

# USER MANUAL



## **HECATE II**



**12.7 x 99 NATO  
(.50 BMG)**

Version 2.6

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## 1. FOREWORD

PGM PRECISION thanks you for having chosen the model HECATE II calibre 12.7x99.

Highest care was taken for the development parts which constitute this weapon like to its assemblies.

This weapon has been tested by the Official Proof House for Firearms and Ammunitions of Saint-Etienne, then controlled and tested by us according to strict procedures. We hope that it will bring whole satisfaction to you.

☞ **Please read attentively and completely this manual before using your PGM HECATE II. Do not hesitate to read it regularly.**

The information provided in this handbook, the photos and the images are not contractual. PGM PRECISION reserves itself the right to change specifications without notice.

To obtain further information, please contact your retailer or directly PGM PRECISION.

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## 2. GENERAL REMARKS

- ☞ Please respect the national laws which regulate the detention, the carrying arms, the transport and the use of firearms.
- ☞ A rifle, as any weapon can be dangerous. PGM PRECISION and its retailers decline any responsibility for the consequences resulting in whole or partly from :
  - a criminal intent or through negligence,
  - a careless handling,
  - the use of defective, incorrect, damaged, unsafe ammunitions,
  - an inadequate care of the rifle,
  - a resale in contradiction to legislation.
- ☞ Please keep this manual preciously. If you sell your weapon, please transmit this handbook to its purchaser.

### 3. SAFETY INFORMATION

- ☞ The weapon must be handled by complying with the safety requirements in force.
- ☞ Do not use this weapon under influence of alcohol or drug.
- ☞ Always check at first that the chamber is fully empty. Always handle the gun as if it was loaded. Keep the safety engaged until just before firing.
- ☞ Always check the barrel before firing to make sure it is free from obstruction.
- ☞ Never point any firearm at yourself or at any living being.
- ☞ Always shoot in direction from the target. Assure you that nobody is behind. If people are close to you, ensure you they stay behind.
- ☞ Never let handle your rifle by a person who is not informed about the details of safety and its handling.
- ☞ Never leave the weapon without supervision.
- ☞ Wear shooting glasses to protect your eyes from flying particles.
- ☞ Wear ear protectors to guard you against such damage. Unprotected, repeated exposure to gunfire can cause hearing damages. Assure you that other persons wear those protectors up to 20 m around you.
- ☞ Never fire without muzzle brake or silencer. Recoil would be too much important.
- ☞ When firing with muzzle brake, avoid that anybody stands on the blasting zone. When shutting in pairs, spotter has to lie down on left or on the right of the shooter. Shoulders come up to hips shooter.
- ☞ Never use "accelerator" ammunitions with muzzle brake or sound suppressor.
- ☞ If you detect off sound or light recoil when a round is fired, do not load another round into the chamber. Fully unload the rifle.
- ☞ If your weapon fails to fire, keep the muzzle pointed in a safe direction. Hold this position for a minimum of 30 seconds. Then remove the

magazine. Carefully open the bolt in order to eject the round. The round should be disposed of in a way that it can't cause harm.

- ☞ Only use manufactured ammunitions of quality. The caliber is engraved on the bolt receiver.
- ☞ The use of reloaded or not standard ammunitions causes the immediate end of the guarantee. That can cause significant damage with the weapon and wound the user or other people.
- ☞ Only use ammunitions manufactured according to CIP norms.
- ☞ You can reload yourself your cartridges. Ensure however that you employ the load and the adapted type of powder and follow the recommendations of the handbook of recharging provided by the powder manufacturer or of the warheads you use.

## 4. STORAGE AND TRANSPORT

### 4.1 Storage

- ☞ Remove the bolt and be sure that the chamber is empty.
- ☞ Put the weapon in its case or in a carrying bag. Stock it in a strong cupboard.
- ☞ Ensure that none of these elements can be accessible by children or unauthorized people.
- ☞ Apply the laws in force concerning the storage of firearms.

### 4.2 Transport

- ☞ Always transport the weapon unloaded. Put it in a carrying case or in a soft bag. Ammunitions and bolt have to be separated from the weapon.
- ☞ Apply the laws in force concerning the transport of firearms.

