Remove the bolt carrier group, ejector panel, and chute panel by following the steps on page 24-25.
2. Apply CLP to the the bolt carrier group, both sides (bolt lugs, extractor, bolt guide pin, bolt head, operation rod guide), and allow it to soak for a minute or so.
3. With either a plastic or wire brush, scrub the bolt carrier and bolt head, removing any carbon or any fouling buildup.
4. Wipe down the bolt carrier group with a rag until all fouling is removed.
5. Apply CLP to the the collar, bolt lugs, the extractor cutout, bolt guide pin, bottom bolt carrier guides, and spring guide. (Fig. b-1)

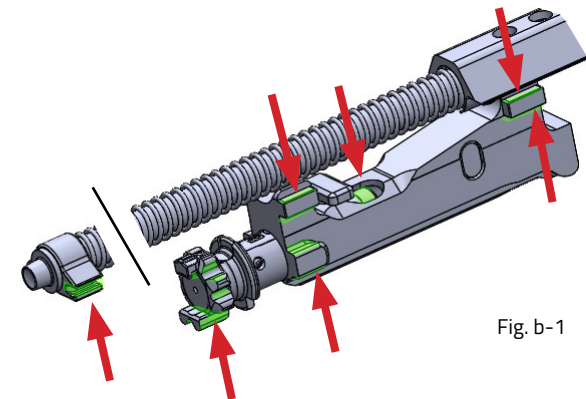


Fig. b-1

c) Bolt Carrier Group (Disassembled)

1. Disassemble the bolt carrier group by following the steps on page 26.
2. Apply CLP to the the bolt carrier group (bolt head and bolt lugs, extractor, bolt guide pin, bolt carrier, firing pin, firing pin lock), and allow it to soak for a minute or so. (Fig. c-1)
3. With either a plastic or wire brush, scrub the bolt carrier, bolt body, bolt guide pin, firing pin, and firing pin retainer, removing any carbon or any fouling buildup.
4. Wipe down the bolt carrier group with a rag until all fouling is removed.

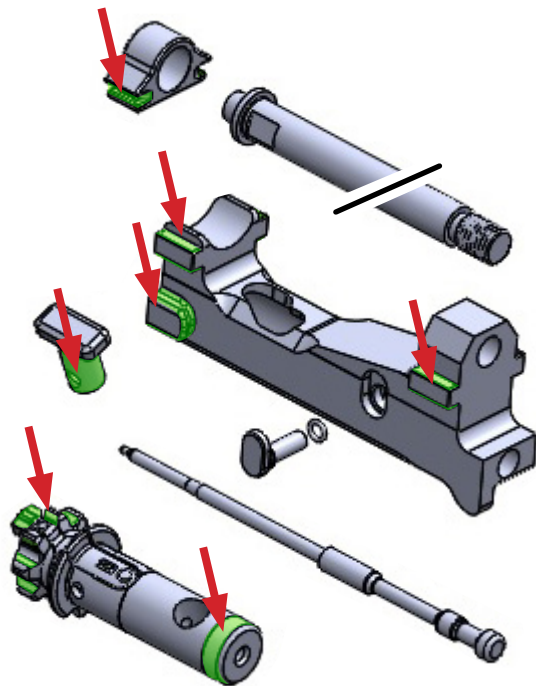


Fig. c-1

5. Re-apply CLP to the bolt carrier, bolt body, bolt guide pin, firing pin, firing pin lock, extractor cutout, bottom bolt carrier guides, and spring guide. (Fig. c-1)
6. Reassemble the bolt carrier group following the steps on page 28.

d) Barrel Assembly

1. Using a caliber-appropriate sized bore snake with CLP, clean the bore of the rifle. It may take multiple passes to remove bore fouling.
2. Run cleaning patches with CLP applied through the rifle barrel until the patches come through clean. (Fig. d-1)
3. Scrub the chamber lugs and feed ramps with a wire brush and CLP.
4. Wipe the fouling out of the chamber lugs and off the feed ramps with a rag.
5. Clean out the gas block with a wire brush, wipe clean with a rag, apply light CLP. (Fig. d-1)

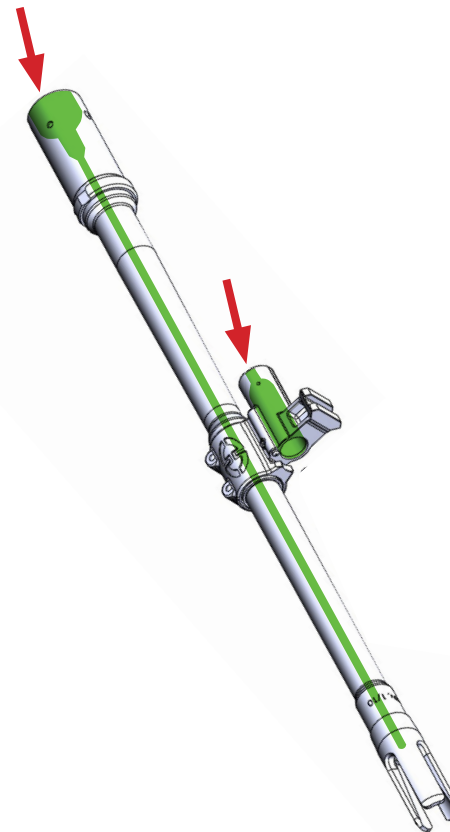


Fig. d-1

e) Gas Valve

1. Remove the gas valve from the gas block by following the removal steps on page 39.

WARNING: Do not remove the rings from the gas piston, it is unnecessary for maintenance or cleaning, and will void the warranty if tampering is evident.