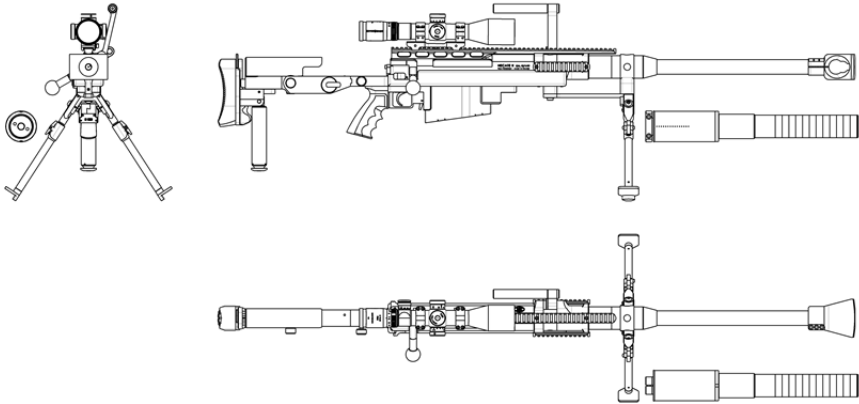
## 5. GENERAL DESCRIPTION

**HECATE II** calibre 12.7x99 is a high power sniper rifle system for the discriminating marksman. It's used for anti-material destruction, sniping and anti sniping.

This manually operated bolt action rifle is composed of 4 main elements :

- A rigid aircraft alloy frame with bipod,
- A steel receiver with trigger assembly and the bolt,
- A match grade fully floated barrel,
- A detachable buttstock.

## 5.1 Technical information



PGM HECATE II with long picatinny rail kit

- Heavy match grade fully-floated barrel screwed in the bolt receiver
- Reverse flow muzzle brake, reduces recoil by 50 %
- Detachable steel magazine, 7 rounds, dual row
- Aircraft grade alloy girder-chassis
- Tempered steel bolt receiver
- Black matt finish
- High-strength steel bolt with 3 forward located lugs
- Ultra fast travel firing pin
- Two-stage trigger, pull weight adjustable by gunsmith
- Trigger safety catch
- Rearward-folding bipod with adjustable tilting brake
- Sling fixing points (2)
- Ambidextrous pistol handgrip
- Removable adjustable-length buttstock
- Height adjustable cheek piece
- Adjustable butt spike
- Full interchangeability of pieces

Caliber	12.7 x 99 (.50 BMG)
Barrel length (mm)	700 mm
Number of grooves (mm)	8
Twist (")	15
Range (m)	→ 1800
Trigger pull weight (kg)	1.4 to 1.6
Length (buttstock min) (mm)	1386
Length (buttstock max) (mm)	1439
Length (removed buttstock) (mm)	1120
Width + bolt (mm)	166
Barrel axel / floor (mm)	285 / 375
Magazine capacity	7
Silencer length (mm)	470
Silencer weight (kg)	3.880
Weight (empty) (kg) <sup>(1)</sup>	15.3
Barrel weight (kg)	4.380
Magazine weight empty / full (kg)	0.590 / 1.440

*All specification subject to changes without notice*

<sup>(1)</sup> Complete weapon without scope – empty magazine

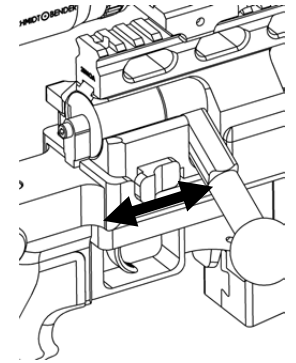
## 5.2 Accessories

- Maintenance kit including :
  - Extractor replacement kit
  - Ejector replacement kit
  - Firing pin replacement kit
  - Cleaning kit
  - Standard tool kit
  - Emergency extractor
- Silencer kit
- Sights
- Tactical sling
- Tactical dragbag / mat
- Carrying plastic hard case with custom foam
- Picatinny rail
- Side picatinny rails kit
- Long picatinny rail kit
- Scope mounts with 30 and 34 mm rings
- Gauges
- ...

## 6. USING THE RIFLE

### 6.1 Safety mechanism

- **Safety position:**  
 Safety is **ON**, when the safety lever is in its rearmost position.
- **Firing position:**  
 Safety is **OFF**, when the safety lever is pushed in its foremost position.



#### Caution :

- ☞ The safety lever can not be set at the safe position as the firing pin is released.
- ☞ Remove your finger from the trigger while you're handling the safety.
- ☞ The safety lever must not stay between the 2 positions.

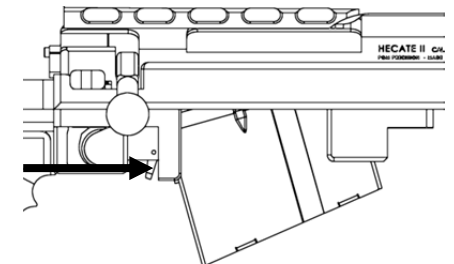
### 6.2 Magazine

#### 6.2.1 Loading

- Tilt the magazine (about 20 °).
- Position it in the receiver.
- Swivel it round up to the "click".

#### 6.2.2 Unloading

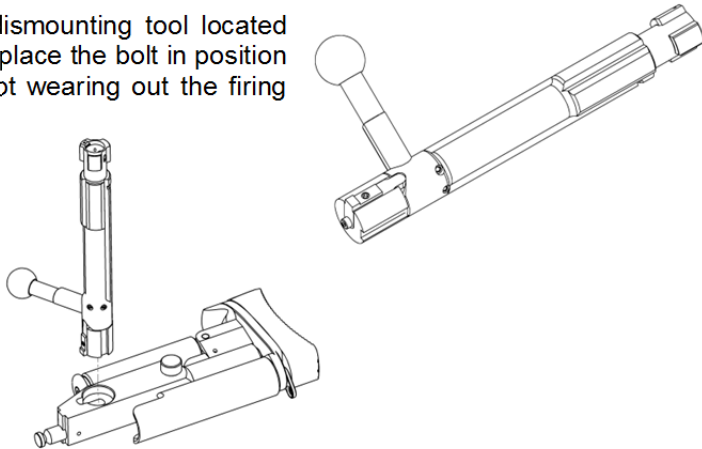
- Push the magazine catch and hold it in that position.



## 6.3 Bolt

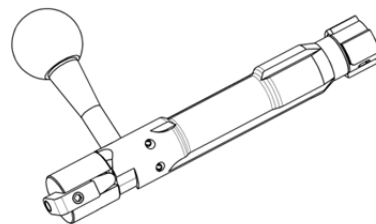
### 6.3.1 Storage position

Using the bolt dismounting tool located in the buttstock, place the bolt in position of storage for not wearing out the firing pin spring.

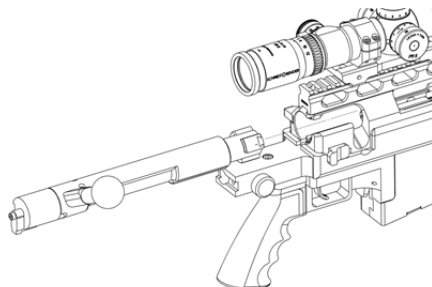


### 6.3.2 Bolt introduction

- ☞ Ensure that the rifle is completely empty.
- ☞ The firing pin extension must be in the insertion position. If the need arises, use the bolt dismounting tool.

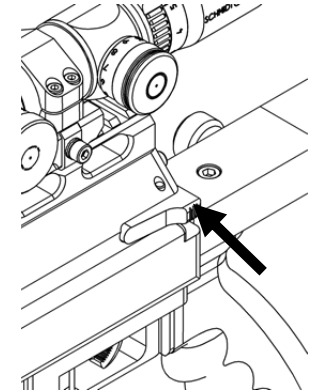


- Remove the cheek piece or remove the stock
- Remove the magazine.
- Introduce the bolt in the receiver.
- Close the bolt.
- Release the trigger.
- Open the bolt in rear position.



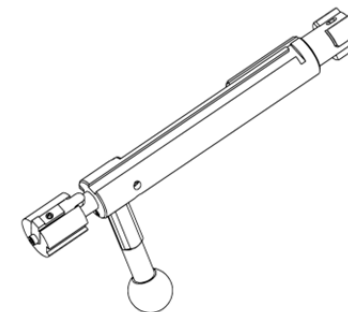
### 6.3.3 Bolt removal

- Remove the cheek piece or remove the stock.
- Push on the bolt catch and hold it in that position.
- Remove the bolt.