2. Scrub off and wipe away any carbon from the gas valve and gas piston.
3. Apply a light coating of CLP to the gas adjustment valve and the large ring on the gas piston. (Fig. e-1)

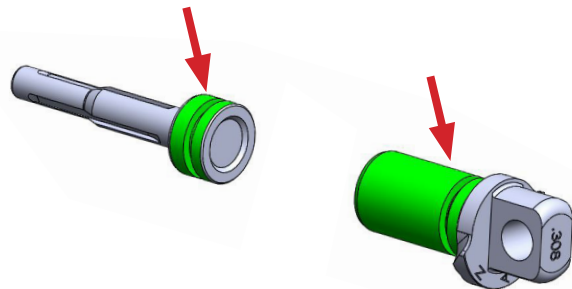


Fig. e-1

f) Ejector Panel and Chute Panel (Assembled)

1. Remove the chute panel and ejection panel by following the steps on pages 16-17.
2. Apply CLP to the insides of the chute panel and ejection panel, then, with a wire brush, scrub the insides of the chute and ejection panels.
3. Wipe down the chute and ejection panels with a rag until all fouling is removed.
4. Apply CLP to both panels release tabs, and to the ejection panel actuating joints. (Fig. f-1)
5. Reinstall the bolt carrier group, chute panel, and ejection panel.

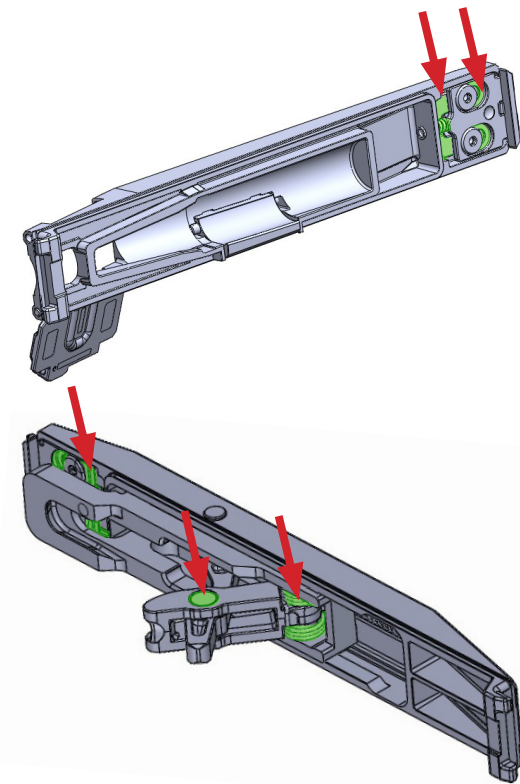


Fig. f-1

g) Storage

WARNING!
KEEP OUT OF REACH OF CHILDREN!

1. Ensure the rifle chamber is clear and the magazine is unloaded and the rifle is on "S" (Safe) position.
2. If possible, store rifle in a gun safe, with the butt of the stock resting on the ground and the muzzle pointed up.
3. If a safe is unavailable, store in a secure location, ensuring it is out of reach of children.

TROUBLESHOOTING

a) Failure to Fire

WARNING: If the rifle fails to fire with a live round in the chamber of a hot barrel (a misfire or jam), keep the rifle pointed in a safe direction, place the safety slide on the "S" (Safe) position, and wait 30+ seconds before trying to remove the round. If you cannot remove the round, remove the magazine and wait at least 15 minutes with the rifle pointed in safe direction, then proceed from the following troubleshooting procedures to safely determine the cause of the malfunction and return the rifle to a safe condition.

Malfunction	Remedial Action
1. Empty magazine.	Reload MDR with a loaded magazine.

Malfunction	Remedial Action
2. Empty chamber (loaded magazine).	Ensure magazine is fully inserted, charge the rifle. To ensure a round went into battery after charging, pull the Charging Handle back approximately 2" and observe the Chamber Check Window. Possible Causes: -Magazine improperly seated -Charging handle not pulled back far enough when charging MDR.
3. Defective cartridge.	Inspect primer. If fully indented, wait for 15 minutes then discard safely. If not fully indented, check firing mechanism.

b) Failure to Feed from Magazine

*Rifle jams with empty chamber

Malfunction	Remedial Action
4. Bolt not fully closed.	<p>Pull charging handle all the way to the rear and release.</p> <p>Possible Causes: -Dirty -Poor ammunition -Ammunition out of spec -Worn recoil spring</p>
5. Dirty firing mechanism, defective firing pin, or defective striker assembly.	<p>Check for sluggishness of operation. Clean. If problem persists, contact Desert Tech Warranty at 801.975.7272</p>
6. Barrel not properly seated.	<p>Make sure the barrel locking lug is in its locked position. (see pages 24, or 12-13)</p>

Malfunction	Remedial Action
1. Malfunctioning magazine.	<p>Disassemble and clean the magazine. If the malfunction persists, replace the magazine.</p>
2. Magazine improperly seated.	<p>Remove magazine and reinstall until magazine catch engages.</p>
3. Magazine improperly loaded.	<p>Check that the amount of cartridges in the magazine is compliant with magazine cartridge capacity, and cartridges seated to the back of the magazine.</p>
4. Dirty magazine.	<p>Disassemble magazine and clean.</p>
5. Damaged magazine.	<p>Replace magazine.</p>
6. Double feeding of cartridge.	<p>Inspect for stuck case or cartridge and check extractor and ejector, or check for broken magazine feed lips and replace if damaged.</p>

c) Failure to Chamber

*Bolt does not fully close and rifle will not fire

Malfunction	Remedial Action
1. Dirty chamber.	<p>Clean chamber.</p>
2. Defective ammunition.	<p>Check for damaged cartridges.</p>
3. Excessively dirty rifle.	<p>Check for sluggishness in bolt and firing mechanism. Clean and oil as necessary (see pages 41-47).</p>
4. Double feed.	<p>Remove the magazine, then cycle the bolt via the charging handle multiple times to ensure the malfunction has been cleared. Insert magazine, charge the rifle, and resume firing.</p>

Malfunction	Remedial Action
4. Double feed. (continued)	<p>If the problem persists, replace the magazine.</p> <p>If the double feed round is jammed between the bolt carrier group and the chute panel, removal of the chute panel may be required. Ensure the rifle is safe and pointed in a safe direction before removing the panel to clear the malfunction.</p> <p>Possible Causes: -Magazine improperly seated -Underpowered ammunition -Dirty chamber -Damaged/Worn magazine -Short stroke upon charging</p>

Malfunction	Remedial Action
5. Triple feed.	<p>Remove the magazine, then pull and lock the charging handle to the rear. Observe the chamber check window to confirm a the chamber is clear. Cycle the bolt multiple times to ensure all rounds have been cleared, then insert the magazine, charge the rifle, and resume firing.</p> <p>If a round or multiple rounds continue to get hung up in the receiver, remove the chute panel and clear the malfunction by hand.</p> <p>If it still persists, remove the ejection panel and try to further clear the malfunction by hand.</p>

Malfunction	Remedial Action
5. Triple feed. (continued)	<p>Once all feed malfunctions have been cleared, reinstall the chute and ejection panels, insert the magazine, charge the rifle, and resume firing.</p> <p>Possible Causes:</p> <ul style="list-style-type: none"> -Magazine improperly seated -Underpowered ammunition -Dirty chamber -Damaged/Worn magazine -Charging rifle after a double feed -Multiple short strokes upon attempted charging

d) Failure to Extract or Eject

*The fired case may not eject, or the rifle may jam (spent case left in chamber).