### 6.3.4 Assembling and disassembling the bolt

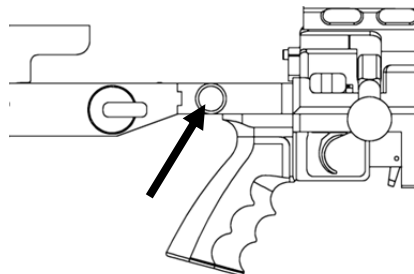
- **Disassembling :**  
Put the rear part of the bolt into the bolt dismounting tool. Hold the front part of the bolt and then turn it in the clockwise direction.
- **Assembling :**
  - Align the firing pin extension key with the groove of the bolt.
  - Push strongly the firing pin assembly using the bolt dismounting tool then turn  $\frac{1}{4}$  in the anticlockwise direction.



## 6.4 Buttstock

### 6.4.1 Fixing the buttstock

- Loosen the knurled screw.
- Introduce axle in the chassis until it stops.
- Tighten the knurled screw.

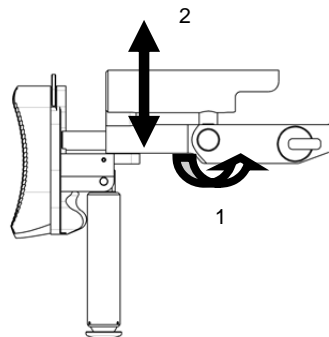


### 6.4.2 Buttstock settings

☞ Cheek piece, buttstock and butt spike are adjustable for maximum comfort and precision.

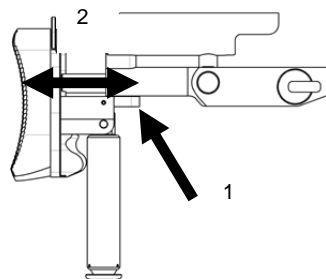
#### - Height adjustment :

- Loosen the knurled screw.
- Adjust the height as desired.
- Tighten the knurled screw.



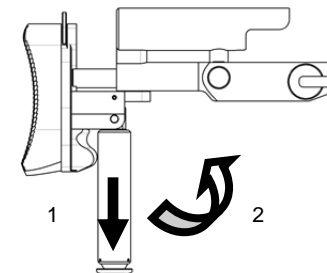
#### - Length adjustment :

- Using 5 mm hexagonal spanner, loosen the screw.
- Adjust the length as desired.
- Tighten the screw.



## 6.4.3 Butt spike

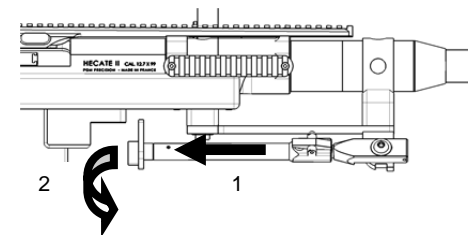
- Pull and rotate the butt spike.
- Drop it in the desired position.
- Screw or unscrew for adjusting the height as desired.



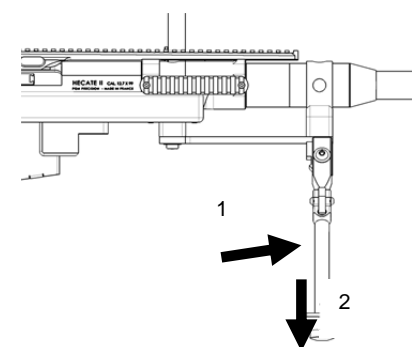
## 6.5 Bipod

### 6.5.1 Using and setting

- To unfold the bipod, pull its legs one by one and then pull them downwards.



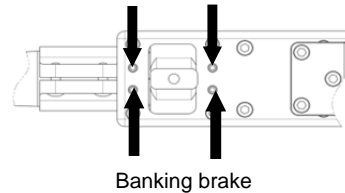
- Length of the legs can be changed by pressing the catch and by pulling down or pressing the leg as far as needed.