CAUTION: The following procedure should be carried out only after following the WARNING on page 49.

Malfunction	Remedial Action
1. Stuck cartridge. (chambered)	<p>Remove the magazine, then pull and lock the charging handle to the rear and release. If the stuck round is ejected, the malfunction is cleared, and you may insert the magazine, charge the rifle, and resume firing.</p> <p>If the malfunction persists, point the rifle in a safe direction and ensuring the rifle is on 'Safe', insert a cleaning rod or similar tool</p>

Malfunction	Remedial Action
1. Stuck cartridge. (continued)	<p>into the front of the barrel and try to tap the stuck cartridge out of the chamber.</p> <p>If the malfunction still persists, point the rifle in a safe direction, ensuring the rifle is on "Safe," and in a safe environment to address the malfunction, lock the charging handle to the rear, and remove the conversion kit. Be careful, as the barrel assembly may be hot. Bring the barrel assembly to a Desert Tech certified armorer for removal of the stuck cartridge.</p>

Malfunction	Remedial Action
2. Cartridge stuck between bolt carrier and chute panel.	<p>Remove the magazine, pull the charging handle to the rear and tilt the rifle upwards in a safe direction.</p> <p>If the stuck case tumbles out of the magazine well, reinsert the magazine, charge the rifle, and resume firing.</p> <p>If the case remains stuck, remove the chute panel and remove the stuck case by hand. Then reinstall the chute panel, magazine, charge, and resume firing. If the problem persists, leave the ejection panel off and resume firing. At your next convenience, clean the rifle and retry.</p>

Malfunction	Remedial Action
2. Cartridge stuck between bolt carrier and chute panel. (continued)	<p>If the problem still persists, it may be the ammunition is out of spec. If none of the above remedy the malfunction, contact Desert Tech Warranty to discuss the next step.</p>

Malfunction	Remedial Action
3. Cartridge stuck in ejection chute.	<p>Remove the magazine, then pull the charging handle to the rear and tilt the rifle upwards in a safe direction. If the stuck case tumbles out the magazine well, reinsert the magazine, charge the rifle, and resume firing.</p> <p>If the case remains stuck, remove the chute panel and remove the stuck case by hand. Then reinstall the chute panel, magazine, charge, and resume firing.</p> <p>If the problem persists, leave the ejection panel off and resume firing. At your next convenience, clean the rifle and retry.</p>

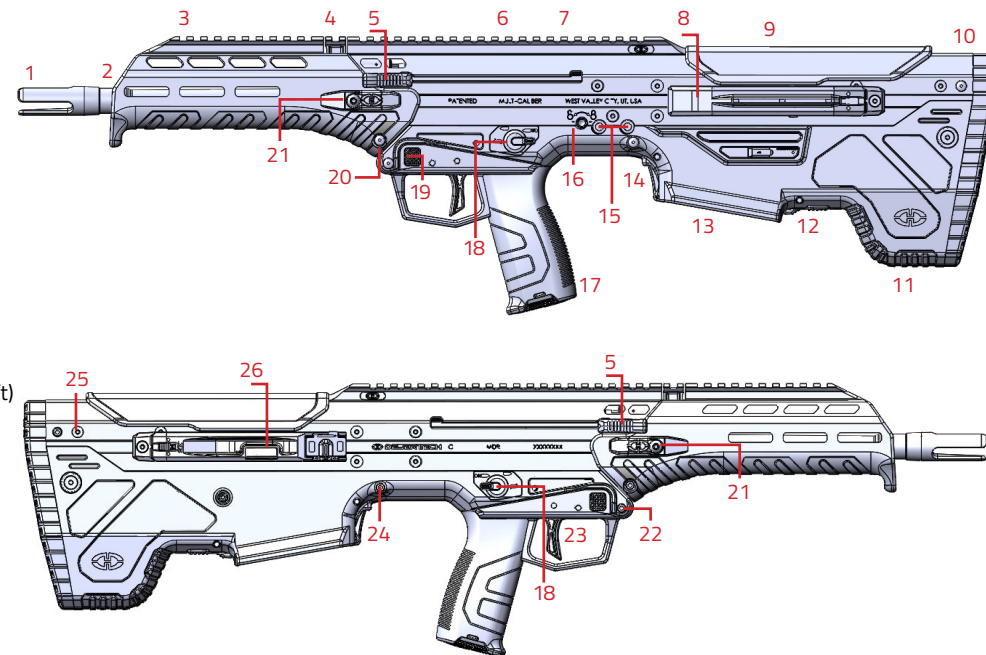
Malfunction	Remedial Action
3. Cartridge stuck in ejection chute. (continued)	<p>If the problem still persists, it may be the ammunition is out of spec. If none of the above remedy the malfunction, contact Desert Tech Warranty to discuss the next step.</p> <p>Possible Causes: Excessively dirty or gritty ejection chute.</p>
4. Dirty or damaged chamber.	<p>Check ammunition and change to a different brand of current commercially manufactured ammunition. Replace if necessary.</p>
5. Fouled extractor.	<p>Inspect, clean, replace extractor, if necessary.</p>

Malfunction	Remedial Action
6. Malfunctioning extractor.	Clean extractor (see pages 43-45). Verify proper extractor for installed conversion kit.
7. Improper gas block setting causing the bolt to short stroke.	Rotate gas block to the proper position for shooting conditions.
8. Worn extractor or extractor spring.	Replace extractor or extractor spring.

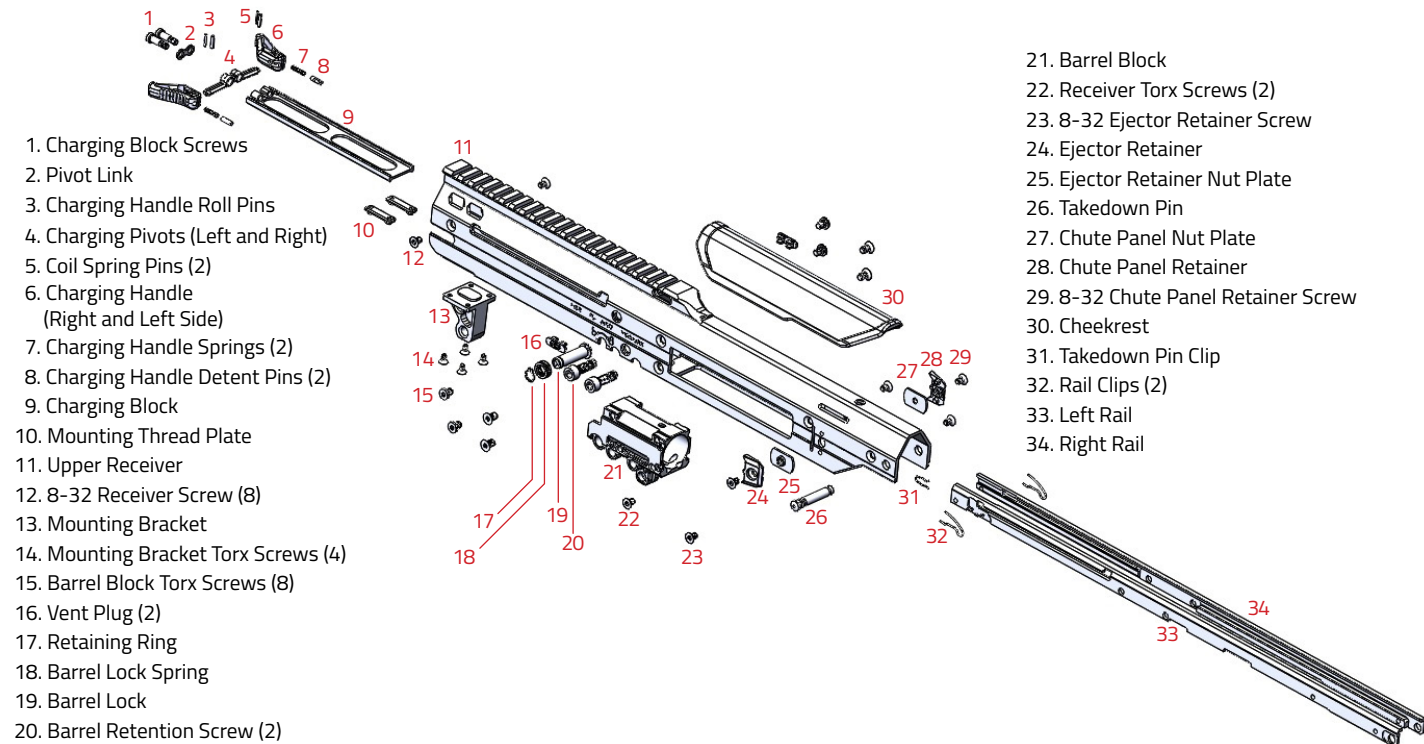
1. Flash Hider
2. Barrel
3. Handguard
4. Gas Block
5. Charging Handle (Right and Left Side)
6. Picatinny Rail
7. Upper Receiver
8. Ejection Panel
9. Cheekrest
10. Recoil Pad
11. Lower Receiver
12. Bolt Catch/Release
13. Magazine Well
14. Rear Magazine Release
15. Barrel Retention Screws (2)
16. Barrel Lock Screw
17. Pistol Grip
18. Safety Selector Switch (Right and Left)
19. Forward Magazine Release
20. Handguard Retention Pin
21. Handguard Screws (Right and Left Side)
22. Front Takedown Pin
23. Trigger
24. Middle Takedown Pin
25. Rear Takedown Pin
26. Chute Panel