### 6.5.2 Banking brake adjustment

- **Increasing the brake :**  
 Using 3 mm hexagonal spanner, tighten gently the 4 screws.
- **Decreasing the brake :**  
 Using 3 mm hexagonal spanner, loosen gently the 4 screws.



### 6.6 Trigger

- ☞ The trigger is full adjustable by PGM PRECISION or a qualified gunsmith.

### 6.7 Barrel

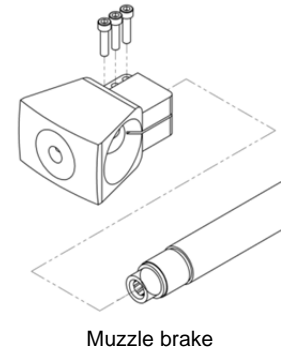
- ☞ Barrel can only be removed by PGM PRECISION or a qualified gunsmith.
- ☞ Using 34 mm torque spanner, tighten the barrel at torque of **11 daN.m +/-1**.

## 6.8 Muzzle brake and silencer

- ☞ For your security, firing without muzzle brake or silencer is prohibited.

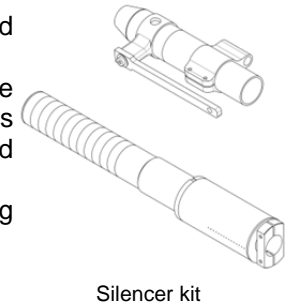
### 6.8.1 Installation of the muzzle brake

- Turn the muzzle brake clockwise by hand until it stops.
  - Screw it (maximum 1 turn) and make it level.
  - Using a 5 mm hexagonal spanner, tighten the 3 screws.
- ☞ Glue the screw with low strength locking.



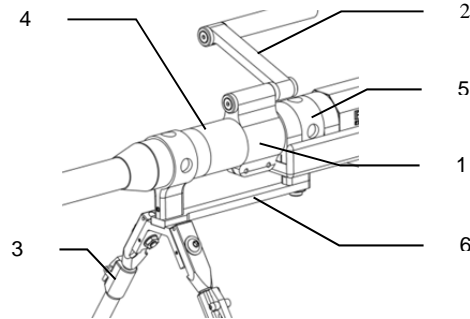
### 6.8.2 Silencer kit

- ☞ Silencer kit contents a silencer and a bipod extension.
- ☞ The silencer moves the centre of gravity of the weapon because of its weight. The weapon is also unbalanced. We advise you to use the bipod extension to balance the weapon.
- ☞ When used, the bipod extension allows firing either with muzzle brake, either with silencer.



### 6.8.3 Mounting the bipod extension

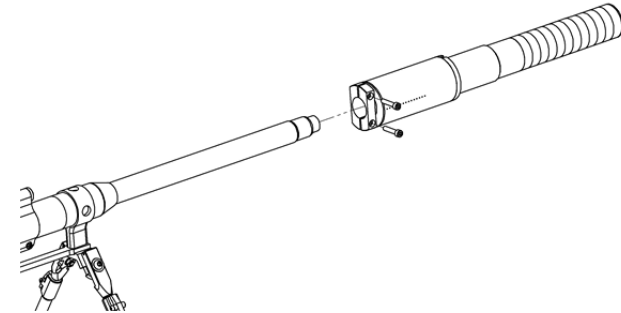
- Remove the magazine, the bolt, the buttstock and the scope.
  - Using a 5 mm hexagonal spanner, loosen the 3 screws and remove the muzzle brake.
  - Using a 5 mm hexagonal spanner, loosening the 2 screws and remove the carrying handle assembly (1+2).
  - Using a 4 mm hexagonal spanner, remove the handle.
  - Using a 5 mm hexagonal spanner, remove the bipod (3).
  - Slip the extension bipod (4) until it stops against the pivot (5).
  - Position the spacer (6) between the 2 pivots and tighten the screw of the rearmost.
  - Position the bipod on the foremost pivot and tighten the screw.
  - Mount the carrying handle.
  - Mount the silencer or the muzzle brake and adjust it with a water level.
- ☞ All screws are glued with low strength locking.