PARTS EXPLODED VIEW

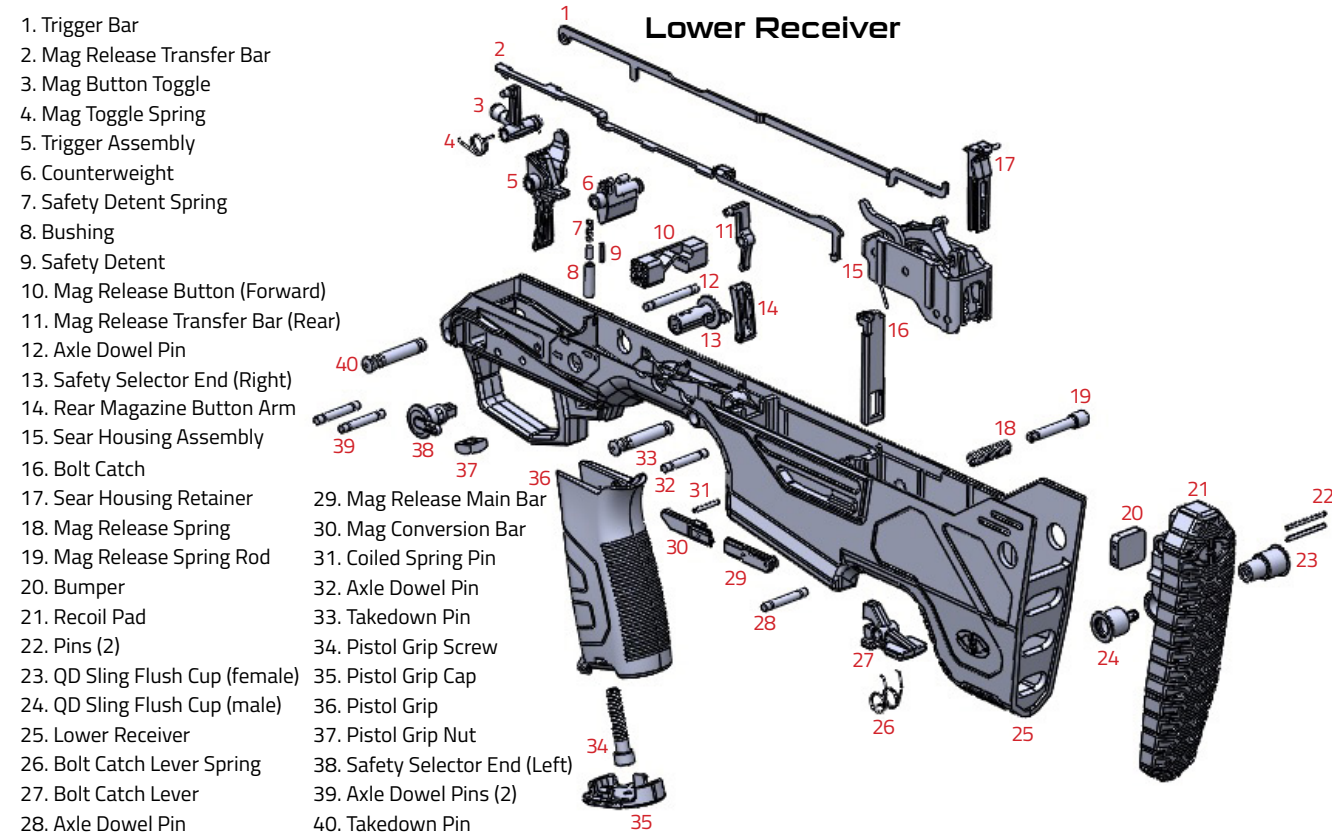
MDR Main Rifle Assembly



Upper Receiver

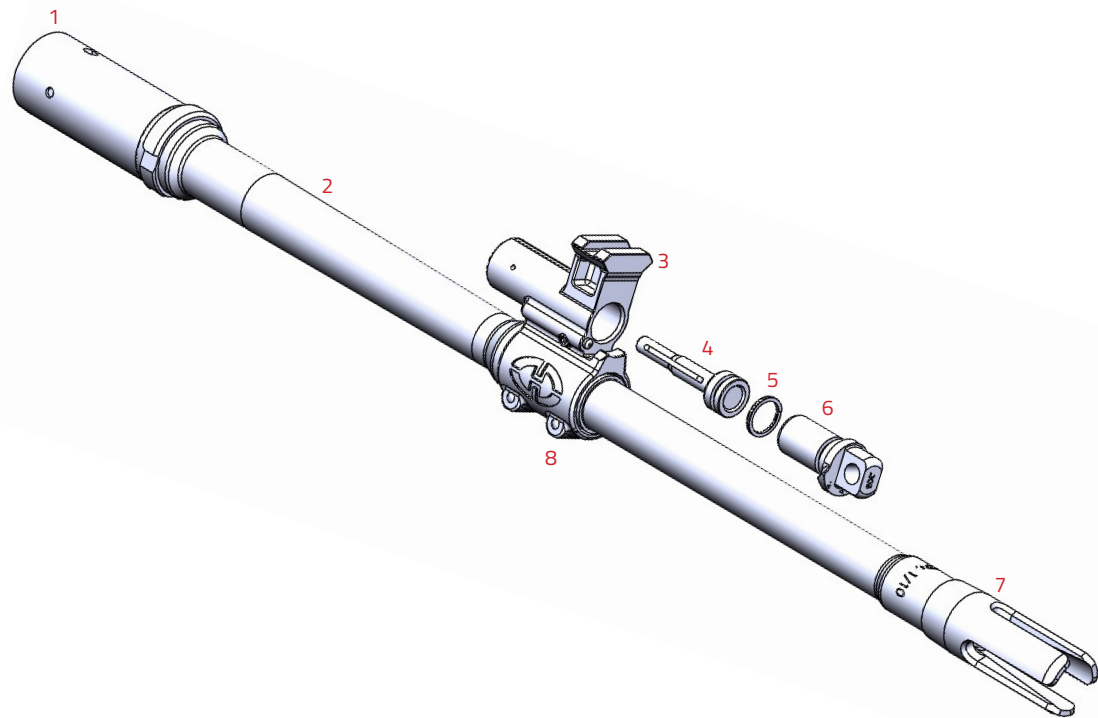


Lower Receiver



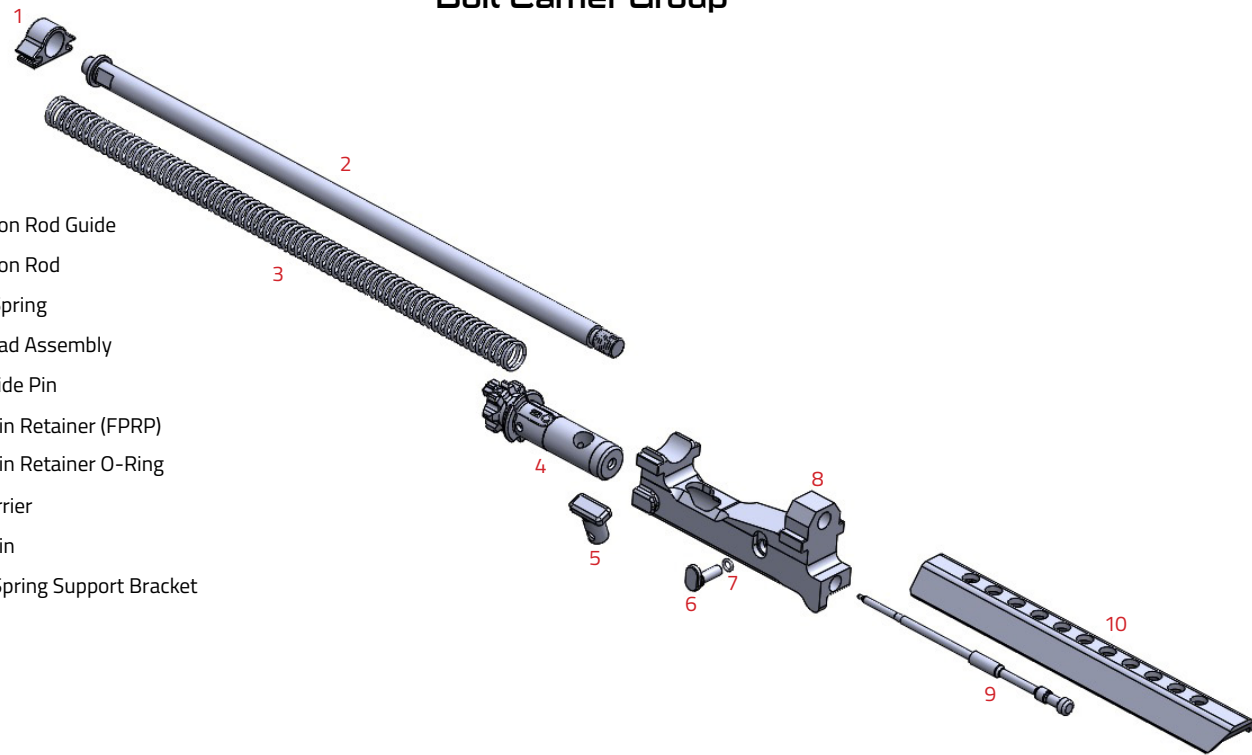
Barrel Assembly

1. Barrel Extension
2. Barrel
3. Gas Block
4. Gas Piston
5. Gas Piston Ring
6. Gas Valve
7. Flash Hider
8. Gas Block Taper Pin (2)



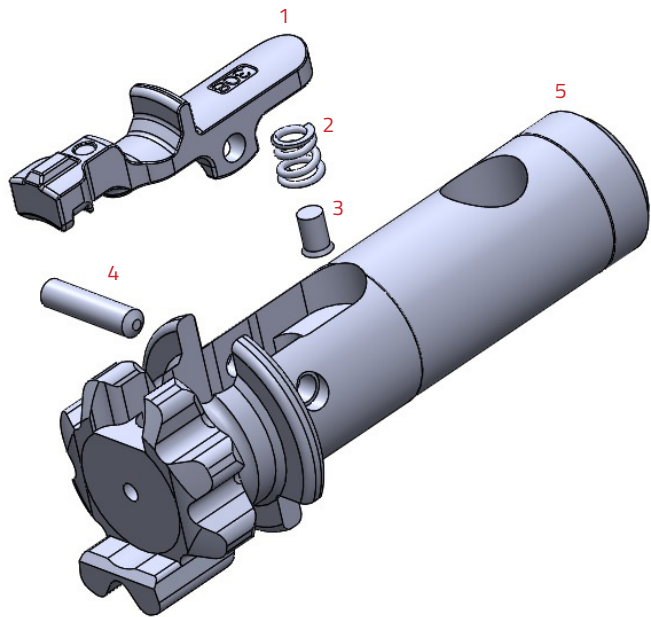
Bolt Carrier Group

1. Operation Rod Guide
2. Operation Rod
3. Recoil Spring
4. Bolt Head Assembly
5. Bolt Guide Pin
6. Firing Pin Retainer (FPRP)
7. Firing Pin Retainer O-Ring
8. Bolt Carrier
9. Firing Pin
10. Recoil Spring Support Bracket