Mounting the bipod extension

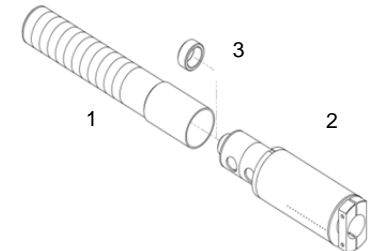
### 6.8.4 Mounting the silencer

- Remove the muzzle brake.
- Screw the silencer on the barrel until it stops.
- Using a 5 mm hexagonal spanner, tighten the 2 screws.



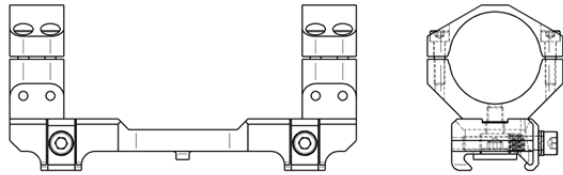
### 6.8.5 Using the silencer

- ☞ Silencer reduces sound by 25 dB in comparison with muzzle brake.
  - ☞ Silencer part (1) can not be dismantled.
  - ☞ Silencer assembly can be used without silencer part. Part (2) is the muzzle brake.
- Unscrew the silencer part (1).
  - Screw the knurled nut to protect the thread.



### 6.9 Scope mount for picatinny rail

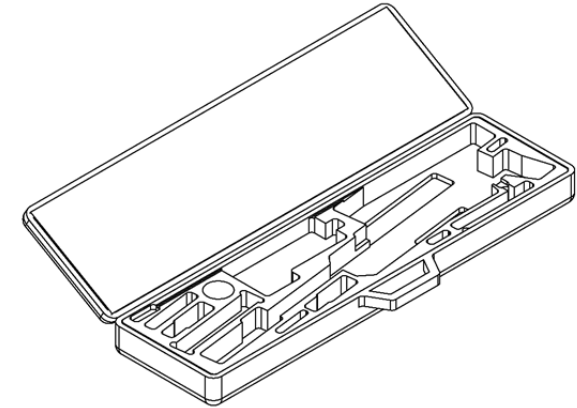
- ☞ Ensure the 2 jaws are free and right oriented (catch downwards).
- Put the mount at the desired position and push it against a sleeper.
- Using a 4 mm hexagonal spanner, tighten the 2 screws at torque of **6 N.m.**



#### 6.9.1 Scope rings

- Tighten and glue the 8 screws at torque of **4 N.m.**

### 6.10 Transport hard case



The transport case contains the following items :

- a rifle with a scope and a magazine with dismantled buttstock
- a bolt
- 2 spare magazine
- cleaning rod
- silencer
- Other accessories



Pelican Case 1750

## 7. MAINTENANCE

- ☞ Remove the bolt and ensure that the rifle is fully unloaded.

### 7.1 Breaking in a new barrel

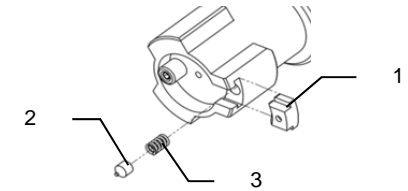
- ☞ To obtain an optimal precision, we advise you to break in a new barrel. It's not absolutely required but highly recommended.
  - ☞ Let cool the barrel after each series.
  - ☞ Use oil for weapons when you brush the barrel.
- Clean the barrel with a cleaning wick.
  - Fire a first round and clean the barrel with a bronze bore brush and then with a cleaning wick.
  - Repeat the previous step at least 10 times.
  - Fire 10 series of 3 rounds and after each series, clean the barrel with a bronze brush and then with a cleaning wick.
  - Finally, fire 10 series of 5 rounds and after each series, clean the barrel with a bronze brush and then with a cleaning wick.

### 7.2 Dismounting the weapon

- ☞ The full dismounting of the weapon must only be realised by a qualified gunsmith or by PGM PRECISION.
- ☞ Before dismounting :
  - Unload the weapon.
  - Remove the magazine and the bolt.
  - Remove the scope.