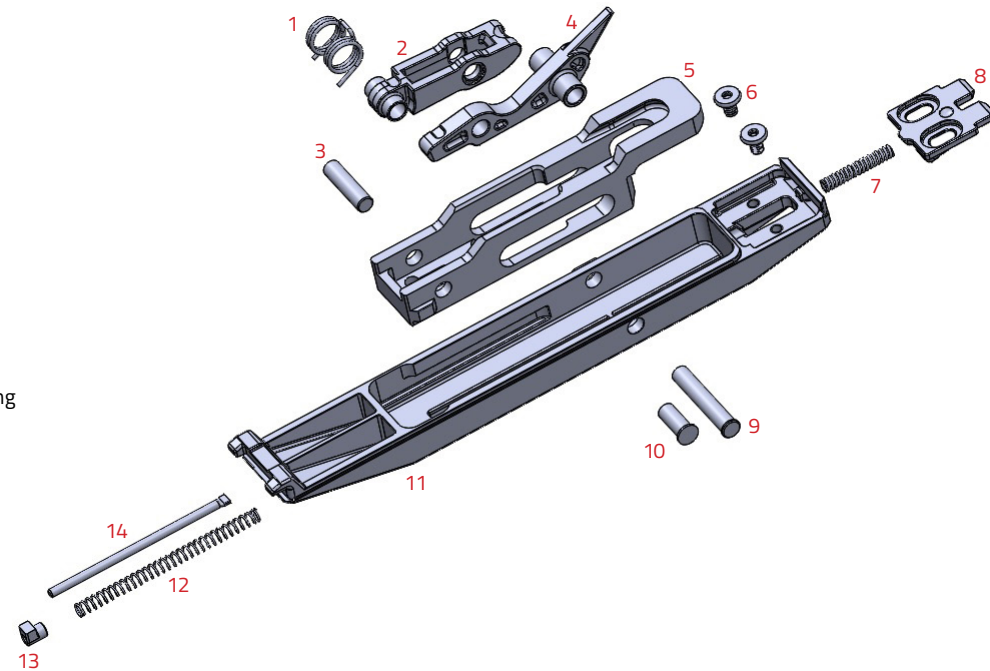
Bolt Head

1. Extractor
2. Extractor Spring
3. Extractor Buffer
4. Extractor Dowel Pin
5. Bolt Head



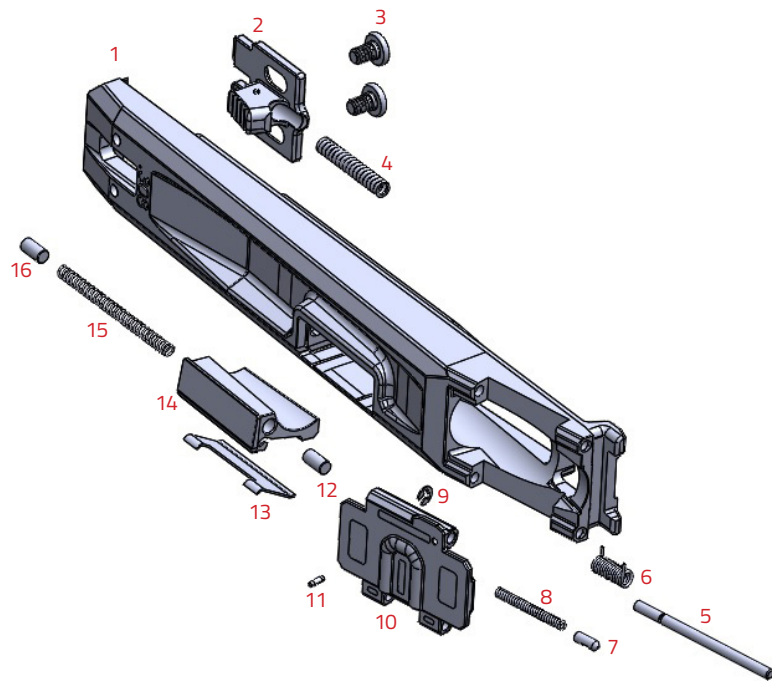
Ejection Panel

1. Ejector Action Spring
2. Extractor Link
3. Ejector Pin
4. Counter Link
5. Ejection Carriage
6. Retention Screws (2)
7. Ejector Release Spring
8. Ejector Panel Release Tab
9. Stationary Pin
10. Cross Link Pin
11. Ejector Panel
12. Ejector Carriage Return Spring
13. Ejector Spring Rod Guide
14. Ejector Spring Rod



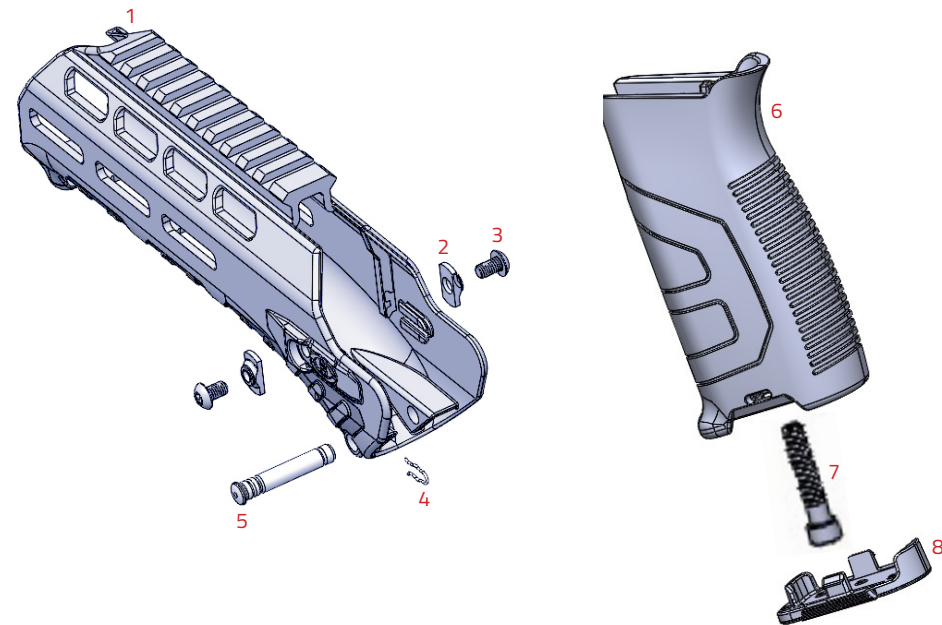
Chute Panel

1. Chute Panel
2. Chute Panel Release Tab
3. Retention Screws (2)
4. Chute Panel Release Spring
5. Dust Cover Pin
6. Dust Cover Spring
7. Dust Cover Detent Pin
8. Dust Cover Detent Spring
9. Dust Cover E-clip
10. Chute Dust Cover
11. Coiled Spring Pin
12. Chute Retention Pin (2)
13. Chute Clip Spring
14. Chute Clip
15. Chute Detent
16. Rear Chute Retention Pin



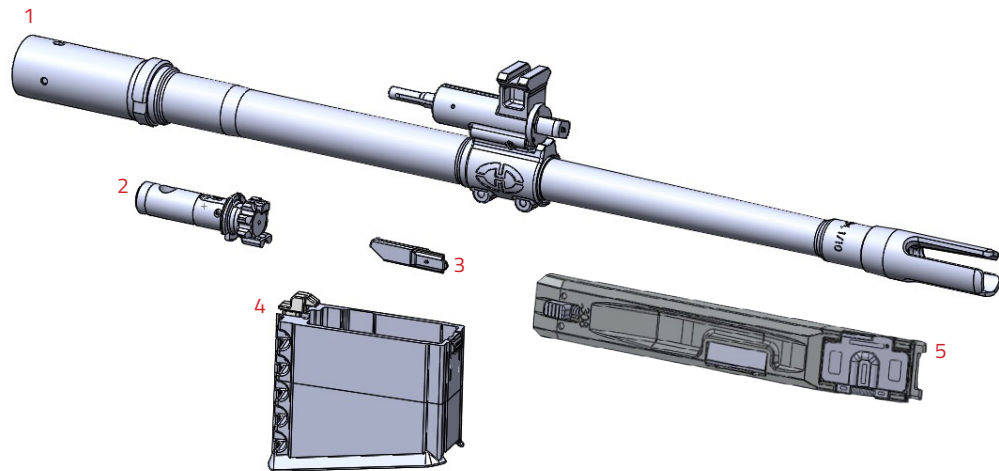
Handguard and Pistol Grip

1. Handguard
2. Handguard Nut (2)
3. Handguard Screws (2)
4. Takedown Pin Clip
5. Takedown Pin
6. Pistol Grip
7. Pistol Grip Screw
8. Pistol Grip Cap



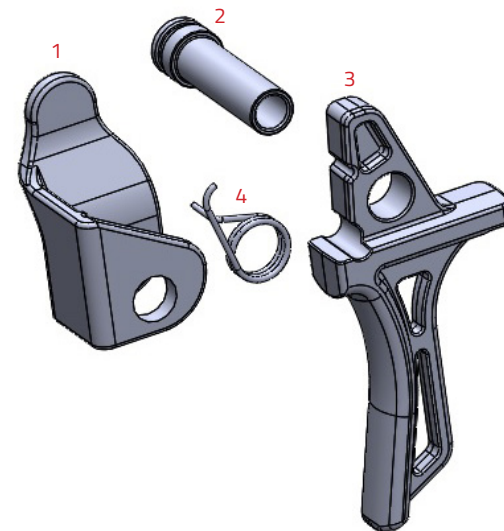
Conversion Kit

1. Barrel Assembly
2. Bolt Head
3. Magazine Conversion Bar
4. Magazine Insert
(For .223 and .300 BLK kits)
5. Chute Assembly



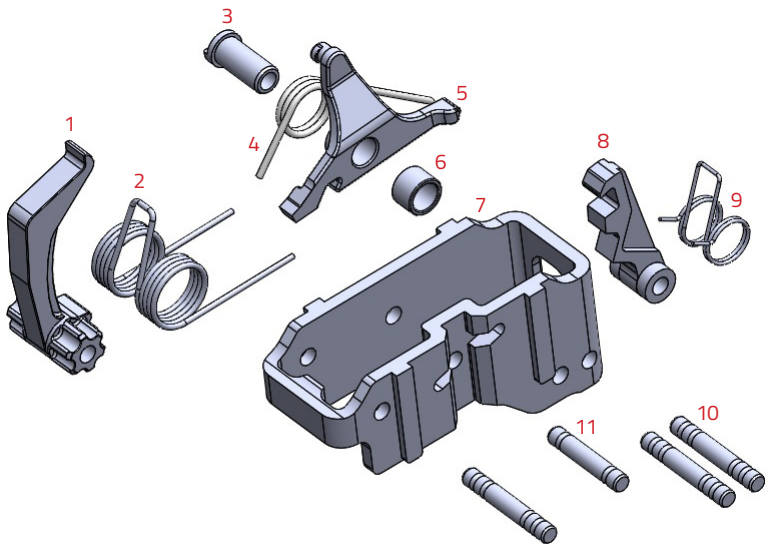
Trigger Group

1. Second Stage Lever
2. Trigger Axle
3. Trigger
4. Secondary Spring



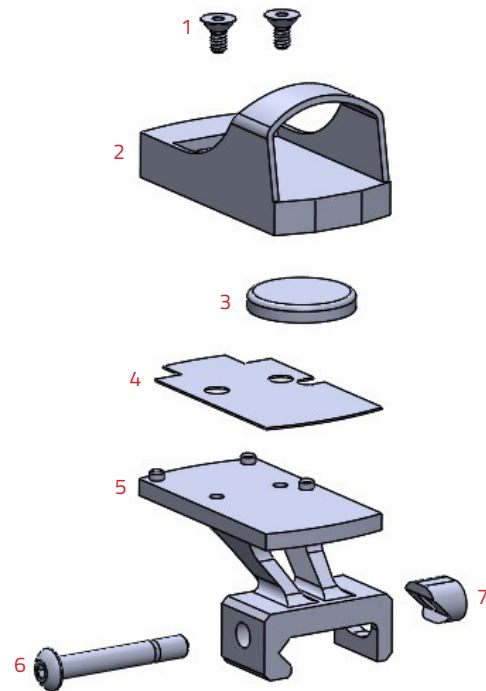
Sear Assembly Semi-Automatic

1. Hammer
2. Hammer Spring
3. Sear Axle Pin
4. Sear Spring
5. Sear
6. Sear Bushing
7. Sear Housing
8. Hammer Catch
9. Hammer Catch Spring
10. Sear Housing Pin (3)
11. Semi Auto Sear Housing Pin



Desert Tech Reflex Optic (DTRO) and DTRO Mount

1. DTRO Screws (2)
2. DTRO
3. Battery
4. DTRO Seal Plate
5. DTRO Mount
6. DTRO Rail Mount Screw
7. DTRO Rail Mount Nut



DESERT TECH WARRANTY POLICY

- Desert Tech warrants to the initial retail purchaser that for three (3) years from the date of purchase, your Desert Tech SRS A-1, SRS A-1 Covert, HTI, MDR, including the chassis, conversion kits, scope mounts, muzzle brakes and magazines will be free from manufacturing defects in workmanship and/or material.
- Desert Tech warrants to the initial retail purchaser that your Desert Tech Sound Suppressor will be free from defects in workmanship and/or material for a LIMITED LIFETIME.
- This warranty is null and void if the firearm has been misused, damaged (by accident or otherwise), fired with hand loaded, reloaded or improper ammunition, fired with an obstruction in the barrel, damaged through failure to provide reasonable and necessary maintenance as described in the manual accompanying the firearm, or if unauthorized repair or any alteration, including of a cosmetic nature, has been performed on the firearm. This limited warranty does not apply to normal wear and tear of any parts.
- Desert Tech is not responsible for any required BATFE taxes or fees.
- Warranty does not cover third-party products. Third-party product warranties must be pursued directly through the product manufacturer.

- Product registration must be completed online by the original owner within 30 days of the purchase date in order to make a claim under this warranty. In the event of an incomplete registration, the owner must provide proof of purchase in the form of a Dealer Invoice.
- Any NFA item (I.E. Suppressor, Short-Barreled Rifle or Machine Gun) to be returned must be accompanied by a copy of its corresponding Form 3, 4, 5, or 9. The Form must be packaged inside the box with the NFA item. If the proper form is not included, the product will be returned to sender.
- If a valid claim is made within the warranty period and is shipped to the Desert Tech service center, the product will be repaired or replaced (at our discretion) free of charge.

LIMITATION OF LIABILITY

The liability of Desert Tech LLC. for any and all losses and/or damage to the purchase shall in no event exceed the purchase price of the rifle. In no event shall Desert Tech LLC. be liable for incidental or consequential damage. User assumes all risks and liabilities arising from the use of this product.

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