### 7.2.1 Extractor replacement

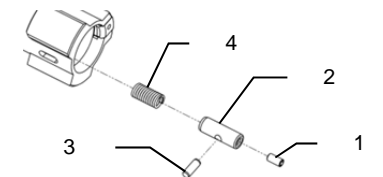
- Using a 1.5 mm drift punch through the central hole of the extractor (1), push the plunger (2) just enough inwards so that it no longer holds the extractor in position.
- Take the plunger and the spring (3) out of their housing in the bolt.
- To reassemble, follow the above steps in reverse order.
- Lubricate them before installation.
- Ensure that the plunger correct engages the central hole of the extractor,
- Operate the extractor and lubricate.
- Using the extractor gauge, check the extractor protrusion.



Dismounting the extractor

### 7.2.2 Ejector replacement

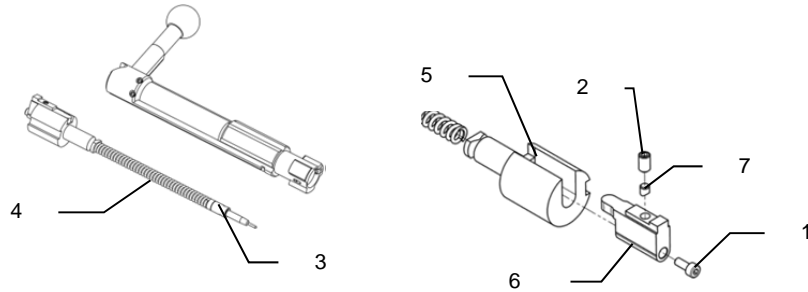
- Using a 1.5 mm hexagonal spanner, loosen the screw (1).
- Push the ejector (2). Using a pair of pliers, withdraw the cylindrical pin (3) which secures the ejector.
- Take the ejector and its spring (4) out of the bolt.
- Clean and lubricate the hole.
- To reassemble, follow the above steps in reverse order.
- Lubricate and operate the ejector.



Dismounting the ejector

- ☞ Position the flat of the pin towards the screw.
- ☞ After its reinstallation, the cylindrical pin should slightly protrude from the ejector and not at all from the bolt.
- ☞ Glue the screw with low strength locking.

### 7.2.3 Firing pin replacement



Dismounting the firing pin

- Remove the firing pin assembly from the bolt by turning the bolt dismounting tool about ¼ turn clockwise until it gets free of its locking cam.
- Using the 3 mm hexagonal spanner, loosen the screw (1) and then the screw (2).
- Remove the firing pin (3) and its spring (4).
- Put the new firing pin and the new spring into the bolt.
- Position the firing pin extension (5) in the bolt so that the firing pin extension key (6) is aligned with the groove of the bolt.
- Position the key so that there is full contact between the rounded part of the key and the bottom of the notch in the body of the bolt.
- Position part (7) and tighten the screw.
- Lubricate and operate.
- Using the firing pin gauge, check the firing pin protrusion.

Assembling the bolt

- ☞ Glue the screw with low strength locking.

### 7.3 Cleaning and lubrication

- ☞ The respect of the indications hereafter will enhance the longevity and the performance of your rifle.
- ☞ Use the better oil which cleans, protect and lubricate your rifle.
- ☞ Please note that your weapon needs a regular maintenance and address you to a qualified armourer or directly to PGM PRECISION.

#### 7.3.1 Cleaning and lubrication before firing

- Clean the barrel with a cleaning wick.
- Ensure that the barrel is perfectly dry.
- Lubricate the bolt, the ejector and the extractor.

#### 7.3.2 Cleaning and lubrication after firing

- Start cleaning by complete strokes with the bronze bore brush soaked in oil.
- Wipe it with a cleaning wick until the last remains clean.
- Lubricate the barrel with a soaked cleaning wick.
- Clean the interior of the bolt.
- Lubricate the bolt.
- With a rag soaked in oil, wipe the exterior of the weapon and the moving parts.
- Lubricate the legs of the bipod.
- Dismantle the magazine and wipe it with a rag soaked in oil.
- Completely loosen the butt spike. Wipe and lubricate it.
- Store the weapon in a dry and temperate room.



- **Caution :**

- ☞ Always clean the barrel from the bore to the muzzle.
- ☞ Use a bore guide.
- ☞ Never use a steel brush or abrasive materials.
- ☞ Only use spare parts coming from PGM PRECISION.

- **At least once a year :**

Your weapon has to be controlled by a qualified gunsmith or directly by PGM PRECISION.

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